Communications Regulatory Authority State of Qatar

هيئة تنظيم الاتصالات دولة قطر

Response to Public Consultation – Framework for Infrastructure Development and Sharing

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1. Introduction

The objective of this initiative is to assess the current situation of telecommunications infrastructure sharing in Qatar, identify gaps or obstacles in the modernisation of the infrastructure sharing regime, and issue any required regulations to reduce development costs and facilitate access to existing facilities through infrastructure sharing in the country.

This document constitutes the Consultation Response Document, corresponding to Public Consultation on Infrastructure Development and sharing. Its objective is to propose responses to all the comments received from the stakeholders, together with our recommendations and indication of any points to be amended in any of the documents In-Building Telecommunication Infrastructure Standard and Regulation for the Construction, Installation and Sharing of Radio Communications Sites.

In this regard, and for the ease of identification, note that the proposed amendments to the regulatory documents have been indicated in this document underlined whereas the replaced text is indicated in ~~strikethrough~~. Finally, Annex A and Annex B contain a compilation of all proposed amendments.

2. Assessment of stakeholders' responses to the Public Consultation

The assessment of the responses to the Consultation Document is structured as follows:

- In-Building Telecommunications Infrastructure Standard, which is divided into:
  - General comments
  - Questions - In-Building Telecommunications Infrastructure Standard
  - Additional Comments
- Regulation for the Construction, Installation and Sharing of Radio Communications Sites, which is divided into:
  - General comments
  - Questions - Regulation for the Construction, Installation and Sharing of Radio Communications Sites
  - Additional Comments
- General comments for both documents

2.1. In-Building Telecommunications Infrastructure Standard

2.1.1. General comments

The following table includes all general comments provided by the stakeholders to the public consultation

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	The comments provided are applicable only to the new buildings. For existing buildings, further discussions and assessments shall be required.	The CRA notes that the 'In-Building Telecommunications Infrastructure Standard' covers both new and existing buildings. In fact, differentiated clauses had been drafted, whenever applicable, for existing or new buildings. Two examples of this differentiated treatment for new or existing buildings may be found in sections '6.2.2. Existing and New Buildings Internal Wiring' or '7.2.3. Existing and New Buildings IBS'. Thus, stakeholders were expected to provide comments applicable to any clause, aspect, concept, etc. defined in the document during the consultation process.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	Active DAS and Passive DAS elements shall be defined from 4G and 5G perspective for a better understanding of these, including the criteria to deploy a specific technology. On the other hand, who will be responsible for upgrading the setup from 4G to 5G or to future technology advancements?	Based on the comments received, the CRA has updated Section 7.8 Technical Specifications, including technical differences between 4G and 5G components. Please refer to A.4 for the amendments included in the Standard to this respect. On the other hand, the criteria to deploy a specific technology depend on a series of aspects that cannot be predefined in this Standard. Instead, it is expected that, during the design review process, both REDs and SPs discuss the best possible solution, including the technology to be deployed and the underlying reasons. Finally, the CRA notes that the responsibility to upgrade the setup from 4G to 5G or to other future technologies is already defined in the document: ▶ For new buildings: Section 7.2.2 specifies that the Real Estate Developers are responsible for any upgrades and maintenance of all passive elements of IBS (defined under Section 7.3), while the Service Providers are responsible for the installation, maintenance and upgrade of all active elements. ▶ For existing buildings with IBS deployed: Section 7.2.3 specifies that the responsibility for any upgrades and maintenance of the system should remain unchanged. This means that, if any SP has already deployed the IBS, that same SP shall be responsible for maintaining and upgrading it. A similar approach must be followed in cases where the RED has deployed the system.

Stakeholder	Key Comments Received	CRA Response
Vodafone	There are some buildings which still have copper infrastructure deployed inside the building and one fibre strand for another service provider. This results in space constraints when deploying fibre because of the copper which is not being used at all by the building owner and/or the other SP. It is not clear why the copper is not being decommissioned to allow more fibre strands to be deployed in buildings in line with the In-Building Standards. Vodafone Qatar therefore submits that the Standard should include an obligation on all owners of copper infrastructure in buildings to decommission the copper and install fibre.	The CRA acknowledges Vodafone's comment and agrees that the presence of non-utilized copper cables within buildings may hinder service providers from deploying fiber cables due to congestion issues. To this respect, the CRA is of the view that the owner of the copper cables shall be responsible for its decommissioning. Additionally, an SLA of 3 weeks since the notification is accordingly set. Thus, the CRA has included the following text in Section 6.2.2 Existing Building Internal Wiring: *"For existing buildings (…)* *In existing buildings where unused copper cables obstruct the deployment of fiber cables by a new entrant Service Provider, the owner of the copper cables must decommission these cables within three (3) weeks of receiving notification from the new entrant. Decommissioning should be limited to the affected building sections. Nonetheless, the parties involved may negotiate alternative terms and conditions other than the ones outlined herein. If, for technical reasons, the decommissioning of the copper cables is assumed to be unfeasible, the responsible party must provide duly justified reasons and evidence to the new entrant Service Provider. In that case, both parties shall work jointly on the identification of alternative solutions.* *(…)"*

Stakeholder	Key Comments Received	CRA Response
Ooredoo	The alternating use of “By-law” and “Bylaw.” Both words (By-law and Bylaw) are used in the document interchangeably. While both "by-law" and "bylaw" are correct; however, their usage depends on the choice of language: ▶ By-law (with hyphen): is more commonly used in British English. ▶ Bylaw (without hyphen): is more commonly used in American English. It is recommended to use one form across the whole document.	The CRA thanks Ooredoo’s comment and agrees that only one term shall be used in the regulation. Therefore, the term “Bylaw” will be used across the text.
Ooredoo	The technical requirements have been further detailed and refined to clearly define the requirements during each step of the process. *[As part of this response, Ooredoo has provided a set of updated IBS Technical requirements]*	The CRA appreciates the effort carried out by Vodafone and Ooredoo to prepare an updated version of the design guidelines for IBS. However, it is important to note that the updated document was not included in the consultation as the operators did not meet the deadlines set for the submission of the documentation.

Stakeholder	Key Comments Received	CRA Response
Vodafone	Vodafone Qatar shared the updated technical document related to In-Building Solution ("IBS") with the CRA prior to the consultation being issued. This document forms an integral part of our submission. It is a critical part of our submission as it provides all the technical updates required to make the IBS provisions in the Standard relevant and future proof by including all the 5G requirements. Ideally, it should have been incorporated by the CRA prior to issuing this consultation. We urge the CRA to incorporate the technical requirements mentioned, which Vodafone Qatar and Ooredoo have collaboratively worked to improve the In-Building Telecommunications Infrastructure Standard ("In-Building Standard").	After a careful review, the CRA observes that the new technical requirements submitted by Ooredoo and Vodafone can be grouped as follows: ▶ Inclusion of 5G IBS technical aspects ▶ Inclusion of technical specifications of telecom rooms ▶ Design and construction review processes, together with their associated SLAs (discussed in a specific question below) ▶ Definition of approved list of vendors Nevertheless, the CRA has identified that certain aspects suggested by Service Providers are considerably restrictive (i.e., depending on the particular case, other solutions could be more appropriate) and/or potentially subject to modifications in the near future. The Standard's aim is not to provide complete design guidelines, but to provide a set of minimum requirements for the deployment of IBW and IBS (facilitating the coordination between involved parties) as well as to set the responsibilities of each party. In addition to the above, this Standard must be future proof, which implies that including aspects that may subject to change in the short term is not deemed appropriate. Examples of these aspects can be found primarily in Sections: "Coverage Planning Guidelines", "Capacity Planning Guidelines", and "Passive DAS component list" of the new technical requirements document submitted by SPs. Other examples of restrictive aspects are the definition of specific scenarios (SISO vs. MIMO), band coverage criteria, number of core single mode fibers and other requirements, which are not expected to be part of this Standard but to be decided during the design phases. Despite this, the CRA also observes that there are other aspects suggested by the SPs which provide additional detail, therefore contributing to the efficient deployment of the required In-Building systems. The Annex A.4 of this document includes those amendments which have been considered opportune by the CRA to be included in the Standard, based on the SPs' proposed modifications. For the avoidance of doubt, those aspects not reflected in Annex A.4 correspond to discarded clauses for the reasons explained in previous paragraphs.

Table 2.1: General comments on In-Building Telecommunications Infrastructure Standard

2.1.2. Questions - In-Building Telecommunications Infrastructure Standard

Question 1

Section 5.2.2 outlines the mandatory deployment of Rooftop Telecommunications Rooms (RTRs) for all Multi-Dwelling Units (MDUs). This requirement is based on international practice, particularly in GCC countries. Do you agree with this clause? If you disagree, please provide your views along with international references and proposals.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	This is only possible for new projects where these references can be included in the design phase and shall not be applicable for existing buildings. The CRA shall ensure all particulars of RTRs are provided.	The Standard is expected to apply to both new and existing buildings. However, as indicated in Section 6.2.2 of the Standard, existing facilities/installations prior to the issuance of this Standard may have inherent constraints making it impractical to deploy in or upgrade them. It is assumed that, in such cases, no deployment or upgrades will be carried out.
Msheireb Properties	These comments and recommendations are only applicable for the new building projects. For the existing buildings, further discussions and comprehensive assessments will be required before any updates or changes can be implemented.	
Qatari Diar	The CRA is advised that there will be a lease charge for space and power utilization in these buildings.	According to the PCI Access Regulation and the SAO agreement between the SPs and the REDs, colocation and power consumption are services provided and charged for by the REDs to the SPs. Therefore, while no amendment to the Standard is required, the CRA clarifies that it remains available to monitor or solve any potential dispute between the parties regarding the definition of tariffs. The CRA also outlines that, as per the PCI Access Regulation, these tariffs shall be cost based.

Stakeholder	Key Comments Received	CRA Response
MATAR (HIA)	Currently no rooftop rooms are being provided at HIA; Not recommended to have these rooms installed on rooftops, considering Airport's site specifics/logistics/accessibility challenges especially for Airside-landside boundaries, MEP/Cooling impacts, and the like. It might be accepted as ''Optional' as per discretion of HIA	The CRA clarifies that airports are not considered Multi-Dwelling Units (MDUs) but Bulk Services. Despite this, and for the avoidance of doubt, the CRA has amended the text in section 5.2.2 (Rooftop Telecommunications Room) as follows: *"Rooftop Telecommunications Rooms must be provided on the roof of all multi-dwelling buildings. The list of MDUs is provided in Section 5.3. Note that the deployment of Rooftop Telecommunications Rooms in bulk service buildings is subject to review at the design stage."*
Vodafone	Vodafone Qatar agrees with this clause.	The CRA acknowledges the operator's comment.
Ooredoo	We agree with this clause in the regulation.	The CRA acknowledges the operator's comment.

Table 2.2: In-Building Telecommunications Infrastructure Standard – Question 1 comments

Question 2

As depicted on Section 5.2.2, the deployment of IBS may require the construction of Mobile Service Telecommunications Rooms (MSTRs). This is necessary when the capacity of shared Telecommunications Rooms is insufficient for the deployment of IBS equipment. Do you agree with the inclusion of MSTRs in the Standard? Should it always be necessary to deploy MSTRs or is it optional when IBS deployment is required in a specific building (refer to Section 5.4)? Could it be an option to merge the MSTR with the Main Telecommunications Room and/or Floor Aggregation Points? If so, what would be the technical specifications of such a room? Please share your thoughts with specific references and proposals

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	It is highly recommended to merge the MSTRs with the Main Telecom Room to ensure minimum space is lost for technical rooms and leasable space is maximized. As part of the design review process by SP's and CRA, it is for the Telecom Service Providers to specify their technical requirements such as space, power, cooling etc., to ensure all requirements are captured at project inception stage. Telecom Service Providers shall be responsible for all running costs associated with MSTRs.	Based on the feedback received, the CRA agrees to merge the MSTR with the Main Telecom Room. However, if it is determined during the design phase that more space is required (for example, to accommodate an IBS system), secondary telecom rooms may be used. Amendments introduced under Section 2.1, 2.2 and 5.2.2: MSTR term removed Amendments introduced under Table 6.6: - "*Building of RTTR ~~and MSTR~~ and related EM and civil requirements** - *Fiber optic cables supply, pulling, termination, testing and maintenance from the MTR/HDB to i) The FAP; ii) each Secondary Telecommunications Room ~~MSTR~~, and iii) RTTR"* The CRA also has introduced the updated Technical Specifications for Telecom Rooms, which include the methodology for calculating the required size of such a room based on various aspects such as the number of racks required.
Msheireb Properties	It is recommended to merge the satellite rooms (MSTRs) into the main room to minimize technical space and maximize leasable space. During the design review, service providers and regulators must specify their technical requirements like space, power, and cooling to ensure all needs are addressed upfront. Service providers shall be responsible for all running costs of the MSTRs.	

Stakeholder	Key Comments Received	CRA Response
MATAR (HIA)	It is not necessary to deploy MSTRs in HIA in all cases. It is preferred for HIA to merge the MSTRs in the existing HIA facilities, where possible, and options can be discussed with the Stakeholders during design stages to ensure future proofing in terms of rooms' spaces for any possible future expansions.	Please refer to A.5 for the detail on the amendments included in the Standard.
Vodafone	It is not clear to Vodafone Qatar what the MSTR is, as it has the same function as the MTR.	
Ooredoo	We agree to merge the MSTR with the Main Telecommunications Room and/or Floor Aggregation Points.	

Table 2.3: In-Building Telecommunications Infrastructure Standard – Question 2 comments

Question 3

Do you agree with the building aggrupation outlined in Section 5.3? Do you think the buildings should be grouped differently? Please provide your views, along with any references and proposals.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	CRA to specify which category would cover the following critical facilities: 1. Public and Private underground Car Parks 2. Utility Buildings (such as Pump Stations) 3. Road Tunnels 4. Utility Service Tunnels 5. City Command Center Also, does the document cover requirements for Commercial TETRA services for IBW and IBS requirements? If not, then which document would cover this?	This aspect was discussed during the workshops held on 17 and 18 July. During these workshops, stakeholders stressed the importance of these facilities, where proper indoor coverage is required not only for safety reasons but also for user experience. Based on the feedback received, the CRA clarifies the following: 1. Car parks that are part of a building were already covered by the Standard, as they belong to the building. On the other hand, stand-alone parkings (i.e., those that do not belong to a specific building) have been included as part of the Standard, under Bulk services category due to their design uniqueness. 2. Utility buildings can be categorised as SDUs, although they are not expected to require indoor coverage, commonly being ad-hoc buildings and small in size. 3. Regarding road tunnels, the CRA considers that these facilities shall be left out of the scope of this Standard, with a focus on In-Building Infrastructure. Road tunnels, however, due to their specific particularities which considerably differ from those of the In-Building Infrastructure, cannot be classified under this categorisation. 4. Tunnels connecting buildings were already covered by the Standard (refer to Table 5.3 of the Standard). 5. City command centres are considered to be Governmental buildings, and therefore, were already included in the bulk services aggrupation. On the other hand, the CRA also remarks that TETRA is not in the scope of this Standard. In this regard, TETRA networks are used for private and secure communications, but not offered to the general public. In summary, the following addition has been included under the Bulk Services category: **Bulk Services** ▶ Car Parks (both private and public) Please refer to Annex A for the updated building aggrupation table.

Stakeholder	Key Comments Received	CRA Response
Msheireb Properties	Agreed with the group created by CRA	The CRA acknowledges the stakeholders' comments.
MATAR (HIA)	No objection on the 5.3 aggrupation from HIA.	
Vodafone	Vodafone Qatar does not agree with the proposed building aggrupation outlined in Section 5.3, because for IBS each building has different traffic module and design criteria. In this respect, Vodafone Qatar recommends the proposed grouping criteria set out in the updated design guidelines shared by Vodafone Qatar with the CRA on 19 May 2024 and attached herewith for ease of reference.	While the VQ proposal closely aligns with the Standard, the CRA notes that VQ aggregation provides a greater level of detail for certain buildings (such as special villas exceeding 1,000 square meters). Overall, this increased specificity helps prevent design misunderstandings or disagreements, allowing REDs and SPs to effectively design and implement IBW and IBS systems. Therefore, the CRA agrees on including Vodafone's proposed grouping criteria within the Standard, specifically: **SDUs** ▶ Single Villa ≤ 1,000 m^2 ▶ Special Villa > 1,000 m^2 ▶ Single Warehouse ≤ 10,000 m^2 ▶ Single Warehouse > 10,000 m^2 **MDUs** ▶ Residential/comm. towers ≤ 6 floors ▶ Residential/comm. towers > 6 floors Please refer to Annex A for the updated building aggrupation table.

Stakeholder	Key Comments Received	CRA Response
Ooredoo	"Megaprojects" is a type that needs to be added to the list. Megaprojects are special projects with special needs. These include airports, ports, rail, stadiums, new cities (similar to Lusail and The Pearl Qatar), and islands. Proposed amendments: Add a new building type called "Megaprojects" that includes the following type of buildings: airports, ports, rail, stadiums, new cities (similar to Lusail and The Pearl Qatar), and islands to 5.1. Types of Buildings, 5.3 Reference Models, and Table 5.3. On the other hand, Shopping malls come in various sizes; hence, we need to define a threshold for the size to be considered either an MDU or a "Bulk Service" building. Proposed amendments: ▶ Amend the type under MDU aggrupation to become "shopping malls ≤ 50,000 square meters GFA." ▶ Add a new type under "Bulk Services" with the type "shopping malls > 50,000 square meters GFA."	The CRA clarifies that buildings such as airports, ports, rail stations and stadiums are already part of the bulk services. On the other hand, each building belonging to a megaproject such as cities or islands will have to comply with the standard on an individual basis. In other words, all SDUs and MDUs buildings within a megaproject will have to comply with the requirements already set out in the Standard. Nevertheless, for the sake of clarity, the CRA deems it appropriate to name the category "Bulk services" as "Megaprojects/Bulk Services". Regarding the categorization of shopping malls, while the Standard classified shopping malls as MDUs, the CRA acknowledges that some shopping malls may be extensive deployments. Therefore, it is prudent to classify these larger deployments (those exceeding 50,000 square meters) as bulk services to ensure clarity and better management of their unique requirements. Therefore, the CRA agrees on including Ooredoo's proposed amendments within the Standard for the categorization of shopping malls, specifically: **MDUs** ▶ Shopping malls ≤ 50,000 m2 **Megaprojects/Bulk Services** ▶ Shopping malls > 50,000 m2 Please refer to Annex A for the updated building aggrupation table.

Table 2.4: In-Building Telecommunications Infrastructure Standard – Question 3 comments

Question 4

As agreed during the workshops, the requirements for deploying IBW and IBS are defined per building type, as outlined in Section 5.4. As indicated in the document, all MDUs and Bulk services must have an IBS deployed. However, for SDUs and compounds of SDUs a requirement study is necessary. This study should consider aspects such as outdoor-to-indoor connectivity, building size, and occupant requirements. On the basis of the above, do you agree with the matrix proposed in section 5.4? Should any other types of buildings require further study to determine the necessity of an IBS? Please provide your views with references and a proposal.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	CRA to specify which category clearly covers the below requirements for the following critical facilities: 1. Public and Private underground Car Parks 2. Utility Buildings (such as Pump Stations) 3. Road Tunnels 4. Utility Service Tunnels 5. City Command Center Also, does the document cover requirements for Commercial TETRA services for IBW and IBS requirements? If not, then which document would cover this?	Refer to CRA's response in Question 3.
Msheireb Properties	Tetra services is missing in these documents.	
MATAR (HIA)	No comment from HIA.	The CRA acknowledges the stakeholder's comment.
Vodafone	Vodafone Qatar proposes the matrix shared in the updated design guidelines.	Refer to CRA's response in Question 3.
Ooredoo	We agree with this clause in the regulation.	The CRA acknowledges stakeholder's comment.

Table 2.5: In-Building Telecommunications Infrastructure Standard – Question 4 comments

Question 5

It was agreed during the workshops that ownership and maintenance responsibilities of cabling in existing buildings, where the wiring was deployed by the service providers (SPs), would be transferred to the REDs via commercial agreements. Section 6.2.2 outlines this mandate and indicates a two-year timeframe after the Standard publication to complete the transfer. What are your views on this? Do you agree that the transfer should happen via commercial agreements? Is there anything else you would like to add or remove? Please provide your views, along with references and proposals.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	For new buildings, the requirements are very clear and may be included in the design and implementation scope. Please note that this concept was not agreed for existing buildings. Furthermore, for the existing buildings to avoid any delay in ensuring fair competition and non-discrimination, we strongly recommend that the existing Service Providers transfer the Internal Wiring/fiber optics to CRA rather than developers. This is considering that there is no real cap on commercials, the details of material submittal, life cycle replacement etc. are not determined and shall be really complicated to consider as an option at all.	Based on the feedback received, the CRA acknowledges that transferring IBW elements would be difficult and would add responsibilities to the REDs, potentially hindering their businesses. In this regard, the CRA considered it appropriate to discuss this aspect with all stakeholders during the workshops held in July 2024. A broad and common agreement was achieved between stakeholders, finally deciding to establish the transfer of IBW elements only on a voluntary basis. The CRA agrees with stakeholders and has decided to keep the transfer in the Standard on a voluntary basis. Please refer to A.2 for the amendments included in the Standard in this regard.
Msheireb Properties	For the new building projects the requirements are very clear and can be directly incorporated into the overall design and implementation. However, it is important to note that these pre-defined requirements approach has not been agreed upon for the existing buildings.	
MATAR (HIA)	Existing facilities maintenance (passive and active) and upgrades shall remain with the Service Providers.	
Vodafone	Vodafone Qatar agrees that where it has deployed the in-building wiring, it shall transfer its ownership through commercial agreement to be negotiated and agreed with the relevant building owner or RED.	

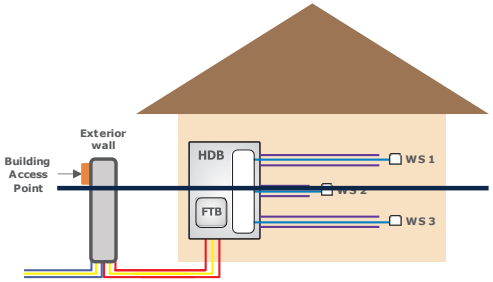
Stakeholder	Key Comments Received	CRA Response
Ooredoo	We agree with this clause in the regulation.	

Table 2.6: In-Building Telecommunications Infrastructure Standard – Question 5 comments

Question 6

As agreed during the workshops, Section 6.3 outlines the guidelines and responsibilities for deploying IBW in the different groups of buildings for both REDs and SPs. Do you agree with these responsibilities? Would you like to suggest any modifications? Please provide your opinions with references and suggestions.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	In buildings Telecom Infra Standard Pg. 54, item 11 reads as follows: "Building Telecommunications Rooms/spaces (including provision of power and cooling) and related EM and civil requirements". In this sense, the utilization of utilities and space shall be payable by the telecom service provider to REDs. Proposed changes: *Include new line "Cost associated with consumption of power and cooling in addition to space lease shall be payable by SP"	According to the PCI Access Regulation and the SAO agreement between the SPs and the REDs, colocation and power consumption are services provided and charged for by the REDs to the SPs. Therefore, while no amendment to the Standard is required, the CRA clarifies that it remains available to monitor or solve any potential dispute between the parties regarding the definition of tariffs. The CRA also outlines that, as per the PCI Access Regulation, these tariffs shall be cost based.
Msheireb Properties	The building owner/developer is responsible for setting up the necessary telecommunications rooms/spaces and associated infrastructure (power, cooling, EM, civil work). The service providers who use these telecommunications facilities within the building will be required to pay the building owner/RED for that utilization.	
MATAR (HIA)	No objection from HIA perspective.	The CRA acknowledges the stakeholder's comment.
Vodafone	For updated information, please refer to PART D of Vodafone's submission.	Please note that Part D of VQ's submission does not include any reference to the guidelines and responsibilities for deploying IBW.

Ooredoo	The use of an outer wall box as stated in 2nd paragraph "It could range from a basic wall box on a single dwelling units (SDU) outer wall to a designated area…" is not suitable for the situation in Qatar. Such solution has been implemented in West-Bay Area more than 20 years back and proved to be a technical failure due to extreme weather conditions here in Qatar during summertime. The key issue was the deterioration of the cable sheath material of drop cables from the outer box to the HDB, which causes repetitive faults and degraded QoS. The lessons learnt from that experience lead to the conclusion that telecommunication passive components (cables, joint boxes, termination points, fiber splices, patch panels, etc.) shall not to be exposed to external weather, and hence since then all externally exposed passive telecom components have been replaced by underground components. Remaining areas are under the process of migration to underground infrastructure. Limitations are in building readiness, not from service providers. Proposed amendments: All telecommunication passive components (cables, joint boxes, termination points, fiber splices, patch panels, etc.) shall be installed using underground technologies only. Passive Telecom components are not allowed to be exposed to external weather. Exterior wall outer box to be removed from 5.2.1, Figure 5.1, and 6.3.1.	Based on the information provided by Ooredoo, the CRA agrees to modify the Building Access Points of the SDUs to be installed underground rather than on the exterior walls of the premises. Updated section 5.2.1 reads as follows: *"In any development, whether it involves villas, (…).* *The type of Building Access Point required shall be located underground, regardless of the development's characteristics ~~will depend on the development's characteristics, such as its size, type, structure, and utilization. It could range from a basic wall box on a single dwelling unit's (SDU) outer wall to a designated area (e.g., exterior manholes) for a larger development~~. Depending on the development's needs, multiple access points may be required. Factors such as building size, shape, total number of users, and building utilization shall be considered. This is further described in section 5.3.* *(…)"* Figures 5.1 and 6.2 are amended as follows: 

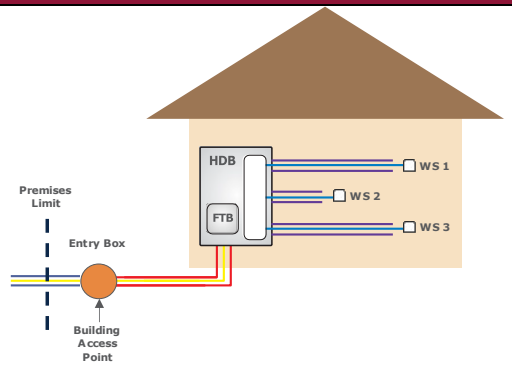
Stakeholder	Key Comments Received	CRA Response
		 Amendments under section 6.3.1: *"Even though other configurations are possible, the figure below shows a typical case of a single tenant in-building infrastructure, with the Building Access Point located at the ~~exterior~~ ~~wall of~~ entry box within the premise limit."* Amendments under table 6.1: *"Building Access Point: Entry box ~~placed on exterior wall~~ within the premise limit."*

Table 2.7: In-Building Telecommunications Infrastructure Standard – Question 6 comments

Question 7

Section 6.4 shows a summary of the responsibilities for two groups of buildings: i) SDUs and Compound of SDUs & ii) MDUs and Bulk Services. The responsibilities were agreed upon during the workshops. Please share your views on the assigned responsibilities for each scenario. If you disagree, please provide references and proposals for a new matrix definition.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	Which category would be applicable for the following facilities: 1. Public and Private underground Car Parks 2. Utility Buildings (such as Pump Stations) 3. Road Tunnels 4. Utility Service Tunnels 5. City Command Center Also, it is required to be highlighted that these responsibilities are only possible for new buildings, existing facilities have to be managed differently	In regards the building categories outlined, please refer to CRA's response in Question 3. In regards the responsibilities related for existing facilities, please refer to CRA's response in Question 1.
MATAR (HIA)	No objection from HIA perspective.	The CRA acknowledges the stakeholder's comment.
Vodafone	For updated information, please refer to PART D of Vodafone's submission.	Please note that Part D of VQ's submission does not include any reference to the guidelines and responsibilities for deploying IBW.
Ooredoo	We agree with this clause in the regulation.	The CRA acknowledges the stakeholder's comments.

Table 2.8: In-Building Telecommunications Infrastructure Standard – Question 7 comments

Question 8

The SPs have developed a process for reviewing the design and construction of both IBW and IBS deployments. What are your views on the processes displayed on Sections 6.7 and 6.8 (IBW) and Sections 7.6 and 7.7 (IBS)? Please provide your opinions with references and suggestions, noting that the original process submitted by the SPs has been amended.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	For Item 6.7, O&M scope for IBS and IBW is not possible to be assigned to Developer through a specialist contractor as there is no clear estimation on the cost impact /existing business plan for developers etc. and the services are purely under the utilization of Telecom SPs. Moreover, it is claimed that only Passive devices shall be managed by REDs which was categorically declined by LREDC. The current setup for O&M is working well with SPs and is recommended to be continued.	The CRA is of the view that, from a legal perspective and in a similar manner to all other IBW and IBS related elements, the responsibility for O&M of any element must lie with the owner. However, this does not prevent the owner from delegating this task to a subcontracted party or any other qualified party (e.g., the service provider) via commercial agreements. One example of this would be the agreement between Msheireb and Vodafone Qatar mentioned by the operator.
Msheireb Properties	GSM Passive and active O&M of IBS and IBW infrastructure should remain with the service providers, as assigning this responsibility to the building developers is not feasible due to the lack of resources, clear cost estimates and business impact. We have an agreement with Vodafone for Infra and the current O&M is working good with them.	
Qatari Diar	For 6.8, document not shared.	Please note that the documents prepared by the SPs were shared with the stakeholders during the Consultation phase. In this regard, the process shared by the SPs included not only the design review of both IBW and IBS, but also the construction/rollout review phase.
Qatari Diar	For 7.7 Construction Certification Process not submitted.	
Qatari Diar	For 7.6 SPs are required to provide a Design and Construction review process for IBS with involvement at Building Permit stage of all relevant stakeholders to avoid any abortive works including CRA approval.	

Stakeholder	Key Comments Received	CRA Response
MATAR (HIA)	No objection from HIA on SP's review points. Moreover, HIA recommends that all designs are reviewed and approved by Specialist Contractor as part of the design review stage. HIA also recommends that CRA plugs in at the earliest possible date with the specialist contractor during the project design stages for alignment, to avoid any delays to the project, as clarity be obtained at the project initiation stage.	Whilst the involvement of the operators in the design stages has benefits for the whole process (e.g., avoiding rework or problems in deployment, and any associated costs), the CRA recognises that operators may not have in all cases the resources required to review each and every developments. Therefore, the CRA considers that the design review should be optional in the sense that SPs may decide whether to review all, some or none of the designs for each individual development. Nevertheless, although the SPs may decide not to review a specific design, the design contractor must still comply with the specifications set out in the Standard. However, the CRA will not be involved in such a process as it does not have the technical expertise to review the design. On the other hand, it is noticeable that both operators are asking to impose fees for the revision of the design or the approval process. Nevertheless, the CRA considers no fees shall be charged since: ▶ The REDs are already covering a significant part of the required investments. In this respect, everyone ultimately benefits from this approach, including the SPs, who will be able to offer enhanced services to their own end-users. Hence, in CRA's opinion, increasing the investment cost already incurred by the REDs is not justified. ▶ The design phase is seen as a joint activity where each involved party is responsible for its own costs. More specifically, the REDs will cover the design costs, while the SPs will cover the review costs. Please refer to A.3 for the included text in relation with the design review process.
Vodafone	Vodafone Qatar is of the view that Design Approval by the Service Providers should only be done only for Mega Projects. For all other buildings, designs should follow the standard and Service Providers will only get involved at the rollout acceptance stage set out in the proposed IBWS Process Cycle. Should the CRA insist for Service Providers to review and approve all designs, then such review should be subject to a fee.	
Ooredoo	The process has been further detailed and refined to clearly define the roles and responsibilities of each party, with the SLAs on SP side. *[As part of this response, Ooredoo has provided a display of the Design and Construction review process together with the process associated SLAs]*	

Stakeholder	Key Comments Received	CRA Response
UDC	In the Design and Construction Review Process Document, under the Tab: Rollout process section, we recommend adding a new line item titled "Oversight and Compliance." This new line item may state that the telecom subcontractor's Quality Assurance/Quality Control (QA/QC) supervisor/officer shall conduct periodic inspections throughout the construction/installation process. These inspections will verify that the work adheres to the approved design, plans, and all applicable building regulations	The CRA acknowledges UDC's comment and has explicitly included the periodic inspection by the Main Civil contractor as part of the rollout process. Please refer to A.3 for the amendments included in the Standard in this regard.
UDC	The Design and Construction Review Process Document, under the Tab: Rollout process section, states: "Once the rollout is completed, the telecom subcontractor shall submit to both service providers the as-built drawings and test results." We recommend including the Building Owner in the distribution list for these documents. This ensures the building owner has a record of the final installed infrastructure layout and its performance.	The CRA acknowledges UDC's comment and has included the RED and the Building Owner as part of the distribution list. Please refer to A.3 for the amendments included in the Standard in this regard.

Table 2.9: In-Building Telecommunications Infrastructure Standard – Question 8 comments

Question 9

Section 7.2 outlines the general requirements and responsibilities of both the REDs and the SPs for deploying IBS. These requirements and responsibilities were discussed and agreed upon during the multilateral workshops. The most important aspects in this regard included in the document are:

- REDs responsibility for deploying passive elements defined in Section 7.3.2
- SPs responsibility for deploying active elements defined in Section 7.3.1
- Coordination process between SPs and REDs (design contractor)
- Requirement for SPs to deploy the active elements to make the IBS function once the first tenant has occupied the unit.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	For 7.3.2 and 7.4, Lusail Real Estate Development Company (LREDC) has clearly highlighted during the workshops and in Minutes of Meeting, that LREDC shall not be involved in the deployment of stated Passive Elements under section 7.3.2. LREDC can only provide civil structure such as ducts, cable trays etc. which can be utilized by SPs to deploy their passive elements. Furthermore, LREDC shall not be responsible for any maintenance and upgrade of passive elements.	The CRA notes that these responsibilities were discussed and agreed to by the majority of stakeholders during the workshops held in February and March 2024. At that time, Qatari Diar was the only stakeholder showing its disagreement with the responsibility to deploy other elements different from civil infrastructure. As part of this consultation, we observe that Msheireb, while it has initially showed its agreement with responsibilities suggested by the CRA during the workshops held in February and March 2024, has expressed now the same position as Qatari Diar. Despite the opposite view shown by these two stakeholders in the consultation, the CRA is of the view that the position expressed by all other stakeholders, representing 8 stakeholders, should prevail. Therefore, the CRA does not consider there are sufficient reasons and/or arguments to adjust the REDs responsibility for deploying elements. Regarding the responsibility for maintenance and upgrades, the CRA deems that the responsibilities defined therein are fair and avoid issues of ownership, as from a legal perspective, the responsibility for maintenance and upgrades of any element must lie with the owner.
Msheireb Properties	Msheireb Properties shall not be involved in the deployment of passive and active elements. The company can only provide the necessary civil infrastructure like ducts and cable trays for the service providers to utilize when deploying their own passive elements. Furthermore, Msheireb Properties shall not be responsible for the maintenance and upgrading of these passive elements.	
MATAR (HIA)	In HIA's view, SPs should implement Active/Passive infrastructure related to IBS and bear associated costs.	

Stakeholder	Key Comments Received	CRA Response
Vodafone	The CRA will note that Ooredoo has suggested to include the option of an Active DAS in the Standard and Vodafone Qatar does not agree with this inclusion for the following reasons: ▶ We believe that there is no benefit for the deployment of active system in the case of new construction, since there will not be any limitations in DAS deployment, power and space; ▶ It is Vodafone Qatar's view that the active system is not future proof and is band limited; ▶ The active solution is also more costly as compared to the passive DAS; and ▶ From a performance perspective, passive DAS provides similar and even better performance than the active DAS.	The Standard should encompass all options for deploying a DAS system to ensure it is future-proof and capable of addressing indoor connectivity issues in any type of building. As a way of example, passive DAS may not be able to cover large facilities in all cases (such as certain stadiums or airports), whereas active DAS present enhanced capabilities for such purpose. In any case, the CRA notes that the type of DAS required (i.e., passive or active) shall be determined during the design stage based on the building's specifications. While passive DAS solutions should be prioritized whenever possible due to their cost-effectiveness, the discard of the Active DAS option from the Standard is not considered appropriate as it may be ultimately relevant in certain instances.

Ooredoo	To avoid any confusion, we propose the use of “Network Equipment” and “DAS”, instead. The definition of “Active equipment” is not consistent with what was discussed during the workshops. SPs made it very clear that “Active Equipment” definition is “equipment that generate signals.” It does not include equipment that “regenerate or amplify signals.” This section to be renamed as “DAS”, which shall include both Passive and Active DAS, which are possible choices for the designer to meeting the KPIs. Proposed Amendments: <u>Subsection 7.3 to be read as follows:</u> “The functional components of an IBS can be categorized into two types of equipment: ▶ Network equipment, and Distributed Antenna System (DAS)” <u>Subsection 7.3.1 to read as follows:</u> “7.3.1 Network Equipment Active elements in an IBS are components that generate signals to provide wireless connectivity within a building. Active components of an IBS include, among others: ▶ Base Station. ▶ Radio Remote Unit (RRU), ▶ Small cells, and ▶ Backhauling from the SPs network to the telecommunications room” <u>Subsection 7.3.1 to be:</u> “DAS elements in an IBS are components that distribute signals to within a building. DAS components of an IBS include, among others: ▶ Infrastructure (TR, POI, etc.)	The CRA would like to clarify that, during the workshops held in February and March 2024, the majority of stakeholders agreed on the responsibilities for deploying active and passive elements of IBS, with active elements including the components of the active DAS. We observe that the new Ooredoo’s proposal is to assign the responsibility of deployment of the active DAS equipment to the REDs. Nevertheless, this proposal is not supported by any other stakeholder, and differs from the common agreement achieved with the stakeholders during the workshops celebrated in February and March, as previously mentioned. At that time, the majority of REDs agreed to be responsible for the deployment of passive elements, while the SPs agreed to be responsible for the deployment of active elements in relation to the IBS. In this context, the CRA is of the view that both parties (SPs and REDs) demonstrated a strong commitment to collaboration and mutual benefit, by making significant efforts to reach a common agreement in relation to the separation of investments incurred by both SPs and REDs when deploying the IBS. During the subsequent workshops held in July 2024, the REDs already showed its opposition and disagreement with Ooredoo’s new proposal of assigning the responsibility of deployment of the active DAS equipment to them. It is also worth noting that Vodafone, being the other relevant SP, does not presumably agree with Ooredoo’s proposal as, in fact, Vodafone has directly shown its opposition to the inclusion of Active DAS equipment for the deployment of IBS systems, as can be extracted from its previous comment. In light of the above, the CRA considers that, even if the Active DAS utilization should not be discarded for the reasons exposed by the CRA in the previous comment, in no case the responsibility for the deployment of the Active DAS equipment should rely on the REDs, but on the SPs. Hence,

<table>
<tr><th>Stakeholder</th><th>Key Comments Received</th><th>CRA Response</th></tr>
<tr><td></td><td>▶ Passive DAS (splitters, couplers, attenuators, combiners, coaxial cable, fiber, risers, vertical and horizontal pathways, patch panels, patch cords, cross connect cabinets, and ODF, among other elements), and
▶ Active DAS (Master Unit, Fiber optic repeaters, and Remote Units).”</td><td>the CRA concludes that no change should be made to the Standard in this regard.</td></tr>
<tr><td>Ooredoo</td><td>Update the matrix as per the above comments.
<table>
<tr><th></th><th>Item description</th><th>Master plan developer</th><th>RED/Building Owner</th><th>SP</th></tr>
<tr><td>1</td><td>Supply, installation and maintenance of DAS (Passive / Active)</td><td></td><td>✓</td><td></td></tr>
<tr><td>2</td><td>Provision, installation and maintenance of any network equipment</td><td></td><td></td><td>✓</td></tr>
<tr><td colspan="5">IBS connectivity only covers cellular public networks (e.g., GSM, UMTS, 4G, 5G). Private networks (e.g., TETRA) are excluded.</td></tr>
</table></td><td>Please refer to CRA’s response above.</td></tr>
</table>

Table 2.10: In-Building Telecommunications Infrastructure Standard – Question 9 comments

2.1.3. Additional Comments

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	1.2 Compliance	The proposed text does not ensure / enforce compliance with the regulations, which undermines all effort put into the development of this standard document. Accordingly, we suggest the following modifications: *"This standard is an integral part of the construction code of the State of Qatar and constitute part of Qatar Construction Standard (QCS), as detailed in 3.4.* *Compliance with these regulations is mandated by the power of law given to the CRA to develop standards and regulation related to the telecommunication systems in the State of Qatar.* *No direct agreement is allowed between the parties that contradicts with the roles and responsibilities outlined in this regulation.* *For REDs, non-compliance with these regulations will lead to rejection of building permits / building completion certificate requests raised by REDs.* *For SPs, non-compliance with these regulations will lead to issuance of Notice of Non-Compliance and further financial sanctions as per the Telecom Law."*	The CRA appreciates the support for more clarity on compliance and enforcement, but as this is a more general issue, it proposes to insert the following text at the end of section 4 ("Scope"), before subheading 4.1: *"Compliance with this Standard is mandatory under subsection 1.3.2.1 of QCS-2014 mentioned in subsection 3.4, above. Accordingly, and for the sake of clarity:* *(i) Unless this is expressly allowed under this Standard, the parties concerned may not deviate contractually from their respective roles and responsibilities under this Standard.* *(ii) A RED's non-compliance with this Standard constitutes a ground for the rejection of that RED's relevant building permit or building completion certificate request.* *(iii) An SP's non-compliance with this Standard may lead to the issuance of a Notice of Non-Compliance and the imposition of any relevant sanctions provided under the Telecommunications Law."*

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	2. Definitions	The term “Access Provider” is not used in the document except in 1 case (Section 4), where a better word would be “RED / Building Owner”. We recommend removal of this term as it might cause confusion with “Reference Infrastructure Access Offer (RIAO)” and replace its single use on section 4 by “RED / Building Owner”.	The relevant passage in Section 4 simply replicates the content of Articles 3 and 4 of the Passive Civil Infrastructure Access Regulation, which mentions expressly “Access Providers”. Changing this to another expression would misrepresent the content of these two Articles. To retain emphasis on ‘RED/building owners’, however, the phrase of Section 4 has been amended as follows: “...must be granted by Access Providers (who also include REDs/building owners) equally to any SP.”
Ooredoo	2. Definitions	The term “Daisy-Chain (or loop) wiring” is not used in the document at all. While it is not used in the document, Daisy-Chain (or loop) wiring is a non-standard wiring method and it is technically not recommended, as it is used in analogy communication systems only. It does not support modern communication standards, such as Ethernet. On the other hand, Daisy-Chain (or loop) piping is a very standard technique used to connect sockets to HDB. Therefore, the term “Daisy-Chain (or loop) wiring” shall be removed from the document.	The CRA acknowledges Ooredoo’s comment and agrees on removing the term “Daisy-Chain wiring” from the regulation.
Ooredoo	2. Definitions	GIS is not a term; it is an abbreviation. To be moved to subsection 2.2 “Abbreviations”	The CRA agrees with Ooredoo. GIS is moved from Section 2.1 to Section 2.2.
Ooredoo	2. Definitions	While the definition of “Secondary Telecommunications Room” provided is correct, it does not cover all the cases where a “Secondary Telecommunications Room” would be needed, such as for redundancy purposes. Ooredoo proposes to amend the term to “an additional Main Telecommunications Room that needs to be deployed due to building requirements, such as size, redundancy, or any other technical or functional needs of the building.”	The CRA agrees with Ooredoo’s proposed modification and has deemed it appropriate to include it under Section 2. On the other hand, please note that the definition of Secondary Telecommunications Rooms implicitly treats the deployment of such rooms on a case-by-case basis.

Stakeholder	Section	Key Comments Received	CRA Response
Qatari Diar	2. Definitions	The Telecom service Providers and the CRA are advised to treat the requirement for secondary telecom room on a case-by-case basis.	Based on Ooredoo's proposal, the updated definition reads as follows: "An additional Telecommunications Room that needs to be deployed due to building requirements, such as size, redundancy, or any other technical or functional needs of the building".
Ooredoo	2. Definitions	The definition of third party does not include Operation & Maintenance function and is not limited to "Telecommunication Ducts" only. It should cover all telecommunication systems within the building. Ooredoo proposes the term "Third Party" to be defined as "Contractors and/or consultants who are involved in planning, design, construction, installation, operation, and maintenance of telecommunications systems within the building(s)"	The CRA agrees with the definition proposed by Ooredoo and deems it appropriate to include it under Section 2. The updated definition reads as follows: "Contractors and/or consultants who are involved in planning, design, construction ~~and~~ installation, operation, and maintenance of telecommunications ~~Ducts~~ systems within the building(s)"
Ooredoo	3.1	The target audience of this document are mainly the building owners and REDs; hence, the first 2 paragraphs are irrelevant to the scope of this document, as it is related to access agreements, which are covered in "Reference Infrastructure Access Offer (RIAO)". Ooredoo proposes to remove the 1st and 2nd paragraphs from this subsection.	The CRA remarks that both REDs and SPs shall be considered as the target audience. SPs responsibilities go beyond those outlined by Ooredoo, in the sense that SPs are responsible to deploy certain elements (such as the outdoor fibre, certain network equipment in the deployment of the IBS, etc.) and must equally comply with the technical specifications defined in the standard. Therefore, the CRA does not deem appropriate to modify the target audience of the Standard. Nevertheless, the CRA considers that, for the avoidance of the doubt, the Target Audience
Ooredoo	3.2	Similar to the above comment, the audience of this document are mainly the building owners and REDs; hence, there is no need to have the paragraphs in 3.2 except the first one. Ooredoo proposes to remove the 2nd, 3rd, 4th, and 5th paragraphs form this subsection.	

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	3.3	Similar to the above comments, the audience of this document are mainly the building owners and REDs; hence, there is no need to have the first paragraphs in 3.3. Ooredoo proposes to remove the 1st paragraph from this subsection.	shall be presented within a subsection. In this regard, a new subsection "Target Audience" has been included under Section 4 Scope, removing the text referring to the target audience from Section 1 and placing it in Section 4. *"4.1 Target Audience* *The target audience for this document are the Service Providers (SP), Building Owners, Real Estate Developers (RED) and their contractors, such as ~~wiring designers,~~ telecom system designers, telecom systems contractors, network design engineers, deployment engineers, construction consultants and telecom systems operation and maintenance facility managers."*
Ooredoo	4. Scope	This section is missing an important subsection; "Target Audience." Ooredoo proposes to include the following: *"The primary target audience of this document is Building Owners, Real Estate Developers (REDs), telecom system designers, telecom systems contractors, and telecom systems Operation and maintenance facility managers.* *Service Providers are a secondary audience of this document, as their roles and responsibilities are limited to review proposed design and issue approvals, to perform site inspection and issue acceptance, and to provide guidance to designers and contractors during the lifecycle of the telecom systems in the building (from design to Operations)."*	

Ooredoo	5.2.2, Appendix A.1, and A.1 (repeated)	The Main and Secondary Telecom Rooms technical requirements have been further detailed and refined to clearly specify the requirements. *[As part of this response, Ooredoo has provided a set of updated Telecom Rooms Technical requirements]*	The CRA has reviewed the technical document submitted by Ooredoo and considers it appropriate to add the new aspects introduced in the In-Building Telecommunications Infrastructure Standard. These updated aspects include: ▶ General Requirements ▶ Dimensions ▶ Structural Specifications ▶ Walls ▶ Floors ▶ Ceilings ▶ Doors ▶ Climate Control ▶ Electrical Requirements ▶ Lighting ▶ Telecom Cables Management ▶ Fire System Please refer to A.5 for the detailed amendments included in the Standard. On the other hand, the CRA notes that it has not included in the Standard the table “Number of telecom rooms in each building” proposed by Ooredoo and Vodafone as well as their diagrams, due to the following reasons: ▶ Overall, diagrams are considered as examples, but they may be subject to change depending on the design of each building. ▶ The table indicating the number of FAPs is divided by building type. However, the building aggrupation included in such a table does not completely correspond to the building aggrupation proposed for defining

Stakeholder	Section	Key Comments Received	CRA Response
			the IBW and IBS requirements, what could generate confusion. ▶ In addition, this table provides high-level indications about the minimum number of FAPs, which may change depending on the final design. Taking into account the wide range suggested in some cases, the CRA does not consider it to be of much value to designers. Based on the above, the CRA deems appropriate to exclude these elements from the Standard and leave them to be decided during the design phase.

Stakeholder	Section	Key Comments Received	CRA Response
UDC	5.2.2	Page 20 specifies that "adequate lighting and a minimum of four 20 amps and 240 Volt AC mains outlets" are required. However, page 90 states that Mobile Service Telecom Rooms (MSTR) need two 63 Amp Isolators dedicated to each Service Provider. We also recommend including this requirement for the main telecom rooms, as MSTRs are optional and considered required only when there is no space in the main telecom room. Specifying this requirement would ensure the standards are comprehensive and practical for new build projects. Each service provider should also have a dedicated 9-pin earthing bar grounded to the main earth.	The CRA notes that the technical requirements of Telecommunications Rooms have been updated based on the SPs inputs (see comment in Question 2), which include the minimum requirements applicable to all kind of rooms (Main, Secondary, Rooftop...). Specifically, the updated electrical requirements cover the following aspects: ▶ *A 125 Amp 3 phase 10-way Distribution Board (DB) dedicated for each service provider shall be provided inside the Main Telecom room.* ▶ *1×63A power isolators of 3 phase 5-pin commander socket for each 10 racks (minimum 3 isolators).* ▶ *For each equipment aisle (row), 2 Earth Bars with 12 terminations shall be installed, one for AC and another for DC equipment.* ▶ *The Earth Bar should be connected by using 1 core 70 mm² PVC/ECC cable to an external Earth Pit which has a 20 mm diameter solid copper rod up to summer water level. The earth resistance should be less than 1 Ω.* ▶ *Double 13A sockets (UK standard) with neon every 2 meters on all walls.*

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	6.2.2. “Existing Building without Internal Wiring”, and “Existing Building Internal Wiring”	The document assumed that implementing the IBW is “…impractical or prohibitively expensive…,” which is not a valid assumption in all cases. The standard shall mandate its implementation, and special cases shall be dealt with case-by-case. Ooredoo proposes to remove the 2nd paragraph form these subsections.	Section 6.2.2 reads as follows: *“As a general note, installations prior to the issuance of this Standard document **may have some inherent constraints**, making it impractical or prohibitively expensive to upgrade them. It is assumed that, in such cases, no upgrades will be carried out”* (emphasis added). As noted above (see emphasis added), the Standard already recognises that not all existing buildings are "impractical or prohibitively expensive" to be upgraded. However, the CRA considers that if a party is interested in upgrading a building, the cost should be borne by such party. Accordingly, the CRA has extended the corresponding clause as follows: “*(…). As a general note, installations prior to the issuance of this Standard document may have some inherent constraints, making it impractical or prohibitively expensive to upgrade them. It is assumed that in such cases no upgrades will be carried out. However, if the SP or the RED is interested in upgrading the installation, this upgrade shall be carried out by the interested party, at its own expense and in full compliance with this Standard”.*
UDC	6.2.2. “Existing Building without Internal Wiring”	On Page 42, Section 6.2.2, we recommend amending with the yellow highlighted text in italics & underlined: "As a general note, installations prior to the issuance of this Standard document may have some inherent constraints, making it impractical or prohibitively expensive to upgrade them. It is assumed that, in such cases, no upgrades shall be required to be carried out unless the RED or Service Provider may opt to upgrade on its own accord, fully conformant to CRA standards."	Refer to the response above for amended version of the text.

Stakeholder	Section	Key Comments Received	CRA Response
UDC	6.2.2. “Existing Building Internal Wiring”	Page 43 states: "Ownership and maintenance responsibilities should be transferred within 2 years from the publication of this Standard." We recommend including an appendix to cover the following: ▶ Types of equipment to be maintained ▶ A template/checklist for such Maintenance with a periodic schedule/timeframe. Or list specific maintenance activities to be carried out by the RED through its nominated FM Contractor.	Please refer to CRA’s response in Question 5. Additionally, regarding the detailed aspects about maintenance activities, please refer to the following comment.
UDC	6.2.2. “New Building Internal Wiring” & 7.2.3. “New Buildings”	For newly built buildings, we recommend specifying that Maintenance should be covered for at least two years from the date of commissioning. This can be part of QCS standards to ensure that the main Contractor covers Maintenance under RED. Furthermore, for all new builds / or new developments, we recommend the following: a. Adding of Warranty and routine maintenance requirements: We recommend defining the warranty commencement for all newly installed Telecom equipment for a minimum of 3 years from the date of commissioning for the complete system. b. Spare Parts Management: Please recommend a strategy from SP for maintaining a stock of essential spare parts (e.g., cables, connectors, power supply units) to facilitate quick repairs when needed on-site. c. Corrective Maintenance and troubleshooting: Please provide an escalation matrix or guideline for troubleshooting in case of IBS faults or customer complaints. This might include specifying who is responsible for the corrective Maintenance (building owner, service provider, etc.) based on the nature of the issue.	The CRA clarifies that, while the Standard outlines general maintenance principles, the precise maintenance activities are left to the discretion of the responsible party, in order to ensure they align with the specific equipment and requirements in each case. In other words, the standard is intended to establish a baseline level for maintenance activities, not to dictate every aspect of how maintenance should be performed. Nevertheless, if considered appropriate and applicable, aspects listed by the stakeholder may be specified in the commercial agreement between the RED and its contractor and/or SPs.

Stakeholder	Section	Key Comments Received	CRA Response
UDC	Table 6.1	Page 45, Table 6.1: The document mentions "CPE, to the extent it is included in SP's commercial offer." This is repeated for MDU, SDU, etc. Typically, tenants apply for services from their chosen service provider, so there is usually no commercial agreement for CPE maintenance at the customer/tenant premise between the RED and the Service Provider. Please clarify this point.	The CRA clarifies that the responsibilities for CPEs are only applicable to SPs, not to REDs. Furthermore, as referred to by the stakeholder (Table 6.1.), the ownership and maintenance of the CPE is only applicable if such equipment is included in the commercial offer of the SP. In other words, if the line offer signed by the end-user includes the installation of the CPE, such a CPE is owned and maintained by the SP. If the offer does not include the installation of the CPE, the End User is responsible for its maintenance.
UDC	Table 7.1 “Responsibility Matrix”	Page 82, Table 7.1: We recommend adding to the matrix that the IBS design approval falls under the Design consultant's and the main Contractor's responsibility and shall be approved by both Service Providers to ensure the IBS solution is fully shareable.	Table 7.1 outlines the responsibilities for the deployment of the IBS components only, not responsibilities related to design approval requirements. Nonetheless, please note that the Standard already considered that the design of the IBS shall be performed by one of the Contractors listed by the CRA and coordinated with the SP, as indicated in Section 7.2.2: *“Such contractor shall follow this Standard when designing the IBS and coordinate at the same time with the SPs to ensure their requirements are met.”*
UDC	Appendix A.1	Each IDF room (or secondary telecom room) should have two 32-amp single-phase Isolators dedicated to IBS. A shared 12-pin earthing bar for both operators should be grounded to the main earthing. We feel it is essential to specify dedicated power requirements for the IBS system, as design consultants generally consider a single shared power source for all telecom equipment within the room.	Considering that dedicated power requirements highly depend on the final IBS solution deployed (active, passive, hybrid…), it is unfeasible to predefine them in the Standard.

Stakeholder	Section	Key Comments Received	CRA Response
UDC	Appendix A.1	We recommend defining the minimum size of both the main and secondary telecom rooms, as this will be a guideline during the design stage of a project and will avoid space constraints later. A minimum of 5m x 5m is suggested for high-rise buildings, in line with existing Ooredoo MDF (Main Distribution Room) standards. The size of secondary telecom rooms (or IDF) should be a minimum of 3m x 3m at each level. Setting this now would allow proper standards for infrastructure planners and designers, ensuring the standards are comprehensive and practical for implementation.	The updated specifications submitted by Ooredoo and Vodafone (see comment in Question 2) have included the minimum size and the methodology to calculate the size of the any telecom room within the building, which directly depends on the number of racks to be installed. Please refer to A.5 for more information about the updated Telecommunications Rooms specifications included in the Standard.

Table 2.11: In-Building Telecommunications Infrastructure Standard – Additional comments

2.2. Regulation for the Construction, Installation and Sharing of Radio Communications Sites

2.2.1. General comments

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	LREDC were not invited for a workshop on this document/subject. What is the role specified for REDs? Kindly note that in Lusail City common area is owned by LREDC/Qatari Diar. Document does not reflect Qatari Diar role as a Master Developer of Lusail City. Detailed discussions are required for this topic.	No Real Estate Developer was invited to the Mobile Site workshops since REDs are not considered relevant stakeholders in this specific field and regulation, which mostly describes the steps for constructing mobile sites, establishes the sharing guidelines, etc.
Vodafone	Vodafone Qatar agrees with the inclusion of the new requirements on Coordination on the planning of new developments requirements. This will assist us in planning for our sites in new developments and hopefully will make the building permit application process in these areas easier and faster and as mentioned by the CRA will also promote site sharing.	The CRA acknowledges Vodafone's comment.
Vodafone	We appreciate the inclusion of the Sites Management System and urge the CRA to go beyond simply considering the digital system and to implement it in coordination with all relevant stakeholders.	The CRA will prioritize the implementation of the system, ensuring close collaboration with all relevant stakeholders.

Table 2.12: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – General comments

2.2.2. Questions - Regulation for the Construction, Installation and Sharing of Radio Communications Sites

Question 1

Do you agree with the compliance distance defined in Section 2.1? Please provide your views, along with any relevant references and proposals

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	Between 2 sites, is more for RF planning from SPs to advise. SPs prefer sites closer to substations to minimize abortive works for acquiring permanent power, this requires discussion. LREDC were not invited for workshop on this document/subject.	The CRA notes the stakeholder's comment.
MATAR (HIA)	No objection from MATAR on the compliance distance (Sec 2.1) Proposed Amendments: The site requirement from service provider(s) should be approved by CRA if there is a need for this requirement.	Please refer to the CRA's response below.

Stakeholder	Key Comments Received	CRA Response
Vodafone	Vodafone Qatar does not agree with the compliance distance of 600 meters between two sites. In the 5G era, lower inter-site distances are required for telecommunications sites due to the characteristics of 5G technology. ▶ 5G uses higher frequency bands, which have shortened propagation distances meaning that more base stations are required to maintain reliable coverage and data speeds. ▶ These sites need to be strategically placed to provide adequate coverage and capacity in densely populated areas. ▶ Based on the above, Vodafone Qatar cannot accept the 600 meters distance between two sites proposed by the CRA. ▶ Furthermore, the proposal in clause 8.5 of merging existing SPs sites less than 600 meters (Compliance distance) is not acceptable as it will have adverse impact on the coverage and capacity of Vodafone Qatar and will significantly impact quality of service. ▶ We therefore submit that the compliance distance should be kept at 200 meters. Proposed amendment: The Compliance Distance is within 200 meters between two (2) Sites.	The CRA acknowledges the arguments submitted by Vodafone and Ooredoo, specifically the fact that 5G sites may have a reduced radio compared to 3G/4G sites (depending on the frequency band used). As such, the CRA is of the view that the amendments proposed to reduce the compliance distance are reasonable and sensible. Hence the CRA has modified the Compliance Distance definition as follows: *"Compliance Distance" is "The general minimum distance required between Sites, excluding indoor Sites.* *The Compliance Distance is:* ▶ *Within ~~6~~2200 meters between two (2) Sites;* ▶ *~~Minimum 200 meters from educational institutions and health facilities~~; and* ▶ *~~Minimum 7 to 120 meters' distance~~ At least 7 meters away from a High Voltage electrical power transmission line.*

Stakeholder	Key Comments Received	CRA Response
Ooredoo	No, we do not agree with the proposed "Compliance Distance". On Technical Aspects ▶ The updates "Annexure G" v3 issued by H.E. the Minister of Communication and Information Technology on 24 Jan 2022 stipulates an average data rate of 100 Mbps using 5G technology. ▶ The above targets are not possible to be achieved with the proposed inter-site spacing, especially for 5G, where cell radius is in the range of 150-300m using 3.5GHz spectrum. On Non-Technical Aspects ▶ This definition caused rejections for many site acquisition applications by Ministry of Municipality (MM) under the claim that mobile sites might cause health issues. Proposed amendment: "Compliance Distance" is "The distance between a new Site and an existing Site (excluding indoor Sites) shall be: ▶ Within 600 meters in rural (low density) areas, ▶ Within 400 meters in suburban (medium density) areas, ▶ Within 200 meters in urban (high density) areas, and ▶ At least 7 meters away from a High Voltage electrical power transmission line. The CRA may approve sites not meeting the above limits based on technical justifications." Any reference to "Compliance Distance" throughout the document (ex. 10.3.b and 10.10.1) shall not state any specific value and shall instead state "as defined by Compliance Distance".	*The CRA may approve sites not meeting the above limits based on technical justifications."* In addition, the following modifications have been made in the Regulation: Section 8.5.a: *"The CRA will notify each SP of which Sites are in breach of the compliance distance ~~of 600m~~ defined in Section 2."* Section 10.3.b: *"Implement Compliance Distances. For the sake of clarity, ~~a distance of less than 600 meters between Sites~~ a breach in the Compliance Distance defined in Section 2 will be allowed only in exceptional cases, substantiated with a written justification."*

Table 2.13: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Question 1 comments

Question 2

As discussed in the workshops, the mobile permitting process applies to various types of buildings, including Mobile Towers, Wall Mounts, Rooftops, and IBS, among others. Do you agree with the types of sites covered by the regulation? Is there any specific type of site that you think should be included? Please provide your answer with references and proposals.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	Is this referring to Building Permit procedure?	This specific question refers to the different types of Sites a SP can deploy. Section 7 of the Regulation refers to the steps required for the construction of the specific Site, which also includes the Building Permit procedure.
MATAR (HIA)	No objection from MATAR (HIA has permitted service providers to install 11 outdoor sites after securing clearance from air navigation department and QCAA). Both service providers should share and optimize the site appropriately for better performance rather than requesting extra new sites within airport premises.	The CRA acknowledges stakeholder's comment.
Vodafone	Vodafone Qatar submits that Rooftop Sites and Wall Mount (Camouflage Boxes) structure should not require CRA Pre-review as set out in Table 7.1, Wall Mount (Camouflage Boxes) structure should only require notification to CRA and On Air certificate. Proposed amendment: Table 7.1: to be amended by putting an x for CRA pre-review for Rooftop Mast and Wall Mount.	The CRA's pre-review is required to assess distances, planned structures, technical aspects related to the type of Site, camouflage design, and other factors. Therefore, the CRA finds it appropriate to maintain the pre-review process for both Rooftops and Wall mounts. It should also be outlined that the maximum time for such a review is 5 working days, which will have a negligible impact on the overall process.
Ooredoo	We agree with the type of Sites covered in the regulation.	The CRA acknowledges the stakeholder's comment.

Table 2.14: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Question 2 comments

Question 3

During the workshops, the operators expressed that, currently, they do not have any input into the planning of new sites. This lack of input and coordination between the MM and the SPs is resulting in a higher rejection rate when an SP requests a particular land for deploying a Site. To address this issue, and as discussed during the workshops, the CRA has developed a coordination process for planning new developments, outlined in section 5. This process requires the sharing of information from the MM to the CRA (both initial and final land allocation). What are your thoughts on this process? Please provide your views on the newly defined process, along with any references and proposals.

Stakeholder	Key Comments Received	CRA Response
MATAR (HIA)	No objection in principle from HIA, noting that the airport site premises and boundaries are predefined. HIA has permitted service providers to install 11 outdoor sites. Both service providers should share and optimize the site appropriately for better performance rather than requesting extra new sites within airport premises.	The CRA acknowledges the stakeholder's comment.
Vodafone	For new development areas that are still not planned or developed, Section 5 covers the full process. Vodafone Qatar comment on this process is that it must be implemented without any miscommunication, i.e. proper communication channels should be put in place. For the areas that are already planned and developed by Ministry of Municipality, Vodafone Qatar submits that the CRA and SPs can still mutually plan and coordinate for Mobile sites within those areas which will save a lot of efforts to apply for individual applications by each SP.	As stakeholders have been able to observe, the new Regulation's aim is particularly to improve and facilitate processes relative to the construction of mobile sites, including the coordination and communication channels with the relevant parties. Nevertheless, in regard to the already planned and developed areas, the CRA is of the view that any further coordination and communication should not be mandated but rather sought by the SPs whenever they deem it appropriate.
Ooredoo	The proposed process captures SPs comments raised during the workshops precisely.	The CRA acknowledges the stakeholder's comment.

Table 2.15: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Question 3 comments

Question 4

Do you agree with the CRA acting as the single point of contact between SPs and relevant bodies? If you disagree, please provide your reasoning along with references and proposals.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	CRA is requested to advise their potential role here.	The main role of the CRA in this process is to act as a single point of contact, with the aim of streamlining requests, coordinating with public bodies and SPs, and centralizing communication. This centralization not only improves the responsiveness and efficiency of the process, but also ensures that all stakeholders are kept informed and that any issues can be addressed promptly and effectively.
MATAR (HIA)	No objection	The CRA acknowledges stakeholder's comment.
Vodafone	Vodafone Qatar submits that there should be flexibility on the Single point of contact requirement between SP and relevant bodies. SP should be able to directly communicate with the Ministry of Municipality for technical validation of proposed land in case of rejection. We have seen in the last couple of years that when SPs get involved in following up with the Ministry, a lot of BPs do move. The current manual process has its challenges, including a time lag between the time of the land approval and the official communication letters from MM to CRA then from CRA to SP. Sometimes this has taken months. Proposed Amendment: Add the following in 7.1.1. Services Providers may communicate directly with relevant authorities as required.	The CRA notes the comments submitted by the SPs and believes it would be beneficial to give the SPs the opportunity to play a more active role with the Ministry of Municipality under the coordination of the CRA. For example, SPs could be copied on communications between the CRA and the Ministry of Municipality and intervene if necessary. Therefore, CRA has amended the section 7.1.1 as follows: "*The CRA shall act as the single point of contact between SPs and Government Entities, streamlining the process of acquiring necessary Permits and certificates for Mobile Site installation and upgrades. This does not prevent that operators may intervene in the discussions with other authorities, under the coordination of the CRA, for which they shall be copied in all communications.*"

Stakeholder	Key Comments Received	CRA Response
Ooredoo	We agree to have the CRA as a focal point for submitting applications for technical review, but as long as the automation system is not yet in place, we prefer to have a direct relation with MM to discuss the application progress, in the presence of the CRA. Proposed amendment: The proposed process shall allow Requesting Entity engineers to directly discuss technical issues with their MM counterparts, to speed up the review and approval process. We are OK to keep the CRA informed about any such communication either by email or by having the CRA representative(s) attending the meeting with MM.	

Table 2.16: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Question 4 comments

Question 5

Do you agree with the balance and prioritization of requests proposed in section 7.1.5? If you disagree, please provide your reasoning along with references and proposals.

Stakeholder	Key Comments Received	CRA Response
MATAR (HIA)	Airport has a defined process for work permits and access to the premises for safety of passengers and Civil Aviation infrastructures. HIA has already established standard access offer agreement with both the service providers in joint agreement.	The CRA notes the stakeholder's comment.
Vodafone	Vodafone Qatar agrees with the intention to ensure fairness and efficiency in handling multiple requests from SPs. Vodafone Qatar also submits that SPs should at any time be able to give high priority to specific applications that are required to replace active terminated site by the landlord. There is high risk to de-activate existing site without replacement.	The CRA acknowledges Vodafone's comment. One of the key pillars of the section "Balance and Prioritization of Requests" is to ensure that service providers can prioritize the approval of specific sites. Therefore, the CRA deems it appropriate to amend the clause to explicitly include an option for SPs to request an "urgent request" to prioritize the approval of a specific site over those already submitted by the same SP. The amended 7.1.4 clause reads as follows: "*a) There will be one queue for each SP, based on First-In First-Out (FIFO) approach. This means that each SP's requests will be processed sequentially, starting from the earlier one in the queue.* *b) CRA will alternate sites from the queue of each operator, ensuring that both operators have the same opportunities for their requests to be processed.* *c) Notwithstanding the above, in case of urgent requests, SPs will be given the possibility to prioritize their own requests over those previously submitted. If an SP indicates that a certain site requires urgent attention, that site request shall be placed first in the operator's queue."*
Ooredoo	We agree with the proposed balance and prioritization process.	The CRA acknowledges the stakeholder's comment.

Table 2.17: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Question 5 comments

Question 6

The CRA Sites Management System will enable SPs to apply for permits to install and upgrade Sites. The system will include key features for regulatory compliance and operational efficiency, as outlined in Section 7.2. Do you agree with these features? Are there any additional features you would like to include? Please provide your response along with references and proposals.

Stakeholder	Key Comments Received	CRA Response
Vodafone	We agree with the proposed features. It is also important that the Sites Management system overview as mentioned should cover the end-to-end process from Site request to On Air certification. We recommend that a date by which the system should be in place be added.	The CRA acknowledges the comments made by Vodafone. Although the CRA cannot commit to a specific date at this stage, the CRA will prioritize the implementation of the end-to-end system, ensuring close collaboration with all relevant stakeholders.
Ooredoo	We agree with the proposed features.	The CRA acknowledges stakeholder's comment.

Table 2.18: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Question 6 comments

Question 7

During the workshops, one key aspect discussed was the establishment of an end-to-end process for deploying Sites (from Site request to On-air certification). This process is detailed in Sections 7.3 and 7.4, along with the relevant responsible party. It is important to note that not all of the steps outlined in the regulation apply to every type of Site. In that sense, do you agree with the steps applicable to each type of Site as defined in section 7.3 and 7.4? If not, please provide your proposal along with references.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	For 7.3.2, what happens to existing sites for Rooftop mast without building permit?	Please note that Sections 7.3 and 7.4 are only applicable to new Sites. Therefore, existing buildings with Rooftop masts shall not be impacted by these procedures.
Vodafone	Vodafone agrees with the proposed steps; however, we have the following recommendations: ▶ Steps required for each Type of Sites mentioned in 7.3.2 ▶ CRA to monitor and ensure that Section 7.5 SLAs are applied. ▶ Land leasing SLA must be defined by the relevant government entity. ▶ The building permit process SLA (47.5 working days) should be revised to 20 working days. ▶ Mobile sites towers are standard structures which should not require more than 20 working days to issue the building permit.	The CRA is committed to monitoring the compliance of the SLAs, while also indicating that in the event of non-compliance, stakeholders have the option to report it to the CRA for its intervention. Additionally, the CRA is currently working and coordinating with the involved public entities, those SLAs that are not under the CRA's control (e.g., land lease, building permit processes, Local Municipality approval, etc.). Even if, at this stage, no particular SLA may be reflected in the Regulation, the CRA is committed to making every effort to ensure the timely and efficient handling of these processes.
Ooredoo	In subsection 7.4.9, the 30-day notice is insufficient to decommission the site. Proposed amendments: In subsection 7.4.9, Notice period shall be 90 days.	The CRA acknowledges Ooredoo's comment and, even if the suggested time of 90 days is considered excessive, the CRA has deemed it opportune to extend the decommission time from 30 to 60 calendar days.

Stakeholder	Key Comments Received	CRA Response
Ooredoo	In subsection 7.4.6, the responsibility of submitting building permits should be under the Requesting Entity, not the CRA. Proposed amendments: In subsection 7.4.6, replace the "CRA" in this section by the "Requesting Entity".	The CRA deems it appropriate to provide the SPs with the responsibility to submit the building permits. However, to guarantee the traceability of the process by the CRA, the CRA shall be informed by the SP of the process start date (application date). Amended Clause 7.4.2 reads as follows: *"(…)* *Once the CRA determines that the application is complete, the CRA shall submit the appropriate requests to the Ministry of Municipality for review and follow the processes described in Articles 7.4.3 and 7.4.4 if the type of Site requested is a Mobile Tower. Otherwise, ~~the CRA will initiate~~ the process described in Article 7.4.6 will be initiated, provided that the SP has obtained approval from the relevant entities, as per Article 7.4.5."* Amended Clause 7.4.6 reads as follows: *"After completing the necessary previous steps (depending on the type of Site), the ~~CRA~~ SP will start the Building Permit application by submitting the request into the Building Permit Complex system. The SP shall notify the CRA once the Building Permit application has been submitted.* *(…)* *As a first step, the ~~CRA~~ SP is responsible for:* *(…)* *After the DC1 has been approved by the Government Entities, the ~~CRA~~ SP will start the submission of the DC2 drawings, which are related to the technical aspects for the provision of services".* Amended Clause 7.4.7 reads as follows: *"After the DC1 phase is completed and approved, SPs can start the Building Construction while ~~the~~ ~~CRA~~ ~~issues~~ the DC2 drawings are also being issued by the SPs.* *(…)"*

Table 2.19: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Question 7 comments

Question 8

To streamline the Land Allocation process, the SPs propose that a rejected application should be treated as the same request, rather than a new one. This aspect has been outlined in Section 7.4.3. Do you agree with the provisions in this section? Please provide your answer along with any references and proposals, if applicable.

Stakeholder	Key Comments Received	CRA Response
Vodafone	We agree that there should be a process for discussion between CRA, the Ministry of Municipality and SP to discuss the rejected application with the alternative proposals from SP. Currently, once the application is rejected, the Ministry of Municipality will send an official letter to CRA, then CRA, the Ministry of Municipality and SP arrange technical meeting. After such meetings, there is usually no action taken by the Ministry of Municipality to find alternatives for the rejected sites. The Ministry of Municipality usually considers the application closed by sending an official letter to CRA after the mentioned meetings.	The CRA thanks Vodafone for its comment. Being aware of the issues experiences by the SPs in the past, and as stakeholders have been able to notice in the new 'Regulation for the Construction, Installation and Sharing of Radio Communications Sites', the CRA is indeed adopting a more active role during the various processes requiring permits or approvals from other entities (including the Ministry of Municipality). This approach, as already communicated and agreed with SPs during the previous MGWs, is particularly aimed at streamlining their deployment of sites. In this manner, the CRA believes that close communication between all parties involved will benefit the industry as a whole and establish best practice for the future.
Ooredoo	We agree with the proposed provisions.	The CRA acknowledges stakeholder's comment.

Table 2.20: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Question 8 comments

Question 9

Do you agree with including the provisions related to accelerating the Land Leasing process by seeking solutions with the MM, as set out in section 7.4.4? Please submit your response along with any references and suggestions.

Stakeholder	Key Comments Received	CRA Response
Vodafone	The land leasing process is just a process without any additional technical information that may be incomplete. No risks here that the Ministry of Municipality (land leasing department) should determine that the submitted application is incomplete from land allocation team or CRA. The regulation should mention that once the land is allocated with PIN number, the land leasing team should process the related lease agreement.	The CRA acknowledges the comment submitted by Vodafone. However, the CRA clarifies that the land leasing process falls under the responsibility of the Ministry of Municipality and is therefore outside the scope of this Regulation.
Ooredoo	We agree with the proposed provisions.	The CRA acknowledges stakeholder's comment.

Table 2.21: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Question 9 comments

Question 10

Do you agree with the SLAs presented in section 7.5? Would you like to suggest new timeframes? Please provide your response with references and proposals.

Stakeholder	Key Comments Received	CRA Response
Qatari Diar	SLAs to be defined against action required from each stakeholder, this needs to be discussed.	The CRA has already defined in the Standard, to the extent possible, the SLAs for each type of Site and steps involved in the process.
Vodafone	▶ The building permit process SLA (47.5 working days) should be reduced to 20 working days. – Mobile sites towers are standard structures which should not require more than 20 working days to issue the building permit. ▶ Land leasing SLA must be determined. ▶ SLA must be determined from land allocation completion date to land leasing start date. (The ministry of municipality official approval letters takes long time to move the application from Land allocation department to land lease department). CRA needs to ensure that the land lease team receives the application within 5 days from land allocation date (approved land with PIN number date) then land leasing SLA to start. ▶ Local Municipality approval must be determined with SLA in case of temporary station installation. (Regulatory temporary station is needed to serve an event in which the service must be delivered on time).	Please refer to the CRA's response in Question 7.
Ooredoo	We agree with the proposed SLAs.	The CRA acknowledges stakeholder's comment.

Table 2.22: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Question 10 comments

Question 11

Annex A has been updated to simplify submission and review. Please provide your views if you disagree with the new proposed forms.

Stakeholder	Key Comments Received	CRA Response
MATAR (HIA)	No objection from HIA	The CRA acknowledges stakeholders' comments.
Vodafone	The new forms are noted.	
Ooredoo	We agree with the proposed simplifications of the forms in Appendix A.	

Table 2.23: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Question 11 comments

2.2.3. Additional Comments

Stakeholder	Section	Key Comments Received	CRA Response
Vodafone	7.4.1	Vodafone Qatar agrees with the 5 applications per week; however, we do not agree with the proposed change that the applications should be limited to the same municipality. It is difficult to have the need for 5 sites in the same municipality at the same time and we currently apply for 5 Application a week in different municipalities which are accepted by CRA and Ministry for Municipality.	After having assessed the SPs' suggestions, the CRA has considered it appropriate to remove from section 7.4.1 the limitation of requests being on the same municipality. The amendment included in subsection 7.4.1 reads as follows: "*Each SP may submit a maximum of five (5) applications for Government Lands for approval per week (5 working days)~~, which shall be within the same municipality zone~~.*"
Ooredoo	7.4.1	In subsection 7.4.1, the restriction of the weekly applications to be "within the same municipality zone" is impractical and will have a sever negative impact on the rate of application submission, hence on network performance and ultimately on customers' service experience. In subsection 7.4.1, the "within the same municipality zone" restriction shall be removed, and we should keep the current practice of submitting applications in different municipalities in the same application.	

Stakeholder	Section	Key Comments Received	CRA Response
Vodafone	7.4.5	Vodafone Qatar is of the view that SP shouldn't directly interface with any relevant Government Entities for any additional approval (such as Ministry of Environmental, Ashghal, Parks, PEO,) as it will lengthen the required approval to complete site approval process. These interactions do not have clear SLAs from the other relevant Government Entities, and it sometimes takes months to get a No objection. VQ recommends that this be dealt with by the Ministry of municipality land allocation team by transferring the application to the service coordination system which will clear all the relevant Government Entities no objections, with the following amendment: *"Once the Site request has passed the initial CRA's approval and the PIN number is allocated by the Ministry of Municipality (in case of Mobile Towers), the ~~SPs shall request approval(s) by the relevant Government Entities in order to continue with the Building Permit application~~. Ministry of municipality land allocation team shall transfer the application to the service coordination system which will then send notices to all relevant government entities to provide the no objections"*	The CRA outlines that the approval processes referred to by Vodafone, not being under the CRA's control, are outside the scope of this Regulation. Nevertheless, the CRA is aware that efforts are being made by the Ministry of Municipality to integrate and facilitate the approval processes by the different stakeholders in the system, aimed at streamlining the approval process.
Vodafone	7.4.6	Vodafone agrees with steps set out in 7.4.6, however there needs to be one extra step for the CRA to share the DC1 approval with the SPs once it is issued by the building permit complex. VQ proposes the following amendment: *"After the DC1 has been approved by the Government Entities, the CRA shall share the DC1 approval with the Service Providers and then ~~will~~ start the submission of the DC2 drawings, which are related to the technical aspects for the provision of services."*	Please refer to CRA's response in Question 7 in regard to Section 7.4.6. According to the new procedure, the SP is responsible for the application of the building permit. Thus, Vodafone's suggestion is no longer applicable.

Stakeholder	Section	Key Comments Received	CRA Response
Vodafone	7.4.7	VQ does not agree with the requirement for SPs to notify the Building Permit Complex and the CRA about the start of the construction and the expected completion timeframes. There is already a defined timeframe for the Site to be completed. Therefore, this sentence should be removed. SPs will notify the Building Permit Complex and the CRA once the site construction is completed to issue the final completion certificate.	This notification helps the CRA understand the status of site construction and update its digital system accordingly (once implemented). Additionally, this notification requires minimal effort from SPs while providing transparency to the process, a key objective of this Regulation. For these reasons, no amendment is considered opportune in this case.
Vodafone	7.4.9	Allocated land rent payment proof is part of land leasing process (Section 7.4.4) and permits fees is part of building permit (Section 7.4.6), therefore we submit that there is no need here to provide proof of payment to CRA to issue on Air certification. VQ requests to remove this sentence.	Initially, the requirement of the payment proof was for the CRA to validate whether the SPs have fulfilled the Standard Building Process. Acknowledging that in the new defined end-to-end process the SPs will be providing the final completion certificate to the CRA, this requirement is no longer required. Therefore, the CRA has removed this reference from the Regulation. Clause 7.4.9 reads as follows: *"(…)* *The final approval shall be subject to the CRA's receiving ~~proof of payment of the Applicable Fees and its reception of~~ the Final Completion Certificate (in the case of Mobile Towers and Rooftop Masts)."*
Ooredoo	7.4.9	In subsection 7.4.9, there is a reference to "proof of payment of the Applicable Fees," which is not defined in any part of the process. In subsection 7.4.9, additional clarification about this fee (amount, to whom it should be paid, when it should be paid, etc.)	
Vodafone	8.3	There must be SLA when CRA will notify the other SP with the approved plot.	The CRA agrees to set an SLA of 5 working days for this notification. The amended clause in section 8.3 reads as follows: *"Pursuant to Article 7.4.3, the CRA will notify SPs, within 5 working days, when a land is allocated to either SP. Such notification will include the location of the planned Site (including its GPS coordinates)."*

Stakeholder	Section	Key Comments Received	CRA Response
Vodafone	10	Vodafone Qatar notes that the CRA may adapt the design of Radio Communications Stations Site standard in coordination with other relevant Government Bodies in Qatar. Vodafone Qatar requests that the CRA includes the standard designs of Radio Communications Stations as part of these regulations to simplify the approval process.	The CRA outlines that the approval process of the site design, not being under the CRA's control, is outside the scope of this Regulation. Nevertheless, the CRA will coordinate with SPs and other authorities to reduce the barriers and difficulties identified in the past to this respect.
Ooredoo	2.1	The definition of "Exposure Limit" is vague and subject to interpretation. Accordingly, Ooredoo proposes the following term: "Exposure Limit" is the "Largest safe amount of exposure to electromagnetic radiation as defined by ICNIRP. Any amount of exposure below this limit is considered safe for the public and shall not constitute any source of public health concerns."	CRA acknowledges Ooredoo's comment and has updated the definition of "Exposure Limit". The definition reads as follows: *"The ~~limit of exposure~~ largest safe amount of exposure to electromagnetic radiation as defined by ICNIRP ~~for the protection of human being from EMF~~. Any amount of exposure below this limit is considered safe for the public and shall not constitute any source of public health concerns."*

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	2.1	The definition of "Host" limits the "host" to be only a "Service Provider," while the whole telecom industry around the world is moving towards "TowerCo" concept (TowerCo is a company specialized in managing passive mobile network tower infrastructure); hence, the definition should be generalized to cover all possible cases. Accordingly, Ooredoo proposes the following term: "Host" is the "Entity who has control over the Site or Sites." Any reference to "Host" throughout the document shall not mean "Service Provider" and shall use the "as defined by definition of Host," instead.	The CRA thanks Ooredoo for its comment. To this respect, the CRA has preferred, for simplicity, to include a provision in Section 2.3 to cover future cases such as the TowerCo. Section 2.3 reads as follows: *"The regulation applies to SPs when: (…)* *The CRA may extend, through any appropriate regulatory measures, the application of parts or the whole of this Regulation to parties that are planning to deploy, designing, deploying, hosting, upgrading or controlling Sites and do not qualify as SPs under this Regulation.* *In cases where Site deployments are intended to (…)"* In this manner, the scenario of TowerCo referred by Ooredoo is covered.
Ooredoo	2.1	The definition of IBS is unclear and ambiguous. Accordingly, Ooredoo proposes the following term: "IBS" is "In-Building Solution is the system used to provide indoor mobile coverage within buildings."	CRA acknowledges Ooredoo's comment and has updated the definition of IBS, as follows: "~~*A dedicated tailored designed to provide mobiles services inside a building only that is intended to bring enhanced and seamless mobile communications services indoors and throughout a particular building or venue*~~ *The system used to provide indoor mobile coverage within buildings.*"

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	2.1	In conjunction with the comments given in the "Host" definition above, this definition does not cover the case of TowerCo. Accordingly, Ooredoo proposes the following term: "Permit" is the "Authorization given to an entity to use Government Land and/or to construct and install a Site on private or Government Land."	Please refer to the CRA's response above regarding the TowerCo's scenario.
Ooredoo	2.1	The definition of Service Provider is repeated twice. Delete the duplicate definition, ensuring it covers only "Public Licensed Mobile Service Providers".	The CRA thanks Ooredoo for its comment. In this regard, the CRA has removed the duplicity by eliminating the following definition: ~~*Service Provider (SP): A Public Licensed Mobile Services Provider.*~~
Ooredoo	2.1	The definition of Temporary Site is unclear and ambiguous. Accordingly, Ooredoo proposes the following term: "Temporary Site" is "A Site not built on a permanent foundation, not connected to a direct source of electricity supply from Qatar General Electricity and Water Corporation (Kahramaa), and which is in service and provides a temporary network and wireless coverage. A Temporary Site may be a: ▶ Cell on Wheel (COW), ▶ A rapid deployed mast (RDM), or ▶ A rapid deployed structure (RDS)."	CRA notes Ooredoo's comment and has updated the definition of Temporary Site. However, it is important to note that a temporary site may be connected to Kahramaa's electricity grid. The new definition reads as follows: "*A Site* ~~*designated as a temporary part of a cellular mobile network for providing temporary coverage*~~ *not built on a permanent foundation, that provides a temporary network and wireless coverage. A Temporary Site may be a:* ▶ *Cell on Wheel (COW),* ▶ *A rapid deployed mast (RDM), or* ▶ *A rapid deployed structure (RDS)."*

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	2.1	In conjunction with the comments given in the “Host” and “Permit” definitions above, we propose the addition of “Requesting Entity” definition to cover the case of TowerCo. Accordingly, Ooredoo proposes the following term: “Requesting Entity” is the “Any entity authorized by the CRA to submit a request to use Government Land and/or to construct and install a Site on private or Government Land.”	Please refer to the CRA's response above regarding the TowerCo’s scenario.
Ooredoo	2.3	In conjunction with the comments given in the “Host” and “Permit” definitions above, the opening statement “The Regulation applies to SPs when…” is not covering the case of TowerCo. Accordingly, Ooredoo proposes the following amendment: “The Regulation applies when…”	Please refer to the CRA's response above regarding the TowerCo’s scenario.
Ooredoo	4.h	In conjunction with the comments given in the “Host” and “Permit” definitions above, the opening statement “The Regulation applies to SPs when…” is not covering the case of TowerCo. Accordingly, Ooredoo proposes the following amendment: “Agreements reached by a Host and more than one SP to share an existing Site.”	Please refer to the CRA's response above regarding the TowerCo’s scenario.
Ooredoo	7.1.c	This shall be modified to: “Transparency throughout the whole process”	Please refer to the CRA's response above regarding the TowerCo’s scenario.

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5, 7.2.b, 7.2.f, 7.3.1, Figure 7.1, 7.4, 8, 10 (wherever applicable)	In conjunction with the comments given in the “Host” and “Permit” definitions above, we suggest the removal of “SPs” from these sections and replace it with the term “Requesting Entity” to cover for the case of “TowerCo”. Accordingly, Ooredoo proposes the following amendment: “The CRA shall act as the single point of contact between requesting entities and Government Entities, streamlining the process…” “As a result, the CRA will facilitate and streamline interactions between requesting entities and Government Entities, thus…”	Please refer to the CRA's response above regarding the TowerCo’s scenario.
Ooredoo	7.1.3	We suggest the removal of “SPs” from this section as per the proposal below: Section Title: “Transparency throughout the whole process” “The CRA shall establish a transparent process, enabling all stakeholders to track their requests effectively.” “The CRA shall ensure that SPs are notified any time a Site is requested by another stakeholder, thus…”	Please refer to the CRA's response above regarding the TowerCo’s scenario.
Ooredoo	Table 7.1	The term “Temporary Station” is not defined in the document. Should use the term “Temporary Site”. Also, footnote 3 is not defined. Ooredoo proposes to Replace “Temporary Station” by “Temporary Sites” and to share the definition of Footnote #3 with all stakeholders for review and to be given the opportunity to share their comments.	The CRA acknowledges Ooredoo’s comment and has replaced the term “Temporary Station” by “Temporary Site”. On the other hand, we note that, due to an issue with the update of the cross references in the document, Footnote 3 was in fact Footnote 4, which refers to “Only applicable for private land”.

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	8.5	This part of the consultation was never discussed in any of the meetings, or the workshops related to this initiative. Merging existing Sites is not feasible practically nor economically and will lead to huge negative impact on the QoS provided to customers. In fact, both service providers are suffering from the scarcity of lands and every site counts towards fulfilment of our obligations as explained in our detailed response to the "Compliance Distance" above.	The CRA notes that these provisions have already been in place since the issuance of the previous Regulation. Nevertheless, the CRA understands that the modification of the Compliance Distance from 600m to 200m, upon the SPs' requests, shall alleviate this issue but still promoting the sharing of sites between the SPs.
Ooredoo	10.1.c	As long as the SP complies with ICNIRP standard, there is no need to "minimize RF EMF exposure" efforts. Accordingly, Ooredoo proposes the following amendment: *"Planning, designing and operating radio communications infrastructure in compliance with Exposure Limits"*	CRA acknowledges Ooredoo's comment and has deemed it appropriate to update the text of section 10.1.c. The amended text reads as follows: *"c) Planning, designing and operating radio communications infrastructure ~~to minimize RF EMF exposure~~ in compliance with Exposure Limits"*
Ooredoo	10.1.e	The wording is unclear and ambiguous. We suggest its removal, as it is already covered by 10.1.c.	For the sake of clarity, the CRA has considered it appropriate to merge clauses 10.1.c and 10.1.e as follows: *"c) Planning, designing and operating radio communications infrastructure ~~to minimize RF EMF exposure~~ in compliance with Exposure Limits, maintaining the well-being of Qatar's community, physical or other* *~~e) Maintaining the well-being of Qatar's community, physical or other.~~"*

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	10.9 and Appendix C	The branding of the Host is not considered in the proposed designs. Host must be allowed to use their branding theme and color in the design of the signs, as long as all mandatory fields are provided.	The CRA clarifies that the Regulation does not prevent Hosts from including their branding in the signs. Hence, Hosts are open to include their branding as long as signals included under Appendix C contain the required information.
Ooredoo	10.9	Site Identification signboard can't be shared by SP. Each SP shall have its own signboard. Ooredoo proposes to add this sentence to the regulation: "Each SP will have its own site identification signboard."	CRA acknowledges Ooredoo's comment and has included on Section 10.9 "Warning Signs" the following sentence: *"Each SP will have its own site identification signboard."*
Ooredoo	10.12	"Public Awareness" is not a job of service providers. In fact, it is the CRA's responsibility to educate the general public about how safe the modern telecommunication systems are and ensure support from all relevant government entities (Ministry of Health, Ministry of Municipalities, Ministry of Environment and Climate Change, etc." Service providers are already contributing on an annual basis to fund the sector through license and industry fees, which are to be used to fund such campaigns. Ooredoo proposes to remove this subsection from the regulation.	Although public awareness is considered an overall industry matter, the CRA acknowledges Ooredoo's comments. Accordingly, the CRA considers opportune to lead the public awareness of the telecommunications sector in Qatar. Therefore, the CRA has removed the Public Awareness subsection from the regulation.

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	10.13	"Complaint Handling" regarding the mobile infrastructure is not a job of service providers. In fact, it is the CRA responsibility to educate the general public about how safe the moder telecommunication systems. Moreover, all the listed information is part of the Site construction requirements that are available with the CRA beforehand; hence, it is redundant for the SP to provide the same information every time a complaint is received. Ooredoo proposes to remove this subsection from the regulation.	The CRA notes the comment made by Ooredoo. However, the CRA has a standard complaints process in place, which includes responsibilities for SPs to provide information once a complaint is received. Nevertheless, the CRA has considered appropriate to amend Section 10.13 to clearly refer to such a complaint process, also defining the responsibilities of the SPs. Section 10.13 reads as follows: *~~"SPs shall put in place processes to respond to complaints and enquires from the public about Sites, addressing any complaints and resolving such complaints within 30 Working Days.~~* *~~As part of their response, SPs must be prepared to provide the following information to members of the public:~~* *The CRA has in place a standard process for handling complaints from the general public. However, upon CRA's request, SPs shall provide the following information to the CRA if a complaint is received about one of their Mobile Sites, as long as such information has not been previously shared with the CRA through a different mean:* *a) A description of their radio equipment at the Site;* *b) The operating frequency of the radio transmitters;* *c) A declaration that radio equipment at a given Site has been designed to be in compliance with ICNIRP exposure Procedures and Standards for the general public."*

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	11.2	It is unproportionate that "the CRA shall refuse any new Site Request from the SP, and/or revoke the related On-air certification and direct the SP to decommission the Site" in case of failure to fulfil part of this regulation. It is understood that the above actions can be made to sites specifically not complying with the regulation from the date of issuing the regulations, not retrospectively. Accordingly, Ooredoo proposes the following amend: "For all new applications submitted through the new process stipulated in this regulation, if the CRA determines that an SP has failed to comply or is in breach of the provisions of this Regulation at any point in time, the CRA may revoke the On-air certification of non-compliant Sites and direct the SP to decommission the Site. In such circumstances, Site decommissioning shall be completed within Ninety (90) Working Days from the date of the CRA notice, and a written notification, in accordance with Appendix B, attesting the Site decommissioning shall be provided to the CRA within five (5) Working Days from the date of decommissioning."	The CRA clarifies that this clause is mostly addressed to the scenario in which the SP has not complied with the construction procedures (such as those included in sections 9 and 10) of the Regulation. However, considering that these construction procedures have been maintained from the previous Regulation, the application of this Regulation still presents a retroactive nature.
Ooredoo	10.9 and Appendix C	Need explanation of "Site Identification Code" field on the signboard. We suggest removal of this field.	CRA agrees with Ooredoo and has removed the field "Site Identification Code" from section 10.9 and Appendix C.
Ooredoo	Appendix C	"CRA Approval Reference Number" will apply to new Sites that follow this regulation. Ooredoo proposes to add this sentence to the regulations: "the "CRA Approval Reference Number" will apply to new Sites that follow this regulation".	Considering that the CRA Approval Reference number was already included in previous regulation, the CRA does not consider opportune to introduce the modification proposed by Ooredoo.

Stakeholder	Section	Key Comments Received	CRA Response
Ooredoo	Appendix C	This text is too long and will not fit in the signboard with a relatively readable font size "This Mobile Site has been designed to be in full compliance, with the requirements of the radio frequency (RF) public exposure Procedures and Standards of the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the applicable with radiation law in state of Qatar." A shorter text is proposed instead. "This Site is designed in full compliance with safe radiation regulations in State of Qatar."	The CRA acknowledges Ooredoo's comment and has updated the text on the Site Owner Information Board. The text reads as follows: *"This ~~Mobile~~ Site has been designed ~~to be~~ in full compliance with the ~~requirements of the radio frequency (RF) public exposure Procedures and Standards of the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the applicable with radiation law~~ safe radiations regulations in the state of Qatar"*

Table 2.24: Regulation for the Construction, Installation and Sharing of Radio Communications Sites – Additional question comments

2.3. General comments for both documents

Stakeholder	Key Comments Received	CRA Response
Vodafone	Vodafone Qatar strongly urges the CRA to conduct a second round of consultation on the infrastructure and sharing initiative, as this is a critical issue that affects all stakeholders, including Service Providers, and Real Estate Developers ("REDs"). A second round of consultation would allow all parties to review the comments and feedback submitted by other stakeholders and provide counter arguments or alternative suggestions if needed. This would ensure a more transparent, inclusive, and robust consultation process that reflects the views and interests of all relevant stakeholders. It is also important to note that even though this is one consultation on Infrastructure Development and Sharing, it includes two major regulatory instruments, and each instrument would normally get a separate consultation period of minimum of 4 weeks. This consultation period has in effect been reduced or condensed to 2 weeks per regulatory instrument. The topics being consulted are complex and involve diverse stakeholders. A sufficient/longer consultation period provides stakeholders with adequate time to analyze the issues thoroughly and formulate well-informed responses. Rushed consultations may result in oversights or hastily made decisions that could have unintended consequences; therefore, we highly recommend that the CRA run a second round of consultation with sufficient time to provide comments.	The CRA is of the view that a considerable number of interactions have taken place during the project, in order to guarantee that the views and feedback of all involved stakeholders are duly considered. More specifically: ▶ Multilateral Working Group ('MGW') sessions were organised in February and March 2024, aimed at gathering the stakeholders' position with regards to a relevant number of topics. ▶ A consultation phase has been arranged, allowing all stakeholders to express their views on the elaborated regulatory documents. ▶ Following the consultation phase, workshops have also been organized with stakeholders on 17 and 18 July 2024 to review the outcomes of this consultation, as well as discussing the main topics that have arisen based on the received responses and suggestions. Thanks to these several rounds of interaction, the CRA considers that sufficient feedback has already been collected from stakeholders for the finalization of the regulatory documents. Consequently, the CRA does not see the need for a second consultation phase, which would slow down the project and the finalization of the regulatory documents. Regarding the duration of the consultation phase (4 weeks), the CRA notes Vodafone's comment but also recalls that, due to the previous MGW sessions, stakeholders were already well aware of the main facts and issues concerning the elaboration of the regulatory documents. In the same line, stakeholders had been informed in advance by the CRA about the realization of the consultation phase, specifically on 20 May, allowing them to anticipate and reserve the needed resources to respond. In light of this, the CRA is of the view that the duration of 4 weeks granted to stakeholders has been a sufficient and reasonable time.

Table 2.25: General comments affecting both documents

Annex A. Summary of proposed amendments and new clauses for In-Building Telecommunications Infrastructure Standard

The annex is divided into sub-annexes, which, while showing the amendments to the document, are of a different nature:

- On the one hand, A.1 Summary of amendments/new clauses, displays in a summary table those amendments on specific clauses.
- On the other hand, sub annexes A.2 Existing and New Building Internal Wiring and IBS A.3 IBW & IBS Design and Construction Review Process A.4 IBS technical specifications amendments, A.5 IBS technical specifications amendments A.6 Telecommunications Room specifications amendments, outline the amendments affecting to whole sections. It should be noted that these sections have been updated on the basis of the information provided by Service Providers during Public Consultation. However, for the avoidance of doubt, those aspects suggested by SPs that are not reflected therein correspond to clauses that have been dismissed.

A.1. Summary of amendments/new clauses

Section	Amendment / New clause
General - Terms	The term By-law will be eliminated and only the term Bylaw will be used in the Standard.
2.1 Definitions	The term “Daisy Chain wiring” is removed.
2.1 Definitions	Secondary Telecommunications Rooms: *An additional Telecommunications Room that needs to be deployed due to building requirements, such as size, redundancy, or any other technical or functional needs of the building.*
2.1 Definitions	Term Mobile Service Telecommunications room (MSTR) removed.
2.1 Definitions	Third Party: *Contractors and/or consultants who are involved in planning, design, construction ~~and~~ installation, operation, and maintenance of telecommunications ~~Ducts~~ systems within the building(s).*
2.2 Abbreviations	Term GIS is moved from Section 2.1 to Section 2.2.
2.2 Abbreviations	Term MSTR removed

Section	Amendment / New clause
4 Scope	*This document establishes (…)* *For all new constructions, it is imperative to install physical infrastructure capable of supporting high-speed networks. Access points must be readily accessible to SPs, facilitating efficient connectivity deployment. Such accessibility, pursuant to Articles 3 and 4 of the Passive Civil Infrastructure Access Regulation, must be granted by Access Providers (who also include REDs/building owners) equally to any SP.* *These standard serves as (…)* *Compliance with this Standard is mandatory under subsection 1.3.2.1 of QCS-2014 mentioned in subsection 3.4, above. Accordingly, and for the sake of clarity:* *(i) Unless this is expressly allowed under this Standard, the parties concerned may not deviate contractually from their respective roles and responsibilities under this Standard.* *(ii) A RED's non-compliance with this Standard constitutes a ground for the rejection of that RED's relevant building permit or building completion certificate request.* *(iii) An SP's non-compliance with this Standard may lead to the issuance of a Notice of Non-Compliance and the imposition of any relevant sanctions provided under the Telecommunications Law.*
4.1 Target Audience (new section)	*The target audience for this document are the Service Providers (SP), Building Owners, Real Estate Developers (RED) and their contractors, such as ~~wiring designers,~~ telecom system designers, telecom systems contractors, network design engineers, deployment engineers, construction consultants and telecom systems operation and maintenance facility managers.*
5.2.1 Building Access Point	*"In any development, whether it involves villas, (…).* *The type of Building Access Point required shall be located underground, regardless of the development's characteristics ~~will depend on the development's characteristics, such as its size, type, structure, and utilization. It could range from a basic wall box on a single dwelling unit's (SDU) outer wall to a designated area (e.g., exterior manholes) for a larger development~~. Depending on the development's needs, multiple access points may be required. Factors such as building size, shape, total number of users, and building utilization shall be considered. This is further described in section 5.3.* *(…)"*
5.2.2 Rooftop Telecommunications Rooms	*Rooftop Telecommunications Rooms must be provided on the roof of all multi-dwelling buildings. The list of MDUs is provided in Section 5.3. Note that the deployment of Rooftop Telecommunications Rooms in bulk service buildings is subject to review at the design stage.*

<table>
<tr><th>Section</th><th>Amendment / New clause</th></tr>
<tr><td>5.2.2 MSTR</td><td>~~Mobile Service Telecommunications Room~~

~~Dedicated Mobile-service Telecommunications Rooms (MSTR), used for the provision of IBS services shall be built in the buildings that comply with the requisites of Section 5.4, provided that the capacity in the shared Telecommunications Rooms is not sufficient for the deployment of the required IBS equipment.~~</td></tr>
<tr><td>5.4 - Table 5.3</td><td>
<table>
<tr><th>Building Aggr.</th><th>Type of building</th><th>IBW</th><th>IBS</th></tr>
<tr><td rowspan="4">Detached SDUs</td><td>Single Villa ≤ 1,000 m²</td><td>✓</td><td>✗</td></tr>
<tr><td>Special Villa > 1,000 m²</td><td>✓</td><td>✓</td></tr>
<tr><td>Single Warehouse ≤ 10,000 m²</td><td>✓</td><td>✗</td></tr>
<tr><td>Single Warehouse > 10,000 m²</td><td>✓</td><td>✓</td></tr>
<tr><td rowspan="3">Compound of SDUs</td><td>Small labor accommodation</td><td>✓</td><td>Subject to study</td></tr>
<tr><td>Compound of villas</td><td>✓</td><td>Subject to study</td></tr>
<tr><td>Group of shops and retail outlets</td><td>✓</td><td>Subject to study</td></tr>
<tr><td rowspan="4">MDUs</td><td>Warehouse compounds</td><td>✓</td><td>Subject to study</td></tr>
<tr><td>Residential/comm. towers ≤ 6 floors</td><td>✓</td><td>✗</td></tr>
<tr><td>Residential/comm. towers > 6 floors</td><td>✓</td><td>✓</td></tr>
<tr><td>Shopping malls ≤ 50,000 m²</td><td>✓</td><td>✓</td></tr>
<tr><td rowspan="8">Megaprojects / Bulk services</td><td>Multistore labor accommodation</td><td>✓</td><td>✓</td></tr>
<tr><td>Shopping malls > 50,000 m²</td><td>✓</td><td>✓</td></tr>
<tr><td>Governmental buildings</td><td>✓</td><td>✓</td></tr>
<tr><td>Hotels, Hospitals & Museums</td><td>✓</td><td>✓</td></tr>
<tr><td>Industrial complexes</td><td>✓</td><td>✓</td></tr>
<tr><td>Schools & Universities</td><td>✓</td><td>✓</td></tr>
<tr><td>Airports, Ports, Railway stations & Stadiums</td><td>✓</td><td>✓</td></tr>
<tr><td>Building/compound Tunnels (e.g., connecting buildings, maintenance, utilities)</td><td>✓</td><td>✓</td></tr>
<tr><td>Car Parking (public and private)</td><td>✓</td><td>✓</td></tr>
</table>
</td></tr>
</table>

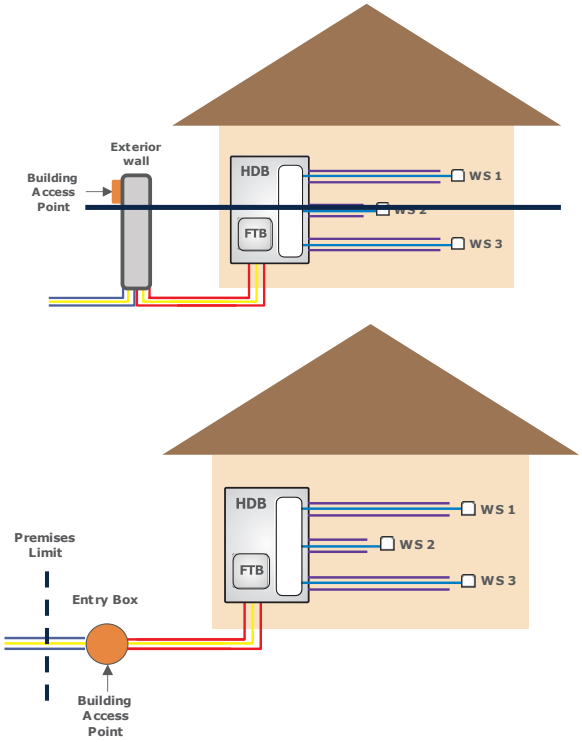
Section	Amendment / New clause
5.3 - Figure 5.1 & 6.3.1 – Figure 6.1	
6.3.1 Detached SDUs	*Even though other configurations are possible, the figure below shows a typical case of a single tenant in-building infrastructure, with the Building Access Point located at the ~~exterior~~ ~~wall of~~ entry box within the premise limit.*
Table 6.1	*Building Access Point: Entry box ~~placed on exterior wall~~ within the premise limit.*
Table 6.6	- *Building of RTTR ~~and MSTR~~ and related EM and civil requirements** - *Fiber optic cables supply, pulling, termination, testing and maintenance from the MTR/HDB to i) The FAP; ii) each Secondary Telecommunications Room ~~MSTR~~, and iii) RTTR*

Table A.1: Proposed amendments and new clauses for In-Building Telecommunications Infrastructure Standard

A.2. Existing and New Building Internal Wiring and IBS

6.2.2 Existing and New Buildings Internal Wiring

Existing Building without Internal Wiring

The same requirements as for new buildings shall apply to existing buildings where no internal wiring has been deployed.

As a general note, ~~installations~~ facilities that existed prior to the issuance of this Standard document may have some inherent constraints, making it impractical or prohibitively expensive to deploy the IBW in ~~upgrade~~ them. It is assumed that, in such cases, no ~~upgrades~~ deployments will be carried out. However, if the SP or the RED is interested in installing the internal wiring in the building, this installation shall be carried out by the interested party, at its own expense and in full compliance with this Standard.

Existing Building Internal Wiring

For existing buildings where the SPs have already deployed the in-building wiring, the existing responsibilities for ownership, maintenance, and upgrading shall be maintained.

This means that, if any SP has already deployed the IBW, that same SP shall be responsible for maintaining and upgrading it. A similar approach shall be followed in cases where it is the RED who has deployed the IBW.

Nevertheless, the IBW ~~its~~ ownership ~~shall~~ may be transferred via commercial agreements from the SPs to the RED or Building Owner, as well as the responsibility for this wiring's maintenance and related matters if both parties (IBW owner – SPs - and the RED/Building Owner) are interested. ~~This transfer will ensure homogenization of responsibilities across the country, providing a clear definition of responsibilities, and ensuring fair competition and non-discrimination. Ownership and maintenance responsibilities should be transferred within 2 years from the publication of this Standard.~~

In existing buildings where unused copper cables obstruct the deployment of fiber cables by a new entrant Service Provider, the owner of the copper cables must decommission these cables within three (3) weeks of receiving notification from the new entrant. Decommissioning should be limited to the affected building sections. Nonetheless, the parties involved may negotiate alternative terms and conditions other than the ones outlined herein. If, for technical reasons, the decommissioning of the copper cables is assumed to be unfeasible, the responsible party must provide duly justified reasons and evidence to the new entrant Service Provider. In that case, both parties shall work jointly on the identification of alternative solutions.

As a general note, installations prior to the issuance of this Standard document may have some inherent constraints, making it impractical or prohibitively expensive to upgrade them. It is assumed that, in such cases, no upgrades will be carried out. However, if the SP or the RED is interested in upgrading the installation, this upgrade shall be carried out by the interested party, at its own expense and in full compliance with this Standard.

New Building Internal Wiring

Any new development is expected to comply with all the requirements set out in this document regarding internal wiring.

Note that the same requirements shall apply for developments undergoing major renovation works, where major renovation works mean civil works that encompass structural modifications of the entire in-building physical infrastructure that require a building permit.

7.2.3 Existing and New Buildings IBS

Existing buildings with IBS deployed

[No modifications]

Existing buildings without IBS deployed

[No modifications]

New building

It is expected that any new building must comply with all the requirements laid out in this document.

Note that the same requirements shall apply for developments undergoing major renovation works, where major renovation works mean civil works that encompass structural modifications of the entire in-building physical infrastructure that require a building permit.

A.3. IBW & IBS Design and Construction Review Process

5.5 Design Review Process

The end-to-end design process is divided into the following steps:

1. The RED/Building Owner shall appoint a Civil/Architectural Design Consultant as the “Main Design Consultant”, which shall appoint a Telecom Design Subconsultant.

2. The Telecom Design Subconsultant then shall prepare the telecom design (IBW and/or IBS) as per this Standard and coordinate at the same time with the SPs to ensure their requirements (e.g., related to capacity, coverage, space, etc.) are met.

3. Once the design is prepared, the Main Design Consultant shall submit the design to the SPs through the Building Permit process. In case of an existing building not requiring a Building Permit, the Telecom Design Subconsultant shall share the design to the SPs via email.

4. Once the design has been received by the SPs, the SPs have the option to review the design, where:

    i. SPs must inform REDs and their subcontractors of their intention to review the design within 5 working days of receipt of the design. No response within 5 working days shall be considered as no intention to review the design.

    ii. For SP(s) that decide to review the design:

        a. Such SP(s) will review it and either approve it or provide comments (duly justified) for modification.

        b. The Telecom Design Subconsultant shall update the design based on the comments received and share it back, as per step 3.

    iii. The design will be deemed approved by SP(s) that did not confirm their intention to review the design as per point (i) above.

    Step 4 shall be repeated as many times as necessary until the design is agreed by the parties. Only SP(s) involved in the review process as per point (i) above would be able to participate in iterations of Step 4.

    Any changes requested by any SP at a later stage will be at the SP's expense.

General aspects

For the design of an IBS system, REDs/Building Owners must engage with a certified design contractor from the CRA's public list, published on the CRA website (https://www.cra.gov.qa).

No fees shall be imposed by the SPs to the REDs/Building Owners for the review and approval of the design of the IBW and/or IBS systems.

Unless otherwise agreed by the parties, the SPs shall review the design of a building within 3 weeks.

5.6 Construction Review Process

The end-to-end construction review process is divided into the following steps:

1. Once the design has been approved and, if applicable, the Building Permit has been granted, the RED/Building Owner can commence the rollout phase of the IBW and/or IBS systems.
2. The RED/Building Owner shall appoint a Main Civil Contractor, which shall appoint a Telecom Subcontractor.
3. The Telecom Subcontractor shall coordinate with the SPs during the rollout phase for any changes in the approved design and prior to site integration. If any modification(s) is needed, the SPs shall review and approve it before continuing with the rollout.
4. The Main Civil Contractor shall carry out periodic inspections throughout the construction/installation process to verify that the work conforms to the approved design.
5. Once the rollout has been completed, the Telecom Subcontractor shall submit to both SPs, the RED and the Building Owner (if applicable) the as-built drawings and test results, pursuant to Section 5.7.
6. Once the information has been received by the SPs, the SPs have the option to review the building, where:
    i. SPs must inform REDs and their subcontractors of their intention to review the rollout of the IBW and/or IBS systems within 5 working days of receipt of the information. No response within 5 working days shall be considered as no intention to review the rollout.
    ii. For SP(s) that decide to review the rollout of the IBW and/or IBS systems:
        a. Such SP(s) will review it and either accept the rollout or provide comments (duly justified) for modification.
        b. The Telecom Subcontractor shall perform the required changes to the IBW and/or IBS systems based on the comments received and share the information back, as per step 5.
    iii. The rollout of the IBW and/or IBS systems will be deemed approved by SP(s) that did not confirm their intention to review the rollout as per point (i) above.

    Step 6 shall be repeated as many times as necessary until the rollout of the IBW and/or IBS systems is accepted by the parties. Only SP(s) involved in the review process as per point (i) above would be able to participate in iterations of Step 6.

    Any changes requested by any SP at a later stage will be at the SP's expense.
7. Upon acceptance, the Main Civil Contractor can apply for the “Building Completion Certificate” to be issued by the Building Permit Complex.

General aspects

No fees shall be imposed by the SPs to the REDs for the review and approval of the building rollout of the IBW and/or IBS systems.

Unless otherwise agreed by the parties, the SPs shall review the rollout of the IBW and/or IBS systems within 3 weeks.

5.7 As Built Requirements

The as-built drawings shall include:

- The location of the Antennas/Splitters/components/cable route with labelling marked on it.
- Schematics diagram.
- Photos of all the antennas/splitters/components installed.
- VSWR/PIM Testing report to be shared in original & PDF format.

~~**6.7 Design Review Process**~~

~~**6.8 Construction Certification Process**~~

7.2.2 General Responsibilities

~~REDs must engage with a certified contractor from the CRA's public list, published on the CRA website (https://www.cra.gov.qa), when designing a new development. Such contractor shall follow this Standard when designing the IBS and coordinate at the same time with the SPs to ensure their requirements are met.~~ [Moved to Section 5.5]

After the design is approved, in accordance with Section 5.5 and 7.5 ~~and 7.6~~, the REDs (or their telecom contractors, as applicable) shall deploy the passive elements (refer to Section 7.3.2) necessary to implement the IBS system as designed. The REDs will therefore be responsible for maintaining and upgrading the passive elements.

During the implementation phase, SPs and REDs' contractors shall collaborate to monitor and certify the construction of the passive elements of the IBS, pursuant to Section ~~7.7~~ 5.6. (…)

~~**7.6 Design Review Process**~~

~~**7.7 Construction Certification Process**~~

A.4. IBS technical specifications amendments

A.4.1. Amendments to Section 7.8 Technical specifications

7.8.1 General Guidelines for IBS

(…)

d) In Passive IBS DAS, the total DAS loss to be within ~~28~~ 26 dBm (+/- 2dB) and Minimum Uplink Coupling Loss (MCL) should be 70 dB (+5dB).

(…)

g) IBS DAS antenna should be ICNIRP compliant and touch safe.

h) IBS DAS link budget should ensure uniform distribution EIRP per antenna with a variation of +/- 2dB, with EIRP per antenna not exceeding 8dBm for UMTS including antenna gain for 3-meter height and 14dBm including antenna gain for double height ceilings, lift shaft antennas. For 4G/5G maintain an average -8dBm (+/- 2dBm) EIRP per antenna, except for lift antenna and basement panel antennas.

i) DAS Point of Interface (POI) per sector should be based on the SISO or MIMO DAS configuration. SISO or MIMO configuration should be connected to maximum 8 POI (8 Hybrid Combiner input port per operator).

j) Handover overlap region between sectors to be minimized to 5% of floor area within RxLev <-80dbm; in low traffic areas, it should be planned in horizontal sectorization. For vertical sectorization, one sector should be configured for ~~8 to~~ 10 floors maximum or less, subject to floor areas/Antenna EIRP.

(…)

p) 2G input power to Hybrid coupler ~~IBS DAS~~ to be designed at 37 dBm per TRX ~~with 2TRX per sector~~.

q) 3G input power to Hybrid coupler ~~UMTS DAS~~ to be designed at ~~43~~ 40 dBm (CPICH at ~~33~~ 30dBm) per carrier ~~with 2 carrier per sector~~

r) 4G input power to Hybrid coupler ~~LTE DAS~~ to be designed at ~~15.2~~ 12.21 dBm RSRP (~~46~~ 43 dBm RSCP) per carrier ~~with 2 carriers per sector barring high traffic venues like shopping malls, exhibition halls, stadiums will have 4 carriers per sector~~

s) 5G NR3500 DAS to be designed at 10.8 dBm RSRP (46 dBm RSCP) per carrier

7.8.2 General Guidelines for Active DAS

[Clauses moved from previous Section 7.8.1]

a) In an Active DAS system, power sharing between bands shall be equally distributed between both operators (Ooredoo and VFQ).

b) In an Active DAS system, sharing between technologies per band shall be equally commissioned for both operators (Ooredoo and VFQ).

c) In an Active DAS system, remote unit output power should be calculated based on the design capacity per technology and number of technologies per band.

d) In an Active DAS system, each remote unit configured per sector should take into account the impact of noise floor addition on cellular RAN. Limit UL noise may rise to a maximum of 3dD in cellular, in a normal low traffic usage scenario. Recommend to limit maximum 5 remote units per sector.

e) In an Active DAS system, fiber link budget loss between master unit and remote unit should be less than or equal to 8dB.

f) ~~Traditional DAS is unlikely to support 5G bands; hence I~~It is recommended to increase the fiber density to all the IDF Rooms for the future solution addition ~~dedicated to the 5G solution and add a pair of CAT6A Ethernet cables along the trunk dedicated for Wi-Fi Access point design~~.

7.8.3 ~~Main components~~ General Guidelines for Passive DAS

a) All components of IBS BoQ proposed should be wide band, supporting frequency bands from 600-4000 MHz. There is no requirement to support every band, only those relevant to the selected technology in both SISO and MIMO options.

b) All Passive DAS components except the antenna should have a PIM rating of – ~~160~~ 161dBc @ 2x 43 dBm.

c) ~~Stadium arena antenna should have a PIM rating of – 153 dBc @ 2x 43 dBm; other~~ antennas should have a PIM rating of – ~~150~~ 153dBc @ 2x 43 dBm.

d) Point-of-interconnect Passive DAS components should have a composite power of ~~300~~ 500 Watt or higher~~, with individual maximum Input RF power per port at 100 Watt or higher~~.

e) Point-of-interconnect DAS components should have a minimum power per port isolation of 25dB.

f) Components proposed should be from the ~~approved~~ list of OEM Vendors ~~recommended~~ published by the ~~operator~~ CRA.

7.8.4 Fiber Optic Guidelines

a) ~~24 Core (LC APC port should be at both ends)~~ Single mode fiber to be pulled from main hub to each remote hub.

b) Single mode fiber optical cable with the specifications below shall be required to connect the remote units to their designated master unit.

c) Minimum requirements for the Fiber Optics cable are:

- Attenuation: < 0.36 dB/km @ 1310nm < 0.26 dB/km @ 1550nm
- Max. length between the remote secondary hub and the main telecommunications hub is assumed to be within a limit of 5km.
- Fiber should be terminated and spliced in the Telecommunications Rooms.
- OTDR test results should be within 6db.

7.8.5 DAS Antenna, Passive components, and RF cabling deployment guidelines

a) Horizontal RF Cables can be laid using existing cable trays (space of ~~100~~ 200/300/400/600 mm) or a separate cable tray to be provided by client with ~~100mmx50 mm~~ 200/300/400/600 mm x 50 mm depending on the solution and number/size of the cables. RF cable can be laid for small distances (<10m) using support bars available, cable to be supported with appropriate sized clamps at 1m centres. RF cables cannot be routed along with AC/Electrical Cable Trays.

b) Vertical RF cables can be laid using existing cable trays (space of 300/400 mm) or a separate cable tray to be provided by building management with 300/400 mm x 50 mm. (RF cables cannot be routed along with AC/Electrical Cable Trays).

c) Sharp 90° cable tray bend is not recommended for RF cable. Maximum cable tray bend to be 45° recommended.

d) RF cables can be routed using a saddling every 1 meter in basements/technical areas where cable trays are not available/provided.

e) The RF cables should be threaded through the pre-installed cable ties, and when the RF cable is fully installed the cable ties will be secured to the cable trays.

f) Vertical & horizontal Cat 6A / Fiber Cables can be laid using existing cable trunk (space of 100 mm). If there is such a possibility, a separate cable trunk to be provided by building management, with 100 mm x 50 mm.

g) On completion of the Installation, VSWR and PIM test report to be submitted. VSWR should be better than <1.3 for DAS and PIM should be 143dBc or better @2x43dbm.

h) PIM test to be certified with testing being carried out at all DAS entry points and DAS points serving seating areas for stadium arena.

i) Permanent access panels need to be provided by building management at the location of the splitters & couplers for future maintenance whenever needed in gypsum false ceiling area.

j) Splitters/couplers must be installed in an accessible location above the false ceiling to ensure the future access for the maintenance.

k) If the antenna has to be installed on the gypsum ceiling, then temporary access panels are required on every antenna location in order to fix the antenna and complete the DAS work.

l) All Antennas shall be installed beneath ceiling to avoid any coverage distortion.

~~m) All passive components of proposed IBS BoQ should be wide band supporting 600-4000 MHz.~~

A.5. Telecommunications Room specifications amendments

A.5.1. Amendments to Section 5.2.2 Telecommunications Room (TR)

Telecommunications Rooms are the areas inside the building(s) where the telecommunications cabling is terminated, cross connected, and interconnected to passive or active telecommunications equipment. Different Telecommunications Rooms may be required in a development, depending on the characteristics of the buildings. The types of Telecommunications Rooms described in this Standard are:

- Main Telecommunications Room
- Rooftop Telecommunications Room
- ~~Mobile Service Telecommunications Room~~
- Floor Aggregation Point/Room (FAP)

~~The following applies to all Telecommunications Rooms, as may be appropriate depending on their size and space:~~

- The room must be easily accessible by authorized personnel 24 h/day, (all days including weekends). The room must be clean, dry and free from dust and secured from unauthorized entry.
- Adequate lighting and a minimum of four 20 Amp and 240 Volt AC mains outlet from a dedicated circuit breaker should be provided.
- The room must be provided with a good earth rod of not more than 5 Ohms.
- The door opening for the room should swing outwards.
- The floor, roof and surrounding wall of the Telecommunications Room should be free of any concealed water/drainage pipes and air-conditioning Ducts passing through.
- The room must be provided with an emergency light, a smoke detector and a fire alarm.
- If the Telecommunications Room is proposed in the basement, an automatic sump draining system must be provided to handle water seepages.

Note that all Telecommunications Rooms (except the FAP) can be Type A or type B. For additional technical specifications refer to Appendix A below.

Main Telecommunications Room

All buildings except Single Villas and special cases not covered in Section 5.1 shall be equipped with at least one Main Telecommunications Room (MTR), that shall be provided on the ground floor or basement floor. The minimum TR dimensions will depend on the size, function and features of the building.

Secondary Telecommunications Room

In case more than one Telecommunications Room is required in a building, Secondary Telecommunications Rooms shall be deployed. In case Secondary Telecommunications Rooms are deployed in the building they shall be interconnected by separate cable trays.

Rooftop Telecommunications Room

Rooftop Telecommunications Rooms host active and passive equipment to provide services such as radio and TV broadcasting (analogue or digital), outdoor and indoor connectivity, etc.

Rooftop Telecommunications Rooms must be provided on the roof of all multi-dwelling buildings. The list of MDUs is provided in Section 5.3. Note that the deployment of Rooftop Telecommunications Rooms in bulk service buildings is subject to review at the design stage.

~~**Mobile Service Telecommunications Room**~~

~~Dedicated Mobile-service Telecommunications Rooms (MSTR), used for the provision of IBS services shall be built in the buildings that comply with the requisites of Section 5.4, provided that the capacity in the shared Telecommunications Rooms is not sufficient for the deployment of the required IBS equipment.~~

Floor Aggregation Point/Room (FAP)

A FAP is used in Multi Dwelling Unit (MDU) scenarios on floors other than ground floors. It can be a dedicated small room (of any size) or a dedicated space within a service room as long as it provides:

- Ready access by the building owner and/or SP – i.e., it shall be in a common area that can be easily accessed by the SP operation and maintenance staff.
- Sufficient working space around the equipment to permit maintenance, repair and relocation of equipment as well as the safe use of tools.
- Good lighting, proper ventilation and air circulation characteristics.

Its functions are:

a) To house the Floor Distribution Box (FDB).

b) To house any other of the SPs' active and/or passive components.

c) To serve as an intermediate point to connect the Home Distribution Box (HDB) to the Building Distribution Box (BDB) in the Telecommunications Room.

d) To house any other of the SPs' Remote Radio Units (RRU), and active and passive mobile telecommunication components (e.g., IBS).

A.5.2. Amendments to Appendix A Additional technical requirements

[Current Appendix A removed and replaced by the text below]

General Requirements

- SP's operation & maintenance staff shall have 24-hour access to the room.
- The room shall have proper access for personnel & for shifting equipment and tools.

Dimensions

These guidelines shall be considered as indicative. Actual number of racks required by each operator will be dictated by the building size and other requirements determined during the design phase.

- The room shall be of a sufficient size to accommodate the SPs' equipment.
  - Considering the following requirements for IBW:
    - Each 48 unit must have a dedicated rack space for Internal Wiring termination.
    - For each 196 unit, each operator must have a dedicated rack space (3 fixed operators).
  - Considering the following requirements for IBS (where applicable):
    - For each 10,000m² for floor area, each operator (2 mobile operators) must have a dedicated rack space (note that for MDUs and multistory buildings, floor area is considered the GFA).
  - Each Rack space shall be 800×800mm.
  - Each Rack must be accessible from both sides.
  - Clearance form walls and Racks must be at least 1m.
  - Isles between Racks' rows must be at least 1m wide.
  - Add 40% additional free space for future expansions.
  - Minimum room dimensions 4×6m.
  - Room dimension calculation method:
    - Calculate number of Racks required for IBW and IBS.
    - Add additional 40% racks for future expansions.
    - Design the rack layout in rows.
    - Adjust layout to consider clearances between rows and walls.
    - Room dimensions shall be at least able to accommodate the above layout.
    - If the room dimensions found to be less than 4×6m, consider the size as 4×6m.
- Example:
  - A MDU with 20 floors, each floor area is 3,500m² and each floor has 10 apartments.
  - IBW Requirements
    - Total number of units = 10 × 20 = 200

  - Number of Internal Wiring Racks = ROUNDUP(200 ÷ 48) = ROUNDUP(4.17) = 5 Racks
  - Number of SP Racks = 3 × ROUNDUP(200 ÷ 196) = 3 × 2 = 6 Racks (3 is the number of Fixed operators)
  - Total IBW Racks = 11
- IBS Requirements
  - GFA = 20 × 3,500m² = 70,000m²
  - Number of IBS Racks = 2 × ROUNDUP(70,000 ÷ 10,000) = 2 × 7 = 14 Racks (2 is the number of mobile operators)
- Total number of IBWS Racks = 11 + 14 = 25 Racks
- Add 40% racks for future expansion = ROUNDUP(25 × 1.4) = 35 Racks
- Proposed layout is to have 5 rows, in each row to have 7 racks
- Room width = 1m (clearance from the wall) + 5 (rack rows) × 0.8 (each rack depth) + 4 (isles between racks) × 1m (clearance between rack rows) + 1m (clearance from the wall) = 1 + 4 +4 +1 =10m
- Room length = 1m (clearance from the wall) + 7 (rack per row) × 0.8 (each rack width) + 1m (clearance from the wall) = 1 + 5.6 +1 =7.6m
- The TR dimensions are 10m wide × 7.6m length

Structural Specifications

- Room and all its fit-outs shall have a minimum design lifetime of 20 years.
- Room shall have a minimum clear height (up to the ceiling or false ceiling) of 3m.
- Room shall NOT have any windows.
- Room shall NOT have any Shafts.
- Room shall NOT have other services (drainage, AC Duct, Mains Power Cable, etc.) passing through it.
- Room shall be airtight with positive pressure (i.e. air flows outwards if the doors are opened).

Walls

- Walls shall be made of reinforced concrete or heat insulating bricks.
- Wall shall be painted with a fire-resistant paint meeting the requirements of BS 476-7:1997
- Wall shall be free of concealed water and/or drainage pipes.

- Any opening or breakthrough in the walls (example for cable gantry or tray) shall be properly sealed with a fire stopping sealant.

Floors

- Floor shall be either a “Raised Floor” or “Vinyl Tiles.”
- Floor shall be Antistatic.
- Floor shall be able to withstand a static weight capacity of 14.7 kN/m².
- For Raised Floor, below requirements shall be met:
  - Clearance from slab ≥ 0.6 m
  - Water sensors shall be installed in suitable locations below the raised floor to detect water pooling.

Ceilings

- Ceiling shall be either a False Ceiling or epoxy painted.
- Ceiling shall be free of concealed water and/or drainage pipes.
- For False Ceiling, below requirements shall be met:
  - Clearance above False Ceiling ≥ 1 m
  - Made of a fire-retardant material

Doors

- Doors shall be made of steel or aluminum and painted with a fire-retardant material on both sides.
- Double Doors with width ratio 3:1 (i.e. if the wider door is 0.9 m, then the other door shall be 0.3 m)
- Door’s width ≥ 1.2 m
- Door’s height ≥ 2.2 m
- Doors opening angle shall be 180° with foot operated kick down doorstops.
- Doors shall open to outside (i.e. by pulling the door outwards, not pushing it inwards)
- Doors shall be able to stop fire for at least 2 hours.
- Doors shall comply with ingress protection rating IP64 (dust proof gasket).
- Doors shall withstand up to 100 joules of impact energy in a singular impact.
- Door shall NOT have a window.

- Doors shall have a suitable access control system and shall be controlled by building's facility manager.

Climate Control

- The room shall be installed with a cooling system capable of maintaining a programmed temperature for the thermal load from equipment within the room in addition to any heat ingress through the building structure and other supplied equipment.
- The cooling system shall maintain the room temperature in the range of 20—22° Celsius.
- The cooling system shall maintain the temperature within specification at maximum thermal load when one cooling unit has failed (n+1 redundancy).
- The cooling system shall be designed so that no external air enters the room as part of its operation.
- The cooling system shall be of precision cooling type with humidity control to ensure that humidity within the room does not build up during operation.
- The cooling system shall be designed to minimize temperature cycling of the room and under normal conditions the temperature should not change by more than 1 degree Celsius per minute. This is to prevent equipment undergoing thermal stress.
- Telecommunications Rooms should be designed to operate with a relative humidity of up to 70%

Electrical Requirements

- A 125 Amp 3 phase 10-way Distribution Board (DB) dedicated for each service provider shall be provided inside the Main Telecom room.
- 1×63A power isolators of 3 phase 5-pin commander socket for each 10 racks (minimum 3 isolators).
- For each equipment aisle (row), 2 Earth Bars with 12 terminations shall be installed, one for AC and another for DC equipment.
- The Earth Bar should be connected by using 1 core 70 mm² PVC/ECC cable to an external Earth Pit which has a 20 mm diameter solid copper rod up to summer water level. The earth resistance should be less than 1 Ω.
- Double 13A sockets (UK standard) with neon every 2 meters on all walls.

Lighting

- Lights shall be ceiling mounted form factor, installed in the middle of walking aisle between two rack rows.
- Lighting Source shall be 2×Fluorescent Tubes.

- Light tubes configuration shall be linear.
- Light color shall be white.
- Light illumination ≥ 500 lux.
- At least 1 light fixture shall be with a 3-hour emergency backup kit.
- An emergency exit light non maintained type with 3hrs above the exit door

Telecom Cables Management

- Cable Management can be either “Cable Trays” under the raised floor or “Cable Ladders” above racks.
- Cable Tray / Ladder must be made of GI with minimum width of 300mm.
- Max distance between cable ladder steps is 150mm.
- All cable ladders to be interconnected and extended up to the duct entry point from the external duct.
- Telecom Cables Management shall be separate from Electrical Cable Management.

Fire System

- The Room must be equipped with a fire detection system, as per QCDD requirements.
- The Room must be equipped with a fire alarm system, as per QCDD requirements.
- Room must be equipped with FM200 fire suppression system (or better), as per QCDD requirements.

Annex B. Summary of proposed amendments and new clauses for Construction, Installation and Sharing of Radio Communications Sites

Section	Amendment / New clause
2.1 Definitions	*Compliance Distance: The general minimum distance required between Sites, excluding indoor Sites.* *The Compliance Distance is:* ▶ *Within ~~6~~200 meters between two (2) Sites;* ▶ *~~Minimum 200 meters from educational institutions and health facilities~~; and* ▶ *~~Minimum 7 to 120 meters' distance~~ At least 7 meters away from a High Voltage electrical power transmission line.* *The CRA may approve sites not meeting the above limits based on technical justifications.*
2.1 Definitions	*Exposure Limit: The ~~limit of exposure~~ largest safe amount of exposure to electromagnetic radiation as defined by ICNIRP ~~for the protection of human being from EMF~~. Any amount of exposure below this limit is considered safe for the public and shall not constitute any source of public health concerns.*
2.1 Definitions	*IBS: ~~A dedicated tailored designed to provide mobiles services inside a building only that is intended to bring enhanced and seamless mobile communications services indoors and throughout a particular building or venue~~ The system used to provide indoor mobile coverage within buildings.*
2.1 Definitions	Duplication of Service Provider term removed.
2.1 Definitions	*Temporary Site: A Site ~~designated as a temporary part of a cellular mobile network for providing temporary coverage~~ not built on a permanent foundation, that provides a temporary network and wireless coverage. A Temporary Site may be a:* ▶ *Cell on Wheel (COW),* ▶ *A rapid deployed mast (RDM), or* ▶ *A rapid deployed structure (RDS).*

Section	Amendment / New clause
2.3 Scope and application	*"The regulation applies to SPs when: (…)* *The CRA may extend, through any appropriate regulatory measures, the application of parts or the whole of this Regulation to parties that are planning to deploy, designing, deploying, hosting, upgrading or controlling Sites and do not qualify as SPs under this Regulation.* *In cases where Site deployments are intended to (…)"*
Table 7.1	*Replaced the term "Temporary Station" by "Temporary Site"*
7.1.1 CRA's overview and support throughout the end-to-end process	*The CRA shall act as the single point of contact between SPs and Government Entities, streamlining the process of acquiring necessary Permits and certificates for Mobile Site installation and upgrades. This does not prevent that operators may intervene in the discussions with other authorities, under the coordination of the CRA, for which they shall be copied in all communications.*
7.1.4 Balance and prioritization of requests	*(…)* *a) There will be one queue for each SP, based on First-In First-Out (FIFO) approach. This means that each SP's requests will be processed sequentially, starting from the earlier one in the queue.* *b) CRA will alternate sites from the queue of each operator, ensuring that both operators have the same opportunities for their requests to be processed.* *c) Notwithstanding the above, in case of urgent requests, SPs will be given the possibility to prioritize their own requests over those previously submitted. If an SP indicates that a certain site requires urgent attention, that site request shall be placed first in the operator's queue.*
7.4.1 Site request	*(…)* *Each SP may submit a maximum of five (5) applications for Government Lands for approval per week (5 working days)~~, which shall be within the same municipality zone~~.* *(…)*

Section	Amendment / New clause
7.4.2 CRA preliminary review	*(…)* *Once the CRA determines that the application is complete, the CRA shall submit the appropriate requests to the Ministry of Municipality for review and follow the processes described in Articles 7.4.3 and 7.4.4 if the type of Site requested is a Mobile Tower. Otherwise, ~~the CRA will initiate~~ the process described in Article 7.4.6 will be initiated, provided that the SP has obtained approval from the relevant entities, as per Article 7.4.5.*
7.4.6 Building Permit	*After completing the necessary previous steps (depending on the type of Site), the ~~CRA~~ SP will start the Building Permit application by submitting the request into the Building Permit Complex system. The SP shall notify the CRA once the Building Permit application has been submitted.* *(…)* *As a first step, the ~~CRA~~ SP is responsible for:* *(…)* *After the DC1 has been approved by the Government Entities, the ~~CRA~~ SP will start the submission of the DC2 drawings, which are related to the technical aspects for the provision of services.*
7.4.7	*After the DC1 phase is completed and approved, SPs can start the Building Construction while ~~the~~ ~~CRA~~ ~~issues~~ the DC2 drawings are also being issued by the SPs.* *(…)*
7.4.9 On-air certification	*(…)* *The final approval shall be subject to the CRA's receiving ~~proof of payment of the Applicable Fees and its reception of~~ the Final Completion Certificate (in the case of Mobile Towers and Rooftop Masts).* *(…)* *… the CRA may revoke the approval and direct the SP to decommission the Site, at the SP's own expense, within ~~thirty (30) Working~~ sixty (60) Calendar Days from the date of receiving the CRA notice. The ~~30~~ 60-day notice is subject to written justification where an extended period is required. The CRA may also require the SP to implement immediate remedial actions.*
8.3 Sharing at new Sites	*Pursuant to Article 7.4.3, the CRA will notify SPs, within 5 working days, when a land is allocated to either SP. Such notification will include the location of the planned Site (including its GPS coordinates).* *(…)*

Section	Amendment / New clause
8.5.a	*The CRA will notify each SP of which Sites are in breach of the compliance distance ~~of 600m~~ defined in Section 2.*
10.1.c & 10.1.e	*c) Planning, designing and operating radio communications infrastructure ~~to minimize RF EMF exposure~~ in compliance with Exposure Limits, maintaining the well-being of Qatar's community, physical or other.* *~~e) Maintaining the well-being of Qatar's community, physical or other.~~"*
10.3.b	*Implement Compliance Distances. For the sake of clarity, ~~a distance of less than 600 meters between Sites~~ a breach in the Compliance Distance defined in Section 2 will be allowed only in exceptional cases, substantiated with a written justification.*
10.9 Warning Signs	*(…)* *Each SP will have its own site identification signboard*
Figure 10.1	Site Identification Code has been removed
Annex C Site Identification Table	Site Identification Code has been removed
Annex C Site Identification Table	*This ~~Mobile~~ Site has been designed ~~to be~~ in full compliance with the ~~requirements of the radio frequency (RF) public exposure Procedures and Standards of the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and the applicable with radiation law~~ safe radiations regulations in the state of Qatar.*
10.12 Public Awareness	[Section removed]

Section	Amendment / New clause
10.13	~~*SPs shall put in place processes to respond to complaints and enquires from the public about Sites, addressing any complaints and resolving such complaints within 30 Working Days.*~~ ~~*As part of their response, SPs must be prepared to provide the following information to members of the public:*~~ *The CRA has in place a standard process for handling complaints from the general public. However, upon CRA's request, SPs shall provide the following information to the CRA if a complaint is received about one of their Mobile Sites, as long as such information has not been previously shared with the CRA through a different mean:* *a) A description of their radio equipment at the Site;* *b) The operating frequency of the radio transmitters;* *c) A declaration that radio equipment at a given Site has been designed to be in compliance with ICNIRP exposure Procedures and Standards for the general public.*

Table B.1: Proposed amendments and new clauses for Construction, Installation and Sharing of Radio Communications Sites