Office of Utilities Regulation

REVIEW AND REVISION OF

THE JAMAICAN NATIONAL NUMBERING PLAN

&

THE TELECOMMUNICATIONS NUMBERING RULES

PHASE 1

CONSULTATION DOCUMENT

OFFICE OF UTILITIES REGULATION

July 2019

EXTRACT

Telecommunications numbers are scarce and their supply is finite. They are a critical national resource to be effectively managed in the national interest. Individual countries must therefore, ensure that their national numbering plan provides adequate numbering capacities and remains adaptable to the pace of innovations in technology and service delivery, and the concomitant or resultant changes in customer needs.

The Telecommunications Act gave the Office of Utilities Regulation (OUR) a duty to develop and review a numbering plan and associated numbering rules, for Jamaica. The OUR is now carrying the first review of the Jamaican National Numbering Plan (the Numbering Plan) which was developed in 2003, This Consultation Document is therefore the first phase of a two-phase programme to review and revise the Numbering Plan and the Telecommunications Numbering Rules. Among other things, it sets out the context within which specified changes are needed at this time.

Section 1 of this Consultation Document highlights the importance of telecommunications numbering, and gives the background to current numbering arrangements in Jamaica. It also details the need for the review and revision of the Numbering Plan.

Section 2 summarises the Office Determinations made after the establishment of the Numbering Plan and consults on their incorporation, along with several newly proposed and future numbering considerations of the kind, into the Numbering Plan.

Section 3 explores new uses and future implications for numbers and consults on ways in which related technological developments could influence local numbering policy decisions.

Section 4 identifies changes that have taken place locally and internationally, and which affected the local dialling plan. It proposes amendments to the Jamaican Dialling Plan, accordingly.

Section 5 explains the reason for a limited consultation on the Telecommunications Rules at this time. It proposes the incorporation of two previously published Number Assignment Guidelines as annexures.

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CONSULTATION PROCESS

Persons who wish to express opinions on this Consultation Document are invited to submit their comments in writing to the OUR by post, facsimile or email addressed to: -

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Responses are requested by 2019 August 16.

Any confidential information should be submitted separately and clearly identified as such. The submission of confidential information should be accompanied by a justification in keeping with section 7(6) of the Telecommunications Act.

Responses which are not confidential pursuant to sections 7(6) and 7A of the Telecommunications Act will be posted to the OUR's website (www.our.org.jm). Respondents are therefore requested to supply their responses in electronic form to facilitate such postings.

COMMENTS ON RESPONSES

There will be a specific period for respondents to view other responses (non-confidential) and to make comments on them. . The comments may take the form of either correcting factual error or putting forward counter arguments. As in the case of the responses, comments which are not confidential pursuant to the Telecommunications Act will be posted to the OUR's website.

Comments on responses are requested by 2019 August 30.

Arrangements for viewing responses

This Consultation Document and the responses and comments received by the OUR will also be made available to the public through the OUR's Information Centre ("OURIC"). Persons who wish to view the Document, responses and comments should make an appointment by contacting:

Ms. Colleen Mignott
Coordinator OURIC/Information Officer
Telephone: (876) 968-6053
Fax: (876) 968-6053
Email: colleen.mignott@our.org.jm

Individuals with appointments should visit the OUR's offices at:

3rd Floor, PCJ Resource Centre,
36 Trafalgar Road,
Kingston 10

Photocopies of selected responses and comments may be provided on request at a price which reflects the cost to the OUR.

CONSULTATION TIMETABLE

The timetable for this consultation is summarized below:

EVENT	DATE
Publish Consultation Document	**2019 July 22**
Response to Consultation Document	**2019 August 16**
Comments on Respondents' submissions	**2019 August 30**
Issue Determination Notice – Revised Jamaica National Numbering Plan & Telecommunications Numbering Rules	**2019 September 20**

1. TELECOMMUNICATIONS NUMBERS AS A NATIONAL RESOURCE

Introduction

1.1 Telecommunications numbering has remained an important issue for discussion and decision among government, industry and other key stakeholders, confirming the truism that numbering has broad importance not just as a purely technical matter, but one that also addresses important social, commercial and economic considerations for users, service providers, regulators and policy makers.

1.2 Telephone numbers are vital to effective business operations and, likewise, are necessary to meet people's communication requirements—from access to important or essential public services, to engagement in day-to-day social interactions. Therefore, these numbering resources must be available whenever required and should not need to be changed.

1.3 From the telecommunications operators' perspective, telephone numbers identify customers on a network, facilitate the development of products and services, and provide access to them. Numbers are also used to determine the tariff for calls and are therefore important to the billing process. Moreover, the availability and mode of allocation of numbers could influence the way operators engineer their networks – possibly with consequential 'costs' to both operators and their customers. These and other reasons make fair equal and equitable access to numbering resources of vital importance to effective competition. Hence, the need for an appropriate numbering policy to ensure that the development of a competitive telecommunications market—and especially given the importance of telecommunications to national development—is not disadvantaged on numbering grounds. Thus, it is a practical reality that an equitably and efficiently administered numbering plan facilitates competition in the provision telecommunications services and hence brings benefits to the consumers.

1.4 Numbering continues, therefore, to be universally acknowledged, similarly as the radio spectrum, as a critical national resource to be effectively managed in the national interest. Individual countries must therefore, ensure that their national numbering plan provides adequate numbering capacities and remains adaptable to a highly numbering-dependent environment in which there is increasing flexibility and expanding innovation in technology and service creation, changing customer needs, and a growing dependence on telecommunications.

Purpose of the Consultation

1.5 The purpose of this Consultation Document is the review and revision of the Jamaican National Numbering Plan (JNNP) and the Telecommunications Numbering Rules (Numbering Rules), in accordance with existing legislation and recent industry developments. This revision is intended to be the first of a two-phased programme.

1.6 A national numbering plan is defined in two ways: primarily in the normal technical sense as provided in paragraphs 1.7 to 1.12 of this document. Secondarily, it is defined as a documented regulatory instrument that provides, for broad industry reference, an

organised presentation of all telecommunications numbering resources that are legally authorised for use in Jamaica, and their functional states allocations to telecommunications services. Currently, a standalone document that satisfies the latter definition does not exist. Instead, the relevant information is provided in various Determination Notices issued by the Office of Utilities Regulation (OUR/Office).

1.7 The ultimate objective of this numbering project, therefore, is to:

1. Provide a new organized and documented instrument that solely identifies, and defines the purposes of, the standard telecommunications numbering resources to be used by telecommunications network operators and service providers in the provision of telecommunications services in Jamaica, and by users to gain access to those services.

2. Update the formal regulatory instrument—the Numbering Rules—that establishes the principles, standards and procedures that:

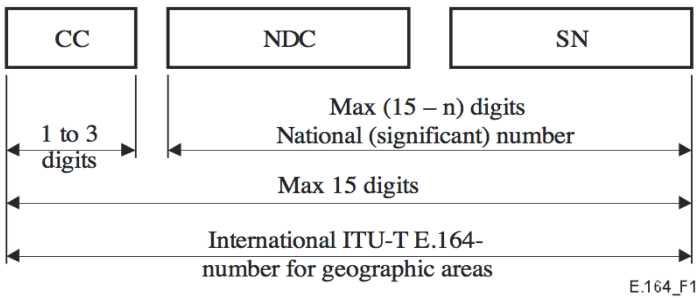
    a) define the roles and responsibilities of key industry stakeholders;
    b) outline how numbers are to be assigned and used, to ensure transparency, fairness and accountability, and
    c) detail the general administration and management of telecommunications numbering

    A more comprehensive definition of the Numbering Rules is provided in section 5 of this Consultation Document.

This Consultation Document, therefore, reviews the state of current numbering arrangements, identifies and sets out the contexts and changes that have been made over time, and outlines proposals for the new arrangements. This review also takes account of the potential growth and development of telecoms services and the concomitant growth in demand for numbers; the constraints in relation the current use of numbers; the relevance of information in numbers and its importance to customers and, policy developments overseas.

National Numbering Plans

1.8 In its basic concept, a national numbering plan is a national implementation of the International Telecommunications Union's (the ITU) International Public Telecommunication Numbering Plan, **Recommendation**[1] **ITU-T**[2] **E.164**. The E.164 plan "… provides the number structure and functionality for numbers… used for international public telecommunication… It details the components of the numbering structure and the digit analysis required to successfully route the calls". The numbers used in that regard are referred to as "international ITU-T E.164-numbers". The structure is illustrated in Figure 1 below:



CC Country Code for geographic area
NDC National Destination Code
SN Subscriber Number
n Number of digits in the country code

NOTE – National and international prefixes are not part of the international ITU-T E.164-number for geographic areas.

Figure 1. International ITU-T E.164–number structure for geographic areas

1.9 The basic numbering scheme applied in Jamaica is the North American Numbering Plan (NANP), which serves the geographic area comprising the United States and its territories, Canada, the Bahamas, Bermuda, Dominican Republic and 15 other Caribbean countries—called the North American Numbering Plan Area (NANPA). The NANP is the region's implementation of ITU-T Recommendation E.164 for geographic areas "which uniquely identifies a subscriber within a geographical area locally, nationally and internationally" and encompasses the majority of numbers utilized by the public for telephone calls.

1.10 The primary structure of the NANP has a fixed 10-digit format:

NXX-NXX-XXXX, where N = any digit 2 through 9 and X = any digit 0 through 9.

It is sometimes expressed as ABC-DEF-GHIJ. The representation of each segment of the 10-digit structure in shown Figure 2 with the respective E.164 mapping:

Figure 2. Basic Structure of the North American Numbering Plan

NXX	NXX	XXXX
ABC	DEF	GHIJ
NPA (Area Code)	Central Office Code	Line Number
ITU-T E.164 Mapping		
NDC	SN	

The NANP number is typically represented in the format "NPA-NXX-XXXX".

1.11 ITU-T Recommendation E.164 (E.164) allows for a maximum length of 15 digits, inclusive of the country code, for national numbers. That is, the maximum length of national (significant) numbers is 15 digits minus the length of the country code. This leaves 14 digits available for use within the NANPA, which has a single-digit country code, which is "1".

1.12 Generically speaking, a country's national numbering plan (or numbering scheme), in accordance with national numbering regulations, will comprise international ITU-T E.164-numbers for geographic areas—divided into ranges for different services or applications— and perhaps as well as, subscriber-diallable and/or non-diallable, non-ITU-T E.164 numbers. The latter may include, among others, numbering resources for calling and identifying:

- Telecommunication carriers or networks
- Terminal facilities for cellular mobile communications
- Signalling network nodes
- Emergency services
- Value-added services
- USSD applications [1]

The forgoing typifies the JNNP.

1.13 The NANP is an integrated Numbering Plan, serving a community of interests. Hence, member-states have limited freedom in designing their national numbering plans. They must take into account such overriding factors as:

- The fixed structure of the NANP
- The authority, and degree of interfusion, of the regulatory systems that govern the NANP
- The quantity, nature, availability and prescribed purposes of NANP-authorized numbering resources

History of the Existing JNNP

1.14 Section 8 of the Telecommunications Act (the Act) provides the legal framework for the administration of telecommunication numbers in Jamaica.

1.15 The functions of the OUR as framed in section 8 of the Act, include responsibilities to develop, administer and review the JNNP, the Numbering Rules and related Numbering Assignment Guidelines, for the overall national good.

1.16 Section 8 of the Act provides as follows:

"(1) The Office shall assign numbers for telecommunications services to carriers and service providers on a non-discriminatory basis.

(2) In carrying out its functions under this section the Office shall develop a plan for the numbering of telecommunications services and may make rules pursuant

1 USSD (Unstructured Supplementary Service Data) is a GSM technology that is used to send text between a mobile phone and an application program in the network. Applications may include prepaid roaming, mobile chatting, etc.

to that plan regarding the assignment and use of numbers by carriers and service providers.

(3) For the purposes of subsection (2) the Office shall –

(a) take account of relevant international regulations;

(b) ensure that sufficient numbers are available for the current and reasonably anticipated future needs of carriers and service providers;

(c) ***have regard to the role that numbers can play in conveying useful information to customers, including information about the type of service being used****;*

(d) promote efficient use of numbers;

(e) promote fair and open competition;

(f) as far as possible and subject to paragraphs (a) to (e), avoid the imposition of costs on customers as a result of changes in the numbering system; and

(g) ***to such extent as may be reasonable and subject to paragraphs (a) to (f), preserve the numbering system maintained by the existing telecommunications carrier and the numbering allocations existing immediately before the appointed day****"* [Emphases added]

1.17 The current national numbering scheme was developed from a review of numbering capacity under the direct control of the incumbent telecommunications operator up to the year 2000. In 2003 November, the Office published its Determination Notice on the Jamaican National Numbering Plan (JNNP)[3]. The intention was to structure and present the ITU-T E.164 and other numbering resources in a way that was meaningful and relevant to stakeholders, provided flexibility for the future and encouraged competition.

1.18 The JNNP which is currently in effect, is structured as shown in Table 1 below:

TABLE 1. ITU-T E.164 Numbering Resources

876-NXX CODES	LEGACY ALLOCATIONS	INITIAL USE ALLOCATIONS	CURRENT USE ALLOCATIONS
N00 (ERC)	Reserved (1 to Cellular)	Special Services	Special Services
N11	Reserved (1 to S/Services)	Access Codes (Public Interest)	Access Codes (Public Interest)
YYY (ERC)	Reserved (1 to Cellular)	Special Services	S/Services (444 - MVAS; 10% Mobile)
1XX	Access Codes	Access Codes	Access Codes
2XX	Spare	Growth	Mobile
3XX	Cellular [**Mobile**]	Mobile	Mobile
4XX	Spare	Growth	Mobile
50X-54X	DID/Special Services	Growth	Mobile
55X-59X	POTS [**Geographic**]	Geographic	Geographic
6XX	POTS	Geographic	Geographic (Fixed + Nomadic)
70X-76X	POTS [5% Cellular]	Geographic	Geographic
77X-79X	Cellular [10% POTS]	Mobile	Mobile
8XX	Cellular	Mobile	Mobile
9XX	POTS (6% cellular]	Geographic	Geographic
976	Special Services	Special Services	Special Services (FVAS)

ERC = Easily Recognizable Codes

1.19 Some number allocations made prior to the publication of the JNNP Determination Notice lie in ranges that do not conform to the formal allocation scheme. Table 1 above shows the proportion of non-conforming NXXs. All new number allocations since the publication of the JNNP have been made in accordance with the provisions of the JNNP and the Numbering Rules.

1.20 In the development of the JNNP, the OUR employed a set of evaluation criteria, which corresponded with the statutory requirements contained in paragraphs 8(3) (b) to (g) of the Act, to facilitate a qualitative functional assessment of international best practices and regional practices in numbering administration. The assessment focused on the UK, Ireland, Australia, and New Zealand and, principally, North America in view of Jamaica being a member of the NANPA. A seamless one-to-one correspondence was not established between the factors in the two sets of principles because of significant overlapping relationships between some of the factors from the statute. These criteria, as tabulated in Table 2 below, generally define the requirements for numbering schemes in a competitive environment:

Table 2. Numbering Plan Evaluation Criteria

	EVALUATION CRITERION	CORRESPONDING PARAGRAPH(S) IN SECTION 8(3)
1	The North American Numbering Plan the basic model	(a)
2	Provide numbering flexibility for undefined future needs	(b) and (d)
3	Provide customers with a broad indication of service type and cost	(c)
4	Support effective competition	(e) and (b)
5	Cost effective and practical for industry implementation	(F) and (g)

1.21 The following summarises the resultant principles and prescriptions that guided the OUR's decisions:

- Businesses and consumers require telephone numbers to gain access to the public switched network and reap its benefits. The OUR is tasked with the responsibility to ensure fair and efficient numbering administration in Jamaica, and will ensure that numbering resources are available to all telecommunications service providers, consistent with the requirements of the Act.

- The Act mandates the OUR to provide price and service type indications by numbers for the benefit of the consumer. People do expect to have a broad indication of the cost of calls, especially if these calls incur a charge significantly above the standard tariff. Using numbers as a method of enabling end-users to understand the rate at which a call will be charged can be a clear way of providing this information.

- The Act also mandates the OUR to ensure the promotion of fair competition in the structuring and administration of the numbering plan and this focuses a great deal on the methods of allocation and assignment of numbers. Further,

- Facilities- and service-based competition in the telecommunications markets bring benefits to consumers in the form of lower prices, greater variety, and better quality. However, numbering resources must be made available in sufficient quantities to ensure effective competition.

- Eligible carriers and service providers should receive fair, equal and equitable treatment in respect of access to and assignment of numbers. Where an undue competitive advantage exists because of pre-existing number assignments then appropriate action would need to be taken. Section 8 (3)(g) of the Act supports this position and gives the OUR discretionary powers, albeit not unfettered, to make the necessary decisions to correct such anomalies

Need for Review and Revision of the JNNP

1.22 The OUR is carrying out its first major review of the administration and management of numbering under the JNNP. A primary purpose of the review is to address and provide immediate relief to some current stakeholder concerns. Also, as the review is part of the ongoing development of the numbering regulatory framework as technology and consumer behaviour evolve, it is a precursor to the impending legislative changes in the telecommunications sector in Jamaica.

1.23 Since the management of numbering was transferred from Cable & Wireless Jamaica Limited (C&WJ) to the OUR in 2000 February, there has been rapid growth in telephone subscribers and services, and a dramatic increase in the number of actual and potential providers of services requiring the use of numbers. There have also been significant changes in the way numbers are allocated, assigned and used. Over time, there was the opening up of new number ranges for mobile services, and the restructuring of the existing geographic ranges to address legacy allocation issues, and to make provision for the numbering of nomadic voice services and a restricted range of value-added services. Notably, the OUR, through the Caribbean Telecommunications Union (the CTU) and the ITU, set in motion processes and events that brought about significant global changes in key aspects of numbering. Jamaica was the first country to adopt these worldwide-endorsed changes.

1.24 Nearly two decades after the aforementioned transfer of numbering management, consistent with global trends, we are now facing a new and potentially high demand for numbering resources and a growing anticipation over how certain types of numbers may be used. This is due in part to the advent of new and emerging technologies and applications such as the Internet of Things (IoT) and Machine-to-Machine (M2M) communications.

1.25 Therefore, it is important at this stage to take account of developments in numbering in other countries to identify, if there are, any relevant changes that would be applicable to Jamaica now or in the near future.

1.26 Furthermore, the OUR has concluded that it is now appropriate to formally incorporate the various accumulated changes in practice and which are currently documented in Office Determination Notices, into revised JNNP and Numbering Rules documents.

1.27 This review is taking place at critical legislative juncture, given the indications of a pending new ICT Act for Jamaica. In that regard, the OUR had intended, as a part of this consultation process, to conduct a precursory review of several prospective numbering developments related to proposed new numbering provisions in the Draft ICT Act and proposed ITU Recommendations, alongside its consideration of a number of other important industry developments. After further consideration, however, the OUR decided not to proceed in that manner because industry participants often have been reluctant to commit, in anyway, to matters on which the regulator does not have a clear statutory/regulatory mandate. In those circumstances, participant have generally been satisfied to "reserve their rights" to express an opinion on such matters at some unspecified future time. For the OUR, therefore, merely putting such matters "on the

table" would be unjustifiably costly. The OUR has, therefore, limited this public consultation to the matters addressed later in this document.

1.28 The OUR considers that the following are some of the matters that must await the introduction of the new ICT Act, the new provisions of relevant ITU Recommendations, and relevant OUR consultations and determinations:

- Charging of numbers. The issue of charging of numbers is being given consideration separately by the Government of Jamaica and the ITU.

- Numbering provisions in the Draft ICT Act that have direct/indirect implications for the structure of the JNNP and the Telecoms Numbering Rules, and other specific regulations -
    - Service Portability (Intermodal porting)
    - Assignment, use and transfer of numbering resources in relation to persons other than holders of carrier and/or service provider licences
    - Specification of Emergency numbers by the regulator
    - Equivalence of access to emergency services by disabled end-users
    - Delegation of responsibility for numbering administration
    - Grant of right of use of numbering resources to any licensee or such other person as the Authority considers appropriate
    - Revocation, suspension or change of numbering resource allocations
    - Fee for the assignment of numbering resources
    - End-user right to choice of numbers
    - Etc.

- OUR Investigations and determinations -
    - Responsibility for Rating & Routing data input to the Telcordia TRA databases
    - Alignment of the administration of ANSI SS7 codes and SANC-ISP signalling codes. This will have to be negotiated with the current ANSI resource oversight body
    - Porting of Toll Free Numbers (the process of investigation is underway)
    - Extraterritorial use of E.164 numbers for geographic services
    - Numbering (E.164 and E.212) for M2M communications
    - Assignment block sizes for E.164 numbers
    - The Draft ICT Act distinctly proposes a Change (narrowing) of the categorization of numbers into Geographic and Non-Geographic a feature that is predominant outside of North America. For regulatory purposes, sub-categories will have to be created to differentiate by service/function).

2. REVIEW AND REVISION OF THE JNNP

2.1 Many number-related changes have occurred in the decade and a half since the JNNP was established, such that a review of those arrangements is long overdue. The review takes place in two ways. The first provides a summary of Office Determinations made after the establishment of the JNNP, which will be incorporated into a revised JNNP. The second involves the review of numbers by allocation categories and propose changes based on domestic and international developments. In that context, the whole exercise is intended to be 'evolutionary' and not 'revolutionary'.

Incorporation of Office Determinations into the JNNP and Numbering Rules Documents

The following are the Office Determinations made after the establishment of the JNNP

Introduction of Additional Area Code

2.2 On 2019 April 30, Jamaica's second area code, **658**, was placed in service. The assumed capacity of an area code is 773 central office codes (NXXs), each subsuming a potential 10,000 telephone numbers. This has increased the country's ITU-T E.164 numbering capacity by approximately 7,730,000 10-digit telephone numbers. With the introduction of the additional area code, the JNNP is to be structured as shown in Table 3 below:

Table 3. Structure of the JNNP

THE NATIONAL NUMBERING PLAN				
NPA 876 NXX CODES	**SERVICE ALLOCATIONS**		**NPA 658 NXX CODES**	**SERVICE ALLOCATIONS**
N00	Special Services		N00	Special Services
N11	Access Codes (Public Interest)		N11	Access Codes (Public Interest)
YYY	Special Services (444 = MVAS)		YYY	Special Services
1XX	Access Codes		1XX	Access Codes
2XX	Mobile		2XX	Spare for future use
3XX	Mobile		3XX	Spare for future use
4XX	Mobile		4XX	Spare for future use
50X-54X	Mobile		5XX	Spare for future use
55X-59X	Geographic			
6XX	Geographic (Fixed + Nomadic)		6XX	Spare for future use
70X-76X	Geographic +		7XX	Spare for future use
77X-79X	Mobile +			
8XX	Mobile		8XX	Spare for future use
9XX	Geographic +		9XX	Spare for future use
976	Special Services (FVAS)		976	Special Services

2.3 The OUR is not proposing any change in the allocation of N00, N11, YYY and 1XX Codes which remain common to all area codes. The OUR will decide the extent to which service allocations for NPA 876 will be replicated in area code 658, as the need for new allocations arise. All unassignable codes in NPA 876 are duplicated in NPA 658. There may be times, however, when additional codes in NPA 658 are marked unassignable—without duplication in NPA 876.

2.4 The OUR does not propose to allocate numbers for new services unless they are really needed and unless it is not appropriate to accommodate the new services in existing allocations.

Question 2.1: Do you agree with the OUR's position on the current allocation of numbers under area code 658? If not, please explain your views and/or any alternative proposition.

Implementation of Uniform Domestic Dialling

2.5 In addressing the dialling and competitive concerns articulated by carriers and service providers, in accordance with the provisions of the Act, the OUR took the view that dialling parity in the local telecommunications market was a fundamental requirement

of the non-discriminatory Interconnection regime. The OUR further opined that it was the intent of Parliament to encourage the entry of new competitors in the market for domestic and international calls.

2.6 Accordingly, the OUR established rules for the implementation, by carriers and service providers, of a Uniform Domestic Dialling Plan (UDDP) that provided a single dialling standard for domestic calls within Jamaica. Specifically, the OUR required a standard 7-digit dialling arrangement for domestic calls within all and between any two networks without the use of a toll prefix such as the then existing '1+' toll prefix.

2.7 A standard for a toll-warning indicator was created by the OUR with the parameters given below, to be applied in the domestic telephone network in lieu of the 1+ Prefix:

NAME: Toll Notification Tone

DEFINITION: A tone advising the caller that the call is being processed and that toll charges will be applied

TECHNICAL CHARACTERISTICS:

This specification establishes the values of cadences, frequencies and levels for the audible tones signals to be applied within the network. These requirements for the individual tone signal components of the Toll Notification Tone correspond with those set for the first and second tone signals of the Special Information Tone specified in ITU-T Recommendation E.180/Q.35.

Tone period - The tone period shall consist of three successive tone signals, each lasting for 330 ± 70 milliseconds. Between these tone signals there may be a gap of up to 30 milliseconds.

Frequencies - The frequencies used for the three tone signals shall be: 950 ± 50 Hz; 1400 ± 50 Hz; 950 ± 50 Hz, sent in that order.

2.8 The Office allowed for the application of the Toll Notification Tone on a permissive basis rather than a mandatory basis.

2.9 The UDDP remains in effect. However, a standard **10-digit dialling arrangement** for domestic calls within all and between any two networks without the use of a toll prefix, has replaced the previous 7-digit dialling arrangement.

2.10 The OUR maintains that the use of the UDDP Standard is appropriate because it equates to dialling parity for all subscribers and provides a measure of certainty of competitive fairness and equity in the telecoms market.

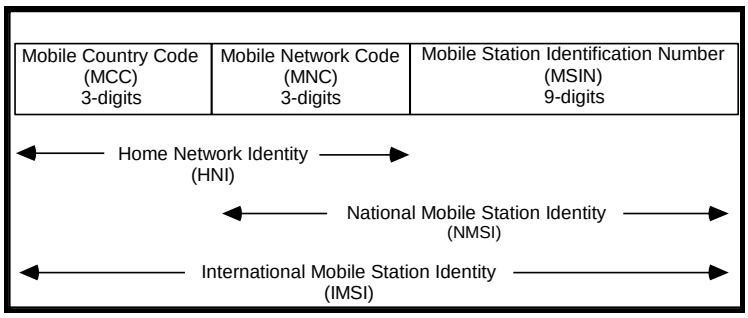
Question 2.2: What are your views regarding the retention of the UDDP?

Question 2.3: Are there any risks in not retaining the UDDP? Please explain?

Extraterritorial Use of ITU-T E.212 Numbers

2.11 Recommendation ITU-T E.212, which is a unique international identification plan for mobile terminals and mobile users to enable these terminals and users to roam among public networks that offer mobility services, was implemented in Jamaica.

2.12 An International Mobile Subscriber Identity (IMSI) is required so that a visited network can identify a roaming mobile terminal or mobile user, e.g. in order to query the subscriber's home network for subscription and billing information. Furthermore, the original intent of the plan was to enable Administrations to develop their own national numbering plans for mobility services without the need for coordinating them with other countries. The IMSI is formatted in three segments, and for Jamaica it is as follows:



2.13 The MCC identifies the country where the mobile network is located. The MCC for Jamaica is 338. The MNC identifies the home network, for the mobile terminal, within the country associated with the MCC. The MSIN uniquely identifies the particular mobile subscription on the home network.

2.14 A gradual shift in the telecoms industry towards pan-regional operations, both at the corporate and network levels was facilitated, in part, by the leveraging of various system integration and harmonization capabilities to achieve process improvements and functional efficiencies.

2.15 In the mobile sector, one facet of this regional system and process coordination was the controversial proposed inter-country harmonization of IMSI-based identification of mobile terminal/users through extra-territorial use of the MCC+MNC, which in the NANP region is referred to as the Home Network Identity—HNI. HNI is not an ITU designation.

2.16 'Extraterritorial use' is the term used to describe the situation where an MCC+MNC assigned to an operator in one country ("Country A") is used in another country ("Country B") through a mobile base station established in Country B. The vast majority of instances of extraterritorial use of the MCC+MNC occurs in the Caribbean and involves Digicel's use of the MCC+MNC (338+050) assigned to the company by the OUR.

2.17 The perceived problems of 'Extraterritorial use' were investigated and resolved through a series of Caribbean Telecommunications Union (CTU) and ITU interventions

initiated by the OUR. The outcome of the protracted deliberations (over a four-year period), which included the ITU's investigation and subsequent approval of the **extra-territorial use of the MCC+MNC**, was the development of Annex E to Recommendation ITU-T E.212 to guide the adoption and implementation of the new MCC+MNC use.

2.18 The number of digits of the MSINs is determined by the relevant MNC assignee in accordance with the national policy. The IMSI shall not exceed 15 digits in length.

2.19 The OUR issued a Notice of Proposed Rule Making – Extraterritorial Use of ITU-T.E.212 'MCC+MNC' Codes (Document No. Tel 2010001_NPR001-NPRM) to initiate its formal consultation on the proposed adoption and implementation Annex E of ITU-T Recommendation E.212 along with the supporting provisions of ITU-T Recommendation E.92. Both sets of provisions were adopted in an Office Determination – Extra-territorial Use of ITU-T E.212 MCC+MNC" Codes (Document No. Tel 2010011_DET001), 2011 September 28.

Establishment of the Local Toll-Free Numbering Scheme

2.20 The Local Toll Free Number (LTFN) was created exclusively for use within Jamaica for the provision of toll-free calling. The LTFN resources do not equate with the NANP resources that are developed in conformance with the ITU-T Recommendations, including ITU-T Recommendation E.164, the International Public Telecommunication Numbering Plan.

2.21 The format and function of the LTFN are a proprietary arrangement under the JNNP in that the previous NANP **888** Service Access Code has been replaced with the **888** Jamaican Service Identification Code (JSIC). The second segment of the LFTN has the format XXX (instead of NXX) which renders it a non-NANP resource, as required.

2.22 The Jamaican Local Toll-Free Number Assignment Guidelines was developed for the management and use of the LTFN resources within the 888 JSIC. Specifically, the Guidelines provides guidance to the OUR, LTFN Applicants and LTFN Holders with respect to the administration, assignment, activation, and use of LTFNs.

Reference: Local Toll-Free Numbering Scheme – Determination Notice
Document No. 2016/TEL/003/DET.001, 2016 April 15

Adoption of Alternative Emergency Numbers

2.23 The OUR adopted the provisions of ITU's **Recommendation ITU-T E.161.1** for the establishment of an internationally harmonized emergency number solution for dialling access to local emergency services, and to implement, in Jamaica, the two ITU-T-approved emergency numbers – the short codes, 112 and 911. The **Contribution** to ITU Study Group 2 to explore the global harmonization of emergency numbers, was

developed by the OUR (pursuant to Ministerial directive) and received immediate and unanimous ITU support.

2.24 Recommendation ITU-T E.161.1 provides guidance to help ITU Member States who are in the process of selecting a single emergency number for the first time, or selecting a secondary alternative emergency number for public telecommunications networks. The stated ITU objective is that "in the long run, this Recommendation will contribute to, globally harmonized emergency numbers".

Reference: Adoption of Alternative Emergency Numbers - Determination Notice Document No. TEL2010013_DET001, 2011 September 28

Creation of a New Type of Number – Common Short Codes

2.25 The Jamaican Common Short Code Scheme was established for the administration and management of the Jamaican Common Short Codes, which are 6-digit numbers to which text messages can be sent, and can be used for a range of mobile messaging applications including contests, promotions, on-demand content, etc. In the strictest sense, a "Common Short Code" is so called when it is activated on at least two mobile networks for the same service or application. However, the more general sense of the term normally applies.

Reference: The Jamaican Common Short Code Scheme - Determination Notice Document 2017/TEL/005/DET.003 2017 September 04

Question 2.4: Do you have any questions regarding these numbering matters that were previously determined, and do you agree with the incorporation of these and other previous and future numbering considerations of the kind, in the JNNP as a single standalone document, for broad industry reference?

Question 2.5: Do you have any suggestions regarding the content and presentation style of the JNNP document, which you believe will enhance its utility?

Question2.6: Overall, how do you think the proposed JNNP presentation will benefit the industry?

Review and Revision by Number Categories

2.26 This section sets out the classification, categorization, and functional description of the types of numbers that are authorised for use in Jamaica and the proposed changes.

Table 4 below specifies the numbering resources that are administered, directly and indirectly (that is, in cooperation with external numbering authorities), by the OUR.

Table 4 Numbering Resources Administered by the OUR

NUMBERING RESOURCE ADMINISTRATION		
NUMBER SOURCE	**DIRECTLY ADMINISTERED**	**INDIRECTLY ADMINISTERED**
NANP		
	NPA-NXX	CIC
	555-XXXX	N00-NXX (PSC)
	VSC	900-NXX
	888 Toll Free	456-NXX
		800-855
		ANSI SS7
NON-NANP		
	SANC-ISPC	
	IMSI	
	SID	
	DNIC	

2.27 Currently, numbers in the National Numbering Plan are be classified in four (4) categories. These are:

a) Geographic

b) Mobile

c) Special Services

d) Access Codes

2.28 The OUR now proposes a fifth category to include numbering resources used in network signalling and identification. These were previously omitted from categorization because they were not diallable resources. The proposed fifth category is:

"Signalling and identification Codes"

2.29 The following basic principles were established to govern the use of numbers in each category; the wording is slightly amended in parts to provide further clarity for this consultation:

Geographic

- When dialled, calls are routed to the service providing operator on a Fixed-line network

- Used for the generality of services that are delivered to a fixed geographic destination; when dialled, calls are routed to the physical location (Network Termination Point) of the Subscriber to whom the number has been assigned
- A standard number length (now 10-digit) excluding any prefix
- Normal allocation and assignment in blocks of 10,000 numbers

Mobile

- Service is geographically independent (service not delivered to a fixed geographic location)
- When dialled, calls are routed to the service providing operator on a cellular mobile network
- Standard number length (now 10-digit) excluding any prefix
- Normal allocation and assignment in blocks of 10,000 numbers

Special Services

- Number is geographically neutral (may or may not identify a fixed geographic location).
- When dialled, calls are routed to the provider of the service specified associated with the number
- Allocated service may have high social value
- Service allocation in blocks of 10,000 numbers or as single number assignments
- The Office will consult further on the services to be accommodated in this category

Access Codes (1XX)

- General allocations as tabulated in paragraph 2.53
- The **11X** access codes retained in their initial application and that such uses have a common meaning for all operators, unless otherwise dictated by future industry developments—the codes are well known and have a traditional acceptance in Jamaica; no overriding purpose to change the status quo.
- Use of the 1XX# dialling format to make 1XX short codes (excluding the 11X resources) available for assignment in the fixed line network concurrent with the standard use of the 1+ toll prefix.

Geographic Numbers

2.30 Geographic numbers, by traditional definition, are numbers used for services that correspond to a discrete geographical area. They are allocated to service provided in the Public Switched Telephone Network. In the context of the NANP, the central office code indicates a specific location such as an exchange or the approximate location of the person or service being called. This geographic system of numbering provided the basis for distance-based tariffs. The geographic numbers are usually standardised and all service providers share the same set of geographic codes. In the strictest sense of this definition, the numbers are of local geographic significance. However, a growing

number of countries no longer demand a relationship between numbers and geographic location, and numbers are of broader geographic significance; they are used for services that require common numbering arrangements across multiple geographically dispersed sites.

2.31 The provision of location information (parish, town) in numbers in Jamaica, up to the early 1990's (albeit justifiable at the time), has led to an appreciable level of fragmentation in the geographic numbering space in the JNNP today. Further, the decline in the fixed line market has resulted in large quantities of assigned fixed line NXXs with significantly low utilization levels and which, seemingly paradoxically, has significantly reduced the capacity for new number allocations and assignments in NPA 876.

2.32 In the present circumstances, a fixed line operator desiring an assignment of contiguous NXXs would not be able to obtain more than four (4) NXX from the 876 NPA. The perceived logical solution to this problem (which is potentially disruptive and costly) would entail reallocation of NXXs in the 6XX and 7XX ranges to provide available blocks of ten (10) contiguous NXXs for future assignments to carriers, but would also result in number changes for many existing fixed line subscribers. Prospective market developments could however provide some relief. The fixed line market has undergone sharp declines and relatively modest recoveries in terms of subscriptions, but a very high incumbent market share persists. Table 5 below shows an overall if unsteady decline in fixed line subscription, compared with that of the mobile market.

2.33 In addition, some legacy Mobile allocations had been made in the current NPA 876 Geographic spaces prior to the determination of the Numbering Plan. The proposed treatment of this anomalous situation, which also exists correspondingly in the Mobile spaces, will be presented in later section the number migration plan.

2.34 The OUR therefore proposes that all NXX assignments in the NPA 876 for geographic services be retained as currently allocated so as to reduce the risk of change now and in the future.

Question 2.6: Do you agree with the proposal to retain ~~of~~ Geographic services in their currently allocated NXXs?

Numbers for VoIP Services

2.35 An increasing number of new telecommunications providers are using VoIP technologies to enter the Fixed Voice Services Market. In Jamaica, there is accommodation for this in the two-part definition of "voice services" in the Telecoms Act, given as:

(a) …

(b) service determined by the Office to be a voice service within the provisions of section 52, and includes services referred to as voice over the Internet and voice over IP;

2.36 In terms of a definition of VoIP as a service, the Act simply seems to say 'VoIP is voice', and seemingly too, a veritable declaration of technology neutrality in the definition of voice services.

2.37 Currently, the OUR has limited the allocation and use of numbers for VoIP (voice over the internet) services. However, VoIP service is increasingly regarded as a substitute for the PSTN voice service. VoIP has emerged as a mature technology and a variety of prospective entrants to the voice service market are proposing to use VoIP technologies, with the inherent nomadic potential as a differentiating feature.

2.38 The OUR assigns geographic numbers to VoIP providers if the service is provided at a particular physical location in Jamaica, provides for interconnection with the local telecom network and is able to meet quality of service obligations and provide access to emergency services.

2.39 International best practice allows for choice in the assignment of numbers for VoIP services, or the allocation of a special range of numbers for the services with nomadicity as a differentiating feature. The latter reflects the thinking and action of the OUR at the inception of VoIP as an alternative to circuit-switched voice service in Jamaica. At the time, the OUR responded with the allocation of 200,000 number in a sub-category, "VoIP Numbers", of the "Geographic" numbering space of the JNNP. The incumbent and two competitive service providers have been assigned numbers in this sub-category. The fact, however, is that Consumers generally are not mindful or knowledgeable about the technical considerations of numbering policy; the ability to dial other numbers with sureness and the certainty of retaining their own, even when they change their service provider, is of far greater importance.

2.40 For the OUR, this raises questions regarding the utility, at this stage, of using numbers to differentiate VoIP service from PSTN-based telephony services. In every practical sense, the current number allocation for VoIP services reflects an inefficient use of numbers.

2.41 Whilst the OUR recognises the benefit of nomadicity and that it should avoid applying restrictive usage conditions, it will maintain a clear distinction between nomadicity and "extraterritorial use of numbers". The OUR therefore proposes to discontinue the use of the classification "VoIP Numbers" and return the allocations to the general pool of Geographic numbers.

Question 2.7: What are your views on the proposed numbering of VoIP Services?

Question 2.8: Are there material advantages/disadvantages with this approach?

Mobile Numbers

2.42 It is important to recognise the continuing growth of mobile services in numbering policy decisions. This, with an increasing trend in fixed and mobile substitution, has been the main consideration for many international numbering plan reviews. Starting more than a decade ago, the practice (in New Zealand, for example) involved the use of the mobile access network to substitute for the copper "last mile", with the geographic numbers ported to the device using the mobile network. The OUR has not formally endorsed this practice as the question of "mobility" (as defined in the Act) in this arrangement has not been fully decided.

2.43 The Act defines the concept of "mobility" only in terms of the functional capability of the telecommunications network. The application of the concept in the local industry should therefore be guided by this definition. This is important as public telecommunications providers seek to use mobile numbering resources in the provision of telecommunications services.

2.44 Therefore the OUR proposes that Mobile Numbers be defined as non-geographic numbers used for services which when called can connect the caller to someone on the move from one cell to another in one or across multiple mobile network(s) without loss of the call connection, under normal network conditions.

Discontinuation of Fixed & Mobile Number Migration Plan

2.45 Most people would not want to be forced to change their telephone number. Therefore the OUR has tried to limit as far as possible the need for such number changes and has done so, only as a matter of regulatory necessity.

2.46 In 2002, the consultation document on the JNNP identified fixed and mobile number ranges (held by C&WJ) whose legacy allocations were not consistent with those proposed for the JNNP. The associated services were therefore marked for migration to appropriate ranges.

2.47 The OUR and C&WJ, at the time, agreed and implemented a transition plan which included, in part, a "churn and attrition" method of migration, undoubtedly the least disruptive approach, but clearly one that could significantly delay the migration process. The delay has indeed happened, though only because the OUR forbore on a number of occasions to require forced migration of the numbers, which was a prescribed alternative. Consequently, unassigned and recovered numbers in the affected NXXs were 'frozen' by the OUR.

2.48 The OUR has reconsidered the matter of maintaining the provisions of the transition plan and by extension the "frozen" NXXs. Based on the current and prospective numbering developments addressed earlier in this consultation document, the OUR sees no overriding administrative or technical rationale that precludes it from discontinuing the transition plan. Therefore the OUR proposes a discontinuation of the transition plan

and further, that the affected number ranges be 'unfrozen' and released to C&WJ for normal number assignments.

Question 2.9: Do you agree with the proposal to discontinue the transition plan and retain the current allocations of NXXs for mobile services, and why?

Question 2.10: Are there any new developments locally that you believe will affect the use and definition of mobile numbers in Jamaica?

Allocation of Numbers in NPA 658

2.49 General wisdom might suggest that the allocation and assignment of numbers under area code 658, to the extent practicable, should correspond to what currently applies for area code 876. One justification might be that end-users will have a greater chance of obtaining common 7-digit numbers under both area codes to increase or facilitate identity-based attachment to numbers. Carriers may also see it as a chance to have, in some measure, the long-desired "operator branding by numbers".

2.50 However, in principle, a number of important considerations militate against an efficient and prudent application of that number management scheme. Firstly, the strict service type/cost differentiation in the allocation of numbers, which existed in 2003 when the JNNP was designed, is no longer an administrative or economic necessity, the latter development resulting largely from regulatory measures to reduce termination rate asymmetries. Secondly, the convenience factors derived from the ability to easily identify carriers or service providers and call routing by E.164 numbers have now become virtually immaterial with number portability—the current service provider portability and the potentially more impactful (and perhaps prospective) service portability. Thirdly, the need for number conservation, and the need to provide for new number uses, may require segmenting the top-level million-block of numbers for both fixed and mobile services.

2.51 In practical terms, however, it might reasonably be argued that such allocation scheme cannot be avoided given the fact that a significant majority of 876 NXXs are allocated to mobile services. It might also be questioned whether the porting of numbers will reach a level where it will have such material impact; but a further study of porting trends, internationally, in the new telecoms environment, is necessary in order to arrive at a prudent conclusion in this matter.

Access Codes

2.52 Access codes are the very short memorable abbreviated dialling arrangements in the formats: 1XX and N11. With the introduction of mandatory 10-digit dialling for all local calls, "abbreviated dialling arrangements" are now telephone numbers of less than the standard 10 digits. Currently 1XX access codes are only allocated to network operators. There are only ten (10) N11 codes, making them the scarcest numbering resource in the NANP.

2.53 The access codes are grouped and categorised under four types as follows:

1XX CODE CATEGORIZATION									
100	101	102	103	104	105	106	107	108	109
110	111	112	113	114	115	116	117	118	119
120	121	122	123	124	125	126	127	128	129
130	131	132	133	134	135	136	137	138	139
140	141	142	143	144	145	146	147	148	149
150	151	152	153	154	155	156	157	158	159
160	161	162	163	164	165	166	167	168	169
170	171	172	173	174	175	176	177	178	179
180	181	182	183	184	185	186	187	188	189
190	191	192	193	194	195	196	197	198	199

N11 CODE CATEGORIZATION							
211	311	411	511	611	711	811	911

Legend

	Public Interest (Nationally uniform)
	Common (Nationally uniform - Public)
	Common (Intra-Network [Engineering])
	Service Provider Specific (Intra-Network)
	Reserved for expansion of categories
	Unavailable

2.54 The 1XX resources had been in use within NANP countries for decades as intra-network codes for use between networks nodes, e.g., as network test codes (03X-**10N**), and as Operator (Service Assistance) access codes (03X-**1N1**)-for domestic and international inter-Operator communications. In 2016, AT&T advised the Federal Communications Commission (FCC) that the company intended to discontinue its provision of Operator Call Assistance Services. C&WJ, which had been the only provider of both domestic and international Operator Call Assistance Services in Jamaica, has confirmed its discontinuation of the services. C&WJ continues to provide the traditional Directory Assistance Service and Emergency Operator Service. No other company is providing Operator Call Assistance Services in Jamaica, and this is not likely to change.

2.55 The OUR does not propose to change the current categorization of the Access Codes. However, the future assignment of access codes raises two issues: first, sufficiency to meet demand; and second that assignments support fair and effective use.

2.56 Over the years, there have been pressing demands for N11 resources, from both the public and private sectors, and the OUR has acknowledged that the requests for a 3-digit number were understandable, if based on ease of number recall and dialling as desired features.

2.57 Almost invariably, however, the OUR took the view that the scope and context of the particular service requirement, and considered against the critical need to reserve N11 resources, did not warrant a permanent assignment of one of the remaining N11 codes. Such decisions are not made lightly as the following four key assessment criteria explain:

1. Given the extreme scarcity and possible limitation of use of the code, the OUR must weigh all requests for assignments very carefully, on a case-by-case basis, to decide who should receive unassigned N11 codes and for what purpose.

2. The OUR in making such decisions, must determine whether a requested resource is essential to making the service in question available to the degree necessary.

3. The OUR must consider whether there are reasonable alternatives to satisfy the respective demands for the resources; in other words, whether there are other ways available to achieve convenient dialling without draining scarce N11 resources.

4. Anyone requesting these resources must, demonstrate a compelling need that warrants **a national N11 code assignment**. Of course, as the supply of codes reduces, the likelihood for some purposes to be satisfied by assignments may decrease more sharply than for others.

2.58 To provide a viable solution to this recurrent problem (taking into account an unavoidable technical constraint), the OUR is proposing the use of the 1NN codes to fill the need for additional "Public Interest" resources. The N11, 1NN and 119 codes are similarly categorised.

2.59 It has been proposed (with industry support) that the dialling format 1XX# be used as a simple and effective way to make the full set of 1XX resources available to the fixed telephony network. The "#" (an end of dialling indicator on the fixed network) is not required when dialling 11X. This solution allows a caller in the fixed network to dial, for example:

- 1+ 232-555-1212 to reach a North American destination, or
- 123 as an access code for a specified local service.

Question 2.11: Do you agree with the proposed expansion of the 'Public Interest' Category for Access codes?

Question 2.12: What are your views on the use of the 1XX codes in the fixed network and the requisite end-of-dialling indication?

Question 2.13: What value do place on the "Service Provider Specific (Intra-Network)" set of 1XX codes?

555-Line Numbers

2.60 555-XXXX line numbers were originally assigned and used primarily for Directory Assistance services. However, since 555-XXXX line numbers were one of the few remaining seven-digit resources, it was proposed that the numbers be used as an alternative resource for information service providers. The idea was that a 555 number could be used to access public information services that might not be met by other numbering resources such as 976 NXXs and the 900 NPA.

2.61 Depending on the assignment basis (national or non-national), a 555 number would be dialled using only seven digits (555-XXXX) if dialled in the NPA in which it was activated, and with ten digits (NPA-555-XXXX) if dialled from outside the NPA in which it was activated. A block of 100 numbers was reserved as fictitious, non-working numbers (555-0100 through 0199) for use by the entertainment and advertising industries.

2.62 The OUR had made local 555-Line Number assignments in 2002. However, in 2004, the OUR introduced the 444-Line Number resource to replace 555-Line Numbers, partly to avoid potential conflicts with 555-Line Number assignments in North America, which, based on the NANP 555-Line Number assignment policy, could have subsumed 555-Line Numbers under the Jamaican NPA.

2.63 In 2016, the Industry Numbering Committee[4] (INC) determined that it was appropriate to reclaim the assigned 555-line numbers and sunset (discontinue) the 555 NXX Assignment Guidelines effective 2016 October 5. The INC determined that the purpose for which 555-line numbers were originally intended had been accommodated by other information or communication technologies, and that demand for the resources had declined significantly.

2.64 All 555-line numbers in the United States and Canada have been reclaimed, leaving in place the 555-1212 numbers that are used for Directory Assistance, and the 555-0100 through 0199 resources for use by the entertainment and advertising industries. The NANPA will consider future use of the 555-line number as the need arises.

2.65 The OUR therefore proposes to remove 555-Line Numbers from the JNNP as resources for assignment to carriers and service providers. Further, the OUR proposes to allow for local use of the fictitious non-working numbers 555-0100 through 0199, after appropriate consultation with the local media and entertainment industries and the development of requisite use guidelines, and supporting public education/awareness actions.

Question 2.14: What are your views on the proposed use of the 555-0100 through 0199 range of numbers in Jamaica?

456-NXX codes

2.66 The International Inbound NPA 456 and its associated NXXs enabled the routing of inbound international calls, to and between NANP area countries, for carrier-specific services on a particular service provider's network. The routing to the appropriate carrier was determined within the network in the foreign (originating) administration. The 456 NPA was used to indicate that the call was destined to a specific public telecommunications network in the NANP Area. The NXX following the 456 NPA identified the country/carrier.

2.67 In 2017 November, the INC investigated the use of the 456 NPA, determined that there was no longer a need for it and consequently agreed to sunset the ATIS-0300049, International Inbound NPA (INT/NPA/NXX) Assignment Guidelines. The 456 NPA will be aged for five years before it is returned to the general NPA pool in 2022.

2.68 The OUR therefore proposes to remove the 456-NXX code from the JNNP as resources for assignment to carriers and service providers.

900-NXX

2.69 NPA 900 is another service-based resource that has been "dying on the vine". In North America, use of the resource for access to pornographic entertainment (strict regulatory controls are in place) and the extremely high charges for calls to many of the services, have caused the public to shy away from dialling "900 numbers". However, there is a set of valuable services for which the resources are still used in North America, e.g., "900 WEATHER" for access to worldwide weather forecasts. Consideration may be given to requesting a resource if service providers see any potential use for them. However, with the local introduction of Common Short Codes, there may not be any requirement for these resources in Jamaica. Note however there is added value to this resource in that the 900 NPA allows for international access to the associated services. There has only been one request locally for a 900 assignment.

2.70 The OUR proposes to retain the 900 code in the JNNP as resources for assignment to carriers and service providers, while the NANPA continues to make them available to the industry.

ITU-T E.212 Numbers

2.71 Recommendation ITU-T E.212 was implemented in Jamaica as originally developed, that is, as a unique international identification plan for mobile terminals and mobile users in order to enable these terminals and users to roam among Public Land Mobile Networks (PLMNs). As illustrated at paragraph 2.12 in this Consultation Document, the plan hierarchically identifies geographic areas (country/region), networks and subscriptions. This was based on Recommendation ITU-T E.212, Edition 2.0 (11/1998)

2.72 Annex F of ITU-T E.212 was introduced in 2010 and states as follows:

"The identification resources are essential to the operation of cellular radio systems. The identification resources are also essential for fixed and global networks (… global satellite networks, maritime, aeronautical, etc.) to provide innovative services, e.g., nomadic service, messaging service, authentication, presence, etc.), [and] above all in the NGN context.

The potential offered by NGN should be given consideration as the current fixed networks. The potential for NGN to be hybrid networks containing both wireline and wireless links and with the ability to provide convergent services should not prevent the assignment of an appropriate ITU-T E.212 identification resource, for the purposes of identification and authentication for access to the convergent services."

2.73 The OUR proposes the amendment of the Numbering Plan to adopt Recommendation ITU-T E.212, Edition 6.0 (in force as at 09/2016). There are three relevant factors in this consideration:

1. Recommendation ITU-T E.212 now defines a unique international identification plan for both public fixed and mobile networks providing users with access to public telecommunication services.

   Annex F illustrates some of the uses of the identification resource. The relevant uses are as follows:

   F.2 Mobile networks (PLMN)

   The use of the E.212 identification resource and its associated component parts permit the identification at country, network and user levels. The resource identifies the subscription and billing relationships.

   F.3 Fixed networks (PSTN)

   The use of the E.212 identification resource in the fixed network facilitates:

   - aspects of personal mobility whereby a user may move between compatible terminals and retain its subscribed access to service;
   - the authentication and verification of a user request for service that may be used on the basis of manual entry or automated reading device;
   - fixed networks emulating applications of the cellular mobile networks such as SMS or TEXT messaging;
   - interaction between users of fixed and mobile networks.

   The OUR proposes the assignment of separate MCC+MNC for fixed and mobile network. The current MCC for Jamaica, 338, is not likely to change.

2. **Statement on the IMSI Assignment Procedure**

The statement on the administration of MSINs by MNC assignees was changed in three editions of the Recommendation as shown in the following paragraphed items:

7.2.3 - MSINs are administered by the MNC assignee. (**Edition 2.0** - 11/1998)

6.2.3 - MSINs are administered by the relevant MNC assignee in accordance with national or relevant ITU-T Recommendations. (**Edition 5.0** - 05/2008)

6.2.3 - The number of digits of the MSINs is determined by the relevant MNC assignee in accordance with the national policy. (**Edition 6.0** - 09/2016)

The statement in Edition 6.0 is key to the current implementation of extra-territorial use of the MCC+MNC in Jamaica. The Office Determination Notice - Extra-territorial Use of ITU-T E.212 'MCC+MNC' Codes (Document No. Tel 2010011_DET001), 2011 September 28, provides as follows:

Determination 1.0:

The Office supports the extra-territorial use of MCC+MNCs assigned to operators in Jamaica by the Office and therefore supports the method (that is, **use of the leading MSIN digit(s) to extend 'home network identity'**) and purpose of sub-allocating the MSIN for such use of the resources. In this connection, the Office adopts the provisions of Annex E of ITU-T Recommendation E.212 and the supporting provisions of ITU-T Recommendation E.93, for implementation in Jamaica.

Question 2.14: What uses of the "IMSI", outside of an IoT context, do you envisage or anticipate for the fixed network in Jamaica?

Question 2.15: Do you agree with the OUR's proposal to accommodate the assignment IMSI's for use in the fixed network?

Question 2.16: Do you agree with the OUR's proposal to assign separate MCC+MNC resources for use in the mobile and fixed networks. Are there material advantages and/or disadvantages?

Discarding of the Rate Centre Scheme

2.74 There has been a substantial erosion of the relationships between telephone numbers and geographic location (which, incidentally, allows for increased efficiency in the use of scare numbering resources), services, and the cost of calls. This diminution of relationships is driven largely by changes in service models, tariff structures,

technology, and network architectures. A corollary to this is that there is a lessening of the ability and necessity to embed information in numbers.

2.75 This development has rendered section 8 (3)(c) of the Act virtually obsolete and superfluous. The paragraph provides that in developing a plan for the numbering of telecommunications, the Office "shall have regard to the role that numbers can play in conveying useful information to customers, including information about the type of service being used".

2.76 In the North American context, a rate centre is a geographical area used in the PSTN to determine mileage, boundaries for local calling, billing and the assignment of telephone numbers. The concept was applied in some measure, in Jamaica, during the monopoly era. The idea of establishing a local Rate Centre scheme was broached, and received both endorsement acquiescence, before the OUR's public consultation on JNNP.

2.77 Determinations 5.1 and 5.2 of the JNNP Determination Notice established a standard Rate Centre scheme with the geographic centre of each parish as a Rate Centre. The primary reason for this was that new fixed-line network operators were not restricted to the two-tier (inter-parish and intra-parish) tariff structure applied by C&WJ and could opt for a more comprehensive arrangement in which rates were distance-dependent. It was considered that a basic Rate Centre scheme, with parish-delimitation, would therefore facilitate a simplified and standardized distance-based rating environment for domestic calls.

2.78 The governing principles of the Rate Centre scheme are:

- A Rate Centre is the approximate midpoint of a uniquely defined geographic area (Rate Area), and the point in that area for which mileage measurements and usage dependent rates are determined.

- Rate Centres are identified by meaningful nominal designations.

- The location of a Rate Centre is defined by the latitudinal and longitudinal coordinates of the point representing the geographic centre of the specified Rate Area

- The name of the Rate Centre is synonymous with the corresponding geographic area.

- The latitudinal and longitudinal coordinates are converted algorithmically into Vertical (V) and Horizontal (H) coordinates and expressed in a paired number value (XXXXX, XXXXX) referred to as the V&H coordinates.

- The distance between two Rate Centres is determined by calculating the square root of, the sum of the squares on the differences in the vertical and horizontal coordinates, divided by ten. That is:

$$\text{Distance in miles} = \sqrt{}\left(((V_2 - V_1)^2 + (H_2 - H_1)^2) / 10\right)$$

Where:

V_1, H_1 = V&H coordinates of the first Rate Centre

V_2, H_2 = V&H coordinates of the second Rate Centre

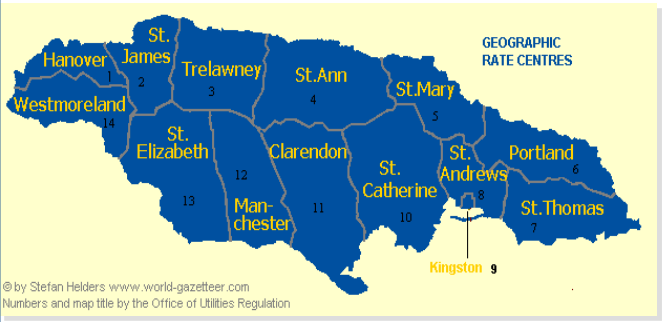
2.79 In accordance with these principles, the Office established fourteen Rate Centres (or Rate Districts). The names and geographic boundaries of the Rate Centres are coincident with those of the fourteen parishes of Jamaica. Figure 3 below shows the official numbering of the Rate Centres and the nominal representations for the Local Exchange Routing Guide (LERG) database where applicable.

2.80 The Rate Centre scheme has only domestic application or local significance and is not now associated with Jamaica's central office codes in the TRA Local Exchange Routing Guide (LERG). A standard rate centre designation – KINGSTON – is used now to satisfy the rate centre data-fill requirements of the TRA LERG. That is, all Jamaican central office codes appearing in the TRA LERG will, for the time being, have 'KINGSTON' as their associated rate centre.

2.81 Figure 3 shows the basic Rate Centre structure for Jamaica. The number in column 1 is the official numerical identity of the Rate Centre. Column 3 shows the designation to be entered in the LERG database [at a future date] to identify the Rate Centre. The map identifies the respective geographic location of the respective Rate Centres.

Figure 3 Rate Centre Scheme

RATE CENTRE NUMBER	RATE CENTRE NAME	TRA LERG ENTRY
1	Hanover	Hanover
2	Saint James	St James
3	Trelawney	Trelawney
4	Saint Ann	St Ann
5	Saint Mary	St Mary
6	Portland	Portland
7	Saint Thomas	St Thomas
8	Saint Andrew	St Andrew
9	Kingston	Kingston
10	Saint Catherine	St Catherine
11	Clarendon	Clarendon
12	Manchester	Manchester
13	Saint Elizabeth	St Elizabeth
14	Westmoreland	Westmoreland



2.82 The changes summarised in the leading paragraphs, including the fact that local rates have been postalized—with no indication of a departure from that rate regime, and other relevant market developments and trends, have led to the conclusion that the Rate Centre scheme is no longer a viable proposition. The OUR therefore proposes to rescind its determination on the Rate Centre scheme.

Question 2.17: Do you see any purpose for the retention of the Rate Centre scheme as originally intended?

Question2.18: Do you see any purpose to which the scheme could be adapted—and not necessarily for tariffing?

3. NEW USES AND FUTURE IMPLICATIONS FOR NUMBERS

3.1 By all appearances, the most significant area of new demand for numbers is Machine to Machine (M2M) Communications, which is the basic component of the Internet of things (IoT)—an emerging technology and a highly potential catalyst for innovations. Essentially, M2M technologies provide devices with the capability to intercommunicate with little or no human intervention.

3.2 Today's mobile wireless technologies are well suited for a vast number of M2M applications. However, where physical access between devices poses no problem, fixed-line communications are similarly suited. This has huge implications for telecommunications numbering and addressing. The relevant resources are Internet Protocol version 6 (IPv6) addressing and, ITU-T E.164, and E.212 numbering resources.

3.3 Importantly, utilising mobile networks for M2M services will require each communicating M2M device to have the capability to attach to an available mobile network, thereby requiring SIM functionality in all addressable M2M devices. This raises some challenges in the context of number portability requiring switching between service providers.

3.4 It is the view of many M2M service providers and telecoms operators that the E.164 and E.212 numbering resources are the preferred choice for M2M in the short to medium term, as the existing authentication, routing and billing capabilities of the mobile and fixed networks can be fully leveraged. Nevertheless, IPv6 is preferred as the long-term solution. IoT-connected devices are projected to total upwards of 75 billion worldwide by year 2025. Again, the implications for numbering are clear. Very large quantities of numbers will be needed to address M2M devices.

3.5 The NANP has an assumed E.164 capacity of just over five billion numbers. Table 5 below presents the NANPA's March 2019 NANP Resource Status Update report to the North America Numbering Council (NANC).

Table 5 NANP RESOURCE STATUS UPDATE MARCH 2019

NPA	2018/ 12/ 31	2019/02/28	Difference
Possible Combinations	800	800	0
Not Available for Assignment	120	120	0
Assignable	680	680*	0
Currently Assigned	420	426	6
In Service	400	406	+6
Awaiting Implementation	20	19	-1
Currently Unassigned	260	254	-6

Source**:** NANC

3.6 In 2019 April, the NANPA projected the exhaust of the NANP based upon number utilization and forecast data submitted by service providers via the standard semi-annual NRUF process.

3.7 Using a model based on projected demand, and with an average CO code demand rate of 3,990 codes per year (including an annual forecast of 1,100 CO codes for non-US NANP member countries), the NANPA projected that the NANP exhaust date is beyond the year 2049. The projection assumes that the available quantity of NPAs remains 672; note that the figure in the 2019 March status report is 680; there was no NANC meeting in April and therefore no April status report.

3.8 At exhaustion, the NANP is expected to be expanded from 10 to 11 or 12 digits. The preferred 12-digit format provides a theoretical capacity of 800 billion numbers—for all practical purposes, an inexhaustible supply.

3.9 It is not clear to what extent a projected demand for numbering resource for M2M communications is reflected in the above-mentioned NRUF figures. However, to say that the capacity concerns with E.164 numbers will disappear with the transition to IPv6 addressing is an unfathomable understatement; IPv6 provides a possible 340 trillion, trillion, trillion, or more concisely, 340 undecillion, IP addresses. Further investigation is warranted and the OUR's scheduled consultations on IoT/M2M should serve the process well.

Question 3.1: What, in your view, are the main ways in which technological developments will influence numbering policy decisions?

Question 3.2: How and to what extent should the OUR's current and future decisions take into account such developments?

Question 3.3: Do you believe that there is need for less regulatory control over the use of specified numbering resources for the operation of telecoms networks, and what are the risks? Please explain with justification.

4. REVISION OF THE JAMAICAN DIALLING PLAN

4.1 The OUR has eliminated the variations in dialling arrangements for local calls in favour of a single national standard which requires the dialling of the full ten digits of a subscriber's 10-digit NANP telephone number, comprising: the 3-digit area code + the 3-digit central office code + the 4-digit line number.

4.2 The precursor to the current single national dialling standard (Mandatory 10-digit dialling for all local calls) was the removal of the 1+ prefix as a toll indicator for domestic calls through the implementation of the Uniform Domestic Dialling Plan (UDDP), during the 7-digit local dialling regime. The essence of the local dialling plan, for local calls is:

- Dialling parity for all subscribers
- Mandatory uniform domestic dialling across all fixed and mobile networks in Jamaica

4.3 Other changes have taken place locally and internationally, which have affected the local dialling plan more generally. Three developments are of immediate relevance.

4.4 C&WJ has been the sole provider of Operator Call Assistance Services in Jamaica, in addition to Directory Assistance (DA) service and Emergency Communications Service (ECS) for day-to-day access to "Fire, Police and Ambulance" emergency agencies. C&WJ has confirmed that the company no longer provides Operator Call Assistance Services.

4.5 There has been similar development internationally. In 2016, AT&T formally notified the FCC that the company intended (and has since done so) to discontinue the provision of its Domestic and International Operator Call Assistance services. These developments (directly and indirectly) necessitate revision of the national dialling plan and the withdrawal of relevant numbering resources. The recently updated dialling plan is presented in the table below:

4.6 In light of the afore-mentioned dialling changes, the OUR proposes to amend the Jamaican Dialling Plan by discontinuing the dialling arrangement highlighted in red text in Table 6 below. The amendments in green text are self-explanatory.

4.7 Further, the OUR proposes to withdraw the following codes:

- O- (Zero Minus; '-'means no digits will follow)
- 0+ (Zero Plus; '+'means digits will follow, depending on the network calling arrangement)
- 01+ (Zero one Plus)

[Table 6]	STATUS OF DIALLING ARRANGEMENTS		
DIGITS DIALED	**FORMAT**	**CALL TYPE**	**COMMENTS**
❖ None	Seizure (off hook)	Hot Line, Warm Line	Automatic connection to predetermined location
One Digit	0-	Operator	Connection to an Operator
Two Digits	00	-	Reserved
Three Digits	N11 1XX	Special Services / International Call	Service Connection / Call Completion ('113' Operator Assisted - SSSP; PPCS)
	*XX	Vertical Services	Activation of service, acknowledgment tone is returned to customer and dial tone is returned.
❖ Four/Five Digits	11XX 11XXX	Vertical Service from Dial Pulse phone	Activation of service or, acknowledgment tone/dial tone returned to customer
	*XXX	Vertical Services	Expansion of *XX
Six Digits	5XXXXX – 9XXXXX	Common Short Codes	
Seven Digits	NXX-XXXX	Local Call	Call Completion
Eight Digits	1+ NXX-XXXX 0+ NXX-XXXX	National Toll Call National Collect Call	Call Completion Call Completion (Automated Collect)
Ten Digits	658-NXX-XXXX 876-NXX-XXXX 888-XXX-XXXX	Local Call Local Call Local (Toll Free) Call	Call Completion Call Completion Call Completion
Eleven Digits	1+ NXX-NXX-XXXX	Call to another NANP location	Call Completion (DDD)
More than Eleven Digits	01 + CC + NDC + SN 011 + CC + NDC + SN CC = Country Code NDC = National Destination Code SN = Subscriber Number	International Call International Call	Call Completion (CDOS) Call Completion (IDDD) Note: These calls can be from 12 to 15 digits plus the International Prefix or Access Code.
	Carrier Verification Required		
	Discontinued		
	New		
	Unchanged		
ABBREVIATIONS			
CDOS	Customer Dialled, Operator Serviced (Special billing or call connection assistance required)		
SSSP	Station to Station Sent Paid (No special call treatment required)		
PPCS	Person to Person Collect and Special Instruction		
DDD	Direct Distance Dialling		
IDDD	International Direct Distance Dialling		

❖ **NOTE:** Fixed line operators are required to indicate to the OUR whether **pulse dialling** has been fully superseded by **tone dialling** on their networks, and whether Automatic Hotline Calling (Off-hook signalling only) is a service feature.

5. REVIEW AND REVISION OF THE NUMBERING RULES

General

5.1 The OUR has statutory responsibilities in relation to telecommunications numbers. These include the assignment of numbers to carriers and service providers and the setting of general conditions of acquisition and use of those numbering resources.

5.2 The guiding principles for the establishment of the Numbering Rules which guides the Office in the allocation, assignment, and management of the use of telecommunications numbers are based on section 8 (3) (a – g) of the Act.

5.3 Telecommunications numbers are administered by the OUR using a quasi-international rules-based system. This is necessarily the case as the majority of numbering resources administered by the OUR are shared regionally and internationally, with country allocations by the North American Numbering Administration and the International Telecommunications Union, respectively, among others. This function is supported by relevant documented Number Assignment Guidelines. The Numbering Assignment Guidelines are appended to the main body of rules, and thereby have the force of law.

5.4 The Number Assignment Guidelines have been developed for the administration of Central Office Codes, International Mobile Subscriber Identities and International Signalling Point Codes in Jamaica and are adaptations of corresponding INC-developed Guidelines and ITU-T Recommendations.

5.5 The Numbering Rules are intended as long-term governing principles, and therefore, are not subject to frequent changes. The Number Assignment Guidelines, which are essentially procedural documents, may be updated from time to time as industry developments dictate, and at the discretion of the OUR, in consultation with stakeholders. Thus, the OUR will consult on any necessary amendments to these Guidelines, and will periodically incorporate agreed changes into a new issue without the need for further consultation. New issues of the Guidelines will be published through the standard publication process. The main body of rules may not be amended without a Notice of Proposed Rulemaking to the industry.

Revision of the Numbering Rules

5.6 As mentioned in section, there are prospective statutory and regulatory developments that will necessitate amendments and updates to the current Numbering Rules, including the related Numbering Assignment Guidelines. As alluded to elsewhere in this Consultation Document and for the reasons indicated, the OUR has resiled from a broader scope of consultation, the intent of which was to do a precursory examination of these developments. Therefore, the OUR will issue the requisite Notice of Proposed Rulemaking in relation to those amendments, later.

5.7 At this time, the OUR will only propose a change to Number Assignment Guidelines. The OUR proposes, therefore, to amend the Numbering Rules by adding the following Annexures:

- **Annex 4** Jamaican Local Toll Free Number Assignment Guidelines
- **Annex 5** Common Short Code Assignment Guidelines

END OF DOCUMENT

[1] The international standards that are developed by the ITU-T are referred to as Recommendations (the word is capitalized to distinguish its meaning from the ordinary sense of the word "recommendation") as they only become mandatory when adopted as part of a national law.

[2] The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating, tariff questions, and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

[3] The Jamaican National Numbering Plan Determination Notice (Document No. Tel 2003/10) dated 2003 November