



**Proposed revision of the
*Concession for the operation of a
Public Telecommunications
Network and/or Provision of Public
Telecommunications Service and/or
Broadcasting service***

Maintenance History		
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**REPUBLIC OF
TRINIDAD AND TOBAGO**

THE TELECOMMUNICATIONS ACT, CHAP. 47:31

**TELECOMMUNICATIONS AUTHORITY OF TRINIDAD
AND TOBAGO**

**CONCESSION
FOR**

**THE OPERATION OF [A PUBLIC TELECOMMUNICATIONS
NETWORK AND/OR PROVISION OF PUBLIC
TELECOMMUNICATIONS SERVICE AND/OR BROADCASTING
SERVICE]**

ISSUED TO

[NAME OF CONCESSIONAIRE]

[..... 20XX]

**CONCESSION FOR THE OPERATION OF [A PUBLIC
TELECOMMUNICATIONS NETWORK AND/OR PROVISION OF PUBLIC
TELECOMMUNICATIONS SERVICE AND/OR BROADCASTING SERVICE]**

This Concession is issued to [NAME OF CONCESSIONAIRE] of [REGISTERED ADDRESS OF CONCESSIONAIRE], (the “concessionaire”), pursuant to Section 21 of the Telecommunications Act, Chap. 47:31 (the “Act”).

The concessionaire is hereby authorised, subject to the conditions contained in this Concession, to:

- 1. ~~Operate~~operate the public telecommunications network or networks listed in Schedule A.**
- 2. ~~Provide~~provide the public telecommunications service or services listed in Schedule B.**
- 3. ~~Provide~~provide the broadcasting service or services as listed in Schedule C.**

under regulatory oversight of the Telecommunications Authority of Trinidad and Tobago (the “Authority”).

Dated the _____

.....
**Senator the Honourable
Minister of Public Administration and Artificial Intelligence**

Acceptance and acknowledgement by concessionaire

[NAME OF CONCESSIONAIRE], the concessionaire hereby:

1. acknowledges that the operation of the public telecommunications network and/or provision of the public telecommunications [service](#) and/or broadcasting services hereunder are subject to regulations [made or](#) to be made by the Minister on the recommendation of the Authority in accordance with the Act;
2. for the avoidance of doubt, agrees that it shall be bound by such regulations as and when they are made;
3. expressly waives any rights or claims for loss or damage (whether direct, indirect or consequential, exemplary, punitive or special) at law or in equity whether in contract or in tort (including without limitation, breach of warranty, breach of contract, negligence and strict liability in tort) arising out of or in connection with any additional obligations, fees, penalties or abrogation of rights which may be occasioned by such regulations as and when they are made; and,
4. accepts the terms and conditions contained in this Concession.

Signed:

.....

For and on behalf of
[NAME OF CONCESSIONAIRE]

Dated _____

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Definitions and Interpretation

1. In this ~~Conecession~~concession, unless the context requires otherwise, the following words shall have the following meanings:

“The Act”	means the Telecommunications Act, (Chap. 47:31);
“Affiliate”	has the meaning given in the Companies Act, (Chap. 81:01);
“Associate”	has the meaning given in the Companies Act, (Chap. 81:01);
<u>“Average Market Share”</u>	<u>means the percentage arrived at by equal division of the defined market among all concessionaires operating in that market;</u>
“Authorisation”	means a right to operate a public telecommunications network or provide a public telecommunications service or broadcasting service granted pursuant to section 21 of the Act;
“Broadcasting Services”	means the broadcasting services (as defined in the Act) which are authorised by this C <u>c</u> oncession and which are particularised in Schedule C;
“Commitment”	means an obligation set out in Schedule D to this C <u>c</u> oncession;
“Control”	means the ability of one entity to direct the affairs of another whether by virtue of the ownership of shares, by contract or otherwise;
“Date of Grant”	means the date on which an Authorisation granted by this C <u>c</u> oncession commences, as defined in Condition A5 and set out in the relevant Schedule; <u>and on the first page of this Concession;</u>
“Date of Commencement”	means the date, on or after the Date of Grant, at which the concessionaire may commence operation of a public telecommunications network and/or provision of a public telecommunications and/or broadcasting service under this C <u>c</u> oncession in accordance with Section A12 hereof;:-
<u>“Average Market Share”</u>	<u>means the percentage arrived at by equal division of the defined market among all concessionaires operating in that market;</u>
“Government”	means the Government of the Republic of Trinidad and Tobago;
“Market”	means the service or group of services within a geographic area which are sufficiently interchangeable or substitutable in terms of user characteristics, prices or intended use, as defined herein

or by the Authority in accordance with the Act or this Concession;

“National”, “Major Territorial”, “Minor Territorial” and “Niche”

refer to the geographical categories for the grant of concessions and licences in accordance with the Act as defined in the *“Authorisation Framework for the Telecommunications and Broadcasting Sectors ~~in the Republic of~~ Trinidad and Tobago”* published by the Authority;

“Public Telecommunications Networks”

means the public telecommunications networks (as defined in the Act) the operation of which ~~are~~ is authorised by this Concession and which ~~are~~ is particularised in Schedule A;

“Public Telecommunications Services”

means the public telecommunications services (as defined in the Act) the provision of which ~~are~~ is authorised by this Concession and which ~~are~~ is particularised in Schedule B;

“Subscription Broadcasting Service”

means a broadcasting service (as defined in the Act) which is purchased or subscribed to by a user;

“Term”

means the period for which an Authorisation under this Concession is granted, as defined in Condition A5 and set out in the relevant Schedule.

2. Words and expressions not defined herein shall have the meaning given in the Act.

3. This Concession includes its schedules and appendices.

4. In this Concession, unless the context otherwise requires, a reference to:

a. a statute or statutory provision shall be construed as a reference to that statute or statutory provision as from time to time amended, consolidated, modified, extended, re-enacted or replaced; and,

b. a regulation shall be construed as a reference to a regulation made under section 78 of the Act.

5. ~~As indicated elsewhere in this Concession, t~~The specific networks or services that the concessionaire is authorised to operate or to provide ~~are~~ is to be set out in schedules to this Concession. Where no networks or services ~~are~~ is set out in a particular schedule, the concessionaire has no authority to operate any network or to provide any service that would otherwise be set out in the schedule.

Section A - General Conditions

Laws and Regulations

- A1. This Concession is issued pursuant and subject to the Act. The provisions of the Act shall apply to the operation of all network and provision of all services authorised by this Concession. Nothing in this Concession shall be construed as limiting or excluding the application of any provision of the Act.
- A2. The concessionaire shall comply with the Act, all regulations or other instruments made under the Act, the conditions of this Concession, and all laws in force from time to time in the Republic of Trinidad and Tobago.
- A3. The concessionaire shall ~~without de~~comply with any lawful decisions, determination or directions made by the Minister or the Authority under the Act or any regulations made thereunder.
- A4. The conditions contained in this Concession shall be construed and interpreted in accordance with the laws of the Republic of Trinidad and Tobago.

Period of Concession

- A5. This Concession shall take effect on the date that the Effective Date, and the Authorisation for each of the Public Telecommunications Networks, Public Telecommunications Services or Broadcasting Services granted in this Concession ~~shall commence on the date on which such Authorisation is~~ granted by the Minister (the “Date of Grant”) and continue in effect for the period (~~each a~~ “Term”) referred to in the relevant Schedule in respect of that Authorisation. This Concession shall determine at any time that all Authorisations granted herein have terminated.
- A6. The Authorisation ~~for any Public Telecommunications Network, Public Telecommunications Services or Broadcasting Service,~~ may be renewed by the Minister on the recommendation of the Authority upon application by the concessionaire to the Authority. Such application shall not be made before the expiry of two thirds of the relevant Term, or six months prior to the end of the relevant Term, whichever is earlier. Renewal shall on each occasion be for such period as may be agreed between the concessionaire and the Minister acting on the recommendation of the Authority.
- A7. The Authority shall, in assessment of any application for renewal of any Authorisation granted hereunder, have regard to the matters that would be considered in relation to an application for a new Concession, as well as any matters related to the concessionaire’s previous compliance with the conditions of this Concession or any other concession. In the case of a first renewal, the Authority, in making its recommendation to the Minister, shall have regard to the provisions of section 31(1) of the Act.
- A8. Each Authorisation granted under this Concession is separate and the Minister shall have the right to renew some ~~only~~ or all of the Authorisations granted by this Concession. Such renewal shall be on the recommendation of the

Authority having regard to all the relevant circumstances. Upon any renewal subsequent to the first renewal of any Authorisation granted under this ~~C~~oncession, the terms and conditions of that Authorisation may be amended or modified by the Minister upon the recommendation of the Authority, having regard to all the circumstances.

Payment of ~~C~~oncession Fees

- A9. The concessionaire shall pay to the Authority the concession fees and all other fees applicable to the ~~P~~ublic ~~T~~elecommunications ~~n~~etworks ~~and or~~ Services authorised by this ~~C~~oncession as invoiced by the Authority to the concessionaire in accordance with the Act, the Telecommunications (Fee Regulations)– or any other regulations made under the Act or any other legislation. in force from time to time.

Service Commitments and Performance Bond

- A10. Without prejudice to any of the concessionaire's other obligations under this ~~C~~oncession, the concessionaire shall comply with the commitments regarding network rollout, range of services to be offered, quality of service standards, pricing and service provisioning schemes and any other commitments as submitted to the Authority in its application for any Authorisation granted by this ~~C~~oncession.
- A11. The concessionaire shall also comply with any network or service obligations set out in the Schedules to this ~~C~~oncession.
- A12. The concessionaire shall not commence service in relation to any Authorisation until the relevant Date of Commencement. The Date of Commencement shall be the date on which the concessionaire is furnished with a ~~C~~ertificate of ~~C~~ommencement in respect of the relevant Authorisation. Upon satisfaction of the relevant ~~C~~ommencement of ~~S~~ervice condition for an Authorisation as set out in Schedule D the concessionaire may apply to the Authority for certification of its completion of such commencement condition. The application shall be made in writing and must provide adequate proof of completion thereof to the reasonable satisfaction of the Authority. The Authority shall determine the application and shall notify the concessionaire in writing of the result within fourteen (14) days from the date of receipt of the application. Where proof to the satisfaction of the Authority is so furnished, such notification shall be the ~~C~~ertificate of ~~C~~ommencement. Should the Authority not respond within the designated fourteen (14) day period, the concessionaire shall be deemed to have been issued a ~~C~~ertificate of ~~C~~ommencement effective immediately on the next day immediately following the expiry of the fourteen (14) day period. Where Schedule D does not contain a ~~C~~ommencement of ~~S~~ervice condition in respect of any Authorisation granted under this Concession, the Date of Commencement shall be the Date of Grant of the relevant Authorisation.
- A13. Where applicable, tThe concessionaire shall, within fourteen (14) days of the date on which this ~~C~~oncession–concession is granted or as directed by the

Authority, provide the Authority with a performance bond(s) in the form set out in Appendix I, to secure the Basic Network and Service rollout Commitments and other commitments of the concessionaire set out in Schedule D.

Universality Universal Service

A14. The concessionaire shall comply with the Act, the Telecommunications (Universal Service) Regulations (“the USR”) and any other policy or framework written law all regulations made approved by the Authority in relation to universal service and universal access, and in particular shall:

- a. remit all make such contributions in accordance with regulation 5 of the USR to the Universal Service Fund any fund or accounts established pursuant to section 53(6) of the Act and as may be required by the USR; such regulations
- b. comply with all such lawful directions of the Authority pursuant to its in pursuance of the fulfilment of universal service obligations.

~~A14. (1) Without prejudice to Condition A14 above, and until such regulations are promulgated, a concessionaire shall:~~

- ~~a. where the concessionaire is authorised to operate public domestic fixed telecommunications networks and provide public domestic fixed telecommunications services, provide at a minimum:~~
 - ~~i. at such time and in such manner as determined by the Authority in consultation with the concessionaire, all basic telecommunications services in such a form as to facilitate access to those services by citizens who are visually and hearing impaired; and,~~
 - ~~ii. all basic telecommunications services authorised to public libraries and schools at rates which are twenty five per cent (25%) of the retail rate provided for such telecommunications service in the market; and,~~
 - ~~iii. provide no less than fifty public nodes, for example pay phones or Internet kiosks, per national county and parish, by the third milestone of Schedule D (or within 6 months of the Date of Grant where no milestones are listed in schedule D in respect of its public domestic fixed telecommunications networks and services).~~
- ~~b. where the concessionaire is authorised to operate public domestic mobile, public domestic fixed, and/ or public international telecommunications networks, and/or provide public domestic fixed, public domestic mobile, public international telecommunications, and/or broadcasting services;~~

~~remit such amount no greater than three per cent (3%) of gross annual revenues from such networks and services as may be specified by the Authority regarding universal service, into an account or fund to be specified by the Authority for the development of a universal service and access programme. However, in calculating the total liability of the concessionaire under this sub-condition, the reasonably incurred cost to the concessionaire in providing services pursuant to Condition 15(1) a. during the relevant period shall be deducted from the total sum payable by the concessionaire.~~

- ~~(2) For the purposes of this Condition A15, basic telecommunications services are as defined within the Telecommunications (Universal Service) Regulations.~~

Transfer of Concession, Change of Control, Disposal of Assets

- A15. The concessionaire shall not, without the prior written approval of the Authority, such approval not to be unreasonably withheld, transfer, assign or otherwise part with this ~~€~~concession or any permission, right, obligation or benefit granted under this ~~€~~concession.
- A16. Control of the concessionaire shall not, without the prior written approval of the Authority, such approval not to be unreasonably withheld, be transferred or changed.
- A17. The concessionaire shall not, without the prior written approval of the Authority, such approval not to be unreasonably withheld, enter into any joint venture, management agreement, outsourcing agreement, association contract or other arrangement with a third party, the effect of which would be to permit a person who is not authorised under this ~~€~~concession or any other concession granted under the Act, to obtain rights or privileges under this ~~€~~concession which would otherwise require that person to be the holder of a concession pursuant to section 21 of the Act or would result in a breach of ~~€~~condition A1~~56~~ or A1~~67~~.
- A18. The concessionaire shall not, without the prior written approval of the Authority, such approval not to be unreasonably withheld, assign, transfer or otherwise dispose of any part of its assets constituting or involved in the operation of any public telecommunications network or provision of any public telecommunications service authorised for national or major territorial operation or provision, where such assignment, transfer or disposal would materially affect access to that network or those services, other than where the assignment, transfer or disposal is in the ordinary course of the concessionaire's maintenance, replacement or upgrading of such network or service.
- A19. The Authority may, in the grant of any approval under ~~€~~Conditions A1~~56~~, A1~~67~~, A1~~78~~ or A1~~89~~, impose such reasonable conditions upon the concessionaire in

respect of any transfer, assignment, change, disposal or arrangement as it considers appropriate.

~~A19.~~A20. The concessionaire is required to provide to the Authority no less than thirty (30) days prior notification of any intention by the concessionaire to conduct any proposed transfer, assignment, change, disposal or arrangement under pertaining to Conditions A15, A16, A17 or A18.

Anti-Competitive Conduct and Market Dominance

~~A20.~~A21. The concessionaire shall not engage in conduct which has the purpose or effect of preventing or substantially restricting or distorting competition in any telecommunications or broadcasting markets, or interfering with the operation of networks or the provision of services by any of its competitors.

~~A21.~~A22. In particular, but without prejudice to the generality of the foregoing, the concessionaire shall not:

- a. enter into any agreement, arrangement or understanding which has or is likely to have the purpose or effect of preventing or substantially restricting or distorting competition in any market for the provision or acquisition of any networks, service or equipment;
- b. without the authorisation of the Authority, make it a condition of the provision or connection of telecommunications network facilities, services or equipment that the person also acquires or does not acquire any other network facilities, service or equipment either from the concessionaire or any other entity; or,
- c. give an undue preference to, or receive an unfair advantage from, a business carried on by it or an associated or affiliated company, service or person if, in the opinion of the Authority, competitors could be placed at a material competitive disadvantage, or competition would be prevented or substantially restricted.

~~A23.~~ Without prejudice to any price or competition regulations to be developed by the Authority, and until such regulations are promulgated:

a. Any concessionaire which:

- (i) serves over one hundred and fifty per cent (150%) of its Average Market Share in any market set out in this condition or defined by the Authority from time to time; or,
- (ii) enjoys a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, users, customers and ultimately consumers;

shall be considered to have significant market power and may be declared a dominant provider subject to price regulation in accordance with section 29 of the Act. Notwithstanding the foregoing, a concessionaire with an

actual market share of less than 15% of any defined market shall not be considered a dominant provider in that market.

b. The Authority may also determine, in accordance with section 29 of the Act, that a concessionaire is dominant where, individually or jointly with others, it operates in a market where more than one of the following conditions are satisfied:

- (i) mature market;
- (ii) homogenous product;
- (iii) similar cost structures;
- (iv) similar market shares;
- (v) lack of technical innovation and mature technology;
- (vi) absence of excess capacity;
- (vii) lack of potential competition;
- (viii) reduced scope for price competition; or
- (ix) high barriers to entry.

c. Subject to revisions made from time to time by the Authority, a concessionaire which is declared dominant in a market may be subject to price regulation of the telecommunications services within that market in accordance with section 29 of the Act, such that its prices for telecommunications services in that market shall be capped so that the concessionaire's rate of return on investment is limited (save that such limit shall not result in a rate of return of less than the concessionaire's weighted average cost of capital as determined by Generally Accepted Accounting Practice), or price floors may be set to ensure that provision is not below cost.

d. A concessionaire that has been declared dominant in accordance with section 29 of the Act may apply to the Authority in writing for a determination that it is not a dominant provider. The Authority shall determine any such application within thirty-one hundred and -eighty (39180) days of receipt of the application and along with all required information and shall take into account the following factors:

- (i) the relevant market;
- (ii) technology and market trends;
- (iii) the market share of the provider;
- (iv) the power of the provider to set prices;
- (v) the degree of differentiation among services in the market;
- (vi) any other matter as the Authority deems relevant.

e. Until such time as the Authority has defined the relevant markets, the following shall be the defined markets for the purposes of this Condition A23:

- (i) Retail telecommunications services:
 - a. Public Mobile Voice Origination Services ~~(National and Major Territorial)~~;
 - b. Public Fixed Voice Origination Services ~~(National, Major Territorial, Minor Territorial, Niche)~~;
 - c. International Voice Origination Services ~~(National, Major Territorial, Minor Territorial, Niche)~~;
 - d. ~~Narrowband Internet Access (National, Major Territorial, Minor Territorial)~~ Broadband Internet Access ~~(National, Major Territorial, Minor Territorial, Niche)~~; and,
 - e. Private Leased Line Services ~~(National, Major Territorial, Minor Territorial, Niche)~~.
- (ii) Wholesale telecommunications services:
 - a. Local Leased Line Access;
 - b. International Leased Line Access;
 - c. Leased line Access to other concessionaires;
 - d. Mobile Termination services ~~(National Only)~~;
 - e. Fixed Termination services ~~(National, Major Territorial, Minor Territorial, Niche)~~;
 - f. Fixed Transit;
 - g. Mobile Transit; and,
 - h. International Termination services.

Liability for Acts of Agents, Employees and Contractors

A24. Without prejudice to the provisions of ~~Condition A17~~⁸, the concessionaire shall be entitled to appoint agents or employ independent contractors or sub-contractors to carry out any works or provide any services which enable the concessionaire to discharge its obligations under this ~~concession~~. The concessionaire shall be wholly liable for any act, omission, default, neglect or otherwise of the agents and independent contractors or sub-contractors in carrying out any such works or providing any such services and shall remain responsible for compliance with all requirements of this ~~concession~~ notwithstanding any such appointment or employment.

Remedies for Non-Compliance

A25. In the event of a material breach of the Act, regulations, ~~instruments~~ or directions made under the Act, or any condition of this ~~concession~~, the Authority or the Minister, whichever is appropriate in accordance with the relevant provisions of the Act, may:

- a. suspend or terminate this ~~concession~~ or the concessionaire's right to operate any network or provide any service under this ~~concession~~; or,

- b. take such other action as it deems appropriate;

in accordance with the relevant provisions of the Act and any regulations.

A26. The concessionaire shall not be held to have failed to comply with its obligations under this ~~C~~concession if and to the extent that the Authority is satisfied that it is or was prevented from complying with those obligations for the following reasons:

- a. acts or omissions beyond the reasonable control of the concessionaire, including without limitation, acts of God, war, riot, civil commotion, fire, flood or storm;
- b. malfunction or failure of any equipment where the Authority determines that reasonable preventative measures were taken beforehand;
- c. the act or omission of any government body or international organisation;
- d. compliance with any law or governmental order, rule, regulation or direction; or,
- e. any other factor which in the opinion of the Authority is beyond the concessionaire's reasonable control and which notwithstanding the exercise by the concessionaire of reasonable diligence, the concessionaire was unable to prevent or overcome,

provided that the concessionaire shall-: (i) promptly notify the Authority in writing of the occurrence of any such factor hereinabove mentioned, stating the full particulars, its effects on the concessionaire, the obligation it is prevented from carrying out and the likely period of non-compliance (ii) use all reasonable endeavours to address, without delay, the factor or factors preventing the carrying out of its obligations and (iii) shall resume the performance of its obligations as quickly as soosoon as as the factor which prevented its performance thereof ceases or abates.~~it is reasonably able to do so.~~

Indemnity

A27. The concessionaire shall indemnify the Government and the Authority against ~~t~~any losses, claims, charges, expenses, actions, damages or demands which the Government or the Authority incurs or which may be made against the Government or the Authority as a result of the activities of the concessionaire or any employee, agent or contractor of the concessionaire in relation to the provision of the services or the operation of the ~~p~~Public ~~t~~Telecommunications ~~N~~networks or provision of the ~~P~~public ~~T~~telecommunications ~~s~~Services or ~~b~~Broadcasting ~~s~~Services, save where such claims arise out of the failure by the

Government or the Authority to properly or reasonably exercise its functions under the Act. This indemnity shall not apply if it is proven by the concessionaire that the loss arose out of the Authority's or the Government's failure to properly exercise its responsibilities under the Act or any other written law, or directly and solely out of an obligation or requirement imposed upon the concessionaire by the Government or the Authority.

Requirement to Furnish Information to the Authority

A28. The concessionaire shall promptly furnish to the Authority, in such manner and at such times as the Authority may reasonably direct, either in writing or by a general notice published by the Authority, such information related to the activities of the concessionaire under this ~~C~~concession, including but not limited to network or service development plans, financial, technical and statistical information, accounts, service performance metrics, information related to cybersecurity, quality of service and other records or information, as the Authority may reasonably require in order to perform its functions. ~~The Authority may use the information for the purposes of monitoring compliance with the Act, regulations and this concession and compiling statistics. The concessionaire shall ensure that any such document and or information provided to the Authority shall be true, accurate and complete.~~

A29. Subject to ~~C~~condition ~~A2830~~, the Authority shall keep confidential any information furnished to it by a concessionaire, which the concessionaire has specifically expressed to be confidential at the time of submission to the Authority, and which is of a confidential nature. The concessionaire shall label such confidential information at the time of disclosure orally and in writing with a prominently placed label or marking stating that such information is "CORPORATE PROPRIETARY AND CONFIDENTIAL". The Authority shall exercise reasonable care and take all reasonable steps in protecting such confidential information, and in particular shall take reasonable precautions to procure that such confidential information is only disseminated to ~~these employees~~ the Board, employees of the Authority and every person concerned with the administration of the Act that need to know and use such information in the performance of the Authority's functions.

A30. In accordance with section 80 of the Act, the Authority shall be entitled to disclose any information received by it where:

- a. the Authority considers that disclosure is necessary in the discharge of the Authority's functions;
- b. the information is or becomes public knowledge other than through disclosure by the Authority;

- c. the information was known to the Authority before receipt from the concessionaire, without any obligation of confidence;
- d. the information lawfully becomes available to the Authority from a source other than the concessionaire; or;
- e. the concessionaire agrees to the disclosure of the information.

A31. Prior to any disclosure of information under ~~C~~condition A30(a) above, the Authority shall afford the concessionaire requesting the information and the concessionaire that owns the information, an adequate opportunity to make representations regarding the disclosure. Without prejudice to the generality of the foregoing, the Authority shall:

- a. give no less than fourteen (14) days prior written notice of disclosure to the concessionaire whose information the Authority proposes to disclose;
- b. give reasonable considerations to any representations made consequent upon part a. above; and,
- c. where appropriate, consider such reasonable proposals made by the concessionaire to protect the confidentiality of the information, where such proposals do not prejudice the Authority's objective in seeking to disclose the information.

Accounting Practices

A32. Where directed by the Authority in writing, the concessionaire shall implement such accounting practices as may from time to time be required by the Authority in accordance with Regulations made under the Act.

A33. Such accounting practices are to be consistent with generally accepted accounting practice where applicable, and may include ~~(but are not limited to)~~ accounting practices which allow for the identification or separation of the costs and charges for different services or types or kinds of networks and/ or facilities.

A34. The concessionaire shall account for costs and keep such books of accounts and where the Authority prescribes by regulation the manner in which such books are to be kept, to keep such books of accounts in accordance with Regulations made under the Act.

Public Emergency Telecommunications Services

A35. The concessionaire shall ensure that, in respect of any public telephone service which it provides, it shall:

- a. ~~facilitate-allow~~ user ~~connection-contact~~;
- b. forward user calling line identifiers, ~~and where possible~~ with associated subscriber address information where possible; ~~and~~
- c. for fixed telephony, if required to do so and upon ~~the~~ giving of reasonable prior notice in writing, forward, where possible, the physical address of the user's network termination point geographic location within one hundred (100) metres of the position of the user at the time of the communication; and
- d. for mobile telephony, if required to do so and upon giving reasonable prior notice in writing, forward, where possible, the user's geographic location to within a fifty-metre horizontal accuracy and a three-metre vertical accuracy under open sky conditions at the time of the communication or other such parameters as may be prescribed;

to police, fire, ambulance, ~~and-or~~ any other national emergency services ~~which that~~ the Minister with responsibility for National Security may, from time to time, designate, so they may be notified ~~for the purpose of notifying them~~ of any emergency at any time and ~~without-at~~ no charge.

A36. The concessionaire shall, as directed by the Authority after consultation with the relevant stakeholders, in respect of any public telecommunications or broadcasting service it provides:

- a. facilitate the provision of next generation internet protocol-based emergency call services (with multimedia capability including text, photograph and video) to the relevant national emergency agency; and
- b. facilitate the broadcast of emergency or critical alerts by any national emergency or security agency.

A376. The numbers for emergency services and national public information services shall be as determined in the National Numbering Plan, or as otherwise identified in any decisions ~~-or~~ directions issued by the Authority.

A387. The concessionaire shall take all necessary reasonable measures to ensure the best possible availability of service in the event of network breakdown or in case of force majeure.

National Emergency Telecommunications

A398. The concessionaire shall:

- a. ensure its facilities are resilient to natural disasters and conform with the Authority's applicable Technical Standards including but not limited to the *Technical Standards for Public Fixed Telecommunications Networks and the Technical Standards for Wireless Networks*;
- b. adopt technologies to facilitate efficient public notifications, warnings and emergency alerts in English and Spanish and using assistive technologies to aid persons with disabilities;
- c. ensure an up-to-date disaster recovery plan and business continuity plan for maintaining basic telecommunications services during and after a disaster; and
- d. cooperate with stakeholders identified by the Authority in the development of a National Emergency Telecommunications plan. Such stakeholders shall include but not be limited to:
 - (i) relevant Ministries,
 - (ii) regulatory bodies,
 - (iii) national development agencies,
 - (iv) first responders,
 - (v) private networks including government communications networks, amateur radio and civil society

Service Interruptions

A40. The concessionaire shall take all reasonable precautions to ensure that interruptions to the provision of its services are avoided or kept at a minimum.

A41. The concessionaire shall take reasonable steps, including any specific steps identified in any direction from the Authority, to provide adequate advance notice prior to any service interruptions resulting from planned network outages to its customers, the Authority and any other concessionaires, network operators or service providers affected by the service interruption.

A42. Where a service interruption is not planned, the concessionaire shall take such reasonable steps to promptly inform customers, the Authority and other concessionaires, network operators or service providers affected by the service interruption of the nature of the service interruption, including its best information regarding the restoration of service.

A43. The concessionaire shall inform the Authority of the details and reasons for service interruptions and reasonable preventative measures for recurrence of unplanned service interruptions, where applicable, as directed by the Authority.

Law Enforcement and National Security

A44. (1) The concessionaire shall, upon request made by the Minister with responsibility for ~~Minister of~~ National Security and subject to any written law, cooperate with the Ministry ~~of~~ with responsibility for National Security in matters of national security. Such cooperation may, subject to written law, include inter alia:

- a. The concessionaire:
 - i. ensuring that any infrastructure whether located within or outside of the jurisdiction of Trinidad and Tobago, where technically feasible, is so enabled to facilitate intelligence analysis by the Ministry ~~of~~ with responsibility for National Security or such agency as is expressly designated by the Minister ~~of~~ with responsibility for National Security for purposes of this section (“the designated agency”). This may include, but is not limited to, the installation of such necessary hardware and software with the required functionality, in accordance with guidance to be provided by the Ministry with responsibility for National Security or the designated agency;
 - ii. enabling the capability to terminate/mirror transmission data/intelligence to points of monitoring and surveillance, in a manner as prescribed by the Ministry with responsibility for National Security or the designated agency from time to time;
 - iii. providing in real time, session management and control information so as to allow the tracking of origin and termination of intelligence;
 - iv. providing access to subscriber databases in a timely fashion in conjunction with the control information of (iii) above, in formats as prescribed from time to time by Ministry with responsibility for National Security or the designated agency;
 - v. providing the identity of the subscriber, customer or user whom the concessionaire was providing services to in relation to the requested information; and,
 - iv.vi. providing the requested information, facilities or technical assistance identified in a lawful intercept warrant.
- b. Prescriptions of the designated agency under A44(1)a. above may include, but shall not be limited to:
 - i. directions as to the timeliness of response to requests;

- ii. technical specifications for hardware and software inter-workings; and,
 - iii. formats in which information is requested of and to be submitted by the concessionaire.
- c. ~~The concessionaire~~ granting entry to authorised representatives of the designated agency to facilities for the purpose of monitoring and capturing of any services provided by the concessionaire.
 - d. ~~The concessionaire~~ permitting the designated agency to position or connect its monitoring equipment on or with any communications infrastructure considered necessary as long as there is no reasonable risk of negatively affecting network/service quality. This access will be granted at no cost, except that the cost of installing the access media or such similar device shall be for the account of the ~~m~~Ministry with responsibility for National Security.
 - e. The concessionaire designating a point of contact from its engineering personnel, who must be suitably screened by the designated agency.
 - f. The concessionaire keeping the designated agency informed in writing ninety (90) days prior to any intended material growth/changes to the infrastructure of the network, including details pertaining to site location and capabilities.
- (2) Save as expressly otherwise provided, the cost of any activity and equipment under these provisions shall be borne by the designated agency.

A45. The concessionaire, its agents or employees, shall treat ~~E~~conditions ~~A4436 and A37~~ of the ~~E~~concession and all information – in any form – which is acquired in the course of complying with such conditions as secret and confidential and shall not disclose or communicate to any unauthorized person or allow any such person to have access to any such information without the prior consent of the Minister ~~of~~ with responsibility for National Security.

Cybersecurity and Cybercrime

A46. The concessionaire shall implement such codes of conduct which may include rules, guidelines or standards relative to cybersecurity or cybercrime as the Authority may direct or in the absence of such, implement codes of conduct as it deems appropriate in conformity with accepted international best practice and law.

A47. A concessionaire shall:

- (a) take such measures as are appropriate and proportionate for the purposes of—
 - (i) identifying the risks to its network security;
 - (ii) monitoring and responding to threats and attacks;

- (iii) reducing the risks identified in (i) above from occurring; and
 - (iv) taking mitigation steps to prepare for the occurrence of compromises to its network security from any type of cyber-attack.
- (b) in the operation of a public telecommunications network, ensure-
 - (i) in design and construction of a new public telecommunications network that the public telecommunications network is designed and constructed in a manner which reduces the risks of security compromises occurring,
 - (ii) in relation to an existing part of the public telecommunications network, that the part is redesigned and developed in a manner which reduces the risks of security compromises occurring, and
 - (iii) that the public telecommunications network is maintained in a manner which reduces the risks of security compromises occurring.
- (c) submit to the Authority annually, its current-cybersecurity framework, plan or evidence of certification which outlines its cybersecurity measures for the identification, protection, detection, response and recovery for its network, in the event of a cyber-attack, in conformance with best practice, as required by the Authority;
- (d) notify the Authority as soon as possible of a threat or breach of security or loss of integrity that has had a significant impact on the operation of its telecommunications network or the provision of telecommunications services and the steps taken to rectify the breach; and
- (e) —In the event of a breach of security or loss of integrity, submit a full incident report to the Authority specifying the nature of the incident, the services affected, the scope of impact of the incident, the concessionaire's customer notification plan, the timeframe for resolution of the incident, and any other matter the Authority may reasonably require. Where the incident is resolved within five days of the start of the incident, this report must be provided no later than five days after the date of resolution. For incidents not resolved within five days, this report must be provided to the Authority within seven days of the start of the incident.

In this section, the following definitions shall apply:

“actual knowledge” means knowledge that is brought to the attention of the concessionaire through one or more of the following means:

- (i) written notice or direction issued by the Authority
- (ii) court order
- (iii) formal notification from Ministry with responsibility for National Security or its designated agency

“computer system” means a device or group of interconnected or related devices which follows a program or external instruction to perform automatic processing of information or electronic data;

“computer data” means any representation of facts, information or concepts in a form suitable for processing in a computer system, including a program suitable to cause a computer system to perform a function;

“data message” means any document, material, correspondence, memorandum, book, plan, map, drawing, diagram, pictorial or graphic work, photograph, film, video, digital image or picture, computer image or picture, computer generated image or picture, or digitally generated image or picture whether made or produced by electronic, digital, mechanical, or other means which is sent, received or stored by any electronic means by or on behalf of the person it represents;

“electronic record” means a record created, stored, generated, received or communicated by electronic means;

“traffic data” means any computer data relating to a communication by means of a computer system, generated by a computer system that formed a part in the chain of communication, indicating the communication’s origin, destination, route, time, date, size, duration, or type of underlying service;

A48. The concessionaire shall:

- (a) where it has actual knowledge, that a data message or electronic record gives rise to civil or criminal liability, which is in its possession or control:
 - (i) remove the data message or electronic record from any information system within the control of the concessionaire and cease to provide or offer to provide telecommunications services in respect of that information or take any other action authorised by written law or as directed by the Authority;
 - (ii) in the case of criminal liability, promptly notify the appropriate law enforcement authorities of the data message or electronic record and of the relevant facts including the traffic data of the person

accessing, transmitting or manipulating information, data message or electronic record and of the identity of the person to whom the concessionaire was providing a telecommunications service, if the identity of that person is known to the concessionaire; and

- (iii) secure and preserve the data message or electronic record, which includes the person's information and traffic data for a period no less than five (5) years for law enforcement authorities in pursuance of criminal investigations and proceedings.

(b) cooperate with law enforcement authorities on matters relating to- cybercrime.

Numbering Resources, End User equipment and Number Portability

A49. The concessionaire shall conform to the ~~National N~~numbering ~~p~~Plan made by the

Authority, any directions given by the Authority in relation to the application of the ~~National N~~numbering ~~P~~plan and any directions or regulations issued relevant to the administration of numbers. The concessionaire acknowledges that neither the concessionaire nor its customers obtain, whether directly or indirectly, any proprietary rights in numbers allocated or assigned by the Authority.

A50. Without prejudice to any numbering regulations to be developed by the Authority, and until such regulations are promulgated, the relevant domestic concessionaire's network shall utilise the internationally designated country code identifiers identified in Schedule E.

A51. The concessionaire shall take all reasonable measures and cooperate with the Authority to prevent or minimise the use of ~~unlawfully-acquired~~ end user equipment that gives rise to civil or criminal liability or end user equipment not authorised for use or operation by the Authority.

A52. The concessionaire shall, at the request of the Authority, furnish ~~to the Authority~~ any information required by the Authority in relation to the development and/ or operation of the National Numbering Plan.

A53. The concessionaire shall, ~~in accordance with any regulations relating to number portability,~~ facilitate the portability of numbers assigned to any customer of any operator of public telecommunications networks or provider of public telecommunications services. A concessionaire shall configure its network to facilitate number portability between other networks that provide the same public telephone service and shall implement number portability when directed by the Authority and in the manner directed by the Authority.

Quality of Service

A54. The concessionaire shall operate and maintain the ~~P~~ublic ~~T~~elecommunications ~~n~~etworks, and provide the ~~P~~ublic ~~T~~elecommunications ~~S~~ervices or ~~B~~broadcasting ~~S~~ervices, in a good, efficient and continuous manner satisfactory to the Authority and in accordance with any regulations or directions made by the Authority in relation to quality of service from time to time.

A55. Without prejudice to any quality-of-service regulations to be developed by the Authority, and until such regulations are promulgated, the concessionaire is obliged within six (6) months of the Date of Commencement to meet the quality of service benchmarks as specified in Schedule F, according to the terms therein.

A56. Without prejudice to any quality-of-service regulations to be developed by the Authority, and until such regulations are promulgated, the concessionaire shall within six (6) months of the ~~D~~ate of ~~C~~ommencement publish in accordance with this section A, the appropriate performance indices specified in Schedule F.

Access to Facilities

A57. The concessionaire shall in a prompt and efficient manner in accordance with ~~The~~the provisions of the Telecommunications (Access to Facilities) Regulations from time to time ~~in force~~, coordinate and cooperate with any other concessionaire in respect of the provision, use and sharing of any facilities.

A58. Save as otherwise expressly permitted by the Authority, the concessionaire shall not install any radiocommunications or radiotransmitting equipment which is part of the ~~p~~ublic ~~t~~elecommunications ~~n~~etworks on any structure which (i) is not purpose built for the accommodation of such equipment, and, (ii) is not owned or controlled by the concessionaire, or another holder of a concession under section 21 of the Act. In this condition, the term “owned or controlled” means the ability to direct the management and use of a facility for the purpose of complying with any directions given by the Authority under section 26 of the Act or any regulations made under section 26 of the Act.

Dispute Resolution

A59. Any dispute on matters relating to the requirements of this ~~C~~oncession or the Act shall be referred to the Authority for determination in accordance with the Authority’s procedures for the resolution of disputes ~~such dispute resolution process~~ as established by the Authority under the Act. The concessionaire expressly agrees and acknowledges that it shall, as set forth within the provisions of such dispute resolution process, be bound by any decision or award made in such process.

Access to Telecommunications

A605. The concessionaire shall refrain from impairing or terminating the telecommunications service or access to the relevant telecommunications network or facility to a user or other provider of a telecommunication service during a dispute, without first having undertaken to resolve the dispute in accordance with established procedures approved by the Authority and where such dispute cannot be resolved, to seek written approval from the Authority but in respect of a billing dispute the concessionaire shall collect such amounts that are not in dispute from such user or other provider.

A610. The concessionaire is required to provide to the Authority no less than thirty (30) days prior notification of its intention to terminate access to its relevant telecommunications network or facility to any other provider of a telecommunication service.

Amendment

A62. This ~~Concession~~-concession or the terms and conditions of any Authorisation granted in this ~~C~~concession, may be amended:

- a. in accordance with the provisions of the Act; ~~or:~~ force majeure, national security, changes in national legislation, implementation of international obligations; or;
- b. as agreed in writing between the concessionaire and the Minister, acting on the advice of the Authority, ~~and the concessionaire.~~

Termination and Surrender

A63. An Authorisation granted under this ~~C~~concession shall terminate at the end of the relevant Term unless earlier revoked or terminated in accordance with the Act, or terminated by agreement between the concessionaire and the Minister, acting on the recommendation of the Authority.

A64. An Authorisation granted under this ~~C~~concession, or any rights granted herein, may be surrendered at any time with the prior agreement in writing of the Minister, acting on the recommendation of the Authority. Such surrender shall be without prejudice to any rights or obligations accrued prior to such surrender taking effect, and shall be subject to such conditions as the Minister, acting on the recommendation of the Authority, shall consider appropriate having regard to all the circumstances.

Service of Notices

A65. The concessionaire shall provide to the Authority an address in the Republic of Trinidad and Tobago for service of notices, including details of ~~facsimile and~~ telephone contact numbers. All notices required to be given in writing to the concessionaire under this ~~C~~concession shall be sent by:

- a. hand or mail to the concessionaire's registered address in the Republic of Trinidad and Tobago as filed with the Registrar of Companies or any other address in Trinidad and Tobago provided by the concessionaire to the Authority in writing; ~~or~~

~~b. facsimile to such contact details as have been provided to the Authority for the purpose of notices (which facsimile shall be followed by a printed copy as soon as practicable thereafter); or~~

b. Electronic mail (email) or by such electronic; or

- c. ~~or by~~ other means as may be agreed between the concessionaire and the Authority.

Notices will be deemed to have been received when delivered if sent by hand, three working days after mailing if sent by mail, and ~~upon receipt by the sender of a delivery confirmation when sent by facsimile or any if if sent by~~ electronic means; will be deemed to be received when it enters the recipient's electronic mail inbox.

Publications

A66. The concessionaire shall publish and make available at all times such information as reasonably determined from time to time by the Authority as necessary to inform the public of the operation of its networks and/or provision of all of its services provided in relation to the Authorisations contained in this concession. These publications shall be effected by at a minimum:

- a. placing a copy in a publicly accessible location of the principal place of business in Trinidad and Tobago of the concessionaire, and all other business places of the concessionaire at which business with the public is transacted;
- b. making the information available, and easily accessible, on any public website maintained by the concessionaire; and
- c. providing a copy to any person who requests it. The concessionaire may levy a charge of no more than the reasonable cost of printing and sending the copy to the person so requesting.

Notice of Changes

A67. The concessionaire shall submit written notice to the Authority within seven (7) days of the occurrence of any the following changes:

- (a) the name of the concessionaire or brand name;

(b) the designated contact person and contact details for the concessionaire;
and

(c) registered and physical address(es) of the concessionaire's operations.

A68. In the case of changes to the directorship or shareholders the Authority must be notified prior to this change and the Authority's approval sought in accordance with condition A15-.

Confidentiality of information and Data Protection

A69. The concessionaire shall maintain the confidentiality of any confidential, personal and proprietary information of any user, other operator of a public telecommunications network or public telecommunications / broadcasting service, except consent is first obtained or required under any law or by court order.

A70. Subject to written law, the concessionaire shall:

a. be responsible for the personal information under its control;

b. identify the purpose for which the information is to be collected before or at any time of the collection;

c. not, without the knowledge and consent of the user to whom it relates, collect, maintain, use or disclose personal information, except for the purpose for which the information was obtained or compiled, or for a use consistent with that purpose, or for a purpose for which the information may be disclosed, as required under any law or by court order;

d. legally undertake the collection of personal information, limited to what is necessary and in accordance with the purpose identified by the concessionaire;

e. only retain personal information for as long as is necessary for the purpose collected and shall not disclose for purposes other than the purpose of collection without the prior consent of the user;

f. make every reasonable effort to ensure that the personal information is accurate and complete and allow access to the user, such that the user can challenge the accuracy and completeness of the information;

g. protect personal information using appropriate safeguards, having regard to the sensitivity of the information;

h. protect sensitive information from processing;

- i. make available to users any documents regarding their policies and practices related to the management of personal information;
- j. disclose at the request of the user, all documents relating to the existence, use and disclosure of personal information, such that the user can challenge the accuracy and completeness of the information;
- k. provide timely and appropriate engagement to a user that challenges a concessionaire's compliance with all the sub-clauses under this section;
- l. not disclose personal information outside of Trinidad and Tobago unless comparable safeguards, to those under the Data Protection Act, Chap 22:04 exist in the jurisdiction receiving the personal information.

Section B — Public Telecommunications Network Conditions

Application of this Section

- B1. Save as otherwise provided in this ~~C~~concession, Section B shall only apply to the concessionaire if this ~~C~~concession authorises the operation of a public telecommunications network or networks, which network or networks, if any, are specified in Schedule A.

Licences for Radiotransmitting Equipment and Radiocommunications Services

- B2. Where radiocommunications services and radiotransmitting equipment are required for the operation of the ~~p~~Public ~~T~~telecommunications ~~N~~networks or provision of the ~~p~~Public ~~t~~Telecommunications ~~S~~services or the ~~b~~Broadcasting ~~S~~services, the concessionaire shall obtain and maintain the required licences in accordance with section 36 of the Act and the relevant regulations.

Location of Network Facilities

- B3. The concessionaire shall in accordance with the Act, the regulations, and any other relevant laws, obtain all required consents, approvals and rights of access from the relevant authorities before the commencement of any installation or maintenance of the ~~P~~public ~~T~~telecommunications ~~N~~networks.
- B4. The concessionaire shall, at the request of the Director of Highways, any other proper authority, or any other person who intends to undertake works in the vicinity of the ~~p~~Public ~~t~~Telecommunications ~~n~~Networks and who is properly authorised to do so, provide information about the location of the ~~p~~Public ~~t~~Telecommunications ~~N~~networks in a readily accessible format. Where such information is provided to a Government or ~~S~~statutory authority it shall be provided free of charge, but the concessionaire shall be entitled to charge a reasonable fee to cover its cost of making copies of the information to all other third parties.
- B5. The concessionaire shall mark or otherwise identify the components or facilities of the ~~P~~public ~~T~~telecommunications ~~N~~networks, to the extent reasonably required to distinguish it from the components or facilities of any other network or equipment laid or installed in Trinidad and Tobago.

Records and Network Plans

- B6. The concessionaire shall keep accurate, up to date and reasonably detailed records of the location of the ~~P~~public ~~T~~telecommunications ~~N~~networks (including all related equipment and facilities). The records to be maintained by the concessionaire shall include overall network plans, ~~—and—~~ cable route maps, (including areas served and coverage maps, where applicable by the cable).

- B7. The concessionaire shall make such information available, promptly and without charge, to the Authority or to any person or entity authorised by the Authority for inspection, and shall provide copies of the information as required. (All routing location information shall be submitted in a stipulated Geographic Information Systems (GIS) file format or in such format as the Authority may reasonably require) for the Authority's purposes direct.
- B8. The concessionaire shall, at the request of any other holder of a concession granted under the Act and without unnecessary delay, give reasonable access to such information, as the Authority may direct, regarding the concessionaire's network, including planned deployment of equipment, for the facilitation of network planning, maintenance, and reconfiguration and other relevant information necessary for the provision of such related services. The concessionaire shall be entitled to charge a reasonable fee to recover costs it incurs in connection with the provision of such information to other concessionaires.

Changes to the Networks

- B9. The concessionaire shall ~~notify~~ provide the Authority with no less than sixty (60) days' notice —of any proposed material changes ~~to—its—the~~ Public Telecommunications Networks ~~forthwith~~—and provide to the Authority such information as the Authority shall reasonably require for the purpose of assessing the effect of such changes, prior to effecting the changes.
- B10. The concessionaire shall not, without the prior written approval of the Authority, such approval not to be unreasonably withheld, make any changes to the ~~Public Telecommunications Networks~~ which might reasonably be anticipated to have a material adverse technical effect on any telecommunications network or service or broadcasting service or any consumer of any telecommunications network or service or broadcasting service provided by the concessionaire or any other person or entity.

Alteration of Networks

- B11. The concessionaire shall, within a reasonable time and in such manner as may be lawfully directed by written notice from the Director of Highways or any other proper authority, at its own expense alter the course, depth, position or means of attachment of any part of the ~~Public Telecommunications Networks~~.

Access by the Authority to Network Facilities

- B12. Without prejudice to any requirement contained in the Act, the concessionaire shall permit the Authority or any inspector appointed in accordance with the Act, upon the giving of reasonable prior notice, to enter and inspect any aspect of the ~~Public Telecommunications Networks~~ including but not limited to technical or network support services/systems, network maintenance, billing centre, data centres and network operations centres for the purpose of inter alia: (i) monitoring compliance by the concessionaire with its obligations under the Act and concession, or (ii) collecting statistical or other data.

Coordination of Works

- B13. The concessionaire shall use reasonable endeavours to coordinate any installation works for the ~~P~~public ~~T~~telecommunications ~~N~~networks under, in, over or upon any public lands with the installation works of other concessionaires or licensees, so as to minimise the disruption caused by such works. The concessionaire shall cooperate fully with the Authority and shall comply with all requirements of the Act and any regulations, procedures or directions made by the Authority or any other relevant authority in respect of such coordination.
- B14. Where in the course of installing or maintaining the ~~P~~public ~~t~~Telecommunications ~~N~~networks the concessionaire, after obtaining all required approvals and consents, excavates any public street or lands, it shall not remove, displace or otherwise interfere with any part of any telecommunications network installed by any other concessionaire or licensee without its prior written consent. Such consent shall not be unreasonably withheld or delayed, but shall be subject to any requirement of reinstatement which that other concessionaire or licensee reasonably imposes upon the concessionaire. Any dispute regarding obtaining consent on appropriate terms (including in a timely manner) may be referred to the Authority pursuant to ~~C~~condition A59.
- B15. The concessionaire shall, as ~~speedily~~soon as ~~reasonably~~ possible, complete any works over any public street or lands, and shall restore the street or lands, including the removal of any debris, to the reasonable satisfaction of the Authority and any other proper authority.

Health, Safety and Environment

- B16. The concessionaire shall in connection with its operation of the ~~P~~public ~~t~~Telecommunications ~~N~~networks, take proper and adequate measures for the safeguarding of life, property and the environment, including safeguarding against exposure to any electrical or electromagnetic non-ionizing radiation hazard emanating from any equipment used by the concessionaire under this ~~C~~concession. Such measures are outlined in Schedule G.
- B17. Where any facility is found to be defective or unsafe or no longer in use, the concessionaire shall, as soon as reasonably possible, have the facility repaired or where necessary removed, at the concessionaire's expense, in an environmentally safe manner, as directed by the Authority.

Interconnection

- B18. The concessionaire shall provide in a prompt and efficient manner:
- direct interconnection with the public telecommunications networks or the public telecommunications services of any other concessionaire;

- b. indirect interconnection with such networks or services referred to in a. above, through the public telecommunications networks or public telecommunications services of other concessionaires; and
- c. the transmission and routing of the services of other concessionaires at any technically feasible point in the concessionaire's network.

Broadcasting Must-Carry

B19. A concessionaire who operates a public domestic fixed telecommunications network which is used for the provision of television broadcasting services shall ensure that all national and major territorial free-to-air television broadcasting channels are carried on its network.

Net Neutrality

B20. A concessionaire shall, as directed by the Authority, adhere to net neutrality principles of reasonable traffic management, non-discrimination and transparency.

Section C — Telecommunications Service Conditions

Applicability of this Section

- C1. Section C shall only apply to the concessionaire if this ~~€~~concession authorises the ~~operation~~ provision of a public telecommunications service or services, which service or services, if any, are specified in Schedule B.

Publication of Service Information Tariffs

- C2. The concessionaire shall publish and make available at all times up to date information relating to the ~~its tariffs for the~~ provision of all of its Public Telecommunications Services provided in relation to the Authorisations contained in this ~~c~~Concession as follows: —

- a. terms and conditions ~~tariffs~~ for all offered Public Telecommunications Services, including but not limited to:

(i) the terms and conditions of service ~~the tariffs,~~

(ii) the price of terminal equipment as separate from the charge for service where terminal equipment integral to the provision of the service is provided to the customer;

(iii) any related promotions ~~that are offered for a period of 90 days or more~~

- b. the effects of accessing a telecommunications service from outside the service area of the concessionaire, including fees or other conditions associated with resale or roaming; and

- c. any other information that the Authority may ~~reasonably~~ require.

- C3. The publication of ~~tariffs~~ information shall include its tariffs, the terms and conditions for the provision of the services, details of fault repair provisions, and other technical and commercial conditions of the services. ~~Where directed by the Authority, t~~The concessionaire shall publish its tariffs VAT inclusive and file copies of its tariffs, and related terms and conditions, with the Authority.

- C4. ~~Publication shall be effected~~ in accordance with condition ~~A660~~ by as a minimum.

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~~€4.—~~

- a. ~~placing a copy in a publicly accessible part of the principal place of business in Trinidad and Tobago of the concessionaire, and all other business places of the concessionaire where business with the public is transacted;~~

- b. ~~Making the information the tariffs available, and easily accessible, on any public website maintained by the concessionaire; and,~~

- e. ~~providing a copy to any person who requests it. The concessionaire may levy a charge of no more than the reasonable cost of printing and sending the copy to the person requesting.~~

The concessionaire shall also include a copy of any information published in accordance with this condition in any directory published by, or on behalf of, the concessionaire; this requirement shall apply to tariffs where such tariffs are for public telecommunications services.

- C5. The concessionaire shall not without the prior approval of the Authority in writing, bundle any Public Telecommunications Services into a single tariff without also offering each of the constituent services under separate tariffs. Where the concessionaire provides customer equipment integral to the provision of a service to its customers, the tariff shall clearly state the price of the equipment separately from the charges for the service.
- C6. The concessionaire shall not use revenues or resources from a public telecommunications network or public telecommunications service to cross subsidise any other public telecommunications network or public telecommunications service, without the prior written consent of the Authority.

Revision of Tariffs and Services

- C7. Save as provided in any regulations or directions made by the Authority under section 29 of the Act, the concessionaire may implement new tariffs or services ~~and or~~ revise its tariffs or services by publication in the manner referred to in Condition C4 after the expiration of notification provided to the Authority in accordance with condition C8.
- C8. Prior to the implementation of new tariffs or services or a revision of tariffs or services under Condition C7, the concessionaire shall, unless otherwise directed by the Authority, give to the Authority no less than thirty (30) days prior notice in writing containing details of the proposed implementation or revision.
- C9. Revised tariffs or services shall take effect for new customers upon publication. In relation to existing customers, revised tariffs or services, to the extent of increase, shall only take effect upon the giving of notice by the concessionaire to the customer in accordance with the terms and conditions published for such tariffs or services, the period of which notice must not be less than thirty (30) days.
- C10. The concessionaire shall provide the Authority with no less than sixty (60) days' notice of any proposed material changes to its public telecommunications services and provide to the Authority such information as the Authority shall reasonably require for the purpose of assessing the effect of such changes, prior to effecting the changes.

Billing and metering accuracy

- C11. The concessionaire shall use all reasonable endeavours to ensure that any metering or billing equipment used in connection with the services provided are accurate and reliable.⁵
- C12. The concessionaire shall ensure that customers are provided with accurate and timely billings and that the charges included in customer bills do not exceed what is properly payable by the customer for the services actually used.
- C13. Concessionaire shall not seek to preclude users from utilising available means of making electronic or other payments and shall not seek to only recover from users² reasonable normal transaction charges, if any, which are typical of reasonable business operations, such as transaction charges for credit card payments or other similar forms of electronic payments.
- C14. The concessionaire shall at the written request-direction of the Authority, conduct tests on metering and billing equipment to assess its accuracy, reliability and conformity to any quality-of-service standards prescribed by the Authority. The results of such tests shall be submitted by the concessionaire to the Authority within fourteen (14) days after the date of the requestdirection.
- C15. Without prejudice to any requirement contained in the Act, the concessionaire shall at any time, upon the giving of reasonable prior notice by the Authority, permit the Authority or any person authorised by the Authority to attend upon its premises or any premises used for the provision of the Public Telecommunications Services to conduct tests on metering and billing equipment or any other equipment to assess its accuracy, reliability and conformity to any quality of service standards prescribed by the Authority.
- C16. The concessionaire shall keep for a period of at least one (1) year, records from any billingbusiness support systems, operation support systems, metering or billing equipment, and related customer data, and shall provide to the Authority, in such form as the Authority may reasonably specify, copies of such records. The foregoing shall not apply to accounting records including copies of a All customer bills issued by the concessionaire, which shall be kept for a period of at least four (4) years.
- C17. Without prejudice to any regulations to be developed by the Authority, and until such regulations are promulgated, the concessionaire shall use its best endeavours to ensure that:
- a. all information, including but not limited to call and data usage, -service usage, roaming -and all charges on a telecommunications-user's bill, is-are clearly included in a customer's bill and identified in language and terms which as far as practicable the user can understand;

a.b.consumers are informed of fees and other conditions of accessing a telecommunications service from outside the service area of the concessionaire, including any resale or roaming fees or other associated conditions;

b.c. the information is correct, and if queried, ensure that the resolution is quick and clear; ~~and;~~

d. ~~provide in the instance of~~ incorrect billing ~~and~~ is not a frequent or widespread incident. In particular, no more than 0.02% of bills issued should be disputed, without resolution, in a billing cycle. For the avoidance of doubt, the concessionaire shall be entitled to recover from the user all charges that are not in dispute-; and

e. the Authority is provided in a timely manner with any information it may request in its investigation of any consumer complaint and submit to the Authority's lawful directions in the facilitation of relief where necessary.

Consumer Rights

C18. The concessionaire shall ~~not discriminate among similarly situated consumers, and shall~~ comply with any regulations and directions lawfully made by the Authority in relation to the rights of consumers.

C19. ~~The~~ concessionaire shall provide users, with terms and conditions which are published or are otherwise filed with the Authority, with access to and the opportunity to use such network or service on a fair and reasonable basis, and without discrimination among similarly situated users.

C20. Without prejudice to any consumer rights regulations to be developed by the Authority, and until such regulations are promulgated, the concessionaire shall endeavour to inform its customers **in general terms** whether there are alternative ~~competitive providers of that~~ service offerings in the market in the event of approved customer migration.

C21. Without prejudice to any consumer rights regulations to be developed by the Authority, and until such regulations are promulgated, the concessionaire shall not engage in retention and/ or enrolment strategies and practices which constitute harassment of the consumer.

C22+9. Without prejudice to any regulations to be developed by the Authority, and until such regulations are promulgated, in relation to any marketing or promotional activity carried out by the concessionaire, the concessionaire shall ensure that it or any agency acting on its behalf is not overly disruptive to the consumer and in particular the concessionaire shall:

a. ensure numbers designated for emergency services are not used for any other purpose;

- b. ensure that automatic recorded voice mechanisms are not utilized to call any consumer without the prior consent of the consumer;
- c. establish and maintain a written telemarketing policy which shall include cost-free “opt-out” notifications and “do-not-contact” lists and shall ensure that all persons engaged in any aspect of its telemarketing are trained in accordance with the policy;
- d. ensure that once a subscriber has informed it or the agency that he/ she does not want to be contacted, this request shall be ~~complied with given effect forthwith~~for a period of not less than six (6) months;
- e. ensure that it or the agency sends caller ID information when calling, so that consumers whose terminal equipment are so equipped may establish the identity of the caller; ~~and~~
- f. ensure that it or the agency does not send unsolicited advertisements or other marketing and promotional messages to the consumer unless it has received the consumer’s express prior approval for such messages; ~~and-~~
- g. ensure that the information that is provided is accurate and not misleading.

C230. Without prejudice to any other conditions in this concession or consumer rights regulations to be developed by the Authority, and until such regulations are promulgated, the concessionaire shall not engage in the practice of changing a consumer’s preferred carrier(s) without his/ her prior authorization.

C241. Without prejudice to any other conditions in this concession, or consumer rights regulations to be developed by the Authority, the concessionaire shall comply with the following conditions in respect of all contracts with users:

- a. In respect of contracts entered into after the ~~Effective Date~~Date of Grant, where a user contract contains a minimum term which exceeds twelve (12) months, the user shall be provided expressly with the option to obtain the same services and equipment under a contract without any minimum term. The user shall also be given the option to obtain the same services and equipment under contracts with shorter minimum terms, and the increment between the minimum terms of the options offered shall not exceed twelve (12) months. The price of services and equipment and other conditions of such shorter contracts shall be fair, reasonable and proportionate to the longest available duration, having regard to the discount offered in the longest available duration, and the value of the services and equipment provided under or in connection with, the contract.
- b. Where a user contract, whether entered into prior to or after the Effective DateDate of Grant, contains a minimum term, any penalty for early termination of the contract shall be in respect only of any subsidy provided

by the concessionaire to the user under or in connection with the contract, and shall be pro-rated over the term of the contract.

b.c. Where the concessionaire intends to modify a condition in a user contract which is likely to be of material detriment to the user, the concessionaire shall provide the user, with at least thirty (30) days' notice of its intention detailing the proposed modification and inform the user of the ability to terminate the contract without penalty if the proposed modification is not acceptable.

C252. Where terminal equipment which has been locked or otherwise restricted so as to access only the concessionaire's network or service is supplied to a user, the concessionaire shall, upon termination of the relevant user contract in accordance with ~~C~~condition C240, and free of charge, remove such lock or restriction. The concessionaire shall not supply (whether directly or indirectly through agents or other retail suppliers) terminal equipment which has been so locked or restricted to any user who has not entered into a service contract with the concessionaire in respect of such equipment.

C263. The concessionaire shall give the user control of whether the user's assigned number is published, and shall keep such information confidential except where disclosure of user information is otherwise provided for in this ~~C~~concession or by any directions from the Authority given in accordance with the Act, including:

- a. in the publication of directories or provision of directory services (save that such disclosure shall be subject to the consumer's right to require at no charge that the number is exempted from publication, and to the provisions of the regulations made under the Act in relation to the rights of customers).
- b. where sharing of information with other authorised network operators or service providers is necessary to detect, prevent or investigate fraud,
- c. where disclosure is deemed necessary by the Authority or ordered by relevant law enforcement or national security agencies to carry out their functions or duties.

C27. The concessionaire shall submit its standard form user contracts (or any terms and conditions that are not individually negotiated) to the Authority for its approval as to determine whether the terms are unfair to the user.

C28. Unless otherwise directed by the Authority, ~~T~~the concessionaire shall file with the Authority for approval, such approval not to be unreasonably withheld, annually and within fourteen days of any material change the forms of its agreements with users for the provision of the Public Telecommunications Services. The Authority

shall, within twenty-eight (28) days of receipt of such agreements respond to the concessionaire indicating its approval, or such reasonable changes as the Authority may consider appropriate. The concessionaire shall, within fourteen (14) days of such response make such changes and resubmit the amended agreements to the Authority for approval in accordance with this condition. Within fourteen (14) days of approval by the Authority the concessionaire shall publish such agreements in the manner referred to in ~~C~~condition C4. In the event that the Authority does not respond to the concessionaire within the prescribed period, the forms shall be deemed to have been approved by the Authority on the day immediately following the expiry of the prescribed period.

C29. Without prejudice to any consumer rights regulations to be developed by the Authority, and until such regulations are promulgated, the concessionaire shall;

- a. provide support and protection for consumers regarding, and mitigation against, malicious communications provided on its service;
- b. cooperate ~~as required and~~ comply with any directions of the consumer complaints committee established by the Authority in accordance with section 18(1)(q) of the Act; ~~and~~
- c. keep its records of consumer complaints for a period of no less than four (4) years; and-

~~e.d. provide information and details to consumers on its procedures for handling complaints and disputes in the manner referred to in condition A660.~~

Customer Charter

C30. The concessionaire shall prepare and provide to its customers ~~employees~~—a customer charter which at a minimum conforms to all relevant regulations made under the Act, and decisions made in any dispute resolution process under the Act in relation to its subject matter.

C31. The customer charter shall be published in the manner referred to in ~~C~~condition C4.

Directory and Operator Services

C32. The concessionaire shall provide, or provide access to, directory enquiry services for telephone services based on an integrated customer database.

C33. The concessionaire shall, if so designated and directed to do so by the Authority, provide free of charge printed or any other format, annual (or at such other reasonable interval ~~agreed directed with by~~ the Authority) integrated directories to all subscribers of telephone services.

C34. Unless the Authority directs otherwise, ~~T~~the concessionaire shall exchange all relevant customer data with other concessionaires, free-of-charge for the purpose of providing integrated directories and integrated directory enquiry services. For

the purpose of providing integrated directories and integrated directory enquiry services the designated concessionaire shall:

- a. apply the principle of non-discrimination to the treatment of customer data that has been provided to it by other concessionaires or which it has in its possession or under its control; and
- b. permit other concessionaries of public telecommunications networks and public telecommunications services to have equal access to telephone numbers, operator services directory assistance and directory listing at a cost efficient rate without unreasonable delay, in accordance with requirements prescribed by the Authority.

C35. The concessionaire shall provide, or provide access to, operator assistance services in accordance with any applicable regulations or lawful directions of the Authority, and with any charges for operator services to be subject to the other tariff provisions of this Section C.

C36. Without prejudice to the regulations to be developed by the Authority, and until such regulations are promulgated, where applicable, the concessionaire in respect of operator services shall:

- a. provide at a minimum customer care and assistance services which shall include fault clearance assistance for eighteen (18) hours a day;
- b. ensure that prospective subscribers, upon request, are informed in general terms whether there are alternative suppliers of the service in the market in question; and
- c. ensure that the number of -calls to the system that are incomplete due to lack of availability is kept to a minimum and in any event is less than one per cent (1%).

Resale of Services

C37. The concessionaire shall permit resale of its Public Telecommunications Services. The terms and conditions of such resale shall be negotiated between the concessionaire and the purchaser, ~~but the concessionaire and~~ shall not include any impose unreasonable or discriminatory conditions or limitations on such resale. The concessionaire shall ensure that the cost of the wholesale service does not exceed the cost of the retail service.

C38. The concessionaire shall not, without providing the prior written notice to approval of the Authority, such approval not to be unreasonably withheld, enter into any resale agreement of its Public Telecommunications Service.

Interconnection

C39. The concessionaire shall provide in a prompt and efficient manner:

- a. direct interconnection with the public telecommunications networks or the public telecommunications services of any other concessionaire;
- b. indirect interconnection with such networks or services referred to in a. above, through the public telecommunications networks or public telecommunications services of other concessionaires; and
- c. the transmission and routing of the services of other concessionaires, at any technically feasible point in the concessionaire's network.

Intellectual Property Rights

C403. The concessionaire shall not transmit, broadcast or communicate to the public any programme, information or other material without first obtaining all required permissions from the relevant owners of any intellectual property in such programmes, information and other material, and shall not otherwise infringe the intellectual property rights of any person. Where the concessionaire is aware or notified by the Authority or the intellectual property owner of any programme, information or other material being transmitted, broadcast or communicated to the public, that infringes the intellectual property of any person the concessionaire shall remove or disable access to any programme, information or other material with immediate effect.

C41. The concessionaire shall take all reasonable measures and cooperate with the Authority to prevent or minimise the use of end user equipment that facilitates the circumvention of technological protection measures resulting in copyright infringement.

C42. The concessionaire shall in the provision of telecommunications services not knowingly permit the transmission/broadcast of or allow access to any material, online site or service that would infringe the intellectual property rights of any person.

Registration of users of telecommunication services

C43. The concessionaire shall:

- (a) maintain an up-to-date register of all users of telecommunication services including all users of Subscriber Identity Modules (SIM);
- (b) obtain at a minimum the full name, residential/postal address and one form of national identification of the user; and

(c) take all reasonable measures to verify the authenticity of the information provided by the user.

Section D — Broadcasting Service Conditions

Applicability of this Section

- D1. Save as otherwise provided in this [Concession](#), Section D shall apply only to the concessionaire if this [Concession](#) authorises the provision of a broadcasting service or services, which service or services, if any, are specified in Schedule C.
- D2. A concessionaire that provides broadcasting services using any public telecommunications network and/or radiotransmitting equipment shall also be subject to and comply with the conditions set out in Section B of this [Concession](#).

Authorised Services

- D3. The concessionaire shall be entitled to provide the Broadcasting Services identified in Schedule C, in accordance with the conditions contained in this Concession. The programming transmitted by the Broadcasting Services may include information, entertainment, advertisements, announcements or any other material as the concessionaire may determine in compliance with this [Concession](#).
- D4. The concessionaire shall also be entitled to broadcast programming content acquired from third parties.

News and Information Services

- D5. The concessionaire shall, if reasonably directed to do so by the Authority, either on its own account or in cooperation with other concessionaires or news agencies, provide in such manner and with such frequency as the Authority may direct a news and information service which shall be equipped for the collection and dissemination of national, regional and international news.
- D6. Where the concessionaire is authorised to provide television broadcasting services, [and the concessionaire broadcasts a daily television news programme](#) the concessionaire shall provide one television news programme per calendar day which is accessible to the hearing impaired to the reasonable satisfaction of the Authority. In addition, the information contained in any news bulletins broadcast by the concessionaire shall be made available to the hearing impaired as soon as practicable after the live bulletin.

Advertising and Announcements

- D7. The concessionaire shall be entitled to charge and receive payment for any transmitted programmes, information or other material as well as for any advertisement, announcement or subscription broadcast.

Content and Compliance with Broadcasting Code

D8. The concessionaire shall at all times in the provision of the Broadcasting Services comply with the provisions of the Broadcasting Code promulgated in accordance with the Act.

D9. Without prejudice to ~~C~~condition D8, and until such time as a Broadcasting Code is promulgated in accordance with the Act, the concessionaire shall not:

(a) transmit any programme, information or other material which degrades or portrays in a negative manner or discriminates against or encourages discrimination against any person or group by reason of race, origin, colour, class, religion or sex;

(b) transmit any programme, information or other material which is hostile to any country; or,

(c) ~~broadcast-transmit any~~ programme, information or other material which endangers the security of the Republic of Trinidad and Tobago, violates any law, is of a defamatory nature, is subversive to peace or public order or is otherwise contrary to the laws of Trinidad and Tobago.

In addition, the concessionaire shall comply with the obligations identified in Schedule H.

D10. A provider of subscription television broadcasting services who operates a public domestic fixed telecommunications network that is used for the provision of this broadcasting service shall ensure that all national and major territorial free to air television broadcasting channels are carried on its network.

D11. A provider of free-to-air radio broadcasting services shall conform to the genre and programming content identified in Schedule C and shall not materially deviate from same, without the prior written approval of the Authority, such approval not to be unreasonably withheld.

Hours of Operation

~~D12~~11. Except as otherwise permitted or directed by the Authority, the concessionaire shall broadcast daily for a period of not less than eight hours. However, the concessionaire shall not be obliged to provide continuous service. During any period while the concessionaire is not providing broadcasting services it shall ensure that it broadcasts a constant video and audio signal.

~~D13~~12. Any material alteration to the concessionaire's regular broadcast period shall be communicated prior to the Authority, in writing, and shall be published by the concessionaire on any public website and social media platforms maintained by the concessionaire in at least one daily newspaper in circulation throughout Trinidad and Tobago.

Intellectual Property Rights

D143. The concessionaire shall not transmit, broadcast or communicate to the public any programmes, information or other material without first obtaining all required permissions from the relevant owners of any intellectual property in such programmes, information and other material, and shall not otherwise infringe the intellectual property rights of any person. Where the concessionaire is aware or notified by the Authority or the intellectual property owner, of any programme, information or other material being transmitted, broadcast or communicated to the public, that infringes the intellectual property of any person the concessionaire shall remove or disable access to any programme, information or other material with immediate effect.

D154. The concessionaire shall take all reasonable measures and cooperate with the Authority to prevent or minimise the use of end user equipment that facilitates the circumvention of technological protection measures resulting in copyright infringement.

D165. The concessionaire shall in the provision of Broadcasting Services not knowingly permit the transmission/broadcast of or allow access to any material, online site or service that would infringe the intellectual property rights of any person.

Quality of Service

D174. The concessionaire shall provide the Broadcasting Services in accordance with any regulations and directions made by the Authority in relation to the quality of broadcasting services from time to time.

Consumer Rights

D185. Without prejudice to any regulations pertaining to consumer rights to be developed by the Authority, and until such regulations are promulgated, the concessionaire who provides a subscription broadcasting service shall:

a. provide consumers with access to and the opportunity to use its network or service on a fair and reasonable basis and not discriminate among similarly situated consumers, and shall comply with any regulations and directions lawfully made by the Authority in relation to the rights of consumers;

~~a-b.~~ establish and maintain a written telemarketing policy which shall include cost-free “opt-out” notifications and “do-not-contact” lists and shall ensure that all persons engaged in any aspect of its telemarketing are trained in accordance with the policy;

~~b-c.~~ promptly inform its customers of any material changes to its channel line-up or programming packages;

~~e.d.~~ Submit for the Authority's approval any customer migration plan and upon such approval inform its customers **in general terms** whether there ~~is~~ are alternative ~~competitive providers of that~~ service offerings in the market ; and,

~~d.e.~~ not engage in retention and enrolment strategies and practices which constitute harassment of the consumer.

D19. Without prejudice to any regulations pertaining to consumer rights to be developed by the Authority, and until such regulations are promulgated, in relation to any marketing or promotional activity carried out by the concessionaire, the concessionaire who provides a subscription broadcasting service shall ensure that it or any agency acting on its behalf is not overly disruptive to the consumer and in particular the concessionaire shall:

- a) ensure that automatic recorded voice mechanisms are not utilized to call any consumer without the prior consent of the consumer;
- b) ensure that once a subscriber has informed it or the agency that he/ she does not want to be contacted this request shall be complied with forthwith~~for a period of not less than six (6) months;~~
- c) ensure that it or the agency sends caller ID information when calling, so that consumers whose terminal equipment are so equipped may establish the identity of the caller; ~~and~~
- d) ensure that it or the agency does not send unsolicited advertisements or other marketing and promotional messages to the consumer unless it has received the consumer's express prior approval for such messages; ~~and-~~

e) ensure that service information that is provided is accurate and not misleading.

D2017. Without prejudice to any other conditions in this concession, or consumer rights regulations to be developed by the Authority, the concessionaire who provides a subscription broadcasting service shall comply with the following conditions in respect of all contracts with users:

- a. In respect of contracts entered into after the ~~Effective Date~~Date of Grant, where a user contract contains a minimum term which exceeds twelve (12) months, the user shall be provided expressly with the option to obtain the same services and equipment under a contract without any minimum term. The user shall also be given the option to obtain the same services and equipment under contracts with shorter minimum terms, and the increment between the minimum terms of the options offered shall not exceed twelve (12) months. The price of services and equipment and other conditions of such shorter contracts shall be fair, reasonable and proportionate to the longest available duration, having regard to the discount offered in the

longest available duration, and the value of the services and equipment provided under or in connection with, the contract.

b. Where a user contract contains a minimum term, any penalty for early termination of the contract shall be in respect only of any subsidy provided by the concessionaire to the user under or in connection with the contract, and shall be pro-rated over the term of the contract.

~~b.c.~~ Where the concessionaire intends to modify a condition in a user contract which is likely to be of material detriment to the user, the concessionaire shall provide the user, with at least thirty (30) days' notice of its intention detailing the proposed modification and inform the user of the ability to terminate the contract without penalty if the proposed modification is not acceptable.

~~D21~~⁴⁸. Where terminal equipment, which has been locked or otherwise restricted so as to access only the concessionaire's network or service, is supplied to a user, the concessionaire shall, upon termination of the relevant user contract in accordance with ~~C~~^{condition} D~~20~~¹⁷, and free of charge, remove such lock or restriction. The concessionaire shall not supply (whether directly or indirectly through agents or other retail suppliers) terminal equipment which has been so locked or restricted to any user who has not entered into a service contract with the concessionaire in respect of such equipment.

D22. The concessionaire shall submit its standard form user contracts (or any terms and conditions that are not individually negotiated) to the Authority for its approval as to determine whether the terms are unfair to the user.

D23. Unless otherwise directed by the Authority, ~~W~~where the concessionaire provides a subscription broadcasting service, it shall file with the Authority for approval, such approval not to be unreasonably withheld, annually and within fourteen days of any material change the form(s) of its agreements with users for the provision of the subscription broadcasting service. The Authority shall, within twenty-eight (28) days of receipt of such agreements respond to the concessionaire indicating its approval, or such reasonable changes as the Authority may consider appropriate. The concessionaire shall, within fourteen (14) days of such response make such changes and resubmit the amended agreements to the Authority for approval in accordance with this condition. Within fourteen (14) days of approval by the Authority the concessionaire shall publish such agreements in the manner referred to in Condition A~~660~~⁵³. In the event that the Authority does not respond to the concessionaire within the prescribed period, the ~~agreements forms~~ shall be deemed to have been approved by the Authority on the day immediately following the expiry of the prescribed period.

D24. Without prejudice to any consumer rights regulations to be developed by the Authority, and until such regulations are promulgated, the concessionaire who provides a subscription broadcasting service shall keep for a period of at least

one (1) year, records from any billing support systems, operation support systems, metering or billing equipment, and related customer data, and shall provide to the Authority, in such form as the Authority may reasonably specify, copies of such records and shall archive its records of consumer complaints for a period of no less than four (4) years.

D25. The concessionaire who provides a subscription broadcasting service shall provide, or provide access to, customer care services in accordance with any applicable regulations or lawful directions of the Authority, with any charges for customer care services to be subject to the other tariff provisions of this Section D.

D26. The concessionaire who provides a subscription broadcasting service, in respect of customer care services, shall:

- a. Provide, at a minimum, customer care and assistance services which shall include fault clearance assistance;
- b. ensure that prospective subscribers, upon request, are informed in general terms whether there are alternative suppliers of the service offerings in the market in question in the event of approved customer migration; and,
- c. ensure that the number of calls to the system that are incomplete due to lack of availability is kept to a minimum and in any event is less than one per cent (1%).

TariffsPublication of Service Information

D27. The concessionaire who provides a subscription broadcasting service shall publish in the manner referred to in Condition A660 53 and make available at all times its tariffs up to date information with respect to ~~for~~ the provision of all of its services provided in relation to the Authorisations contained in this concession as follows:-

- a. tariffs terms and conditions for all offered subscription broadcasting services including but not limited to:
 - i. the tariffs terms and conditions of the service;
 - ii. the price of terminal equipment as separate from the charge for service where terminal equipment integral to the provision of the service is provided to the customer;
 - iii. any related promotions that are offered for a period of 90 days or more; and,
- b. any other information that the Authority may reasonably require.

D28. The publication of such information ~~tariffs~~ shall include its tariffs, the terms and conditions for the provision of the services, details of fault repair provisions, and other technical and commercial conditions of the services.

~~Where directed by the Authority, T~~the concessionaire shall publish its tariffs VAT inclusive and file copies of its tariffs, and related terms and conditions, with the Authority.

Revision of Tariffs and Services

D29. Save as provided in any regulations or directions made by the Authority~~under section 29 of the Act,~~ the concessionaire who provides subscription broadcasting services may implement new and revise its tariffs or services by publication in the manner referred to in ~~C~~condition A~~66053~~.

D30. In relation to any implementation of new or revision of tariffs or services under ~~C~~condition D~~295~~ the concessionaire shall, unless otherwise directed by the Authority, give to the Authority no less than thirty (30) days prior notice in writing containing details of the proposed implementation or revision.

D31. In relation to new customers, revised tariffs or services shall take effect upon publication. In relation to existing customers, revised tariffs or services (to the extent of any increase) shall only take effect upon the giving of notice by the concessionaire to the customer in accordance with the terms and conditions published for such tariffs or services, the period of which notice shall not be less than thirty (30) days.

Billing

D32. ~~The~~ concessionaire who provides subscription broadcasting services shall keep for a period of at least one (1) year, records from any metering or billing equipment, and related customer data, and shall provide to the Authority, in such form as the Authority may reasonably specify, copies of such records. The foregoing shall not apply to accounting records, including copies of all customer bills issued by the concessionaire, which shall be kept for a period of at least four (4) years.

D33. Without prejudice to any regulations to be developed by the Authority, and until such regulations are promulgated, the concessionaire shall use its best endeavours to ensure that:

a. all presented information, including but not limited to charges on a user's bill, is clearly identified in language and terms which as far as practicable the user can understand;

~~a.~~b. customers are provided with accurate and timely billings~~the information is correct,~~ and if queried, shall ensure that the resolution is quick and clear;~~and,~~

~~b.~~—incorrect billing is not a frequent or widespread incident. In this regard no

c. more than 0.02% of bills issued should be disputed, without resolution, in a billing cycle. For the avoidance of doubt the concessionaire shall

be entitled to recover from the user all charges that are not in dispute; and,-

- d. the Authority is provided in a timely manner with any information it may request in its investigation of any consumer complaint and submit to the Authority's directions in the facilitation of relief where necessary.

D343. —Concessionaire shall not seek to preclude users from utilising available means of making electronic or other payments and shall not seek to recover from users' normal transaction charges which are typical of reasonable business operations, such as transaction charges for credit card payments or other similar forms of electronic payments.

Use by Government

D354. The concessionaire shall, on a free-of-charge basis up to a limit of fourteen (14) hours per calendar week, and thereafter at an agreed rate not to exceed eighty-seven and one-half percent (87.5%) of the concessionaire's regular commercial rate for similar broadcast transmissions, transmit any programme, announcement, information or other material which the Government may require to be transmitted as a matter of public interest, during the concessionaire's ordinary business hours, or at any hour to be selected by agreement with the Government. Such material shall, up to a limit of one hour per day, be transmitted without accompanying advertisement.

D365. Pursuant to condition D3540, the Government may reasonably declare any matter or event to be of public interest and require the concessionaire to broadcast such matter or event, but the Government shall, in deciding the actual time of transmission and length of broadcast, consult with the concessionaire with a view to causing the least possible disruption to the normal commercial operations of the concessionaire.

D376. The transmission time allocated to the Government may be varied on the giving of twenty-four (24) hours' notice to the concessionaire, except that, in the case of an emergency, such notice period shall be waived.

Maintenance of Records

D38. The concessionaire shall maintain, for a period of at least two (2) months, a record in the form of a log of the programmes, information or other material transmitted each day identifying the programmes or other material broadcast and the time of its transmission. Such record shall be available during regular business hours for inspection by the Authority or any person or entity authorised by the Authority for such purpose, and a copy of such record shall be provided to the Authority on request in writing.

D39. The concessionaire shall maintain a recording of all programming, including any news, announcements, advertisements, information or other broadcast material, for at least twenty-eight (28) days following the broadcast of such programming. The concessionaire shall provide copies of the recorded material to the Authority forthwith upon the receipt of a written request from the Authority to do so. Such copies shall be provided in the format requested by the Authority, or the concessionaire shall make available at the offices of the Authority such equipment as may be required by the Authority to review the recorded material for such period as the Authority may reasonably require.

Customer Charter

D40. ~~The concessionaire that provides a subscription broadcasting service shall prepare and provide to its employees~~ customers a customer charter which at a minimum conforms to all relevant regulations made under the Act, and decisions made in any dispute resolution process under the Act in relation to its subject matter.

D41. ~~The customer charter shall be published in the manner referred to in condition A66053.~~

Service Interruptions

~~D38. The concessionaire that provides a subscription broadcasting service shall take all reasonable precautions to ensure that interruptions to such service are avoided or kept at a minimum.~~

~~D39. The concessionaire shall take reasonable steps, including any specific steps identified in any direction from the Authority, to provide advance notice of at least ... days of any service interruptions resulting from planned network outages to its customers, the Authority and any other concessionaires, network operators or service providers affected by the service interruption. Where disruption is unplanned For all other service interruptions, the concessionaire shall take such reasonable steps as soon as reasonably possible to inform customers, the Authority and other concessionaires, network operators or service providers affected by the service interruption of the nature of the service interruption, including its best information regarding the restoration of service.~~

Schedule A

Public Telecommunications Networks

DESCRIPTION	TERRITORY	TYPE	DATE OF GRANT	TERM	ASSOCIATED LICENCE REFERENCE #

Notes to this Schedule:

- The Description, Territory and Type of the public telecommunications networks, public telecommunications services and broadcasting services authorised in this Concession are particularised in the *“Authorisation Framework for the Telecommunications and Broadcasting Sectors in the Republic of Trinidad and Tobago”* published by the Authority.

Schedule B

Public Telecommunications Services

DESCRIPTION	TERRITORY	TYPE	DATE OF GRANT	TERM	ASSOCIATED LICENCE REFERENCE #

Notes to this Schedule:

- The Description, Territory and Type of the public telecommunications networks, public telecommunications services and broadcasting services authorised in this Concession are particularised in the “*Authorisation Framework for the Telecommunications and Broadcasting Sectors in the Republic of Trinidad and Tobago*” published by the Authority.

Schedule C

Broadcasting Services

DESCRIPTION	TERRITORY	TYPE	DATE OF GRANT	TERM	ASSOCIATED LICENCE REFERENCE #	<u>PROGRAMMING CONTENT AND GENRE</u>

Notes to this Schedule:

- The Description, Territory and Type of broadcasting services authorised in this Concession are particularised in the *“Authorisation Framework” for the Telecommunications and Broadcasting Sectors in the Republic of Trinidad and Tobago* published by the Authority.

Schedule D

Specific Conditions

1. Basic Network and Service Roll Out Commitments (referred to in Condition A13):
2. Conditions applicable to the achievement and certification of Basic Network and Service Rollout Commitments:
 - a. Population coverage is the percentage of the total number of households in Trinidad and Tobago covered by the relevant network.
 - b. A populated area is any part of Trinidad and Tobago where the population of Trinidad and Tobago live and habitually traverse.
 - c. Coverage of Trinidad and Tobago requires that the concessionaire achieve the percentage required in each of the islands of Trinidad and Tobago.
 - d. The concessionaire will be required by the Authority to prove its achievement of a milestone to the reasonable satisfaction of the Authority.
 - e. In respect of each milestone, the concessionaire may apply for certification of its completion of such milestone. The application shall be made in writing to the Authority and must provide adequate proof of completion. The concessionaire shall provide such further proof of completion as the Authority may reasonably require. The Authority shall determine the application and shall notify the concessionaire of the result within fourteen (14) days of receipt of the application for the first milestone, and twenty-eight (28) days of its receipt of the application in respect of all other milestones, or within fourteen (14) days of the receipt of any further information requested, whichever is the later.
3. Where applicable, the concessionaire will be required by the Authority to commence service by the commencement date specified in this Schedule as referred to in concession condition A12.

Schedule E

Trinidad and Tobago Telecommunications country identifiers

Schedule F

(Conditions A55 and A56)

Quality of Service Requirements for Trinidad and Tobago

A. Customer Service (consumer-related quality of service)

INDICATOR 1.1		SERVICE ACTIVATION TIME					
MEASUREMENT METHOD	$I_{1.1} = 100 \sum^n (a/n)$ Where: $a = 1$ if $(v-p) \leq s$ (timely activation) $a = 1$ if $(v = \text{date selected by customer})$ $a = 0$ if $(v-p) > s$ (late activation) $p = \text{date of payment for individual new subscription}$ $v = \text{service activation date}$ $n = \text{total number of subscription requests in respective period}$ $s = \text{applicable standard timeframe}$						
PURPOSE	STANDARDS				DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS		
To ensure that consumers are guaranteed timely and efficient service activation of new subscriptions.	Authorised provider group	Immediate	Short Term	Medium Term	Source	Timeframe	Geographical Basis
	Fixed Telecommunications	75% in <3 days 95% in <5 days 100% in <7 days			Customer Account Database	To be collected on monthly basis but reported on a quarterly basis	To be submitted on both a national and regional (per geographical region) basis
	Mobile Telecommunications	95% in <1 hr 99% < 5 hrs 100% in <24 hrs					
	Subscription Broadcast	75% in <1 days 95% in <2 days 100% in <3 days					
	Free-to-air Broadcast	Not Applicable					

INDICATOR 1.2**SERVICE RE-ACTIVATION TIME**

MEASUREMENT METHOD	$I_{1.2} = \frac{1}{n} \sum^n (a/n) * 100$ Where: $a = 1$ if $(v-p) \leq s$ (timely re-activation) $a = 0$ if $(v-p) > s$ (late re-activation) p = time of settlement of arrears/dispute v = time of service re-activation n = total number of re-activation requests in respective period s = applicable standard timeframe						
PURPOSE	STANDARDS				DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS		
To ensure that consumers are guaranteed timely and efficient re-activation for existing subscriptions for which service had been previously suspended. Such suspension may be due to some dispute, such as unpaid arrears.	Authorised provider group	Immediate	Short Term	Medium Term	Source	Timeframe	Geographical Basis
	<i>Fixed Telecommunications</i>	90% in 24hrs 95% in 48hrs			Customer Account Database	To be collected on monthly basis but reported on both a quarterly and annual basis	To be submitted on a national basis
	<i>Mobile Telecommunications</i>	95% in 1 hr					
	<i>Subscription Broadcast</i>	90% in 12hrs 95% in 24hrs					
	<i>Free-to-air Broadcast</i>	Not Applicable					

INDICATOR 1.3**FAULT INCIDENCE**

MEASUREMENT METHOD	$I_{1.3} = (F/L) * 1000$ F = total number of faults reported in period L = total number of national service lines/subscriptions						
PURPOSE	STANDARDS				DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS		
To ensure that consumers are guaranteed reliable service of a high quality, within minimum incidence of faults. This indicator is in relation to localised access network faults such as “subscriber line faults” in the fixed telecommunications sphere.	Authorised provider group	Immediate	Short Term	Medium Term	Source	Timeframe	Geographical Basis
	<i>Fixed Telecommunications</i>	<45			Operational Support Database	To be collected monthly but reported on a quarterly basis	To be submitted on both a national and regional basis
	<i>Mobile Telecommunications</i>	<45					
	<i>Subscription Broadcast</i>	<45					
	<i>Free-to-air Broadcast</i>	Not Applicable					

INDICATOR 1.4 FAULT REPAIR TIME							
MEASUREMENT METHOD	$I_{1.4} = \frac{1}{n} \sum^n (a/n) * 100$ Where: $a = 1$ if $(r-f) \leq s$ (timely repair) $a = 0$ if $(r-f) > s$ (late repair) f = time of receipt of fault report r = time of fault repair clearance s = applicable standard timeframe n = total number of fault reported in period						
PURPOSE	STANDARDS				DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS		
To ensure those consumers are guaranteed efficient and timely restoration of services due to fault incidence. This indicator is in relation to localised access network faults such as “subscriber line faults” in the fixed telecommunications sphere.	Authorised provider group	Immediate	Short Term	Medium Term	Source	Timeframe	Geographical Basis
	Fixed Telecommunication s	75% in 24hrs 90% in 48hrs			Operational Support Database	To be collected monthly but reported on a quarterly basis	To be submitted on both a national and regional basis
	Mobile Telecommunication s	90% in 24hrs 95% in 48hrs					
	Subscription Broadcast	75% in 24hrs 90% in 48hrs					
	Free-to-air Broadcast	Not Applicable					

CONSUMER QUERY RESPONSE TIMES

INDICATOR 1.5

MEASUREMENT METHOD	$I_{1.5} = 100 \sum^n (a/n) * 100$ Where: $a = 1$ if $(r-c) \leq s$ (timely response) $a = 0$ if $(r-f) > s$ (late response) f = exact time of receipt of query r = exact time of query response s = applicable standard timeframe n = number of complaints received in period via respective method							
PURPOSE	STANDARDS					DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS		
This ensures that consumer queries relating to billing, malfunctioning connection, quality of service and other issues are dealt with promptly. The Service Provider will be required to include a commitment as to the time within which the investigation will be completed or the query resolved, in their response to the consumer, such timeframe should be in accordance with times proposed in Indicator 1.7.	Authorised provider group	Customer Query Response Times				Source	Timeframe	Geographical Basis
		Telephone Support	Email and social media Support	Postage Letter	Customer Service Centres			
	Fixed Telecommunications	85% < 30mins 95% < 1 hr	95% < 24 hrs (or next working day)	85% in < 3 days 95% < 5 days	85% < 30mins 95% < 1 hr			
	Mobile Telecommunications	85% < 30 mins 95% < 1 hr	95% < 24 hrs (or next working day)	85% in < 3 days 95% < 5 days	85% < 30 mins 95% < 1 hr			
	Subscription Broadcast	85% < 30 mins 95% < 1 hr	95% < 24 hrs (or next working day)	85% in < 3 days 95% < 5 days	85% < 30 mins 95% < 1 hr			
	Free-to-air Broadcast	85% < 30 mins 95% < 1 hr	95% < 24 hrs (or next working day)	85% in < 3 days 95% < 5 days	85% < 30 mins 95% < 1 hr			

INDICATOR 1.6							CUSTOMER SERVICE CALL ANSWERING TIME		
MEASUREMENT METHOD		$I_{1.6} = \frac{1}{n} \sum^n (a/n) * 100$ Where: $a = 1$ if $(r-f) \leq s$ (timely answer) $a = 0$ if $(r-f) > s$ (late answer) f = time of initiating service support call r = time of answering service support call s = applicable standard timeframe n = total number of complaints received in respective period							
PURPOSE		STANDARDS			DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS				
This ensures that consumer service calls are answered quickly. This indicator applies only to customer support accessed via telephone, and is relevant in conjunction with the 'Consumer Query Response Time' indicator.		Authorised provider group	Customer Service Call Answering Time		Source	Timeframe	Geographical Basis		
			Telephone Support						
			electronic answer	operator answer	Calls not answered				
		Fixed Telecommunications	80% within 10secs 95% within 20secs	80% within 20secs 95% within 40secs	5%	Customer Support Service Database	To be collected monthly but reported on a quarterly basis	To be submitted on a national basis	
		Mobile Telecommunications	80% within 10secs 95% within 20secs	80% within 20secs 95% within 40secs	5%				
		Subscription Broadcast	80% within 10secs 95% within 20secs	80% within 20secs 95% within 40secs	5%				
		Free-to-air Broadcast	Not Applicable	Not Applicable	Not Applicable				

INDICATOR 1.7		CONSUMER COMPLAINT RESOLUTIONS				
MEASUREMENT METHOD		$I_{1.7} = \frac{1}{n} \sum a \cdot 100$ Where: $a = 1$ if $(r-c) \leq s$ (timely resolution) $a = 0$ if $(r-c) > s$ (late resolution) c = date of lodgement of complaint r = date of resolution of complaint n = total number of complaints received in respective period s = applicable standard timeframe				
PURPOSE	STANDARDS			DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS		
To ensure that Authorised Providers resolve the majority of received consumer complaints via their internal complaint handling procedures	Authorised provider group	Immediate Term	Medium Term	Source	Timeframe	Geographical Basis
	Fixed Telecommunications	75% in 7 days 90% in 10 days 95% in 20 days		Consumer Complaints Database	To be collected monthly but reported on a quarterly basis	To be submitted on a national basis
	Mobile Telecommunications	75% in 7 days 90% in 10 days 95% in 20 days				
	Subscription Broadcast	75% in 7 days 90% in 10 days 95% in 20 days				
	Free-to-air Broadcast	Not Applicable				

INDICATOR 1.8		BILLING ACCURACY				
MEASUREMENT METHOD		$I_{1.8} = \frac{1}{T} \sum [(1 - (e_t/n_t)) \cdot 100] / T$ Where $(t = 1, 2, \dots, T)$ e_t = number of billing complaints in billing cycle 't' n_t = total number of invoices in billing cycle 't' T = the number of billing cycles in respective period				
PURPOSE	STANDARDS			DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS		
To protect consumers' rights to fair and accurate billing by minimising the incidence of billing errors	Authorised provider group	Immediate Term		Source	Timeframe	Geographical Basis
	Fixed Telecommunications	≥ 99%		Accounting Database	Measurements for each billing cycle to be collected monthly	To be submitted on a national basis
	Mobile Telecommunications	≥ 99%				

	<u>Subscription Broadcast</u>	$\geq 99\%$		<u>but reported on a quarterly basis</u>	
	<u>Free-to-air Broadcast</u>	<u>N/A</u>			

B. Public Telecommunication Service (consumer-related quality of service)

<u>INDICATOR 2.2</u>		<u>NETWORK AVAILABILITY</u>			
<u>MEASUREMENT METHOD</u>	$I_{2.2} = (1 - (d/p)) * 100$ <i>d = cumulative total minutes of down time during period</i> <i>p = number of minutes in measured period</i> <i>(approximately 42500 minutes in month)</i>				
<u>PURPOSE</u>	<u>STANDARDS</u>		<u>DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS</u>		
To ensure that the consumer has reliable and consistent access to the service network.	<u>Authorised provider</u>	<u>Network Availability</u>	<u>Source</u>	<u>Timeframe</u>	<u>Geographical Basis</u>
	<u>Fixed Telecommunications</u>	≥ 99.99%	Operational Systems Database	To be reported on a quarterly and annual basis	To be submitted on a national basis
	<u>Mobile Telecommunications</u>	≥ 99.9%			
<u>INDICATOR 2.3</u>		<u>SPEECH TRANSMISSION QUALITY</u>			
<u>MEASUREMENT METHOD</u>	The average speech quality received at the edge of the network/or at the terminal of the end-user. A test speech pattern shall be communicated to the test terminal location and the speech quality received compared to the test pattern sent.				
<u>PURPOSE</u>	<u>STANDARDS</u>		<u>DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS</u>		
To ensure that the clarity of communication is maintained throughout the transmission of the communication signal across Authorised provider network(s).	The speech call quality should not fall below the following levels: - <u>MOS Factor = 3.8</u> - <u>R-Factor equivalence 70 (Where ITU-T G.107 default value = 94)</u> <u>All standards must be met 95% of the time.</u>		<u>Source</u>	<u>Timeframe</u>	<u>Geographical Basis</u>
			<u>Call Quality Measurement Systems</u>	<u>To be reported on a quarterly and annual basis</u>	<u>To be submitted on both a national and regional basis</u>

INDICATOR 2.4		DROPPED CALL RATE (CONSUMER-RELATED)					
MEASUREMENT METHOD		$I_{2.4} = (d/n) * 100$ $d = \text{total number of dropped calls}$ $n = \text{total number of established calls in given period}$					
PURPOSE	STANDARDS			DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS			
To ensure that consumers are able to enjoy high quality telecommunications services with minimal incidence of unintentional call dropping.	Public Telecommunications Network	Procedure		Voice Traffic Statistics	To be reported on a quarterly and annual basis	To be submitted on both a national and regional basis	
	Fixed Telecommunications	This statistic shall be obtained from Key Performance Indicator (KPI) data made available to the Authority by the Service Providers. Alternatively, the Authority may take measurements of the metric at a standard sample of terminal locations on a periodic basis to validate submissions.					
	Mobile Telecommunications	This data shall be obtained from mobile field tests conducted by the Service Providers, along major thoroughfares (highways, primary and secondary roads). The following baseline parameters will be determined by the Authority, in consultation with relevant stakeholders: - The “busy hour” period when tests will be conducted - The route to be used during testing - Vehicular speed at which field tests will be completed - Duration of calls made during tests - Number of calls to be made					
	Authorised provider group	Dropped Call Rate					
		Immediate	Short-Term	Medium Term			
	Fixed Telecommunications	≤ 1%					
Mobile Telecommunications	≤ 2%						

INDICATOR 2.5		CALL SETUP SUCCESS RATE					
MEASUREMENT METHOD	$I_{2.5} = (e/a) * 100$ <i>e = total number of established calls in a given period</i> <i>a = total number of attempted calls in a given period</i>						
PURPOSE	STANDARDS			DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS			
To test the call setup procedure initiated when the consumer attempts to make a call	Public Telecommunications Network	Procedure		Voice Traffic Statistics	To be reported on a quarterly and annual basis	To be submitted on both a national and regional basis	
	Fixed Telecommunications	This statistic shall be obtained from Key Performance Indicator (KPI) data made available to the Authority by the Service Providers. Alternatively, the Authority may take measurements of the metric at a standard sample of terminal locations on a periodic basis to validate submissions.					
	Mobile Telecommunications	This data shall be obtained from mobile field tests conducted by the Service Providers, along major thoroughfares (highways, primary and secondary roads). The following baseline parameters will be determined by the Authority, in consultation with relevant stakeholders: - The “busy hour” period when tests will be conducted - The route to be used during testing - Vehicular speed at which field tests will be completed - Duration of calls made during tests - Number of calls to be made					
	Authorised provider Group	Subscriber Call Setup Success Rate					
	Fixed Telecommunications	Immediate	Short-Term				Medium Term
	Mobile Telecommunications	≥ 99%					

INDICATOR 2.6		SERVICE ACCESS DELAY					
MEASUREMENT METHOD	$I_{2.6} = \frac{1}{T} \sum (r - i) / T$ where (t = 1, 2, ..., T) <i>r</i> = precise time at which call is initiated <i>i</i> = precise time at which network responds <i>T</i> = total calls made during period						
PURPOSE	STANDARDS			DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS			
To ensure that consumers are able to enjoy high quality telecommunications services with minimal wait for call initiation	Authorised provider group	Immediate Term		Source	Timeframe	Geographical Basis	
	Fixed Telecommunications	≤ 5 seconds		Voice Traffic Statistics	To be reported on a quarterly basis	To be submitted on a national basis	
	Mobile Telecommunications	≤ 7 seconds					
INDICATOR 2.7		AVAILABLE BANDWIDTH TO CONSUMER					
MEASUREMENT METHOD	The deployment of bandwidth meter (hardware or software) at the customer’s access point and/or appropriate network point, for a sample population.						
PURPOSE	STANDARDS			DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS			
To ensure that consumers are able to enjoy high quality internet, reflective of the value of money paid for respective service packages.	Authorised provider group	Average Available Bandwidth during period		Source	Timeframe	Geographical Basis	
	Fixed Telecommunications	>60% of advertised, 99% of time, >50% of advertised, 100% of time,		N/A	To be reported on an annual basis for given service packages	To be submitted on both a national and regional basis	
	Mobile Telecommunications	N/A					
	Time interval	Minimum Acceptable Available Bandwidth					
	99% of given period	≥ 60% of purchased bandwidth					
	50% of given period	= 100% of purchased bandwidth					
INDICATOR 2.8		MESSAGE SENDING TIME (DELAY TIME)					
MEASUREMENT METHOD	The total number of messages sent within the standard timeframe divided by the total number of service activation requests in a respective period, multiplied by 100%.						
PURPOSE	STANDARDS				DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS		
To ensure that consumers are able to utilise reliable SMS and MMS services with confidence that such will be delivered without undue delay	Authorised provider group	Immediate	Short-Term	Medium Term	Source	Timeframe	Geographical Basis
	Fixed Telecommunications	N/A	N/A	N/A	Sending and Receiving Terminals	To be calculated on a monthly basis and submitted on a quarterly basis	To be submitted on a national basis.
	Mobile Telecommunications	SMS	75% in < 1 mins 95% in < 5 mins 99% in <60 mins 100% in < 12hrs				

		<u>MM</u> <u>S</u>	75% in < 3 mins 95% in < 5 mins 99% in <60 mins 100% in < 12hrs					
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INDICATOR 2.9 <u>DOWNLOAD DATA TRANSMISSION RATE (NEW)</u>							
<u>MEASUREMENT METHOD</u>	Fixed Telecommunications: The download data transmission rate from a fixed internet connection is measured using a broadband performance application installed on the terminal device or a broadband measurement probe installed at the consumer's access point. Mobile Telecommunications: The download data transmission rate from a mobile internet connection is measured using a broadband performance application installed on the terminal device						
<u>PURPOSE</u>	<u>STANDARDS</u>				<u>DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS</u>		
To ensure that the amount of data that is downloaded per second from the internet to a terminal device. These download data rates are the basic purchased rates that should be available to customers.	<u>Authorised provider group</u>	<u>Immediate</u>	<u>Short-Term</u>	<u>Medium Term</u>	<u>Source</u>	<u>Timeframe</u>	<u>Geographical Basis</u>
	<u>Fixed Telecommunications</u>	≥ 50 Mbps (wired) ≥ 25 Mbps (wireless)	<u>Not applicable</u>	≥ 100 Mbps (wired) ≥ 50 Mbps (wireless)			
	<u>Mobile Telecommunications</u>	≥ 5 Mbps	<u>Not applicable</u>	≥ 10 Mbps	N/A	To be reported on an annual basis for given service packages	To be submitted on both a national and regional basis
INDICATOR 2.10 <u>UPLOAD DATA TRANSMISSION RATE (NEW)</u>							
<u>MEASUREMENT METHOD</u>	Fixed Telecommunications: The download data transmission rate from a fixed internet connection is measured using a broadband performance application installed on the terminal device or a broadband measurement probe installed at the consumer's access point. Mobile Telecommunications: The download data transmission rate from a mobile internet connection is measured using a broadband performance application installed on the terminal device						
<u>PURPOSE</u>	<u>STANDARDS</u>				<u>DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS</u>		
To ensure that the amount of data that is uploaded per second from a terminal device to the internet. These upload data rates are the basic purchased rates that should be available to customers.	<u>Authorised provider group</u>	<u>Immediate</u>	<u>Short-Term</u>	<u>Medium Term</u>	<u>Source</u>	<u>Timeframe</u>	<u>Geographical Basis</u>
	<u>Fixed Telecommunications</u>	≥ 10 Mbps (wired) ≥ 5 Mbps (wireless)	<u>Not applicable</u>	≥ 20 Mbps (wired) ≥ 10 Mbps (wireless)			
	<u>Mobile Telecommunications</u>	≥ 1 Mbps	<u>Not applicable</u>	≥ 2 Mbps	N/A	To be reported on an annual basis for given service packages	To be submitted on both a national and regional basis

INDICATOR 2.11		LATENCY (NEW)					
MEASUREMENT METHOD	Fixed Telecommunications: The download data transmission rate from a fixed internet connection is measured using a broadband performance application installed on the terminal device or a broadband measurement probe installed at the consumer’s access point.						
	Mobile Telecommunications: The download data transmission rate from a mobile internet connection is measured using a broadband performance application installed on the terminal device						
PURPOSE	STANDARDS				DATA REQUIREMENTS OF THE AUTHORISED PROVIDERS		
To ensure that The time between requesting data and receiving a response	Authorised provider group	Immediate	Short-Term	Medium Term	Source	Timeframe	Geographical Basis
	Fixed Telecommunications	≤ 100 ms					
	Mobile Telecommunications	≤ 100 ms			N/A	To be reported on an annual basis for given service packages	To be submitted on both a national and regional basis

C. Public Telecommunication Network (network quality of service)

<u>Indicator</u>	<u>Description</u>	<u>Measurement Method</u>	<u>Applicability</u>	<u>Standard</u>
<u>Element 1. Provision of Wholesale and Interconnection Services</u>				
<u>1.1 Interconnection Link Installation Dates Satisfied</u>	<u>The percentage of installation dates that meet the times identified at the time the installation appointment is booked</u>	<u>Actual installation date performance is compared to booking commitments to determine percentage completed on the intended date, using data compilations from the records of the supplying concessionaire.</u>	<u>Domestic Fixed Public Telecommunication Network Operators;</u> <u>Domestic Mobile Public Telecommunication Network Operators;</u> <u>International Public Telecommunication Network Operators;</u> <u>Internet Services Providers</u>	<u>No less than 95% of installation dates must meet the times identified at the time the installation appointment is booked.</u>
<u>1.2 Interconnection Link Installation Dates Not Satisfied within 20 Business Days after Appointment</u>	<u>The percentage of installation dates not satisfied within 20 business days after the intended appointment date</u>	<u>Actual installation date performance is compared to booking commitments to determine percentage not completed on the intended date, using data compilations from the records of the supplying concessionaire.</u>	<u>Domestic Fixed Public Telecommunication Network Operators;</u> <u>Domestic Mobile Public Telecommunication Network Operators;</u> <u>International Public Telecommunication Network Operators;</u> <u>Internet Services Providers</u>	<u>No more than 1% of installation dates delayed more than twenty (20) days after the intended appointment date.</u>
<u>1.3 Interconnection Link Order Service Interval Satisfied</u>	<u>The percentage of time that the service activation date for interconnection trunks is met</u>	<u>Actual service activation performance is compared to booking commitments to determine percentage completed on the intended date, using data compilations from the records of the supplying concessionaire.</u>	<u>Domestic Fixed Public Telecommunication Network Operators;</u> <u>Domestic Mobile Public Telecommunication Network Operators;</u> <u>International Public Telecommunication Network Operators;</u> <u>Internet Services Providers</u>	<u>>90%</u> <u>Tracking of due dates met. The due date interval is 10 business days when augments to existing trunk groups are required where facilities exist and 30 business days, or as defined in the Reference</u>

<u>Indicator</u>	<u>Description</u>	<u>Measurement Method</u>	<u>Applicability</u>	<u>Standard</u>
				<u>Interconnection Offer or the Service Level Agreement between the providers, when new trunk groups are required where no facilities exist.</u>
<u>1.4 Interconnection Link Order Service Requests Satisfied</u>	<u>The percentage of requests, that have been satisfied within 10 business days of the request being initiated, where facilities exist, and 30 business days or as defined in the applicable Reference Interconnection Offer (RIO) or Service Level Agreement where no facilities exist compared to the total number of requests received over the time period.</u>	<u>Actual service activation performance is compared to number of requests received to determine percentage completed on the intended date, using data compilations from the records of the supplying concessionaire.</u>	<u>Domestic Fixed Public Telecommunication Network Operators;</u> <u>Domestic Mobile Public Telecommunication Network Operators;</u> <u>International Public Telecommunication Network Operators;</u> <u>Internet Services Providers</u>	<u>>90%</u>
<u>Element 2 Wholesale and Interconnection Repair Services</u>				
<u>2.1 Interconnection Link Repair Appointments Met</u>	<u>The percentage of interconnection related repair appointments that meet the times identified at the time the appointment is booked over a specified time period</u>	<u>Actual interconnection repair appointment performance is compared to booking commitments to determine percentage completed on the intended date, using data compilations from the records of the supplying concessionaire.</u>	<u>Domestic Fixed Public Telecommunication Network Operators</u> <u>Domestic Mobile Public Telecommunication Network Operators</u> <u>International Public Network Operators</u> <u>Internet Services Providers</u>	<u>>90%</u>
<u>2.2 Interconnection Link Restoration Times</u>	<u>The Time To Repair (TTR) taken by a concessionaire to restore service at an interconnection link after</u>	<u>Compilation of TTR data from the records of the supplying concessionaire.</u>	<u>Domestic Fixed Public Network Operators</u> <u>Domestic Mobile Public Network Operators</u>	<u>Emergency Services (ES) [Police, Fire and Ambulance]</u> <u>85% in 4 hours,</u>

<u>Indicator</u>	<u>Description</u>	<u>Measurement Method</u>	<u>Applicability</u>	<u>Standard</u>
	<u>receipt of a fault report from an interconnecting concessionaire.</u>		<u>International Public Network Operators</u> <u>Internet Services Providers</u>	<u>Remainder in 8 hours.</u> <u>Interconnection Services (ES not included)</u> <u>85% in 4 hours,</u> <u>95% in 24 hours,</u> <u>Remainder in 48 hours</u>
<u>Element 3: Wholesale Network Services</u>				
<u>3.1 Interconnection Link Grade Of Service (GOS)</u>	<u>The ratio of lost calls to total call attempts between identified network interconnection points, or across identified network interconnection paths</u> <u>The smaller the value of GOS the better the service.</u> <u>A value of 0.001 meaning that one in one thousand call attempts are unsuccessful.</u>	<u>Collection of real time traffic data for all call attempts throughout the measurement period, using data compilations from the records of the supplying concessionaire.</u>	<u>Domestic Fixed Public Telecommunication Network Operators</u> <u>International Public Telecommunication Network Operators</u> <u>Domestic Mobile Public Telecommunication Network Operators;</u>	<u><1% [Domestic interconnection link]</u> <u><1% [International interconnection link]</u> <u><1% [Domestic interconnection link]</u>
<u>3.2 Interconnection Link Answer Bid Ratio (ABR) - Average</u>	<u>This is defined as the number of bids, having left the outgoing side of one concessionaire's network, that has been successful in receiving an answer signal from the other concessionaire's network across the interconnection link. Thus it is the ratio of</u>	<u>Collection of real time traffic data for all outgoing call attempts throughout the measurement period, using data compilations from the records of the supplying concessionaire. Results to be shown as a percentage of all call attempts.</u>	<u>Domestic Fixed Public Telecommunication Network Operators</u> <u>International Public Telecommunication Network Operators</u> <u>Internet Service Providers</u> <u>Domestic Mobile Public Telecommunication Network Operators</u>	<u>>70%</u> <u>[For Signalling System 7 network interconnections, this is defined as:</u> <u>ABR = Answer Message (ANM)/Initial Address Message (IAM).]</u>

<u>Indicator</u>	<u>Description</u>	<u>Measurement Method</u>	<u>Applicability</u>	<u>Standard</u>
	<u>successful completed (connected) calls, where a billing trigger is sent, to the total number of bids initiated in a specified time period</u>			
<u>3.3 Interconnection Link Answer Bid Ratio - Peak</u>	<u>This is defined as the number of bids, having left the outgoing side of one concessionaire's network, that have been successful in receiving an answer signal from the other concessionaire's network across the interconnection link. during the Time Consistent Busy Hour (TCBH). Thus it is the ratio of successful completed (connected) calls, where a billing trigger is sent, to the total number of bids initiated in the (TCBH)).</u>	<u>Collection of real time traffic data for all outgoing call attempts during peak periods throughout the measurement period, using data compilations from the records of the supplying concessionaire. Results should be shown as a percentage of all call attempts during the TCBH.</u>	<u>Domestic Fixed Public Telecommunication Network Operators</u>	<u>>70%</u> <u>[For Signaling System 7 network interconnections, this is defined as: ABR = Answer Message (ANM)/Initial Address Message (IAM).]</u>
			<u>Domestic Mobile Public Telecommunication Network Operators</u>	<u>>70%</u>
			<u>International Public Telecommunication Network Operators</u>	<u>>70%</u>
			<u>Internet Service Providers</u>	<u>>60%</u>
<u>3.4 Interconnection Link Call Drop Rate</u>	<u>The percentage of calls in progress that are prematurely disconnected, as measured from the data records of the concessionaire originating the calls. Collection of real time traffic data for all calls</u>	<u>The percentage of calls in progress that are prematurely disconnected, as measured from the data records of the concessionaire originating the calls. Collection of real time traffic data for all calls in progress throughout the measurement period, using data compilations</u>	<u>Domestic Mobile Public Telecommunication Network Operators</u>	<u><3%</u> <u>[A prematurely disconnected call is a call which is ended without any action of the subscriber on either end being taken to disconnect the call.]</u>

<u>Indicator</u>	<u>Description</u>	<u>Measurement Method</u>	<u>Applicability</u>	<u>Standard</u>
	<u>in progress throughout the measurement period, using data compilations from the records of the supplying concessionaire.</u>	<u>from the records of the supplying concessionaire.</u>	<u>Domestic Fixed Public Telecommunication Network Operators</u>	<u><1.5%</u>
<u>3.5 Interconnection Link Availability</u>	<u>The percentage of time that the concessionaire's interconnection link is available for service over a specified timeframe</u> <u>The link will be deemed out of service if the bit error rate (BER) exceeds 1×10^{-3}</u>	<u>Availability of interconnection link is defined as the amount of time in service/specified time period expressed as a percentage using appropriate network management tools.</u>	<u>Domestic Mobile Public Telecommunication Network Operators</u>	<u>99.955% [No route diversity]</u> <u>99.988% [Route diversity]</u> <u>99.999% [Signalling System 7 Network]</u>
			<u>Domestic Fixed Public Telecommunication Network Operators</u>	<u>99.955% [No route diversity]</u> <u>99.988% [Route diversity]</u> <u>99.999% [Signalling System 7 Network]</u>
			<u>Internet Service Providers</u>	<u>99.5% [No route diversity]</u> <u>99.9% [Route diversity]</u> <u>The ISP node is inaccessible due to a system down condition and is measured inside the network.</u>
			<u>International Public Telecommunication Network Operators</u>	<u>99.955% [No route diversity]</u> <u>99.988% [Route diversity]</u>

<u>Indicator</u>	<u>Description</u>	<u>Measurement Method</u>	<u>Applicability</u>	<u>Standard</u>
				<u>99.999% [Signalling System 7 Network]</u>
<u>3.6 Interconnection Link Short Message Service (SMS) GOS</u>	<u>This is defined as the number of SMS messages, having left the outgoing side of one concessionaire's network, that have been successfully delivered (via the interconnection link and the receiving concessionaire's network) to the receiving concessionaire's network during the measurement period Thus it is the ratio of successfully delivered SMS messages to the number of originated SMS messages across the interconnection link.</u>	<u>Collection of SMS traffic data for all interconnection traffic throughout the measurement period, using data compilations from the records of the supplying concessionaire. Results should be shown as a percentage of all SMS messages successfully delivered to the receiving concessionaire's network across the interconnection link</u>	<u>Domestic Mobile Public Telecommunication Network Operators</u>	<u>99.5%</u>

<u>Element 4: Wholesale Internet Access Services</u>				
<u>4.1 Wholesale Internet Connection Uptime (Circuit Switched)</u>	<u>The percentage of time the connection from a switching node to a competing Internet Service Provider (ISP) is in service.</u>	<u>Availability of interconnection link from switching node to a competing ISP is defined as the amount of time the link is in service during a specified time period expressed as a percentage using appropriate network management tools.</u>	<u>Internet Service Providers</u>	<u>99.955%</u>
<u>4.2 Wholesale Internet Access Local Network Availability</u>	<u>The uptime of the Internet access network link between the Internet Point of Presence (POP) and the domestic Internet gateway as a percentage of total service time.</u>	<u>Link availability is defined as the amount of time the link is in service during a specified measurement period expressed as a percentage using appropriate network management tools.</u>	<u>Internet Service Providers</u>	<u>99.955%</u>
<u>4.3 Wholesale Internet Connection Uptime</u>	<u>The percentage of time the connection from one ISP node to a competing ISP node is in service</u>	<u>Availability of interconnection link from one ISP to a competing ISP is defined as the amount of time the link is in service during a specified time period expressed as a percentage using appropriate network management tools.</u>	<u>Internet Service Providers</u>	<u>99.955%</u>

D. Television Broadcasting Services

<u>Index</u>	<u>Indicators</u>	<u>Description</u>	<u>Standards</u>	<u>Measurement Method</u>
<u>Digital Free-to-Air Television Broadcasting Services (Fixed Reception)</u>				
<u>1.1</u>	<u>Received signal level (E)</u>	<u>The field strength of the received signal on the authorised frequency channel, measure in dBuV/m.</u>	<u>Determined by the modulation and coding rate (ModCod) configuration of the transmission. See Table 1 below for the values.</u>	<u>See Sections 6.2.1 and 6.2.2 of A/326 [ATSC 3.0 Field Test Plan] for the procedure for fixed outdoor and indoor measurements respectively.</u>
<u>1.2</u>	<u>Carrier-to-noise ratio (C/N)</u>	<u>The dB difference between the RF carrier power¹ and the RF noise power².</u>	<u>Determined by the (ModCod) configuration of the transmission. See Table 2 below for the values.</u>	
<u>1.3</u>	<u>Bit error rate (BER) post-FEC</u>	<u>the ratio between erroneous bits and the total number of received bits after the forward error correction decoder</u>	<u>$\leq 10^{-6}$</u>	

¹ The RF power for digitally modulated carriers (wanted power) is defined by the mean power as measured by a thermal power meter. It can also be measured with a spectrum analyser by integrating the spectrum power in the nominal bandwidth of the channel. (This facility is available in several models of spectrum analysers) The bandwidth of the channel (BW) for PSK, QPSK and QAM signals is defined as the symbol rate times $(1 + \alpha)$. Where α (alpha), the excess bandwidth of the filter, is defined in each application. The bandwidth for OFDM signals is the band contained between the two outermost carriers. The RF Carrier power is expressed in dBm (dB relative to 1 mW of power).

² The noise power (or unwanted power) is defined by the mean power as a thermal power meter measures it. It can also be measured with a spectrum analyser by integrating the spectrum power in the nominal bandwidth of the channel. For the measurement, the carrier of the channel under test should be switched off (out of service). The bandwidth for the measurement of RF noise power should be the same as used for the RF carrier Power. The RF noise power is expressed in dBm (dB relative to 1 mW of power).

<u>Index</u>	<u>Indicators</u>	<u>Description</u>	<u>Standards</u>	<u>Measurement Method</u>
<u>1.4</u>	<u>Frame error rate (FER)</u>	<u>the ratio between erroneous physical layer frames and the total number of received physical layer frames</u>	<u>$\leq 10^{-4}$</u>	
<u>1.5</u>	<u>Modulation error ratio (MER)</u>	<u>the sum of the squares of the magnitude of the ideal symbol vectors in a modulation constellation of M points divided by the sum of the squares of the magnitudes of the symbol vectors. The result is expressed as a power ratio in dB. MER represents a synthetic form of constellation analysis.</u>	<u>> 20 dB (fixed outdoor reception) > 15 dB (fixed indoor reception)</u>	
<u>Digital Subscription Television Broadcasting Services</u>				
<u>1.6</u>	<u>i. All other relevant indicators as listed in the published document <i>Broadcasting Technical Quality of Service Standards: Subscription and Free-to-Air Television Broadcasting Services in Trinidad and Tobago</i> (April 2019).</u> <u>ii. Measurement Instruments – the Trilithic 860 DSPi instrument or other suitable test instruments capable of measuring the parameters outlined can be used to take all measurements.</u>			

Table 1. Required receive field strength (E_{req}) (dB μ V/m) for BER = 10^{-6} after LDPC and BCH decoding under AWGN channel

Modulation	LDPC Code Length	LDPC Code Rates											
		2/15	3/15	4/15	5/15	6/5	7/15	8/15	9/15	10/15	11/15	12/15	13/15
QPSK	Long	29.1	35.9	31.1	32.3	33.7	34.1	35.2	35.9	-	-	-	-
	Short	28.9	30.3	31.5	32.5	33.9	34.6	35.3	35.9	-	37.5	-	-
16QAM	Long	-	-	-	36.7	38.7	39.1	40.3	-	-	43.5	-	-
	Short	-	-	35.9	36.9	-	39.5	40.6	41.6	-	43.5	-	-
64QAM	Long	-	-	-	39.9	42.2	42.6	44.4	45.8	46.9	48.2	-	-
	Short	-	36.7	38.5	40.1	42.3	43.6	44.9	45.9	47.2	48.5	-	-
265QAM	Long	-	-	-	42.3	-	45.9	48	49.8	51.5	52.9	54.6	56.4
	Short	-	-	41.1	42.8	-	47.1	48.6	49.8	51.5	52.9	54.7	56.4

Table 2. Required C/N (dB) for BER = 10^{-6} after LDPC and BCH decoding under AWGN channel

Modulation	LDPC Code Length	LDPC Code Rates											
		2/15	3/15	4/15	5/15	6/5	7/15	8/15	9/15	10/15	11/15	12/15	13/15
QPSK	Long	-3.9	2.9	-1.9	-0.7	0.7	1.1	2.2	2.9	-	-	-	-
	Short	-4.1	-2.7	-1.5	-0.5	0.9	1.6	2.3	2.9	-	4.5	-	-
16QAM	Long	-	-	-	3.7	5.7	6.1	7.3	-	-	10.5	-	-
	Short	-	-	2.9	3.9	-	6.5	7.6	8.6	-	10.5	-	-
64QAM	Long	-	-	-	6.9	9.2	9.6	11.4	12.8	13.9	15.2	-	-
	Short	-	3.7	5.5	7.1	9.3	10.6	11.9	12.9	14.2	15.5	-	-
265QAM	Long	-	-	-	9.3	-	12.9	15	16.8	18.5	19.9	21.6	23.4
	Short	-	-	8.1	9.8	-	14.1	15.6	16.8	18.5	19.9	21.7	23.4

Extract of 6.2.1 and 6.2.2 of the ATSC 3.0 Field Test Plan for the procedure for fixed outdoor and indoor measurements respectively

6.2.1 Fixed Outdoor Procedure

1. Plot sites to be visited (e.g., radials, arcs, grids, clusters) on computer maps.
2. At start of test day, confirm proper operation of transmitter and field test vehicle equipment, and calibrate field test truck equipment.
3. Record RF channel number and transmit antenna polarization (H-POL, E-POL, or C-POL).
4. At each measurement location:
 - a) Confirm feasibility of raising antenna to 30 feet AGL without encountering obstructions such as tree limbs or overhead wires.
 - b) If site is not suitable for testing or is unreachable, move to closest suitable location (within 0.5 mile).
 - c) Attach antenna to mast, connect feedline, and raise antenna to 30 feet AGL.
 - d) Determine test site location coordinates (latitude and longitude, in fractional degrees), as well as distance (miles) and bearing (degrees) to transmitter. Record results together with a description of the test site, weather conditions, and date/time. Optionally plot terrain profile between transmitter and test site.
 - e) Using a spectrum analyzer, orient antenna for maximum average RF signal strength (in dBm), and record this azimuth angle (in degrees) and record the antenna orientation sensitivity.
 - f) Adjust the field test vehicle's system input RF attenuator to achieve an RF system output level of about -50 dBm into the test receiver (after the amplifier/splitter combination) and record the attenuator setting (in dB).
 - a. Confirm that no signal overload conditions exist in the RF system amplifier (from the combination of desired and undesired signals).
 - b. If an overload condition exists due to ACI:
 - i. Lower the desired signal below -50 dBm (but not too close to the expected SNR threshold) until errors cease.
 - ii. Optionally create and record a 20 MHz (or 50 MHz, if necessary) spectrum plot.
 - iii. If errors persist even at the attenuated signal level, add the optional band-pass filter (in front of the amplifier) to remove most of the offending undesired signals, and repeat with -50 dBm signal level.

- g) Record the spectrum analyzer average signal power level (in dBm).
- h) Calculate and record equivalent average field strength (in dB μ V/m) using average power (dBm), RF system gain, input attenuation, power-to-voltage conversion, dipole factor, and antenna gain.
- i) Determine and record SNR of received signal.
 - i) Measure field test vehicle's system noise floor (in dBm) at amplifier/splitter output with no input signal (i.e., fully attenuated by input attenuator).
 - ii) Calculate received signal's SNR.
- j) Determine reception:
 - i) After selecting the desired data stream in the receiver, observe BER from receiver (objectively) or video from display (subjectively) for 3 minutes to determine if any errors occurred.
 - ii) Note number of "hits" (i.e., error bursts) that occurred during this time period and any signal strength variations (higher and/or lower).
- k) Record receiver data that is available (e.g., SNR, BER, channel response, etc.).
- l) Determine site margin:
 - i) Lower the signal in 1-dB steps until just above threshold of errors.
 - ii) Observe BER from receiver (objectively) or video from display (subjectively) for 3 minutes to determine if any errors occurred.
 - iii) If errors observed, raise signal by 1-dB and repeat observation window.
- m) Record any receiver data at threshold that is available (e.g., SNR, BER, channel response, etc.).
- n) Record the site margin (in dB) as the attenuator value just above threshold.
- o) Record any comments relative to any anomalous observations.
- p) Archive data on backup storage device.
- q) Lower antenna and proceed to next test site.

6.2.2 Fixed Indoor Procedure

1. Plot sites to be visited (e.g., urban, suburban) on computer maps, typically 5 – 35 miles away from transmitter).
2. At start of test day, confirm proper operation of transmitter and field test vehicle equipment, and calibrate indoor test equipment.

3. Record RF channel number and transmit antenna polarization (H-POL, E-POL, or C-POL).
4. Determine test site location coordinates (latitude and longitude, in fractional degrees), as well as distance (miles) and bearing (degrees) to transmitter. Record results together with a description of the test site, weather conditions, and date/time. Optionally plot terrain profile between transmitter and test site.
5. Perform a complete 30 feet AGL outdoor measurement just outside the house, as close as possible, using the procedures above (Section 6.2.1) for outdoor measurements. NOTE: if an additional set of data is desired at 12 feet or 15 feet AGL, it can be documented as well as the 30 feet AGL data.
6. Select the room and location within the room to be tested (perhaps one that already has a television receiver using an indoor antenna) and set up indoor antenna on a tripod. Otherwise, select a room and a location within the room where TV viewing would be expected or desired.
7. Document the test site:
 - a. Building age and type (1-storey, 2-story, split level, house, apartment/condo, mobile home, etc.).
 - b. Building construction materials (brick, frame, siding, metal, metallic screening, etc.).
 - c. Specific room location within the building (floor, corner, middle, windows, etc.)
 - d. Direction the room is facing.
8. Attach the indoor antenna to the tripod, and place in an appropriate location within the room about 5" above the floor.
9. Perform same test procedures as described in the outdoor field test Section 6.2.1 (4e – 4p).
10. Pack up and proceed to next test site.

I

Schedule G

(Condition B16)

Public Health and Safety Criteria for radiocommunication devices in Trinidad and Tobago

1. The following benchmarks are applicable to all radiotransmitter arrays operated for the provision of public telecommunications networks or in the provision of public telecommunications services and/ or broadcast services.

Service	Evaluation Required if:
Experimental Radio Services	Power > 100W ERP (164W EIRP)
Multipoint Distribution Services	<u>Non-rooftop antennae</u> : height above ground level to radiation centre < 10m AND power > 1640 W EIRP <u>Rooftop Antennae</u> : power > 1640 W EIRP
Paging and Radio telecommunications Services (including Cellular – 800MHz)	<u>Non Rooftop Antennae</u> : height above ground level to radiation centre < 10m AND total power of all channels > 1000W ERP (1640W EIRP) <u>Rooftop Antennae</u> : Total power of all channels > 1000W ERP (1640W EIRP)
Personal Communications Services (1900 MHz band and above)	(1) Narrowband: <u>Non rooftop antennae</u> : height above ground level to radiation centre < 10m AND total power of all channels > 1000W ERP (1640W EIRP) <u>Rooftop Antennae</u> : Total power of all channels > 1000W ERP (1640 W EIRP) (2) Broadband: <u>Non rooftop antennae</u> : height above ground level to radiation centre < 10m AND total power of all channels > 2000W ERP (3280W EIRP) <u>Rooftop Antennae</u> : Total power of all channels > 2000W ERP (3280 W EIRP)
Satellite Communications	All included <u>Total power of all channels > 1000W ERP (1640 W EIRP)</u>
Radio Broadcast Services	All included <u>Total power of all channels > 1000W ERP (1640 W EIRP)</u>

Transmitters, Facilities and Operations subject to routine environmental evaluation before Authority approval

2. The following health and safety requirements are to be upheld by all concessionaires in the operation of authorised radiotransmitting equipment associated with their operations.

**Maximum Permissible Exposure (MPE) Limits for Radio-Frequency Radiation
(RFR) Power Density**

<u>Frequency Range (MHz)</u>	<u>Occupational (Controlled) Limit (mW/cm²)</u>	<u>General Population (Uncontrolled) Limit (mW/cm²)</u>
<u>10 - 400</u>	<u>1.0</u>	<u>0.2</u>
<u>400 - 2,000</u>	<u>f/400 (1.0 to 5.0)</u>	<u>f/2000 (0.2 to 1.0)</u>
<u>2,000 - 300,000</u>	<u>5.0</u>	<u>1.0</u>
<u>f = frequency in MHz</u>		

3. The licence shall also conform to all relevant Health and Safety Requirements in accordance with the laws of Trinidad and Tobago.

(A) Limits for Occupational/ Controlled Exposure

<u>Frequency Range (MHz)</u>	<u>Electric Field Strength (V/m)</u>	<u>Magnetic Field Strength (A/m)</u>	<u>Power Density (mW/cm²)</u>	<u>Averaging Time (minutes)</u>
0.3 - 3.0	614	1.63	(100)*	6
3.0 - 30	1842/f	4.89/f	(900/f ²)*	6
30 - 300	61.4	0.163	1.0	6
300 - 1500	---	---	f/300	6
1500 - 100,000	---	---	5	6

f = frequency in MHz * = Plane Wave Equivalent Power Density

(B) Limits for General Population/ Uncontrolled Exposure

<u>Frequency Range (MHz)</u>	<u>Electric Field Strength (V/m)</u>	<u>Magnetic Field Strength (A/m)</u>	<u>Power Density (mW/cm²)</u>	<u>Averaging Time (minutes)</u>
0.3 - 1.34	614	1.63	(100)*	30
1.34 - 30	824/f	2.19/f	(180/f ²)*	30
30 - 300	27.5	0.073	0.2	30
300 - 1500	---	---	f/1500	30
1500 - 100,000	---	---	1.0	30

f = frequency in MHz * = Plane Wave Equivalent Power Density

Schedule H

Broadcasting Content

A concessionaire in the provision of broadcasting services shall comply with the provisions of this Schedule. The Concessionaire shall:

Protection of Children

1. ensure that children are neither exposed, harmed nor misled by the broadcast of inappropriate and/or inaccurate material. The following must need to be taken into consideration:
 - a. use appropriate programme scheduling to protect children from unsuitable material.
 - b. ensure that broadcasts do not contain content which portrays children in an explicitly sexual manner.
 - c. ensure that names and/or images of children who are victims or accused or convicted of crimes are not broadcast.

Harm, Abuse and Discrimination

2. ensure audiences are adequately protected from harmful, abusive or discriminatory material.

Offensive Language

3. ensure that offensive language is not broadcast.

Pornography

4. ensure that pornographic material is not broadcast.

Crime

5. ensure that material likely to encourage or incite the commission of crime or to lead to disorder is not broadcast.

Race or Ethnicity

6. ensure that content is not broadcast which involves any derogatory treatment of persons on the basis of the race or ethnic group to which they belong and to treat all groups with due impartiality.

Religion

7. ensure that material is not broadcast which involves derogatory treatment of the religious views and beliefs of those belonging to a particular religion or religious denomination and which does not result in the exploitation of the audience.

News and Public Affairs

8. ensure that broadcasts of news and current affairs, in whatever form, contain content reported with accuracy, balance and due impartiality.

Elections

9. ensure that where broadcast material relates to political matters during the period of elections, such broadcasts present a sufficient range of information, views and opinions in a balanced manner to enable the audience to make informed political decisions.

Fairness

10. ensure to treat fairly with individuals or organisations in relation to contributions made to programmes.

Privacy

11. respect the privacy of individuals in programmes and in connection with obtaining material included in programmes.

Information, Warnings and Audience Protection

12. ensure that viewers and listeners are afforded adequate protection against harmful programmes and are given information and warnings about broadcasts of programming that contains any material that is capable of causing harm. Warnings and advice should be given when broadcasts contain programming which includes mature subject matter, scenes with nudity, sexually explicit material, coarse or offensive language, or other material which is likely to cause harm.

Advertising, Sponsorship and Promotional Programming

13. ensure that in the scheduling of broadcasts, primary programming content and advertising are kept distinct so that members of the public are not confused; ensure that advertising pressures do not compromise the integrity of information provided by the concessionaire; prevent misleading information being given to the public in the course of broadcasts; and ensure that advertising within broadcasts do not cause unnecessary harm.

Broadcasting Service Providers' Internal Policies

14. ensure that broadcasting services are provided to the highest standards. Ensure the introduction and implementation of internal policies, processes and procedures which are consistent with broadcasting best practices.

|

Appendix I
PERFORMANCE BOND

This Performance Bond is dated the day of .

WHEREAS the Minister of Public Administration and Artificial Intelligence has on [], in exercise of the powers granted by the Telecommunications Act Chap. 47:31, and in accordance with a recommendation of the Telecommunications Authority of Trinidad and Tobago ('the Authority'), awarded a Concession to [], whose registered office is at [] (hereinafter called "the Concessionaire") for the operation of the telecommunications networks and/or provision of the telecommunications and/or broadcasting services described therein (hereinafter called "the said Concession") subject to the terms, conditions, stipulations and provisions of the said Concession.

AND WHEREAS the Concessionaire has agreed and undertaken to do certain things regarding network rollout, range of services to be offered, quality of service standards, pricing and service provisioning schemes, and any other commitments as submitted to the Authority in its application for the said Concession; all of which are more particularly set out in Schedule D to the said Concession (hereinafter, the "Commitments and Undertakings") and repeated as Milestones in the Annex hereto.

AND WHEREAS pursuant to the terms of the said Concession, the Concessionaire agreed to obtain a surety to be bound unto the Authority for the due performance by the Concessionaire of the Commitments and Undertakings.

KNOW ALL MEN BY THESE PRESENTS THAT WE the Concessionaire, and [] whose registered office is at [] ("the Surety") are irrevocably and unconditionally bound to the Authority in the total sum of [] ("the Bonded Sums") and with the Milestones set out in the Annex for payment of which sum the Concessionaire and the Surety bind themselves their successors and assigns jointly and severally in accordance with the provisions of this Bond.

AND KNOW THAT THE TERMS AND CONDITIONS of this Bond are as follows:-

1. Where applicable, words and expressions used in this Bond shall have the meaning assigned to them in the Concession.
2. In the event of default by the Concessionaire in respect of the Deadlines for Compliance with the Milestones set out in the Annex, the Surety shall upon demand made by the Authority in writing and without proof or conditions satisfy and discharge the Bonded Sums provided that the aggregate liability of the Surety under this Bond in respect of any Milestone shall not exceed the Bonded Sum in respect of that Milestone set out in the Annex.
3. The liability of the Surety under this Bond shall not be affected or discharged in any way by (and the Surety hereby waives any requirement to give notice in respect of):
 - (a) any suspension of, variation to, or amendment of the Concession (including without limitation extensions of time for performance) or any concession or waiver by the Authority in respect of the Concessionaire's obligations under the Concession. Without prejudice to the foregoing and purely on a "for information basis", the Surety will be notified of any such suspension, variation, amendment, concession or waiver and if necessary and if so requested by the Surety, the Authority will amend the Annex accordingly;
 - (b) the cancellation or revocation of the Concession as a result of default by the Concessionaire under the Concession;
 - (c) any forbearance or waiver of any right or remedy the Authority or the Republic of Trinidad and Tobago may have against the Concessionaire;
 - (d) any act or omission of the Concessionaire pursuant to any other arrangement with the Authority or with the Surety;
 - (e) subject to clause 4 and 5 below, the issue of any certificate of completion by the Authority in respect of the Milestones set out in the Annex.
4. The liability of the Surety under this Bond shall reduce on each occasion on which:
 - (a) the Surety pays any part of the Bonded Sums to the Authority; or,

- (b) the Authority issues its certificate of completion in respect of each Milestone (as set out in the Annex);

the amount of such reduction being equal to the amount paid or the Bonded Sum set opposite such Milestone in the Annex, and the Surety shall be discharged from all further liability under this Bond upon such liability being reduced to zero or the issue of the certificate of completion by the Authority of the ultimate Milestones set out in the Annex.

5. The liability of the Surety under this Bond shall cease upon:

- (a) the payment by the Surety of all the Bonded Sums in full to the Authority;
and/or
- (b) the issue by the Authority of any certificate of completion;

in respect of all Milestones set out in the Annex.

6. The Authority shall be entitled to assign the benefit of this Bond to any Government or Statutory body at any time without the consent of the Surety or the Concessionaire being required. Without prejudice to the foregoing and purely on a “for information basis”, the Surety will be notified by the Authority after any such assignment from time to time.

7. This Bond shall expire, at any time that the liability of the Surety has ceased in accordance with Clause 5, or on the date 120 days after the Deadline for Compliance of the last Milestone by which date any claim hereunder must be received by the Surety in writing, whichever is later.

8. All documents arising out of or in connection with this Bond shall be served:

- (a) upon the Authority, #5 Eighth Avenue Extension, Off Twelfth Street, Barataria, Trinidad and Tobago, marked for the attention of the Corporate Secretary;
- (b) upon the Surety, at [], Trinidad and Tobago.

9. The Authority and the Surety may change their respective nominated addresses for service of documents to another address in Trinidad and Tobago but only by prior written notice to each other. All demands and notices must be in writing.
10. This Bond shall be governed by and construed according to the laws of the Republic of Trinidad and Tobago and the Surety agrees to submit to the exclusive jurisdiction of the courts of Trinidad and Tobago.

IN WITNESS whereof this Bond has been executed as a deed by the Concessionaire and the Surety on the date first above written.

THE COMMON SEAL of [Surety] was affixed hereto in the presence of:

Director

Director/Secretary

THE COMMON SEAL of [Concessionaire] was affixed hereto in the presence of:

Director

Director/Secretary

