

Appendix I: Decisions on Recommendations (DoRs) Matrix for First Consultation Round

The following summarises the comments and recommendations received from stakeholders on the *Consultative Document: Technical Standards for Public Fixed Telecommunications Networks (first round, February 2019)* and the decisions made by the Authority to be incorporated into the second round revised consultative document.

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1	General	TSTT	<p>Telecommunications Services of Trinidad and Tobago Limited (TSTT) appreciates that the Telecommunications Authority of Trinidad and Tobago (TATT) has provided the opportunity for operators to comment on these matters. It should be noted that the comments expressed by TSTT on this document, in no way restrain TSTT from making further comments in the future.</p> <p>TSTT noted with great concern that the documents listed as References, spoke to “technical</p>		<p>The Telecommunications Authority of Trinidad and Tobago (the Authority) appreciates TSTT’s review of the document and its comments and recommendations.</p> <p>The references listed in this document are either standards recommended by the International</p>

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			<p>considerations” and “possible preventive measures” not standards.</p> <p>TSTT wishes to direct TATT to a document published on its website, namely “<i>ICT Open Forum Resilience Communications: Staying Connected During a Disaster, Technical Standards for Fixed Wired Networks</i>”, dated September 28, 2017, and presented by Dexter Boswell-Inniss, wherein the following key points were noted:</p> <ul style="list-style-type: none"> • As part of TATT’s strategic initiative, a three (3) year plan was developed with the following deliverables: <ul style="list-style-type: none"> ➤ “<i>Year 1: Development of Technical Standards for public fixed</i> 		<p>Telecommunication Union (ITU), or standards employed by other international regulatory bodies.</p>

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			<p><i>telecommunications networks</i></p> <ul style="list-style-type: none"> ➤ <i>Year 2: Consultation of Technical Standards for public fixed telecommunications networks and development of Technical Standards for public mobile telecommunications networks.</i> ➤ <i>Year 3. Consultation of Technical Standards for public mobile telecommunication networks”</i> <ul style="list-style-type: none"> • To achieve TATT's year one (1) plan, as part of its Way Forward, TATT proposed that a Technical Working Group (TWG) 		

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			<p>chaired by TATT be formed “for fixed (wired) operators to provide inputs into the development of standards for resiliency of fixed (wired) networks in Trinidad and Tobago.”</p> <ul style="list-style-type: none"> • After which, “the work of the TWG will be submitted to the Authority for its consideration in the development of the Authority’s technical standards document”. • It further stated that “this document will then go through the Authority’s normal public consultation procedures.” which falls into year two (2) of TATT’s strategic initiative. <p>TSTT notes however, with concern that to date it cannot recall that a TWG was formed or a proposal made for a TWG to be formed which will allow</p>		<p>In accordance with the Authority’s proposed way forward in developing this document, the Authority did establish a Technical</p>

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			<p><i>“fixed (wired) operators to provide inputs into the development of standards for resiliency of fixed (wired) networks in Trinidad and Tobago.”</i> Thus, this step may have been ignored and TATT has progressed to year two (2) of its strategic initiative without the necessary inputs from the relevant stakeholders.</p>		<p>Working Group (TWG) which included technical representatives from the fixed (wired) operators throughout Trinidad and Tobago. The technical representatives who attended the TWG meetings were recommended by their companies, based on their familiarity with the aspects of the network for which the technical standards were being developed. TWG meetings were held every Thursday for 12 weeks from January to March 2018. The initial draft of the <i>Technical Standards for Public Fixed Telecommunications Networks</i> (developed by the Authority) was shared amongst the members of the TWG and formed the basis of all discussions moving forward. In other words, that draft document was revised by the TWG members present at the meetings. Upon completion of the work of the TWG, the revised draft was shared with the</p>

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					<p>TWG members for any final comments. Further revisions were done by the Authority based on the final comments received, and to satisfy the Authority's new style requirements for such documents. The Authority then published version 0.1 of the <i>Technical Standards for Public Fixed Telecommunications Networks</i> for a first round of consultation, in accordance with the Authority's consultation procedures. In summary, the Authority adopted a collaborative approach with the wired operators in developing this document prior to issuing it for public consultation.</p> <p>A letter was addressed and initially sent to TSTT on the November 17, 2017, informing them of the establishment of the TWG and its the Terms of Reference (ToRs), with an invitation to them to</p>

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					<p>participate in the TWG. After receiving no response from TSTT for several weeks, the same letter was then emailed to the Corporate Secretary of TSTT on December 11, 2017. TSTT then replied to the Authority via email on December 12, 2017, informing the Authority of its representative nominated to participate in the TWG. The Authority emailed the representative from TSTT with the scheduled dates of the TWG meetings. The representative from TSTT only attended the meeting held on January 30, 2018. All revisions of the draft standards document worked on by the TWG were circulated to the members prior to the meetings.</p>
	General (Cont'd)	TSTT	TSTT's position is that if TATT had followed its proposed Way Forward and the TWG was formed, a more complete and thorough document would have	TATT to follow its proposed Way Forward and form a TWG, that will allow for a more complete and thorough	As indicated above, the Authority did follow its proposed way forward

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			<p>been completed. This would have also eliminated the series of unanswered questions raised from reviewing this consultation document.</p>	<p>document to be presented to the industry.</p>	<p>by forming a TWG through which this document was developed.</p>
	<p>General (Cont'd)</p>	<p>TSTT</p>	<p>Despite the laudable statements with respect to encouraging network resiliency in the instance of natural and manmade disasters, TSTT has significant concerns about TATT's intentions with respect to these proposed standards.</p> <p>TSTT recognizes the citations from the Act giving TATT the authority under S.18 and 45 to establish guidelines which concessionaires must adhere to. In accordance with S.45 (1), TSTT's fixed network already conforms to accepted international standards. TSTT notes that S.45 (2) provides for TATT to identify, adopt or establish preferred technical standards, however it questions whether some of these standards prescribed by TATT</p>		<p>The Authority acknowledges that section 45(1) of the Telecommunications Act, Chap. 47:31 (the Act) allows concessionaires some latitude in adopting international standards. This right is specific to technical standards "...which are in conformity with accepted international standards". However, section 45(2) of the Act provides the Authority with the discretion to</p>

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			<p>are appropriate or a best fit for our regulatory environment as TSTT is unclear how TATT intends to implement these standards.</p>		<p>“identify, adopt or establish preferred technical standards”. The language used in the section is unambiguous and gives the Authority power, where it deems appropriate, to establish preferred technical standards.</p> <p>In this regard, it is evident that the Authority, by virtue of the Act, is the appropriate body with the remit to indicate, where it deems suitable, which international standard(s) it accepts.</p> <p>Additionally, section 18 (1) (d) of the Act provides the Authority with the “functions and powers ... [to] establish national telecommunications industry standards and technical standards”. Pursuant to this, section 25(2)(a) of the Act requires that concessionaires comply with</p>

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					<p>guidelines and standards established by the Authority.</p> <p>The Authority prepared this consultative document after researching recognised international technical standards and reviewed such standards in collaboration with the TWG, which was comprised of representatives from the various wired telecommunications operators in Trinidad and Tobago.</p> <p>After this consultative document is revised in accordance with the Authority's consultation procedures, it is then finalised and published. If regulations based on these technical standards are required, such regulations will be promulgated in accordance with section 78 of the Act. The Authority is empowered under the Act (per section 18(1)(h) to "implement and</p>

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			<p>As examples, there are standards included in this document which seem to overstep the threshold of being technology-neutral and objective/ outcome -oriented but instead becomes overly prescriptive in such a manner that would bind the concessionaire to a technology or design topology that may not be the most efficient (operationally and financially) to implement in Trinidad and Tobago. TSTT therefore</p>		<p>enforce the provisions” of the Act and “the policies and Regulations” made thereunder. The Authority intends to conduct audits, from time to time, to check compliance with these technical standards and, where appropriate, take the necessary action it is entitled to take under the Act to compel compliance, depending on the circumstances of the case.</p> <p>The ITU’s definition of technology neutrality, as referenced in the Authority’s Guiding Principles for Regulatory Decision Making, states: ‘Technology Neutrality....“that different technologies offering essentially similar services should be regulated in similar manners. However, technologies offering similar services do not necessarily have similar features in all aspects, and exactly identical regulations</p>

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			<p>objects to the establishment of prescriptions which would hinder the innovation of operators in the market and breach the principle of technology-neutrality established in TATT's Authorisation Framework and existing regulations.</p>		<p>may, therefore, result in the advantage of one technology over another in the market. Technology neutral regulation can, consequently, include slightly differing regulations for different technology solutions in the same market segments.” ’</p> <p>Section 5.1 of the document establishes technical standards to implement redundancy in optical transport networks (OTNs). In this section, the focus is on utilising ring topology to implement a redundant path in the OTN. The Authority, however, acknowledges TSTT's view on adopting a more technology-neutral approach, and proposes that other types of technology, such as microwave systems, may also be implemented to provide redundancy in OTNs, once full restoration of traffic is achieved. A new mandatory</p>

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			<p>Further, while TATT outlines certain provisions in statute and regulations which empower it to establish standards, TATT is strangely silent on how these provisions will be enforced. As such, the following questions were raised</p> <p>1) Will these standards be applied retroactively with respect to networks that are already installed?</p>	<p>TATT to provide adequate and detailed responses to the following questions:</p> <p>1) Will these standards be applied retroactively with respect to networks that are already installed?</p>	<p>standard 40 has been included in the document to reflect this, which states: "Where a microwave system is deployed to provide redundancy, full restoration of traffic shall be required."</p> <p>In response to these specific questions:</p> <p>1) The Authority will work with operators to prescribe a suitable time frame for the implementation of these technical standards into existing networks. These technical standards shall be implemented during the</p>

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			<p>a) If so, how does TATT propose to collect the associated information set to confirm whether some of the minutiae of standards proposed were implemented? Will TATT require the excavation of existing ducts, or the replacement of existing towers and poles, to ensure that the cables, towers and poles, installed years ago are in compliance with the standards outlined in its proposals?</p> <p>b) Who is expected to finance the investigations? Once identified, who is going to</p>	<p>a) If so, how does TATT propose to collect the associated information set to confirm whether some of the minutiae of standards proposed were implemented? Will TATT require the excavation of existing ducts, or the replacement of existing towers and poles, to ensure that the cables, towers and poles, installed years ago are in compliance with the standards outlined in its proposals?</p> <p>b) Who is expected to finance the investigations? Once identified, who is going to</p>	<p>deployment of networks which are constructed after the standards have been established.</p> <p>a) The Authority will conduct audits on concessionaires to confirm whether the technical standards have been implemented. The Authority will require operators to carry out the necessary work on their networks, to implement the technical standards. A reasonable time frame will be defined, in consultation with the concessionaires, for implementing the technical standards into their networks.</p> <p>b) The Authority will finance the audits to check for compliance with these</p>

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			<p>finance the change out that may be proposed?</p> <p>c) Does TATT expect the market to absorb such a significant cost and is TATT cognizant of the associated increase in retail prices to customers that will be necessary to offset this unplanned capital expense?</p>	<p>finance the change out that may be proposed?</p> <p>c) Does TATT expect the market to absorb such a significant cost, is TATT cognizant of the associated increase in retail prices to customers that will be necessary to offset this unplanned capital expense?</p>	<p>technical standards. It is the responsibility of the concessionaires to finance any required modifications to their networks and facilities, in order to adhere to these technical standards.</p> <p>c) TSTT has asserted that "TSTT's fixed network already conforms to accepted international standards." The standards set out in the subject document are predicated, in the main, on international best practices and standards. In this regard, if TSTT's infrastructure already meets accepted standards, then it may be premature to claim that retail prices would be affected to offset any unplanned capital expense. However, should the cost of</p>

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					<p>implementing these technical standards be significant, consideration will be given to implementing them within a reasonable time frame, so that the customer is not ultimately affected by any increased retail prices as a result thereof.</p>
	General (Cont'd)	TSTT	<p>2) How will these standards be applied to new constructions/builds?</p> <p>a) Will TATT seek to establish some sort of approval process before builds can begin? If so, what is the form of this process? How will TATT ensure that this extra bureaucratic step</p>	<p>2) How will these standards be applied to new constructions/builds?</p> <p>a) Will TATT seek to establish some sort of approval process before builds can begin? If so, what is the form of this process? How will TATT ensure that this extra bureaucratic step will not stymie network development as projects sit unevaluated by TATT?</p>	<p>2) The Authority wishes to confirm that new builds are required to conform with these standards.</p> <p>a) Concessionaires/licensees are required under their concession/licence to seek the Authority's prior approval in certain circumstances. For example, concessionaires are required to seek prior approval as it relates to material changes</p>

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			<p>will not stymie network development as projects sit unevaluated by TATT?</p> <p>b) Does TATT have the statutory power to approve civil works? Does TATT have the power to require that civil structures be replaced?</p>	<p>b) Does TATT have the statutory power to approve civil works? Does TATT have the power to require that civil structures be replaced?</p>	<p>to its public telecommunications network. Subject to the foregoing, the Authority will not require prior approval for new builds.</p> <p>b) Condition A2 requires concessionaires to “comply with the Act, all regulations or other instruments made under the Act.... and all laws in force from time to time”.</p> <p>The Authority does not have any explicit power under the Act to approve civil works or request that civil structures be replaced. The Authority does, however, have the power to monitor and ensure compliance by concessionaires under their concession and enforce the</p>

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			<p>c) Has TATT evaluated the opportunity and regulatory costs associated with the implementation of its proposals, and</p>	<p>c) Has TATT evaluated the opportunity and regulatory costs associated with the implementation of its proposals, and determined</p>	<p>standards by which telecommunications networks are deployed. Regarding civil works, operators must provide the Authority with evidence that the necessary approvals have been obtained based on the building codes used in Trinidad and Tobago. Currently, the Trinidad and Tobago construction industry voluntarily adopts the American building codes for large commercial buildings, covering areas such as steel, concrete, seismic loading and wind.</p> <p>c) The Authority recognises that improving network resiliency to meet an established standard has a cost. However, the shortcomings of not</p>

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			<p>determined whether there is a net positive effect of its implementation?</p>	<p>whether there is a net positive effect of its implementation?</p>	<p>applying such standards would become evident if a disaster occurs and customers lose service, as was the experience after Hurricane Irma in some of the islands in the Caribbean. A balance, therefore, has to be struck. Where natural disasters are relatively foreseeable, a responsible regulator must weigh the cost of applying these standards against the human and infrastructural costs that may be suffered in the absence of same. Generally, in the face of the potential deleterious effects that natural disasters can have on a country, the cost of applying these standards are not unreasonable and would ultimately have a positive effect on the resilience of the telecommunications infrastructure in Trinidad and</p>

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				<p>Without treating with these questions and before even discussing the specifics of the standards proposed, TSTT suggests that TATT revisit this exercise. Moreover, given the objectives of ensuring network resiliency, reconsider the form of standards proposed so that they remain consistent with TATT's framework of the past, i.e., technology-neutral and objective/ outcome oriented.</p>	<p>Tobago. The Authority took a collaborative approach through the TWG to find that balance, so that realistic standards could be proposed.</p> <p>This consultative document was developed based on agreed technical standards coming out of the TWG, together with comments and recommendations from stakeholders during the first round of consultation. The Authority, therefore, disagrees that this exercise should be revisited. This is the consultative document that has been revised based on comprehensive input from industry stakeholders like TSTT. The Authority welcomes further comments and recommendations from TSTT towards the revision of this consultative document prior to final approval and publication.</p>

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2	Introduction	CCTL	<p>Technical industry standards or guidelines are recommendations that allow information and communications systems to work together, locally and globally. As the United Nations specialized agency for information and communication technology, the International Telecommunications Union (ITU) is the global body responsible for setting telecommunications standards.</p> <p>Given the critical importance of information and communication technology (ICTs) to societies, and with increasing occurrence of extreme weather events and other natural disasters, the ITU has been providing guidance on the standards related to the mitigation of disaster risks.</p> <p>The focus of this consultation is on industry standards to</p>		<p>The Authority appreciates CCTL's review of the document and its comments and recommendations to same.</p>

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			<p>mitigate various natural and manmade disasters. CCTL supports any reasonable efforts to develop such standards, and is pleased to provide input to this process.</p> <p>The views expressed are not exhaustive. Failure to address any issue in this response does not in any way indicate acceptance, agreement or relinquishing of CCTL's rights.</p>		
3	1.9 Definitions "Access Network"	TSTT	<p>The definition proposed here is not technology neutral and the use of the term "local exchange" would only apply to Time-Division Multiplexing (TDM) based Public Switching Telephone Network's (PSTN's). As an example, IP based networks where the last mile is fibre or fibre-coax hybrids do not have "local exchanges". Accordingly, this definition breaches the first principle of technology-neutrality by being technology specific. Indeed, by this</p>	<p>The term "local exchange" should be removed from the definition so that the definition of access network is not technology-specific and can be readily applied to all fixed telecommunications networks deployed in Trinidad and Tobago.</p>	<p>The Authority agrees to remove the term "local exchange" from the definition of an access network. The definition of an access network has been amended, as follows: "Access network: a system deployed between a suitable point on the core network and user premises, replacing part or the whole of the local line distribution network"</p>

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			<p>definition it is implied that operators in T&T with fibre, fibre-coax hybrid or wireless networks don't have access networks.</p> <p>Indeed, even in legacy TDM PSTNs, with the introduction of VoIP services, many "local loops" have already been modified so that the Core extends beyond the local exchange, closer to customer premises. This shortens the access loop to consumers facilitating higher speed broadband delivery to the end user on twisted pair facilities. These trends are well documented around the world.</p>	<p>TATT to consider the developments worldwide which have resulted in high-speed ISDN services over twisted pair networks, and the associated modification in the "access network" to facilitate same.</p>	<p>ISDN is a technology that was first deployed in the 1980s. It is currently being phased out on a worldwide basis. As far as the Authority is aware, it was not widely deployed in Trinidad and Tobago, and the Internet broadband speeds afforded by this technology have been superseded by newer technologies with significantly better broadband access speeds.</p>
4	1.9 Definitions	CCTL	<p>In the section, "Compliance Notation" TATT states that concessionaires are required to fully comply with standards specified. CCTL understands that industry standards or</p>	<p>CCTL wishes to reinforce that network operators have a vested interest in ensuring that networks meet international standards and can withstand natural and man-made disasters.</p>	<p>The Authority disagrees that regulatory requirements mandating the compliance of these standards are regulatory overreach.</p>

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			<p>guidelines are necessary and important to ensure information and communications systems work together, locally and globally. In today's reality, it is also important that telecommunications systems are designed with the appropriate levels of resilience to minimize the impact of natural and man-made disasters.</p> <p>Network operators have a vested interest in ensuring that networks meet international standards and can withstand natural and man-made disasters. Market competition should also act as an incentive to ensure operators maintain and or surpass the industry standards.</p> <p>It is noteworthy, that outside of the obligatory standards relating to interconnection [section 25(2) (a) of the Act], the language dealing with</p>	<p>Market competition also act as an incentive to ensure operators maintain and or surpass the industry standards. Any regulatory requirement mandating compliance to such standards / guideline is regulatory over reach. CCTL does not recommend this approach.</p>	<p>While the Authority acknowledges that section 45(1) of the Act allows concessionaires some latitude in adopting international standard(s), this right is specific to standards "which are in conformity with accepted international standards" (emphasis added). In this regard, it is evident that the Authority, by virtue of the Act, is the appropriate body with the remit to indicate, where it deems suitable, which international standard(s) it accepts. Section 45(2) of the Act further provides the Authority with the discretion to "identify, adopt or establish preferred technical standards". The language used in the section is unambiguous and gives the Authority power to establish, where it deems appropriate, preferred technical standards.</p> <p>Furthermore, section 18 (1) (d) of the Act provides the Authority with the "functions and powers ... [to] establish national</p>

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			<p>industry standards and guidelines generally, does not infer requirements to comply. Section 45(1)states,</p> <p><i>“Subject to the other provisions of this Act, concessionaires and licensees may implement such technical standards as they deem appropriate and which are in conformity with accepted international standards.”</i></p> <p>The language and intention clearly allows the concessionaire discretion in applying industry standards.</p> <p>Section 45(2) states,</p> <p><i>“Notwithstanding subsection (1), the Authority may identify, adopt or establish preferred technical standards.”</i></p> <p>CCTL considers that this allows the Authority the option of setting local preferred industry guidelines and standards to</p>		<p>telecommunications industry standards and technical standards;”.</p> <p>Section 25(2)(a) of the Act requires that concessionaires comply with the guidelines and standards established by the Authority.</p> <p>By virtue of, inter alia, section 18(1)(a) and (h) of the Act, the Authority is mandated to monitor and ensure compliance with the relevant licence/concession and enforce the provisions of the Act, and policies and regulations made thereunder.</p>

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			<p>augment international standards.</p> <p>With respect to “<i>Discretionary Standards</i>”, the notation states,</p> <p><i>“There may exist valid reasons in particular circumstances where a standard cannot be implemented, but the full implications must be understood and the case carefully considered before choosing to ignore.”</i></p> <p>CCTL believes that this general approach reflects the process of standards adoption. It is also consistent with the approach a commercial enterprise would use to evaluate business decisions.</p> <p>In general, CCTL supports efforts towards the establishment and implementation of technical standards to mitigate against disaster events, which are</p>		

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			<p>consistent with international best practices and reasonable within the local context. In this regard is it important to understand the international context to the development of standards, and where necessary adjust for local conditions.</p>		
	1.10 Compliance Notation	Digicel	<p>The definition of a discretionary standard states “There may exist valid reasons in particular circumstances where a standard cannot be implemented, but the full implications must be understood and the case carefully considered before choosing to ignore”, however a concessionaire may choose to partially implement instead of ignore.</p>	<p>The definition should be revised to cater for the possibility of partial implementation.</p>	<p>The Authority thanks Digicel for the recommendation. However, given the discretionary standards in the document, the Authority is unsure about how a standard can be partially implemented. The Authority suggests that Digicel provide an example of a partial implementation for further consideration.</p> <p>To add clarity to the document, the compliance notation, section 1.11 (formerly section 1.10), was amended. The term “standard” has been changed to “mandatory standard”.</p>

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					<p>The description of mandatory standard was amended, as follows: “The concessionaire shall comply fully with the standard as specified.”</p> <p>The description of discretionary standard was amended, as follows: “The concessionaire may comply with the standard as specified.</p> <p>There may exist valid reasons in particular circumstances where the specified standard cannot be implemented; in this regard, if the concessionaire chooses not to comply with the standard, the full implications of the case must be understood and carefully considered by the concessionaire.”</p> <p>Throughout the revised document, the term “technical standards” has</p>

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					been changed to “mandatory standards”.
5	3. Technical Standards for Outside Plant Facilities	TSTT	<p>The following questions arose while reviewing this section:</p> <p>Do these facilities reflect those required by operators of IP based fibre or fibre-coax hybrid fixed broadband networks?</p> <p>Do these facilities reflect the equivalent facilities for wireless access fixed broadband networks?</p> <p>Also, these definitions are out-of-date and do not apply to the forward-looking networks being deployed in Trinidad and Tobago.</p>	<p>TATT should review this section to ensure that it adequately reflects the elements associated with networks other than a TDM-based PSTN.</p> <p>TATT should ensure that this section reflects elements that are utilized by all fixed networks (wired or wireless) to access end user premises.</p>	<p>The facilities listed in the preamble of section 3 do reflect those required by operators of IP-based fibre or hybrid fibre-coax broadband networks. Therefore, the technical standards proposed in the document are applicable to wired fixed networks. Technical standards to withstand the effects of natural and manmade disasters on wireless networks will be established in a subsequent document.</p> <p>The Authority disagrees that the definitions used in the document “are out-of-date and do not apply to the forward-looking networks being deployed in Trinidad and Tobago.” The definitions used in the document were reviewed by the TWG, which included representatives from the various fixed line operators. These</p>

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					definitions still apply to wired fixed networks.
6	3. Technical Standards for Outside Plan Facility	CCTL	<p>Most of the standards proposed are cited with the reference (ITU 2012). This implies that these are ITU standards. However, the reference is not sufficiently specific to allow CCTL to identify the relevant ITU Recommendations. CCTL requests that TATT cite the specific reference number for each of the ITU Recommendations. This would help the process, as respondents would be better able to understand the context of the standards being proposed. This would improve the robustness of the responses.</p> <p>Notwithstanding, the need for further clarity, CCTL provides below some initial comments. The approach to our response is to identify specific standards that we wish to comment on at</p>	CCTL recommends that TATT cite the specific reference number for each of the ITU Recommendations cited.	The Authority welcomes CCTL's recommendation to cite the title numbers of the ITU-T recommendations referenced throughout the document and has revised the document accordingly.

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			this time, and to provide comments on these.		
	<p>3 Technical Standards for Outside Plant facilities</p> <p>i. aerial cables (fibre and copper) and associated passive devices (splitters, couplers and joints)</p>	Digicel	The items list in section 3 did not mention enclosures or pole attachments. Enclosures are referenced throughout this section	Our recommendation is to include “enclosures and attachments”	<p>The Authority welcomes Digicel’s recommendation and agrees that enclosures should be included in the list of outside plant facilities. As for pole attachments, no specific equipment is mentioned and therefore, the Authority does not see it necessary to include “and attachments” with enclosures in the list of outside plant facilities. The preamble in section 3 has been amended, as follows:</p> <p>“Outside plant facilities consist of cabling as well as the infrastructure hardware that supports the cables. Outside plant facilities include:</p> <ul style="list-style-type: none"> i. aerial cables (fibre and copper) and associated passive devices (splitters, couplers and joints) ii. poles

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					<ul style="list-style-type: none"> iii. manholes iv. underground ducts v. underground cables (fibre and copper) and associated passive devices vi. twisted pair copper and fibre cabinets, and pedestals (no active electronics) vii. enclosures”
7	3.1 Technical Standards to Mitigate the Effect of Natural Disasters	TSTT	<p>TSTT notes that these standards and recommendations do not provide any concrete, definable or measurable targets or indicators to which the implementing bodies are to adhere. Indeed, the standards seem to leave the determination of a person's compliance to the arbitrary discretion of the evaluating officer, which is unacceptable.</p> <p>TATT should include defined metrics to which the operators should adhere, so that</p>	TATT should include defined metrics to which the operators should adhere, so that evaluations are transparent and unbiased.	Some of these standards are quantitative and require metrics to measure and evaluate the concessionaire's compliance. The other standards are qualitative and require a definite “yes or no” answer to evaluate the concessionaire's compliance. The qualitative standards prescribe design requirements to a network IP rated enclosure are examples of quantitative standards.

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			<p>evaluations are transparent and unbiased.</p> <p>Furthermore, these are not standards and the obligations defined by “shall” are unenforceable, and thus this document serves no material purpose in achieving the objectives outlined in the preamble of the document.</p>		<p>The technical standards in the document are based on ITU recommendations and other international standards. They also take into account practices of the local operators, as noted during the TWG meetings.</p> <p>The mandatory standards defined by “shall” are obligatory.</p>
8	<p>3.1.1 Technical Standards for Aerial Telecommunications Cables</p> <p><i>3.1.1.1 Hurricanes or Strong Winds</i></p>	TSTT	<p>The recommendation that “<i>aerial telecommunication cables should be kept clear of overhanging trees and branches</i>” is well-advised but it should be noted that this is not the sole responsibility of operators.</p>	<p>The relevant government agencies and property owners have a significant responsibility to bear in keeping cables clear from overhanging trees and branches and they should be brought into the conversation and a national standard developed.</p> <p>In reference to S.35 of the Act, a collaborative approach is needed as it relates to the treatment of overhanging trees on private lands.</p>	<p>Section 35 of the Act states: “Where trees on private lands overhang or interfere with any facility or road works, a concessionaire shall, before cutting down, pruning or trimming the trees, obtain the consent of the owner or person in possession of the land.” This does not say that “government agencies and property owners have a significant responsibility to bear”.</p>

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					<p>Discretionary standard 1 (formerly discretionary standard 2), has been amended (in keeping with section 35 of the Act), as follows: “Aerial telecommunications cables should be kept clear of overhanging trees and branches. For trees located in private lands that overhang or interfere with aerial cables, operators should get consent from the landowner(s) before trimming overhanging branches.”</p> <p>Discretionary standard 14 (formerly discretionary standard 18), which also requires the trimming of overhead trees and branches, has also been amended to reflect the changes made to discretionary standard 1.</p>
9	3.1.1 Technical Standards for Aerial Telecommunications Cables	CCTL	<p><i>International Standard:</i></p> <p><i>(1) Vibration dampers shall be installed between ends of aerial</i></p>	Where it is not economically feasible to apply this standard to	The Authority welcomes CCTL's recommendation and agrees that it

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	3.1.1.1 Hurricanes or Strong Winds		<p><i>telecommunications cables and supporting structures</i> (ITU 2012).</p> <p>Because of the insufficient citations, it is difficult to identify the ITU standard being referenced. This is necessary to get an understanding of the context of the standard, in order to provide an informed response.</p> <p>However, CCTL considers that it may not be economically feasible to apply this standard to all aerial cable used in the plant. In this case, priority should be given to areas where the aerial cables are impacted by galloping due to high winds.</p> <p><i>Preferred Standard:</i></p>	<p>all aerial cable used in the plant, priority should be given to areas where the aerial cables are impacted by galloping due to high winds.</p>	<p>is not economically feasible to install vibration suppressors between the ends of every aerial cable and the structures to which those cable ends are connected. As such, priority will be given to aerial cables located in areas that experience high winds. Mandatory standard 1 in the document has, therefore, been amended to reflect this, as follows: "Vibration dampers shall be installed between ends of aerial telecommunications cables and supporting structures in areas which experience high winds (ITU, L.89. Design of suspension wires, telecommunication poles and guy-lines for optical access networks 2012)."</p> <p>The citation related to this standard has been amended to be more specific and easily identifiable.</p>

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			<p>4) <i>Enclosures used to house passive devices along aerial telecommunications lines shall be waterproof.</i></p> <p>CCTL supports this preferred standard. CCTL would recommend that for waterproofing, the IP 65 should apply for aerial devices, and IP 68 for enclosure where devices could be submerged in water, for example man holes.</p>	<p>CCTL would recommend that for waterproofing, IP 65 should apply for aerial devices, and IP 68 for enclosure where devices could be submerged in water, for example man holes.</p>	<p>The Authority agrees that enclosures with minimum IP standards should be used for housing passive devices along aerial cables.</p> <p>However, in section 4 of the document, the Authority has proposed to adopt the ITU's recommendation that IP 55 standard enclosures be used for the housing of active electronics, to protect against dust and water. The first digit in the IP standard indicates the rating for the protection against dust, and this standard relates to the protection of passive devices against water. Hence, a higher IP rating, from IP 55 to IP 65, would not affect the purpose of this standard.</p> <p>Given that the IP 55 standard is recommended by the ITU for the protection of active electronics</p>

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					<p>(sensitive devices), the Authority is of the view that IP 55-rated enclosures should also be utilised for housing passive devices.</p> <p>Mandatory standard 4 (formerly technical standard 4), in the document has been amended to reflect this, as follows: “Enclosures used to house passive devices along telecommunications lines shall be, at a minimum, in accordance with international protection (IP) 55.”</p> <p>The IP standard relating to enclosures submerged in water is dealt with in item 21 of this matrix.</p>
	<p>3.1.1 Technical Standards for Aerial Telecommunications Cables</p> <p><i>3.1.1.1 Hurricanes or Strong Winds</i></p>	Digicel	Item 2 states that fibre optic cables should have a built in strength member or be lashed to a high strength suspension/messenger wire.	Last mile and drop cable to the customer premises should be excluded from the definition of fibre optic cables	The Authority disagrees that fibre optic last mile and drop cables to customer premises should be excluded from this standard. However, mandatory standard 2 (formerly technical standard 2), has been amended, as follows:

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	<p>(2) Fibre optic cables shall either have a built-in strength member (element) or be lashed to a high-strength suspension/messenger wire (ITU 2012).</p>				<p>“Fibre optic cables shall either have a built-in strength member (element) or be lashed to a high-strength suspension/messenger wire (ITU, L.89. Design of suspension wires, telecommunication poles and guy-lines for optical access networks 2012). For fibre optic last mile and drop cables to customer premises, such cables do not require a built-in strength member (element), nor is it required that they be lashed to a high-strength suspension/messenger wire, unless there is an unusually long cable span.”</p>
10	<p>3.1.1 Technical Standards for Aerial Telecommunications Cables</p> <p>3.1.1.2 <i>Lighting Strikes</i></p>	TSTT	<p>The Trinidad and Tobago Electricity Commission (T&TEC) does not allow other utility providers to use their ground wire.</p> <p>TATT highlighted the following as a local issue in their aforementioned document, <i>“the practice of pole sharing</i></p>	TATT should include the issues specific to Trinidad and Tobago in this document and the proposed remedies for discussion.	It was brought to the attention of the Authority by the members of the TWG that it is common practice for telecommunications operators to share the use of poles owned by T&TEC. This practice was considered by the Authority and the TWG, and a technical standard was recommended (for operators) that

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			<p><i>between power distribution and telecommunication companies”</i> However, this was not highlighted in this consultative document.</p> <p>TSTT believes that the local issues should have been included in this document.</p>		<p>bars the use of T&TEC poles that have transformers mounted on them. The Authority also did not recommend the use of T&TEC's ground wires for telecommunications operators. Operators are, however, required to ground their own cable infrastructure, as per the prescribed standard.</p>
11	<p>3.1.1 Technical Standards for Aerial Telecommunications Cables</p> <p>3.1.1.2 Lightning Strikes</p>	CCTL	<p><i>International Standard:</i></p> <p><i>(7) At points where aerial telecommunications cables enter or exit structures, the cable shall be grounded. (ITU 2012).</i></p> <p>The citation, does not allow one to readily cross-reference the ITU standard. CCTL considers that it would be helpful to have the complete reference number.</p> <p>CCTL is of the view that this standard is applicable where coaxial cable is used. This is</p>		<p>The Authority has amended the citation relative to this standard to be more specific and easily identifiable.</p> <p>This standard applies to twisted pair copper cables, coaxial cables and fibre optic cables with metallic elements, i.e., telecommunications cables which have metallic elements.</p> <p>Hence, mandatory standard 8 (formerly technical standard 7), has been amended to reflect this, as follows: “At points where aerial</p>

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			generally the case for housing units. Where fiber is used, generally for commercial buildings, this standard would not be necessary.		telecommunications cables which have metallic elements enter or exit structures, the cables shall be grounded (ITU, K.47. Protection of telecommunication lines against direct lightning flashes 2012).”
	<p>3.1.1 Technical Standards for Aerial Telecommunications Cables</p> <p>3.1.1.2 <i>Lightning Strikes</i></p>	Digicel	This section is vague and deficient in key details needed in order to achieve its purpose.	<p>The following matters should be addressed:</p> <ul style="list-style-type: none"> • What is the standard for grounding (i.e. size, materials (copper/aluminum), colour coding, resistance to ground, earth rods)? • Can the messenger wire be used as the ground? 	<p>The Authority refers Digicel to the <i>Trinidad and Tobago Electrical Wiring Code, Part 1: Low Voltage Installations (1st revision)-TTS 171: Part 1:2015</i>, for information on grounding requirements. A new mandatory standard 13 has been included in the document, stating: “Grounding of aerial telecommunications cables shall conform to the Trinidad and Tobago Electrical Wiring Code, Part 1: Low Voltage Installations (1st revision)-TTS 171: Part 1:2015.”</p> <p>The messenger wire on its own cannot be used as a ground. The</p>

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				<ul style="list-style-type: none"> How many pole spans should there be before another grounding is required? How does this requirement tie in to the National Electrical Code for grounding? 	<p>messenger wire must be grounded utilising a grounding system or structure.</p> <p>It is common practice in Trinidad and Tobago to ground aerial telecommunications cables every 300 metres. Since the distance of pole spans may vary depending on the operator, the number of pole spans equivalent to 300 metres may also vary for each operator. It is, therefore, impracticable to propose a fixed number of pole spans at which aerial telecommunications cables shall be grounded. Mandatory standard 11 (formerly discretionary standard 3), has been amended to exclude the number of pole spans, as follows: "Hybrid fibre-coaxial (HFC) aerial cables shall be grounded every 300 meters."</p>

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					<p>The distance requirement for grounding messenger cables is not linked to the NEC, in relation to grounding. However, the standard proposed (mandatory standard 11) is standard practice adopted by operators in Trinidad and Tobago, as indicated by members of the TWG.</p>
	<p>3.1.1 Technical Standards for Aerial Telecommunications Cables</p> <p>3.1.1.2 <i>Lightning Strikes</i></p> <p>(8) OGWs shall be installed above aerial telecommunications cables (ITU 2012).</p>	Digicel	This section requires clarification.	<p>Please clarify the following:</p> <ul style="list-style-type: none"> On poles where there is a T&TEC supply together with telecoms cables, will the T&TEC ground wire be considered an OGW or does a separate OGW cable need to be installed? 	<p>Bare (no insulation) T&TEC wires that run above telecommunications cables can be used as overhead ground wire (OGW) cables. There is, therefore, no need to install a separate OGW once a T&TEC bare wire or T&TEC pole is above the height of a telecommunications cable.</p> <p>Mandatory standard 9 (formerly technical standard 8), has been amended to reflect this, as follows:</p> <p>“OGWs shall be installed above aerial telecommunications cables</p>

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					<p>(ITU, K.47. Protection of telecommunication lines against direct lightning flashes 2012). For telecommunications cables that are either located below a T&TEC (electricity) bare cable or have ground heights that are below the height of adjacent electricity poles, the installation of an OGW is not required.”</p>
12	3.1.1 Technical Standards for Aerial Telecommunications Cables 3.1.1.3 Bush Fires	TSTT	The recommendation that “ <i>in areas where aerial telecommunications cable are deployed, underlying bush and vegetation should be trimmed to a low height</i> ” is well-advised but it should be noted that this is not the sole responsibility of operators.	The relevant government agencies and property owners have a significant responsibility to bear in ensuring that in areas that aerial cables are deployed, underlying bush and vegetation is trimmed to a low height and thus they should be brought into the conversation and a national standard developed.	The Authority disagrees that government agencies and property owners have a significant responsibility in keeping bush and vegetation below aerial cables trimmed. Section 33 (1) of the Act states “A concessionaire may install or maintain a facility in or over a street or public ground ...”. The Act clearly states that concessionaires, not government agencies or property owners, are responsible for maintaining their facilities.

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					<p>In some cases, the need to access private lands would lead to the creation of an easement, where the concessionaire would be granted the right to use the real property of the private landowner for the running of, and access to, its cables. This would be applicable to cables that run across private property. With respect to easements, the law is clear that the easement holder (i.e., the party using the easement — in this case, the concessionaire) has a duty to maintain said easement. Where a rental agreement is formed between a concessionaire and a landowner for the use of lands, a clause should be included in the rental agreement, setting out the responsibilities of the respective parties, including who would be responsible for maintenance of the facilities.</p>

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					Therefore, the concessionaire, via an agreement with the landowner, is responsible for keeping vegetation and underlying bush trimmed.
13	3.1.1 Technical Standards for Aerial Telecommunications Cables 3.1.1.3 Bush Fires	CCTL	<p><i>International Standard</i></p> <p><i>(10) Aerial telecommunications cables shall be made from non-flammable materials. (ITU 2012).</i></p> <p>CCTL requests that TATT provide the complete ITU reference number for this standard.</p> <p>Aerial outside plant cables are generally not made out of non-flammable materials. It would be very costly to replace all outside plant cables.</p>	CCTL requests that TATT provide the complete ITU reference number for this standard.	<p>The source of this standard is the ITU-T recommendation: L.92 – Disaster management for outside plant facilities.</p> <p>The Authority acknowledges the fact that the cost of deploying non-flammable cables is prohibitive. Given that ITU recommendation L.92, regarding forest fires, refers to cable structures and not to aerial cables in particular, the former technical standard 10 has been deleted.</p>
	3.1.1 Technical Standards for Aerial Telecommunications Cables	Digicel	The comment “Aerial telecommunications cables shall be made from non-flammable materials” requires clarification.	<p>Please clarify the following:</p> <ul style="list-style-type: none"> Does this mean 100% of the materials must be non-flammable? 	A decision was made in response to the comment above to exclude standards which propose that telecommunications cables be made

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	<p><i>3.1.1.3 Bush Fires</i></p> <p>(10) Aerial telecommunications cables shall be made from non-flammable materials (ITU 2012).</p>			<ul style="list-style-type: none"> • Copper and ODN Cable also come with flame retardant coatings which is also effective. Will these suffice for compliance? 	<p>from non-flammable materials, i.e., former technical standards 10 and 25 in the document.</p>
	<p>3.1.1 Technical Standards for Aerial Telecommunications Cables</p> <p><i>3.1.1.3 Bush Fires</i></p> <p>(4) In areas where aerial telecommunications cables are deployed, underlying bush and vegetation should be trimmed to a low height.</p>	<p>Digicel</p>	<p>This section does not take into account the fact that cables may pass over privately owned land.</p>	<p>This section should be amended to take into account that where cables pass over privately owned lands, the landowner is responsible for compliance with this requirement and not the concessionaire.</p>	<p>In some cases, the need to access private lands would lead to the creation of an easement, where the concessionaire would be granted the right to use the real property of the private landowner for the running of and access to its cables. This would be applicable to cables that run across private property. With respect to easements, the law is clear that the easement holder (i.e., the party using the easement — in this case the concessionaire) has a duty to maintain said easement. Where a rental agreement is formed between a concessionaire and a</p>

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					<p>landowner for the use of lands, a clause should be included in the agreement, setting out the responsibilities of the respective parties, including who would be responsible for maintenance of the lands.</p> <p>It is, therefore, the concessionaire's responsibility, via an agreement with the landowner, to trim underlying bush and vegetation to a low height.</p>
	<p>3.1.1 Technical Standards for Aerial Telecommunications Cables</p> <p><i>3.1.1.4 Tsunamis</i></p> <p>(5) As far as practicable, cable routes in coastal areas should be run at higher ground</p>	Digicel	This section is vague	A minimum acceptable height should be explicitly stated.	As coastal terrain can be so varied, it is impractical to specify a minimum height above sea level. In addition, the reference standard, ITU-T recommendation L.92, does not state a minimum height. However, the proposed discretionary standard 12 can be employed, as a guide, where routes are at sea level.

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	levels. (ITU 2012).				
14	<p>3.1.2 Technical Standards for Telecommunications Poles</p> <p>3.1.2.1 Hurricane or Strong Winds</p>	CCTL	<p><i>Preferred Standard;</i></p> <p>13) <i>In areas where wind conditions are at the highest, guyed wires shall be attached to every second intermediate pole.</i></p> <p>CCTL does not believe that attaching guyed wires to every second intermediate pole is a practical or reasonable option. This would be cost prohibitive.</p> <p>Guying is normally done for poles that are set at an angle. When planting poles in areas that experience high wind, the industry practice is to provide for storm guying using two guy wires instead of one. CCTL considers this approach reasonable and practical, and would recommend this alternative.</p>	CCTL recommends that in areas that experience high wind, two guy wires should be used.	<p>The Authority disagrees that the guying of telecommunications poles is normally (only) done for poles that are set at an angle. Guying of telecommunications poles is done to enable them to withstand the effects of tension in suspension wires and wind loads. In areas that (can) experience high winds, terminal poles, corner poles and every second intermediate pole are guyed.</p> <p>The Authority agrees that the guying of intermediate poles in areas that experience high winds should be done using two side guy lines. Mandatory standard 16 (formerly technical standard 13), has been amended to reflect this, as follows: “In areas where wind conditions are at the highest, two</p>

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					<p>guyed wires shall be attached to every second intermediate pole.”</p> <p>The Authority disagrees, however, that attaching guyed wires to every second intermediate pole is impractical or cost prohibitive. Guying every second intermediate pole only, in areas which experience high winds, lessens the number of telecommunications poles that require guyed structure, thus making this approach practical and not cost prohibitive.</p>
	<p>3.1.2 Technical Standards for Telecommunications Poles</p> <p><i>3.1.2.1 Hurricanes or Strong Winds</i></p> <p>(11) In rural areas, guyed structures comprising guyed wires and</p>	Digicel	This section is vague	<p>Guyed wires are used for countering the effects of tensile stress from the cables mounted on the pole and not for hurricanes. To protect against winds you would need to anchor at 3 points.</p> <p>The section should explicitly set out specifications for the actual poles.</p>	<p>The Authority disagrees that the purpose of guy wires is to counteract the effects of tensile stress from the cables mounted on telecommunications poles and not to protect against hurricane winds. Digicel is asked to note that, according to ITU-T recommendation L.92, the guying of telecommunications poles is also done to counteract the effects of</p>

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	<p>guyed anchors shall be used to support telecommunications poles.</p>				<p>hurricanes or strong winds (heavy wind loads). Hurricanes not only create a wind load on telecommunications poles but also cause galloping of aerial cables, resulting in tension in the suspended aerial cables; thus, the tension in the cables is an effect caused by hurricanes. To counteract this, single guy wires are used for terminal and corner poles.</p> <p>Intermediate poles located in areas that experience strong winds are directly impacted by wind loads. According to ITU-T recommendation L.89, every second intermediate pole located in areas that experience strong winds needs to be guyed using a minimum of two guy lines and not three.</p> <p>To clarify the specifications for the guying of intermediate poles, mandatory standard 16 (formerly</p>

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					technical standard 13), has been amended, as follows: “In areas where wind conditions are at the highest, two guyed wires shall be attached to every second intermediate pole.”
	<p>3.1.2 Technical Standards for Telecommunications Poles</p> <p><i>3.1.2.2 Bush Fires</i></p> <p>(6) Firebreaks should be constructed around the base of telecommunications poles, particularly those deployed in rural areas which are prone to bush fires (ITU 2012).</p>	Digicel	The term “fire break” should be defined.	The term “fire break” should be defined.	The Authority welcomes Digicel’s recommendation and has included the definition, “Firebreak: A strip of land clear of vegetation that is used to prevent the spread of bush fires”, in section 1.10 (formerly section 1.9) of the document.

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15	<p>3.1.2 Technical Standards for Telecommunications Poles</p> <p>3.1.2.3 Earthquakes</p>	CCTL	<p><i>International Standard:</i></p> <p>(16) <i>The setting depth of telecommunications poles shall be 10% of the length of the pole plus an additional two feet (RedVector n.d.).</i></p> <p>An alternative industry standard, which CCTL considers more robust, provides that the setting depth of the telecommunication pole should be 20% of the length of the pole.</p> <p><i>International Standard:</i></p> <p>(17) <i>Pole anchors shall be used for the burial of telecommunications poles in soft ground (ITU 2012).</i></p> <p>An alternative industry standard, which CCTL considers more robust, is</p>	<p>CCTL recommends that the setting depth for planting telecommunications poles should be 20% of the length of the pole.</p> <p>CCTL recommends that pole anchors should be buried by backfilling the holes around the pole with small to medium size rocks tamped in place.</p>	<p>The Authority welcomes CCTL's recommendation and agrees that, by making the setting depth of telecommunications poles equal to 20% of the length of the pole, the poles would be more robust during earthquakes. The Authority has, therefore, amended mandatory standard 19 (formerly technical standard 16), as follows: "The setting depth of telecommunications poles shall be, at a minimum, 20% of the length of the pole."</p> <p>The Authority would appreciate if CCTL could provide the specific name of the industry standard which states that the holes around the pole should be backfilled with small or medium-sized rocks tamped in place. The Authority would then review both its proposed standard</p>

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			<p>backfilling the holes around the pole with small to medium size rocks tamped in place.</p> <p><i>Discretionary Standard:</i></p> <p><i>(7) Telecommunications poles should not be installed in areas which are prone to landslides.</i></p> <p>This standard is noted as a discretionary standard. Even with this classification, this is not a practical or reasonable standard. This implies the network operators have the capacity to determine or predict the likelihood that landslide would occur in a particular area. For this reason, CCTL objects to the inclusion of this preferred standard.</p>	<p>CCTL recommends that this standard be excluded.</p>	<p>and CCTL's recommended industry standard and decide, in consultation with all operators, which would be more practicable for Trinidad and Tobago.</p> <p>The Authority appreciates CCTL's recommendation and agrees that operators are not expected to predict areas in which landslides would occur. However, previous occurrences of landslides in an area indicates a risk. Given the operators' ability to identify areas which are known to be at risk of landslides, the Authority does not agree that the standard should be excluded. However, the Authority has amended discretionary standard 5 (formerly discretionary standard 7) for clarity, as follows: "Telecommunications poles should not be installed in areas which are known to be prone to landslides."</p>

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			<p><i>Discretionary Standard:</i></p> <p>(8) <i>If practicable, telecommunications cables should be run underground in ducts in areas prone to landslides.</i></p> <p>Such a standard would require telecommunications providers to be able to predict where landslides would occur in an earthquake event. This is not practical. discretionary standard.</p>	<p>It is not practical to expect that telecommunications providers would be able to predict where landslides would occur in an earthquake event. This should not be included as a standard.</p>	<p>The Authority appreciates CCTL's recommendation for the reason indicated above. Operators can, however, identify areas known to be at risk of landslides and, as such, the Authority does not agree that the standard should be excluded. The Authority has amended discretionary standard 6 (formerly discretionary standard 8) for clarity, as follows: "If practicable, telecommunications cables should be run underground in ducts buried beneath roadways in areas which are known to be prone to landslides."</p>
16	<p>3.1.2 Technical Standards for Telecommunications Poles</p> <p>3.1.2.4 Landslides</p>	TSTT	<p>TATT should identify the source of this recommendation as, on the face of it, it seems counterintuitive as installing ducts in areas prone to landslides/ earth movement would seem to:</p>	<p>TATT to clarify the source of this proposal.</p>	<p>TSTT is asked to note that discretionary standard 6 (formerly discretionary 8), which states: "If practicable, telecommunications cables should be run underground in ducts in areas prone to landslides"</p>

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			<p>1) Encourage more landslides by upsetting the already unstable areas; and result in certain cable breaks when landslides occur, as opposed to aerial cable runs which may be more durable in such events.</p>		<p>was established through discussions at the TWG meetings and not taken from a reference source.</p> <p>According to the Office of Disaster Preparedness and Management (ODPM) in Trinidad and Tobago, the natural causes of landslides include heavy and/or prolonged rainfall and earthquakes. Human activities that induce landslides are deforestation, quarrying and bad agricultural practices such as slash and burn agriculture on hillsides.</p> <p>The Authority, therefore, disagrees that the excavation of roadways required for the burial of telecommunications ducts contributes to the damage caused by landslides to telecommunications cables.</p> <p>During landslides, trees may be uprooted and fall on aerial cables, disconnecting them from the poles.</p>

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					The poles may also fall. The Authority, therefore, disagrees that aerial cable runs may be more durable during landslides.
17	3.1.3 Technical Standards for Telecommunications Manholes 3.1.3.1 Earthquakes	CCTL	<i>Discretionary Standard:</i> (9) <i>Liquefaction countermeasures should be applied during the deployment of telecommunications manholes (ITU 2012).</i> CCTL requests that the Authority clarify the term "liquefaction countermeasures".	CCTL requests that the Authority clarify the term "liquefaction countermeasures".	Liquefaction, in this document, refers to the effect of earthquakes on soil, where the soil behaves like a liquid. The liquefaction countermeasures referred to in this document reduce the possibility of manholes being damaged due to soil liquefaction. Common liquefaction countermeasures include, but are not limited to, proper soil drainage in the area and soil compaction.
18	3.1.4 Technical Standards for Underground Ducts & Cables 3.1.4.1 Landslides	CCTL	<i>Discretionary Standard:</i> (10) <i>Underground ducts and cables should be buried under roadways in areas which are prone to landslides.</i> Such a standard would require telecommunications providers to be able to predict where landslides would occur in an	It is not practical to expect that telecommunications providers would be able to predict where landslides would occur in an earthquake event. This should not be included as a standard.	Based on the operators' ability to identify areas known to be at risk of landslides, the Authority does not agree that the standard should be excluded. However, the Authority has amended discretionary standard 8 (formerly discretionary standard

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			earthquake event. This is not practical. discretionary standard.		10), for clarity, as follows: "Underground ducts and cables should be buried under roadways in areas which are known to be prone to landslides."
19	3.1.4 Technical Standards for Underground Ducts & Cables 3.1.4.3 Earthquakes	CCTL	<i>International Standard:</i> 19) <i>Underground ducts made of either PVC or high-density polyethylene (HDPE) shall be used.</i> (ITU 2014). Where PVC ducting is used, the rating should be schedule 40 or greater.	CCTL recommends that the rating for PVC ducting should be schedule 40 or greater.	The Authority has no objection to CCTL's recommendation that the minimum rating for underground PVC ducts be schedule 40. Mandatory standard 23 (formerly technical standard 19) has been amended as follows: "Underground ducts made of either schedule 40 PVC, at a minimum, or high-density polyethylene (HDPE) shall be used."
20	3.1.4 Technical Standards for Underground Ducts & Cables 3.1.4.4 Tsunamis	CCTL	<i>Discretionary Standard:</i> (13) <i>In coastal areas, conduits used to deploy telecommunications cables across bridges should be run</i>	An alternative guideline, CCTL recommends that conduits are constructed in HDPE pipe of PVC schedule 40, attached to the side of the bridge.	The Authority is aware that CCTL's recommendation is what pertains in the industry at present. However, that is not in accordance with ITU recommendation L.92. The Authority thus proposes, as a

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			<p><i>underneath riverbeds.</i> (ITU 2012).</p> <p>As a discretionary standard, where possible such a standard could be observed. An alternative guideline would be to run conduits in HDPE pipe or PVC schedule 40, attached to the side of the bridge.</p>		<p>compromise, that CCTL's recommendation only be followed for strongly constructed bridges of reinforced steel and concrete, and that schedule 40 PVC or HDPE pipe be attached to the side of the bridge not facing the sea.</p> <p>Discretionary standard 10 (formerly discretionary standard 13), has been amended to reflect this, as follows: "In coastal areas, conduits used to deploy telecommunications cables across bridges that are not constructed with reinforced steel or concrete should be run underneath riverbeds (ITU, L.92. Disaster management for outside plant facilities 2012). Conduits used to deploy telecommunications cables across bridges constructed with reinforced steel and concrete should be attached to the side of the bridge that does not face the sea."</p>

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21	3.1.5 Technical Standards for Twisted Pair Copper Cabinets 3.1.5.1 Floods	CCTL	<p><i>Preferred Standard:</i> (23) In areas that are prone to flooding, cross-connect cabinets shall be installed on H frames at a sufficient height above known floodwater levels.</p> <p>CCTL has no issue with this discretionary standard. As an alternative CCTL recommends that such installations could be installed in concrete pads higher than flood levels.</p>	<p>As an alternative preferred standard, CCTL recommends that such installations could be installed in concrete pads higher than flood levels.</p>	<p>The Authority welcomes CCTL's suggestion. However, an H frame may be more amenable and cost effective than concrete pads for raising the height of cross-connect cabinets, depending on the topography of the area.</p> <p>The Authority proposes to adjust the standard to allow for the use of concrete pads, should they be more cost effective than H frames, to keep cross-connect cabinets above floodwater levels.</p> <p>Mandatory standard 26 (formerly technical standard 23), has, therefore, been amended to reflect this, as follows: "In areas that are prone to flooding, passive cross-connect cabinets shall be installed on H frames at a sufficient height above known floodwater levels. Concrete pads may be utilised as an alternative, once the topography of</p>

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			<p><i>Preferred Standard:</i></p> <p><i>(24) Pedestals shall be kept waterproof.</i></p> <p>To add clarity to the standard and increase level of robustness, pedestal above ground should be IP 65 rated. The waterproof standard for pedestals submerged in water should be IP68.</p>	<p>CCTL recommends waterproofing standards of IP 65 for above ground pedestals and IP 68 for pedestals submerged in water.</p>	<p>the area allows for the same height advantage as an H frame.”</p> <p>The Authority has noted that, throughout Trinidad and Tobago, pedestals used in the telecommunications industry are normally housed underground in manholes and thus there is no need to consider an IP standard for pedestals located above ground. However, manholes are very susceptible to flooding, so the equipment housed within manholes should be properly water sealed. When comparing the enclosure ratings IP 65 and IP 68, the second digit represents the rating for the protection against water ingress; therefore IP 68 provides better protection against water. Given that pedestals are housed in manholes</p>

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					<p>and are thus required to be waterproof, the Authority recommends that pedestals, in general, have a minimum IP standard of 68.</p> <p>Mandatory standard 27 (formerly technical standard 24), has been amended to reflect this, as follows: "For pedestals, protection against dust and resistance to water shall be applied, at a minimum, in accordance with international protection (IP) 68."</p>
	<p>3.1.5 Technical Standards for Twisted Pair Copper Cabinets</p> <p><i>3.1.5.1 Floods</i></p> <p>(21) Cross-connect cabinets shall be installed on concrete foundations</p>	Digicel	Six inches may not be enough if the cabinet is in a low lying area below the flood line.	Our recommendation is that the minimum acceptable height should be determined by the flood line for that area.	Former technical standard 21 has been excluded from the document, since the "installation of cross-connect cabinets on concrete pads or foundations above known flood levels" has been included in the new mandatory standard 26.

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	<p>which are, at a minimum, six inches above ground level.</p>				
	<p>3.1.5 Technical Standards for Twisted Pair Copper Cabinets</p> <p><i>3.1.5.1 Floods</i></p> <p>(22) Cross-connect cabinets shall be outfitted with waterproof doors.</p>	<p>Digicel</p>	<p>Reference is made in this section to twisted pair cabinets but not to fibre.</p>	<p>The requirement should also extend to fibre.</p>	<p>The Authority agrees that fibre optic cabinets should be included in this standard.</p> <p>To accommodate fibre optic cabinets in the standards, the title of section 3.1.5. has been changed to “Technical Standards for Passive Cross-Connect Cabinets and Pedestals”.</p> <p>Mandatory standards 25 and 26 (formerly technical standards 22 and 23, respectively), as well as discretionary standard 11 (formerly discretionary standard 14), have been amended with the term “passive cross-connect cabinets” replacing “twisted pair copper cabinets”.</p>

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22	<p>3.2 Technical Standards to Mitigate the Effects of Man-made Disasters</p> <p>3.2.1 Technical Standards for Underground ducts and Cables</p>	CCTL	<p><i>Discretionary Standard:</i></p> <p>15) <i>For underground ducts which are buried less than 30 inches below street level, concrete encasements covering the top of the duct should be constructed</i> (United States Department of Agriculture 2002).</p> <p>CCTL has no issues with this discretionary standard. To make the standard more robust, CCTL recommends that caution tape be placed just above the concrete encasement.</p>	To make the standard more robust, CCTL recommends that caution tape be placed just above the concrete encasement.	The Authority has no objection to CCTL's recommendation that caution tape be placed just above the concrete encasement constructed to cover the underground duct. A new mandatory standard 29 has been included in the document to reflect this, which states: "Caution tape should be placed on top of concrete encasements constructed to cover underground ducts."
	<p>3.2 Technical Standards to Mitigate the Effects of Man-made Disasters</p> <p>3.2.1 Technical Standards for Underground ducts and Cables</p>	Digicel	The section does not define a standard for the ducts or tunnels.	We recommend that the section should explicitly set out the standards and specifications for ducts and tunnels which should be consistent with any local standards on same.	Section 3.2.1 deals with standards for the burial of underground ducts and cables to mitigate the effects of man-made disasters, whilst section 3.1.4.3 proposes the technical standards and specifications for the types of underground ducts to be used, particularly to mitigate the effects of earthquakes. The types of

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					<p>ducts recommended are consistent with any local standards, as this was recommended by the TWG, which comprised representatives from fixed telecommunications operators in Trinidad and Tobago.</p> <p>Given the structure of the document, i.e., separating proposed standards for withstanding natural disasters from standards for withstanding man-made disasters, the Authority disagrees that this section should explicitly set out the standards and specifications for underground ducts.</p>
23	<p>3.2.2 Technical Standards for Aerial Telecommunications Cables</p> <p>3.2.2.2 <i>Unauthorized Burning of Debris</i></p>	CCTL	<p><i>Preferred Standard:</i></p> <p>25) <i>Aerial telecommunications cables shall be made from non-flammable materials.</i></p> <p>CCTL notes that this is denoted as a preferred standard, and considers this impractical as most aerial telecommunications</p>	CCTL recommends that this preferred standard be excluded as most telecommunications cables are made of flammable material.	The Authority agrees with CCTL and this standard has been excluded from the document.

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			cables are made of flammable materials.		
	<p>3.2.2 Technical Standards for Aerial Telecommunications Cables</p> <p>3.2.2.3 <i>Tree pruning</i></p> <p>(18) Overhanging branches close to aerial telecommunications cables should be kept trimmed by personnel or contractors authorized by operators to do so.</p>	Digicel	This section does not take into account the fact that cables may pass over privately owned land.	This section should be amended to take into account that where cables pass over privately owned lands, the landowner is responsible for compliance with this requirement and not the concessionaire	<p>A decision has been made in item 8 of this matrix that operators should get consent from landowners before trimming trees located in privately owned lands, which interfere with aerial cables.</p> <p>Discretionary standard 14 (formerly discretionary standard 18), has, therefore, been amended to reflect this, as follows: “Aerial telecommunications cables should be kept clear of overhanging trees and branches. For trees located in private lands, operators should get consent from the landowner(s) before trimming overhanging branches.”</p>

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	<p>4 Technical Standards to Enhance the Resilience of the Access Network (Active Electronic Devices)</p> <p>(29) Each structure used to house MSANs shall be wired to accommodate back up power (ITU 2007).</p>	Digicel	This section is vague.	<p>Please clarify what is meant by “structure”.</p> <p>Does this definition include outdoor cabinets?</p>	<p>“Structure” in this standard refers to buildings or outdoor cabinets used to house MSANs.</p> <p>For clarity, mandatory standard 33 (formerly technical standard 29), has been amended, as follows: “Each building or outdoor cabinet used to house MSANs shall be wired to accommodate back-up power (ITU, L 70 Managing active electronics in the outside plant 2007).”</p>
	<p>4 Technical Standards to Enhance the Resilience of the Access Network (Active Electronic Devices)</p> <p>(33) Back-up power batteries or fuel cell technology shall</p>	Digicel	Cabinets are designed to carry a certain number of batteries which can support 4 to 6 hours.	Our recommendation is that the minimum period should be 4 hours	At the TWG meetings, in a spirit of compromise, a minimum time frame of six hours was set. The Authority wanted a longer time frame whilst operators wanted a shorter one. The Authority welcomes further feedback from operators

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	<p>have the capability of supporting full equipment load for a minimum period of six hours to outdoor cabinets which house MSANs.</p>				
24	<p>5. Technical Standards for Optical Transport Networks</p> <p><i>5.1 Technical Standards to Implement Redundancy</i></p>	TSTT	<p>Here TATT seeks to insist that all Optical Transport Network's (OTN's) must be deployed in Ring topologies.</p> <p>TSTT believes that TATT has overstepped its bounds in seeking to restrict the design options of engineers and firms in this regard. There are a variety of topologies that can be used to achieve the objective of network resiliency (as TATT acknowledges in its use of the phrase "most common mode", which suggests that there are other modes or topologies).</p>	<p>TATT should remove any proposal which obliges operators to constrain their design options in the deployment of their networks. TATT should seek to ensure that the objective of resiliency is achieved and not seek to constrain design choices of the operators.</p> <p>As such, in particular Technical Standards (34) and (35) should be omitted.</p>	<p>The Authority welcomes TSTT's recommendation to not constrain operators in the design of their networks to achieve resiliency within OTNs. The Authority has expanded the options available to operators, to include, inter alia, microwave links, ring topologies and point-to-point fibre links with two diverse paths, once full redundancy can be achieved. To reflect this, the following changes have been made to the document.</p> <p>Mandatory standard 38 (formerly technical standard 34) has been</p>

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			<p>TSTT contends that TATT in seeking to define a topology, contravenes the rights of the network owner to seek means to optimize the use of their property. TSTT reminds TATT that operators own their networks, not TATT. As such TATT's regulations cannot unfairly limit the operators' discretion for their network's deployment.</p> <p>Further, TATT seeks to do this with no material rationale other than resiliency. TSTT reminds TATT that other than topology, networks can achieve resiliency through the use of other modes of connectivity (e.g. wireless). As such, this requirement or demand would establish a precedent that is dangerous and unwarranted.</p>		<p>amended, as follows: "For a national, major or minor territorial public fixed telecommunications network, a ring topology or a point-to-point fibre link with redundant electronics and physically diverse paths shall be deployed within OTNs."</p> <p>Mandatory standard 39 (formerly technical standard 35) has been amended, as follows: "APS shall be deployed within an OTN ring or a point-to-point fibre link."</p> <p>A new mandatory standard 40 has been included in the document, which states: "Where a microwave system is deployed to provide redundancy, full restoration of traffic shall be required."</p>
	5. Technical Standards for	Digicel	OTN can be protected by other means other than a ring topology such as microwave.	All these mandatory regulations should be discretionary in terms of how compliance is achieved.	To remove any constraints on operators in relation to the design of

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	<p>Optical Transport Networks</p> <p><i>5.1 Technical Standards to Implement Redundancy</i></p>				<p>their networks, the Authority proposes that, once full redundancy can be achieved within the OTN, operators may use the topologies or technologies indicated above. To reflect this, amendments were made to mandatory standard 38 (formerly technical standard 34) and mandatory standard 39 (formerly technical standard 35), and a new mandatory standard 40 has been included in the document. The amendment and inclusion of these technical standards are detailed above.</p>
	<p>5. Technical Standards for Optical Transport Networks</p> <p><i>5.1 Technical Standards to Implement Redundancy</i></p>	Digicel	<p>Deploying of rings in the backbone of an ODN network is acceptable but the section doesn't specifically distinguish this part of the network from the last mile to the customer.</p>	<p>The section should indicate the distinction between backbone and last mile in order to separate the two as far as redundancy is concerned.</p>	<p>The Authority agrees that the backbone of an OTN is different from the last mile (access) to the customer. This section, however, deals with OTNs and not with last mile (access) fibre.</p>

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	<p>5. Technical Standards for Optical Transport Networks</p> <p><i>5.2 Technical Standards to Withstand the Effects of Natural and Man-made Disasters</i></p> <p>(37) Buildings that house OTN nodes shall comply with the building codes adopted in Trinidad and Tobago.</p>	Digicel		Please provide the reference/citation/name of the specific building codes which are being referenced.	To date, a Trinidad and Tobago building code has not been finalised nor promulgated. Research has revealed that the construction industry in Trinidad and Tobago voluntarily utilises the American building codes for large commercial buildings, covering areas such as steel, concrete, seismic loading and wind. As such, until there is a Trinidad and Tobago building code, the afore-mentioned practice of adhering to the American building codes shall continue.
	<p>5. Technical Standards for Optical Transport Networks</p> <p><i>5.2 Technical Standards to Withstand the</i></p>	Digicel	This is not feasible for OTN in outdoor cabinets so why make it mandatory for a shelter OTN site be able to withstand category 5?	Minimum standard for compliance should be withstanding a category 2	The Authority agrees that this standard for withstanding the effects of hurricanes is not applicable to outdoor cabinets.

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	<p><i>Effects of Natural and Man-made Disasters</i></p> <p>(38) Shelters that house OTN nodes shall be designed to withstand hurricanes up to Category 5.</p>				<p>However, standards for withstanding the effects of hurricanes are applicable to both buildings and shelters that house OTNs. The Authority partially agrees with Digicel's recommendation to reduce the hurricane category standard that applies to shelters that house OTN nodes, and thus proposes to adjust the standard for withstanding Category 4 hurricanes.</p> <p>Mandatory standard 42 (formerly technical standard 38) has, therefore, been amended to reflect this, as follows: "Shelters that house OTN nodes shall be designed to withstand hurricanes up to Category 4."</p>
	<p>5. Technical Standards for Optical Transport Networks</p>	<p>Digicel</p>	<p>This section is inconsistent with section 4 (31)</p>	<p>Please clarify which of these 2 sections is accurate.</p>	<p>Mandatory standards 35 and 46 (formerly technical standards 31 and 42, respectively) are not inconsistent, in that, although the back-up power running times vary,</p>

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	<p>5.2 <i>Technical Standards to Withstand the Effects of Natural and Man-made Disasters</i></p> <p>(42) Stand-by power facilities shall have the following features:</p> <ul style="list-style-type: none"> I. Automatic load transfer II. Capability of supporting full equipment and building ancillary services loads for a period of one week without refueling 				<p>the functions of the equipment — MSANs and OTNs — are different and, thus, the back-up power requirements are not the same. MSANs provide access to a few hundred subscribers, so do not require generators with a long running time (12 hours), while OTNs support the core network and thousands of customers and thus require generators to run for a longer period (one week).</p>
25	6. Technical Standards for Points of	TSTT	This Technical Standard repeats a requirement first proposed by TATT in the Indicative	TSTT reiterates that this proposal is unwarranted and should not be pursued.	

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	<p>Interconnection or Switches.</p> <p>6.1 Technical Standards to Implement Redundancy</p>		<p>Reference Interconnection Offer (IRIO) of 2014.</p> <p>TSTT reiterates that this proposal is unwarranted and should not be pursued and refers TATT to our comments on this proposal raised at that time.</p> <p>Further, TSTT strongly believes that TATT should justify the reiteration of this “Standard” with statistics which quantify and qualify the allegation made in this paper about Point of Interconnection (POI) disruptions or downtime. Notwithstanding the above, TSTT recalls that for the proposals of the IRIO to be adopted, amendments to the relevant Regulations were to be pursued. Without the amendment to those Regulations, this proposed “standard” cannot be effected or required of concessionaires.</p>	<p>TATT should validate its claim of POI disruption and downtime by producing statistics that prove their occurrence as well qualify and quantify the impact of such occurrences.</p> <p>Should TATT still seek to implement this proposal, TATT should complete its work to amend Regulations as necessary to treat with this matter, and not foist such proposals on the marketplace <i>ultra vires</i> the existing legislative framework.</p>	<p>The Act does not state that it is necessary for the Authority to validate its claim of point of interconnection (POI) disruptions and downtimes with statistics to justify the establishment of technical standard 48 (formerly technical standard 43).</p> <p>The Authority agrees to continue using its best efforts to promulgate amendments to the existing regulations which are relevant and will support the objectives of these standards.</p>

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	6. Technical Standards for Points of Interconnection or Switches. 6.1 Technical Standards to Implement Redundancy	Digicel	Some more details are required in terms of the POI classification.	<p>Please clarify the following:</p> <ul style="list-style-type: none"> • What classifies as a POI, is it one physical pair of fiber? Is 1+1 configuration considered as two POI? • Are separate exchanges at the same location still considered as one POI? 	<p>A POI is as defined in section 1.10 (formerly section 1.9) of the document. To put it simply, a POI is where two or more operators interconnect. It is not dependent on the physical fibre configurations, as stated by Digicel.</p> <p>Separate exchanges at one location is considered one POI. The draft document, <i>Standards and Guidelines for Interconnection and the Development of Reference Interconnection Offers</i> (version 0.3), states: "... the Authority requires there to be two (2) distinct and separate points of interconnection which must be made available to the requesting concessionaire."</p>
	6. Technical Standards for Points of	Digicel		Please provide the reference/citation/name of the specific building codes which are being referenced.	The American building codes are used (voluntarily) for compliance purposes within the construction industry of Trinidad and Tobago,

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	<p>Interconnection or Switches.</p> <p><i>6.2 Technical Standards to Withstand the Effects of Natural and Man-made Disasters</i></p> <p>(44) Buildings which house POIs shall comply with the building codes adopted in Trinidad and Tobago.</p>				<p>until a Trinidad and Tobago building code has been finalised and promulgated.</p>
	<p>6. Technical Standards for Points of Interconnection or Switches.</p>	<p>Digicel</p>		<p>Please provide a definition of "switches"</p>	<p>In the context of this document, the definition, "Switch: a telephone exchange in the public switched telecommunications network which directly routes calls between subscribers" has been included in section 1.10 (formerly section 1.9).</p>

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	<p>6.2 <i>Technical Standards to Withstand the Effects of Natural and Man-made Disasters</i></p> <p>(45) Switches shall be installed with congestion detection and traffic control functionality.</p>				
26	7. References	TSTT	<p>TSTT noted that the documents referenced in this section, spoke to “technical considerations” and “possible preventive measures”.</p> <p>TATT to provide TSTT with referenced (ITU 2012 and ITU 2014) documents in which some of these “standards” proposed by TATT can be found as we were unable to locate same.</p>	<p>TATT to provide TSTT with referenced (ITU 2012 and ITU 2014) documents in which some of these “standards” proposed by TATT can be found as we were unable to locate same.</p>	<p>The titles of the ITU recommendations referenced by TSTT as ITU 2012 and ITU 2014 in the document, are as follows:</p> <ul style="list-style-type: none"> i. ITU-T Recommendation K.46: Protection of telecommunication lines using metallic symmetric conductors against lightning-induced surges

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			<p>Further, TSTT notes that the proposed standards (technical considerations and possible preventative measures) should be properly benchmarked to suit Trinidad and Tobago's unique considerations.</p>	<p>TSTT notes that the proposed standards (technical considerations and possible preventative measures) should be properly benchmarked to suit Trinidad and Tobago's unique considerations and be included in this document.</p>	<ul style="list-style-type: none"> ii. ITU-T Recommendation K.47: Protection of telecommunication lines against direct lightning flashes iii. ITU-T Recommendation L.89: Design of suspension wires, telecommunication poles and guy lines for optical access networks iv. ITU-T Recommendation L.92: Disaster management for outside plant facilities <p>The citations in the document have been amended to be more specific.</p> <p>The Authority disagrees that the references listed in the document speak to "technical considerations" and "possible preventive measures". The references used in this document are ITU-T recommendations, which are standards set by the ITU for the</p>

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					<p>operation of telecommunications networks, as well as standards set by other international regulatory bodies.</p> <p>The standards proposed in the document were thoroughly discussed at the TWG meetings. The members of the TWG are representatives of the fixed telecommunications service providers operating within Trinidad and Tobago, and, therefore, the decisions made by the TWG were “benchmarked to suit Trinidad and Tobago’s unique considerations”.</p>
27	Concluding Comments	CCTL	CCTL looks forward to providing further comments in the next phase of this consultation.		The Authority looks forward to CCTL’s input to the revised consultative document.