

Decisions on Recommendations Matrix for the Pre-Consultation Discussion on the *Framework for Fifth Generation (5G) Public Mobile Telecommunications Networks*

The following summarises the comments and recommendations received from stakeholders on the *Consultative Document on the Framework for Fifth Generation (5G) Public Mobile Telecommunications Networks* (the Framework) and the decisions made by the Authority under consideration for inclusion in the document.

Item	Stakeholder	Policy Section	Comments	Recommendations	TATT's Decision
1	Digicel	1.3 Background	Can references to spectrum costs in similar regions/markets/GDP/Populations sizes to Trinidad. The current references do not provide an appreciation for T&T possible 5G spectrum costs.	Add additional references.	Spectrum costs are not available at this time for regions/markets/GDP/population sizes similar to Trinidad and Tobago. As 5G development continues, and this information becomes available, it will be included in the Framework and subsidiary documents such as the <i>Spectrum Plan for the Accommodation of Public Mobile Telecommunications Services</i> .
2	Digicel	2 - Key Characteristics of 5G Mobile Technologies All KPI points	The KPI metrics used to characterize 5G capability would be defined by spectrum allocation and subscriber penetration. The deployment would only make sense adopting a phase approach based on capacity requirements and customer supported devices in the market	To supply document that reference the 5G standard KPIs for reference. TATT can provide inputs for these numbers and the expectation for valuation of the spectrum bands	Coverage obligations and subscriber penetration for mobile and fixed wireless concessions are based on the type of network and not the technology deployed and would not be affected by the introduction of 5G technologies. More key performance indicators (KPIs) related to spectrum allocation, coverage obligations, quality of service and subscriber penetration will be specified in documents such as the <i>Spectrum Plan for the Accommodation of Public Mobile Telecommunications Services</i> , which shall be consulted upon, in keeping with the <i>Procedures for Consultation in the Telecommunications Sectors of Trinidad and Tobago (version 7.0, 2021)</i> .
3	Digicel	3.1 Coverage Obligations	What are the 5G coverage obligations?		Coverage obligations and subscriber penetration for mobile and fixed wireless concessions are based on the type of network and not the technology deployed and would not be affected by the introduction of 5G technologies. The coverage obligations will be specified in the concession documents.
4	Digicel	3.6.2.4 Unlicensed Spectrum	Did TATT confirm device availability in this part of the spectrum for subscribers?	Please provide market data to support these statements	Licensed spectrum is expected to be the core 5G spectrum management approach, with unlicensed spectrum playing a complementary role. Due to the nature of unlicensed

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					spectrum, it is unlikely market data will be available for these bands. The Authority will share the relevant market data as it becomes available.
5	Digicel	Section 6	<p>Can the Authority create and reference a document on the site reform process for 5G sites, this document will guide operators and inform the general public on the relevant parties that need to be informed and that must provide approvals for, utility colocations, lamp sites, small cells and road reserve sites.</p> <p>This would be key for public acceptance and sensitization to ease the development of the 5G small cell space as there may be other stakeholders apart from TCPD going forward. E.g. Utility providers, Regional corporations.</p>		The Authority agrees and will create a document titled <i>Position Paper for the Regulation and Administration of Telecommunications Structures not subject to the Tower Non-Objection Process</i> for operators and the general public. This document will address concerns around utility colocations, lamp sites, small cells, road reserve sites, etc, and will be consulted upon, in keeping with the <i>Procedures for Consultation in the Telecommunications Sectors of Trinidad and Tobago (version 7.0, 2021)</i> .
6	Digicel	Section 6 4. Maximum Permissible Exposure Limits for Radiofrequency Radiation in Trinidad and Tobago (TATT 2021)	<p>Can the latest revision of the RFR document be provided, it is not accessible on the TATT website.</p> <p>Digicel would like to recommend that maximum transmit powers be established for small cell, microcell and pico cells to assist with keeping the field strengths at acceptable levels in public spaces. Through 5G densification there will be a significant increase in the number of transmitters in close proximity to the public.</p> <p>Digicel would like to recommend that the 5G framework reference the RFR testing processes that will be adopted by the authority on a periodic basis, this will provide a level of assurance to the public on the safety of 5G deployment</p>		<p>The document, <i>Interim Maximum Permissible Exposure Limits for Radiofrequency Radiation in Trinidad and Tobago</i>, is available via the TATT website and will be revised to ensure that the maximum permissible exposure limits are aligned to the ICNIRP guidelines for 2020. The document will be consulted upon, in keeping with the <i>Procedures for Consultation in the Telecommunications Sectors of Trinidad and Tobago (version 7.0, 2021)</i></p> <p>Digicel's recommendations will be taken into account in the revision of the <i>Interim Maximum Permissible Exposure Limits for Radiofrequency Radiation in Trinidad and Tobago</i> document.</p>
7	Digicel	Section 6.2 and 6.3	Can the Authority consider the addition of 3.7 - 4.2GHz (the remainder of n77) in the revision of the PMTS and BWA plans, this was done by Ofcom, Section 3.6.3.2 and can possibly offer additional bandwidth based on occupancy	Add additional bands	The 3.7–4.2 GHz range is not under consideration for inclusion in the Framework at this time, due to the risk of adverse effects on radio altimeters when operating in the 5G C-Band.
8	Digicel		Should the framework establish or reference a supplementary document that guides on the orderly deployment of 5G sites in terms		The Authority will create a procedure for operators and the general public titled <i>Position Paper for the Regulation and</i>

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			of both aesthetics and crowding in and around the general public. This may be important due to the large number of sites that will be close to and visible in the public eye. E.g. there should be no more than 3 small cells on poles at the same corner of a street of a utility pole. e.g.the number of indoor antennas in a space should be not exceed...		<i>Administration of Telecommunications Structures not subject to the Tower Non-Objection Process.</i> This document will address concerns raised around utility colocations, lamp sites, small cells, road reserve sites, etc. The document will be consulted upon, in keeping with the <i>Procedures for Consultation in the Telecommunications Sectors of Trinidad and Tobago (version 7.0, 2021)</i> .
9	Digicel		Handset penetration in respective bands is a key metric for deployment to be economical. Is there any reference being made to this?	Did TATT check the market data on current 5G penetration? This would be a main driver as many of the handsets are going to be grey market third party suppliers.	The Authority does collate market data; however, due to its technology neutral position, this is done for services not based on a specific technology.
10	Digicel		Will the 5G bands to be added have the specification as to if they will be FDD or TDD? Question Raised as n41 can be configured as n71.	Confirm which transmission mode each band will be configured as.	Spectrum usage techniques such as frequency division duplex (FDD) or time division duplex (TDD) and spectrum allocation methods will be specified in the <i>Spectrum Plan for the Accommodation of Public Mobile Telecommunications Services</i> .
11	Digicel		What spectrum allocation method will TATT be adopting?	There is no clear position stated in the document. Please clarify	Spectrum usage techniques such as frequency division duplex (FDD) or time division duplex (TDD) and spectrum allocation methods will be specified in the <i>Spectrum Plan for the Accommodation of Public Mobile Telecommunications Services</i> .
12	TTCAA		What is the timeframe for implementing 5G? Will the consultations be held locally? Can the international community provide feedback?		The Authority will facilitate two rounds of public consultation following the pre-consultation discussion, with at least one round of public consultation completed by the end of this financial year. The Authority welcomes feedback from both the local and international community on the draft Framework during public consultation.
13	TTCAA		Has any survey been done, or proposals been put on the table, regarding location of transmitters as it pertains to the flight paths from Piarco International and ANR Robinson airports?		The Authority indicated during the pre-consultation that the issue of interference between 5G and radio altimeters in the US is being closely followed, and there are currently no surveys or proposals by operators on the location of 5G transmitters. The 3.7–4.2 GHz range is not under consideration for inclusion in the 5G Framework at this time, due to the risk of adverse effects on radio altimeters when operating in the 5G

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					C-Band. In the event a portion of this spectrum is under consideration for inclusion, the Authority will consider limiting the location and output power of transmitters relative to the airports.
14	TTCAA		<p>TTCAA notes that ICAO has a position regarding interference to radio altimeters on aircraft operating in the 4200 – 4400 MHz band, from 5G operating in the C Band.</p> <p>TTCAA has also received correspondence from Intelsat indicating that 5G services operating in the C Band has caused interference issues.</p>	TTCAA noted that they may need to shift the frequencies being used for their VSAT earth station being used for air traffic control and are awaiting word from Intelsat on the frequencies. TATT will be made aware of this as the issue progresses.	<p>C-Band 5G frequencies are currently not under consideration for inclusion in the Framework.</p> <p>The Authority takes note of this issue and awaits feedback from TTCAA in this regard.</p>
15	TTCAA		TTCAA indicated that if there is decision in the future to include the C Band for consideration for 5G services, that TTCAA be informed and given a chance to comment again.		TTCAA will be kept apprised as the situation develops concerning the C-Band. Any change to this effect will be consulted upon in accordance with the consultation procedures.
16	TTCAA		TTCAA queried concerning the update of the MIFR database for VSAT frequencies.		The Authority indicated during the pre-consultation that this registration process for VSAT frequencies is ongoing. The Authority requested to be notified by TTCAA of any change of frequencies.