
Office of Utilities Regulation

**EXTRATERRITORIAL USE
OF
ITU-T E.212 'MCC+MNC' CODES**

Notice of Proposed Rule Making



OFFICE OF UTILITIES REGULATION

JUNE 2010

ABSTRACT

In this document, the Office of Utilities Regulation (the Office, the OUR) sets out the basis on which it proposes adopt Annex E to ITU Recommendation ITU-T E.212 as approved on September 23, 2008, and the amendments to Recommendation ITU-T D93 as approved on January 23, 2009, and to make rules for their implementation, by carriers and service providers in Jamaica. The adoption and application of the new provisions in these Recommendations will ensure transparency, accountability, and the minimizing of charging, billing and accounting risks in fully authorised extraterritorial use of ITU-T E.212 Mobile Country Code (MCC) + Mobile Network Code (MNC) numbering resources for international mobile subscriber identification.

Comments on this document are due by **July 16, 2010** and should be submitted to:

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COMMENTS FROM INTERESTED PARTIES

Persons who wish to express opinions on this Consultative Document are invited to submit their comments in writing to the OUR. Comments are invited on all aspects of the issues raised and the specific questions posed.

Responses to this Consultative Document are due by **July 16, 2010** and should be sent by post, fax or e-mail to: -

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Information considered confidential should be submitted separately and clearly identified as such. In the interests of transparency, respondents are requested to avoid confidentiality markings wherever possible. Respondents are encouraged to supply their responses in electronic form, so that they can be posted on the OUR's Website (or a link included where a respondents wish to post their response on their own website).

Comments on responses

The responses to this Consultative Document form a vital part of the consultation process, and so far as possible, should also be publicly available. Respondents will therefore have an opportunity to view and comment on the responses received from other contributors. Comments may take the form of correcting factual error or putting forward counter arguments, etc. **Comments on responses are requested by July 30, 2010.**

Arrangements for viewing responses

To allow responses to be publicly available, the OUR will keep the responses that it receives on files which can be viewed by, and copied for, visitors to the OUR's Offices. Individuals who wish to view the responses should make an appointment by contacting the Information Officer by one of the following means:

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Individuals may request photocopies of selected responses at cost price. Copies may also be ordered by post by sending a cheque made payable to “Office of Utilities Regulation.” (The contact details above may be used to find out the correct amount).

The consultation schedule is tabulated below:

EVENT	DATE
Response to this Document by interested parties	July 16, 2010
Comments on respondents’ submissions	July 30, 2010

1. INTRODUCTION

Purpose of Document

- 1.1 Section 8 (3) of the Telecommunications Act 2000 (the Act, the Telecoms Act) provides that the Office, as Numbering Administrator, “In carrying out its functions ...shall develop a plan for the numbering of telecommunications services and may make rules pursuant to that plan regarding the assignment and use of numbers by carriers and service providers”.
- 1.2 This document sets out, for consultation purposes, the Office’s proposal to formally adopt and implement the provisions Annex E of the International Telecommunications Union (ITU) Recommendation ITU-T E.212, “The International Identification Plan for Public Networks and Subscriptions” (formerly, The International Identification Plan for Mobile Terminals and Mobile Users).
- 1.3 Annex E is intended to provide for the use of the combined Mobile Country Code (MCC) and Mobile Network Code (MNC) [‘MCC+MNC’ identifies the home network of a mobile terminal/user] in a country other than the country to which the MCC has been assigned by the Director of the ITU’s Telecommunication Standardization Bureau. In other words, Annex E provides for cross-border or extraterritorial use of MCC+MNCs
- 1.4 The document presents the basis for the proposed adoption of Annex E of Recommendation ITU-T E.212, and on which the Office proposes to amend the rules governing the assignment and use of International Mobile Subscription Identities.
- 1.5 Finally, the document is intended as an **informational overview** of the international deliberations on the extraterritorial use of MCC+MNCs, and to provide local stakeholders with the opportunity to submit comments on the Office’s proposals. Respondents should also point out relevant issues that the Office may have omitted to consider.

2. CONTEXT AND PURPOSE OF CONSULTATION

The International Telecommunication Union and Recommendation ITU-T E.212

- 2.1 The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICT). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The ITU-T is responsible for, among other things, studying technical, operating and tariff Questions¹ and issuing Recommendations² on them, with a view to standardizing telecommunications on a worldwide basis.
- 2.2 The ITU's Recommendation ITU-T E.212, "The International Identification Plan for Public Networks and Subscriptions" (formerly, The International Identification Plan for Mobile Terminals and Mobile Users), defines a unique international identification plan for public networks providing users with access to public telecommunication services.
- 2.3 The E.212 plan, which originally was developed for use by national cellular radio systems known as Public Land Mobile Networks (PLMN) is hierarchical in structure and identifies geographic areas, networks and subscriptions, and provides a formatted International Mobile Subscription Identity (IMSI). However, the use of the IMSI now has been extended to fixed (which facilitates convergence), global satellite and non-terrestrial networks to provide innovative services such as nomadic service, messaging service, authentication, presence, etc.

The International Mobile Subscription Identity

- 2.4 The International Mobile Subscription Identity was created and formatted to provide unique international identification of mobile terminals/users and to enable these terminals/users to roam among public networks which offer public mobility services. IMSIs are independent of the national numbering plans. It is important to note here that the term subscription is used in the latest revision of Recommendation ITU-T E.212, in place of the terms "subscriber", "user", "station", "terminal" used in earlier revisions, because of the expanded use of the IMSI, and the view that the IMSI identifies **subscriptions** (rather than persons) for access to public telecommunication services, and the physical station or equipment is identified by the International Mobile Equipment Identity (IMEI).

¹ A Question is a statement of a technical, operational or procedural problem, generally seeking a Recommendation, Handbook or Report; it defines a particular project to be studied.

² The international standards that are produced by the ITU-T are referred to as "Recommendations" (with the word ordinarily 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.

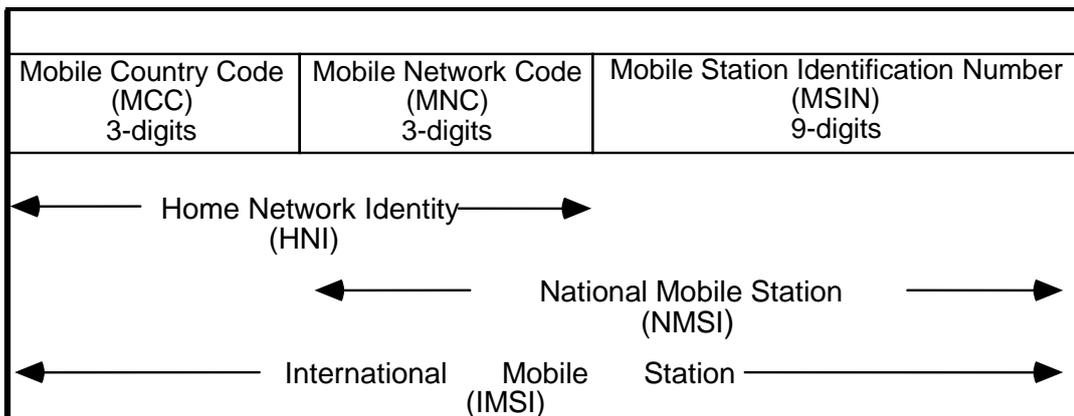
2.5 However, for the purposes of this consultation, the Office will retain the use of the term terminal/user as used in the current versions of the Jamaican IMSI Assignment Guidelines & Procedure (JIAGP) and the North American equivalent. The Guidelines will be amended in due course.

2.6 As provided in the JIAGP, the IMSI enables mobile terminals/users to roam among public networks, domestically and internationally, by providing a uniform and unique home network and mobile terminal/user identification that is recognizable by all conforming public networks. When transmitted between visited and home networks, the IMSI enables the exchange of subscription and billing information for the visiting mobile stations.

2.7 Specifically, the IMSI is used for:

- Determination of the mobile terminal's/user's home network,
- Mobile terminal/user identification when information about a specific mobile terminal/user is to be exchanged between visited and home networks,
- Mobile station identification on the radio control path for registering a mobile station in a visited wireless network,
- Mobile station identification for signalling on the radio control path, for registering a mobile station in a home wireless network
- Identification of the mobile terminal/user to allow for charging and billing of visiting mobile terminals/users, and
- Subscription management, i.e., retrieving, providing, changing, and updating subscription data for a specific mobile terminals/user

2.8 The format of the IMSI in Jamaica is illustrated in the following diagram:



2.9 The IMSI format in Jamaica has a fixed 15-digit length -- the maximum allowable by Recommendation E.212. Each IMSI contains an MCC, an MNC, and an MSIN.

The MNC is the segment of the IMSI directly administered by the IMSI administrator (the OUR). MSINs are administered directly by the network operator to which the MNC is assigned.

- 2.10** The function of the MCC is to identify the domiciliary country of a mobile terminal/user. By analysing the MCC, a visited network can determine the country from which the mobile terminal/user originated and in which its home network resides.
- 2.11** In accordance with Recommendation E.212, an MCC is three digits in length and is in the format NXX, where N represents any of the decimal digits 2-9, and X represents any of the decimal digits 0-9. MCCs are assigned by the ITU in response to formal requests from recognized national administrations of ITU-member countries.
- 2.12** The function of the MNC is to identify the home network, within the country associated with the MCC of the visiting mobile terminal/user. The visited network uses the MCC+MNC combination to identify and query the home network of the visiting mobile terminal/user that is requesting service.
- 2.13** The MNC consists of 2 or 3 digits; the length of the MNC is a national matter. MNCs in Jamaica are three digits in length and in the format XXX, where X represents any of the decimal digits 0-9. The 3-digit maximum is necessary so that, when combined with the 3-digit MCC, the visited network need not analyse more than 6 digits to determine the home network of the visiting mobile terminal/user – another provision of Recommendation E.212. This format provides a mathematical potential of one thousand MNCs (000-999) for each MCC.
- 2.14** The function of the MSIN is to uniquely identify a mobile terminal/user within its home network. MSINs in Jamaica are nine digits in length and in the format XXXXXXXXX, where X equals any of the decimal digits 0-9. As mentioned above, Recommendation E.212 limits IMSI length to a fifteen-digit maximum. Since the Jamaican IMSI format includes a six-digit MCC+MNC, a nine-digit MSIN is the maximum allowable. The nine-digit format provides one billion MSINs per MNC or network, if no function other than mobile terminal/user identification is embedded in the MSIN.
- 2.15** The NMSI contains the MCC followed by the MSIN and is, therefore, a fixed twelve-digit length in Jamaica. It is the national portion of the IMSI, i.e., excluding the MCC. Its length and format are, therefore, determined nationally, within the constraints of recommendation E.212
- 2.16** Each country is assigned at least one Mobile Country Code (MCC). Jamaica is assigned MCC “338”. The resources within each country code are administered within that country. Normally, a centralized administrator, such as the Office, administers the Mobile Network Codes (MNC) within the MCCs and each service provider administers the Mobile Subscriber Identification Numbers (MSIN) within their assigned MNC(s). The Office of Utilities Regulation administers the MNCs

within MCC “338”. Normally, IMSI resources are used exclusively within the country to which the MCC has been assigned.

Industry Change

2.17 There has been a gradual shift in the Telecoms industry towards pan-regional operations both at the corporate and network levels, accompanied or facilitated by the leveraging of various system integration and harmonization capabilities to achieve process improvements and functional efficiencies. In the mobile sector, one facet of this system and process coordination development was the controversial inter-jurisdictional harmonization of IMSI identification of mobile terminal/users through extraterritorial use of the MCC+MNC code. The attendant problems, whether real or perceived, were investigated and resolved through a series of CTU and ITU interventions. The final outcome forms the basis of this industry consultation.

Notice of Proposed Rule Making (NPRM)

2.18 This consultation takes the form of a Notice of Proposed Rule Making and is the Office’s previously- signalled response to an ITU decision on the extraterritorial use of the MCC+MNC code, and now, in particular, the ITU’s amendment to Recommendation E.212 with a newly introduced Annex E entitled, “The use of an MCC+MNC in a country other than the country to which the MCC has been assigned by the Director of the TSB”. A related amendment to Recommendation ITU-T D.93 is also considered in context.

2.19 The ITU’s approval and promulgation of Annex E to Recommendation E.212 was the culmination of nearly five years of debate and deliberation, in various local, regional and international fora regarding proposed and actual extraterritorial use of an MCC+MNC, and with local status quo solutions through regulatory declaration, litigation and legislation change, being sought or threatened in a few jurisdictions.

2.20 As defined in Annex E, ‘extraterritorial use’ (of an MCC+MNC) 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 base station established in Country B. This does not include situations where a subscriber in one country receives service from a base station in another country. The term was introduced in this context by the Office of Utilities Regulation at the CTU/CANTO/ITU workshop in Trinidad & Tobago and was adopted by the ITU.

2.21 The NPRM therefore proposes the adoption of the provisions of Annex E and its timely implementation in Jamaica to govern extraterritorial use of an MCC+MNC assigned to an operator in Jamaica. The consultation will also seek to determine, *inter alia*, the process for grand fathering current extraterritorial uses of a Jamaican MCC+MNC code, and whether the use of foreign MCC+MNCs should be allowed reciprocally or otherwise in Jamaica.

- 2.22** Importantly, the NPRM Document is also intended to serve as a concise **informational overview** on the issues involved and the critical participatory work performed by various industry stakeholders to bring about the desired consensus solutions.
- 2.23** The Document draws on a number of sources from the ITU-T 2005-2008 Study Period, the CTU/CANTO workshop, and ITU-T Recommendations. Relevant consultation questions are set out in the last section of this document.

2.24 Tabulated below are examples which have or might have constituted extraterritorial use of E.212 MCC+MNC codes

Country	Assigned MCC	Used MCC-MNC & Operator Name	Notes
Anguilla	365	365-84 C&W 338-05 Digicel	Used MCC 338 = Jamaica
Aruba	363	363-01 Setar 338-05 Digicel	Used MCC 338 = Jamaica
Antigua & Barbuda	344	344-92 C&W 344-03 APUA 310-38 Digicel	Used MCC 310 = USA
Barbados	342	342-60 C&W 342-82 Sunbeach 310-38 Cingular 338-05 Digicel	Used MCC 338 = Jamaica
Bermuda	350	350-02 BTC Mobility 310-38 Digicel	Used MCC 310 = USA
Cayman Islands	346	346-14 C&W 310-38 Cingular 338-05 Digicel	Used MCC 310 = USA Used MCC 338 = Jamaica
Dominica	366	366-11 C&W 310-38 Digicel 270-01 Orange	Used MCC 370 = Dominican Republic; Orange (MCC+MNC 270-01) has been directed by ARCEP (France) to change to MCC 366 Used MCC 310 = USA
Grenada	352	352-11 C&W 310-38 Cingular 338-05 Digicel	Used MCC 310 = USA Used MCC 338 = Jamaica
St Kitts & Nevis	356	356-11 C&W 310-38 Digicel 362-91 Cariaglobe (UTS)	Used MCC 310 = USA Used MCC 362 = Netherlands Antilles
St Lucia	358	358-11 C&W 310-38 Cingular 338-05 Digicel	Used MCC 310 = USA Used MCC 338 = Jamaica
St Vincent	360	360-11 C&W 310-38 Cingular 338-05 Digicel	Used MCC 310 = USA Used MCC 338 = Jamaica
Monaco	212	208-01 Orange 208-10 SFR	Used MCC 208 = France
San Marino	292	222-01 TIM 222-10 Vodafone 222-88 Wind	Used MCC 222 = Italy
Vatican City	225	222-01 TIM 222-10 Vodafone 222-88 Wind	Used MCC 222 = Italy

Note: the contents of the column “Used MCC-MNC and operator name” was prepared by ITU Study Group 2; In some cases it differed from the information supplied on a voluntary basis by Administrations and published in the Annex to ITU Operational Bulletin No. 837 – 1.VI.2005; the differences might have been due to lags in the notification to TSB by Administrations.

3. BACKGROUND

- 3.1 The vast majority of instances of extraterritorial use of the MCC+MNC code occurs in the Caribbean and involves Digicel's use of the '338+050' code assigned to the company by the Office of Utilities Regulation. The practice was initiated in the Caribbean by AT&T Wireless in 2003 and continued by Cingular Wireless after it acquired AT&T Wireless to become the second largest mobile phone carrier in the United States. The practice in the region, however, was predated in Europe.

Case Chronology

- 3.2 Whilst, as intimated above, extraterritorial use of the MCC+MNCs did not originate in the region, the Caribbean occurrence presented the case for an international investigation of the practice and the resolution of the attendant potential risks. Key events are set out in chronological order below.
- 3.3 **Antigua & Barbuda** on January 6, 2004, submitted a Contribution³ to ITU-T Study Group⁴ 2 (SG2), expressing the view that ITU-T Recommendation E212 explicitly prohibited cross-border use of the Mobile Country Codes (MCC) which should remain the part of the mobile station identification that uniquely identified the country of domicile of the mobile station. The administration opined that to do otherwise would mislead other countries and operators regarding the identity of the domiciliary country of a mobile terminal/user.
- 3.4 Antigua proposed further that the economic arguments put forward in favour of extraterritorial use of the MCC+MNC code should not be considered above the question of sovereignty and the probable conflicts with possible future policy and organizational changes in the industry. This Contribution from Antigua & Barbuda formally placed the matter of extraterritorial use of the MCC+MNC code before the ITU for active resolution by ITU-T Study Group 2.
- 3.5 However, there was in March 2004 what was viewed to be a reversal of that country's position on the matter. Antigua and Barbuda has been assigned a national MCC, 344, by the ITU. The United States MCC+MNC '310+38' has been used in the Caribbean country.
- 3.6 **Cable & Wireless Jamaica** (now t/a LIME) brought the matter of extraterritorial use of the MCC+MNC resource to the Office in a letter dated April 14, 2004, and which stated, in part:

³ A proposal related to the study Question (i.e. draft revised/new Recommendation). They must be submitted by ITU-T members and associates at the latest ten **calendar** days before the Study Group meeting.

⁴ A Study Group, comprised of experts from both public and private sectors, is designed to develop Recommendations for a particular area of ICTs. The Study Group 2 mandate covers "Operational aspect of service provision, networks and telecommunication management". The Study Group 3 mandate covers "Tariff and accounting principles including related telecommunication economic and policy issues".

“... Cable & Wireless Jamaica (C&W) wishes to bring to the attention of the Office that:

1. Digicel is using, illegally, Jamaica HNI [MCC+MNC] assigned to it in the other Caribbean Islands in which it is operating.
2. AT&T’s intent to use its HNI that was issued in the United States of America (US) in Jamaica.

Use of Jamaican HNI by Digicel

...when Digicel uses the Jamaican HNI in the other Caribbean islands, the network interprets that all calls in that island using the Digicel network are actually made in Jamaica by the Digicel network located in Jamaica. Therefore the caller and the associated network is purported to be in Jamaica when it is not the case.

Imminent use of US HNI by AT&T in Jamaica

AT&T has been using the same HNI issued to it in the United States of America (US) in the Caribbean. The use of a US HNI or the HNI of any country in another country is non-standard, contrary to the established and approved IMSI guidelines and for Cable & Wireless

Businesses throughout the Caribbean, in which AT&T operates, has resulted in service affecting problems which have affected service to Cable & Wireless customers and has placed Cable & Wireless businesses at a competitive disadvantage. It is evident that it was never the intent that the same HNI should be used in distinct, separate sovereign status since a fundamental principle underlying the assignment of the HNI is that it identifies a unique network operating in a distinct, sovereign geography.

The service affecting issues have arisen in the several Caribbean Islands in which AT&T now operates including Antigua, Cayman, Grenada, St. Lucia, St. Vincent and Barbados. Since AT&T was recently granted a licence to operate in Jamaica, C&WJ is certain that AT&T will also seek to use its US HNI in Jamaica which will affect the service that C&WJ provides to its customers, particular given that AT&T will be operating in the same 1900 Mhz band as C&WJ.

The service affecting problems exist in the context of how the mobile handsets are programmed to work. AT&T’s intent to use its US HNI in Jamaica is contrary to the established GSM handset protocol...

Solution

Cable & Wireless Jamaica recommends that for the proper functioning of the industry and to facilitate the interest of all customers:

- The Office instructs Digicel to cease to use the Jamaica HNI in the other Caribbean islands
- The Office advises all Mobile Network Operators (MNO's) that only a Jamaican HNI is permissible for use in Jamaica.

Cable & Wireless Jamaica trusts that the Office will take the necessary steps to secure the interest of all mobile customers in Jamaica and to ensure that no MNO is placed at a competitive disadvantage by another because of non-compliance with existing standards”.

3.7 Digicel in its August 10, 2004 letter to the Office says it is:

“...writing... regarding Digicel’s use of the Jamaican Mobile Country Code (‘MCC’) and Mobile Network Code (‘MNC’) throughout the countries in the Caribbean in which we operate. As you are aware, the use of a single MCC+MNC by new mobile operators has resulted in considerable debate in the region.

Although Digicel is of the firm opinion that our use of the Jamaican MCC+MNC outside of Jamaica is fully compliant with the laws of Jamaica and ITU Recommendations, Digicel is writing... to seek your support in submitting a request to ITU that our Jamaican Code be classified as (an exceptional matter) as a shared code pursuant to ITU-T Recommendation E.212 (“E.212”).

In order to assist you in making a decision with regard to this request, Digicel would like to take this opportunity to highlight the benefits of utilizing a single MCC+MNC for the citizens and economies of the region and to address the questions that other countries in the region have raised regarding the use of a single code...

Digicel believes that there are no international legal, technical or consumer-affecting issues associated with the use of a single MCC+MNC, whereas there are very significant economic and consumer benefits from this approach for the Caribbean region”

3.8 The Caribbean Telecommunications Union (CTU) in collaboration with the International Telecommunication Union (ITU) and The Caribbean Association of National Telecommunication Organisations, (CANTO), hosted a Mobile Country Code (MCC) workshop in Port of Spain, Trinidad and Tobago, from 16 to 17 November 2004 to address concerns in the region regarding the use of foreign HNIs.

3.9 The workshop was attended by Caribbean operators, regulators, senior government officials and policy makers, lawyers, consultants and other interested parties from twenty (20) different countries, and was facilitated by a team of experts from the ITU. Two clearly defined positions emerged from the intense discussions:

- Government officials, Regulators and incumbent operators opposed to the use of foreign HNIs
- New Operators favoured the practice.

3.10 Major concerns shared by government officials and regulators were:

- Legality of the practice
- Alternatives to using foreign HNIs
- Lack of Prior Disclosure of intention to use foreign HNIs before market entry
- Revenue risks
- Implications for Legal Intercept
- Roaming inequalities

3.11 Country and regional experiences were presented by Aruba, Barbados, Jamaica and the OECS.

3.12 Operators' perspectives given are summarised as follows:

Cable & Wireless West Indies

- The practice creates misleading identification of the home country of the mobile user
- Attendant potential for roaming billing and tax issues
- Unfair advantage in the roaming market.

C&W suggested the use of Dual IMSI SIMs as an alternative to using foreign HNIs.

Digicel

- There were no valid reasons to prevent the practice
- There were no technical issues with other operators neither was there any possibility of exhausting the codes.
- All revenues could be properly identified and accounted for.
- Stakeholders could be assured that they would receive their share of revenues
- "Roaming" issue is not an anti-competitive issue but a case of levelling the playing field because incumbent operators already have roaming agreements in place.

Cingular

- Many benefits to be realized by using a foreign HNI
- The practice supported the national interests as it
- promoted a competitive telecommunications sector, and

- facilitated rapid deployment of enhanced voice and data services at affordable rates.
- The new entrants were looking to expand across markets,
- leverage investments in infrastructure and technology to provide the low cost, high quality services regionally and to compete with Cable & Wireless.

Cingular conceded that there was room for improvement in how it addressed the concerns of National Governments.

3.13 The results of a post workshop survey conducted by the CTU revealed that most participants favoured adherence to the ITU Recommendations but conceded that these were open to some degree of interpretation. Participants also favoured reversion to home HNI use by Operators already using foreign HNIs, this to be facilitated by a 2-3 year period of transition to revert to full conformance, and that new operators should not be allowed to use foreign HNIs”.

3.14 The Vice Chairman of ITU Study Group 2 (SG2), consequent to the CTU/ITU/CANTO workshop, submitted a Contribution to the SG2 meeting on February 16-24, 2005 entitled “Sub Assignment of E.212 Mobile Country Codes (MCC)” The Contribution essentially discussed the implications and ramifications of at the MSIN level for additional geographic identification. The Contribution concluded that:

1. SG2 should consult and assess the viability of the existing E.212 identification plan.
2. SG2 should consider if the bases for sub-assignment of the IMSI presented sufficient operational commercial justification to warrant its formalization
3. Alternatively, if sub-assignment of the IMSI is considered inappropriate, consideration might be given to a mechanism that determines how the member states’ rights of control over such numbering resources might be enforced, and protected in the future.

The Contribution proposed that SG2 urgently study the issues and provide the Director TSB with a recommended course of action.

3.15 The United States of America in its Contribution to the February 16-24, 2005 Study Group 2 meeting in Geneva, opined that E.212 dealt with only the assignment of MCCs and MNCs to Administrations whilst the regulation of the use of MCC+MNC codes was the prerogative of those assignees, and accordingly, many European and the Caribbean Administrations have permitted cross-border use of MCC+MNCs, “without incident or controversy”.

The US said they were not aware of any regulatory or policy issues that should preclude Cross-border use of MCC+MNCs, and suggested that such use was justified by the benefits to be derived thereby. Among the benefits suggested were:

1. more efficient and effective use of IMSI identification resources,
2. efficient and effective use and leveraging of network equipment, and avoidance costly replication of network infrastructure,
3. the ability to make further use of existing roaming agreements, and
4. more rapid deployment of new networks and services.

The US opined further, in conclusion, that it was not necessary to make any changes to Recommendation E.212 to support Cross-border use of MCC+MNCs since the Recommendation neither prescribed nor precluded the practice.

- 3.16 Aruba**, in its February 2008 Contribution to the ITU's Regional Tariff Group for Latin America and the Caribbean (TAL), outlined its disapproval of the use of a foreign MCC in that territory - a practice it considered a "violation" of ITU Recommendation E.212. Years earlier, the Aruban administration conferred with the Office of Utilities Regulation regarding requests the country had received for permission to use the Jamaican MCC in Aruba. The Office's responses were consistent with those related later in this document.
- 3.17** The administration eventually sought and secured local compliance with its position through court action. At least one operator was forced to revert to the use of the MCC assigned to Aruba.
- 3.18 Generally**, the extraterritorial use of the MCC+MNC resource definitively became an international issue and the deliberations over the matter saw significant interest and participation from administrations, operators, and industry associations. The OUR participated directly in regional discussions and made indirect inputs to the ITU deliberations
- 3.19** The Office's position, as expressed in its open-ended responses outlined below, has been wholly consistent: it is not averse to the concept of extraterritorial use of the MCC+MNC resource with appropriate safeguards, but will be guided by ITU Recommendations. The Office's response to Digicel's above-stated petition, and its CTU/CANTO/ITU workshop presentation, are presented in some detail here, purposively to record in this consultation, its necessarily pragmatic and collaborative approach to finding a solution to the problem.

OUR Responses

Response to Digicel:

3.20 “...as we have outlined below, the prospect of the use of a regionally shared Mobile Country Code (MCC), raises some previously-unasked questions alongside those raised (some yet to be resolved) in relation to the earlier proposition for extraterritorial use of a domicile Home Network Identity (HNI).

The Office in principle is not averse to the idea of extraterritorial use of MCC+MNCs, assuming there are no significant adverse technical, economic or policy consequences. We also understand the benefits and value of such network arrangements as highlighted in your letter of August 10, 2004.

However, the unresolved issues and unanswered questions must be addressed before any decision can be taken, especially as such decisions will have important implications not only for the local jurisdiction but also for the wider industry. We outline these outstanding concerns below – not necessarily in order of importance:

1. As we understand the issues, there are three distinct propositions to be considered. They are:
 - **The use of a shared MCC in the Caribbean.** This would require decisions to be made regarding the form and scope of implementation. Solutions could range from having a single code for the Caribbean, administered by the ITU-TSB, with assignments of a single MNC to each network operator, and full allowance for extraterritorial use of the HNIs within the Caribbean, to the sharing of MCCs by independent groups of countries, with assignments of MNCs and inter-group use of HNIs as described immediately above.
 - **Assignment of MCCs to individual countries (maintaining the status Quo) and full allowance for extraterritorial use of the HNIs within the Caribbean.**
 - **The use of Foreign (non-Caribbean) HNIs in the Caribbean.**

The first two propositions are alternatives for Caribbean operators. The third is currently being pursued by AT&T. From an industry and regulatory standpoint, all cases must be considered together.

2. ITU-T Recommendation E.212, in its original and proposed modified form, addresses the issue of shared MCCs. Its provisions do not treat with the issue of shared HNIs. It is therefore not clear on what basis the OUR would argue for the ITU’s designation of Digicel’s HNI as a shared code.
3. It is not clear what Digicel’s request that the classification of its HNI as a shared code be treated “*as an exceptional matter*” means in the context of its

assertion that *“The use of a shared MCC/MNC is within the scope of the ITU Recommendations and specifically is not prohibited by the relevant ITU document, E.212”...*

4. MCC 338 is a nationally assigned numbering resource which subsumes network codes that uniquely identify networks besides Digicel’s in Jamaica. The Office currently assigns the MNC’s; so, if the proposition is to make 338 a shared MCC it would mean that the ITU would thereafter make the assignments. It is not clear whether there would be any restrictions on any such assignments.
5. Any such decision relating to a change of use of MCC 338 must be on the basis of consultation with all stakeholders. At present, Cable & Wireless Jamaica is still in disagreement with the proposed use outside of Jamaica of this resource. And in the absence of any obvious attempt, among local industry players, to seek consensus on the matter, the Office must ensure that its decision is supported by a rational basis and is fair and transparent.
6. The Office would need firm assurance that an OUR agreement to extraterritorial use of Jamaican HNIs will not in any way be seen or projected to prejudice the right of any other administration to not permit such use in their jurisdiction.
7. A request to the ITU to designate MCC 338 a shared resource must be the sole responsibility of the Office of Utilities Regulation. Such a request could be made only if the Office is satisfied that no participating operator or country would be unduly disadvantaged as a consequence - the Office must seek independent verification of this and give parties that may be affected an opportunity to be heard.
8. The shared use of MCCs in the Caribbean region is a new and previously unconsidered proposal, and the Office needs to have a clear understanding of the implications of this arrangement. Some questions and issues to be addressed in relation to this approach are:
 - Which MCC would become the defacto shared MCC for the Caribbean and on what basis?
 - What are the cost implications for operators for a code change?
 - Is the context of Code sharing sufficiently clear to ensure stakeholder confidence.
 - How will non-NANP countries like Aruba be included in a shared MCC arrangement? Recommendation E.214 (used for global title translation outside of the NANP) maps the E.212 MCC to an E.164 country code (“1” for all countries within the NANP). Aruba is not a NANP country. Is this anomaly to be totally ignored?

- How would the mechanism for identifying individual countries be appropriately monitored to avoid revenue loss where extraterritorial use of MNCs is allowed?
9. The CTU seems to be attempting to spearhead the formulation of a Caribbean position on the HNI issue and the Office deems it appropriate and expedient, from a regulatory standpoint, to support such an effort.
10. Whilst the proposal put forward by Digicel pertains to the sharing of an MCC or HNIs among Caribbean countries, the Office is also concerned about the implications of the use of AT&T's US HNI in Jamaica which reasonably could be a consequence of an affirmative decision on the former matter. There are questions to be addressed in relation to this outcome:
- What are the potentials for revenue loss to governments?
 - What monitoring mechanisms would be practical and appropriate?

Again, the Office sees the value and importance of this matter and will make every effort to help bring about a solution that is in the best interest of the industry, being mindful also of the need for an expeditious resolution.

Perhaps, this response does not satisfy or resolve the immediate issues with which you are faced but the matter does need wider consultation not only locally but within the wider Caribbean. In order to further this process we should like to share this exchange of correspondence with the CTU, if you have no objection”.

3.21 The OUR's presentation (in part) at the CTU workshop in Trinidad & Tobago - 16 to 17 November 2004

“The Office of Utilities Regulation was petitioned by proponents on both sides of the debate on extraterritorial use of Jamaican HNIs, and the use of foreign HNIs in Jamaica and other Caribbean territories. The parties specifically asked the Office to examine these issues from the perspective they presented, and accordingly, make a determination.

The arguments put forward by both sides, in support of their view, have since been the subject of especially careful consideration by the Office in light of the broader regional implications of the issues.

The concerns from the opposing position were:

- The legality of extraterritorial use of HNIs
- The potential technical drawbacks of such use of HNIs
- The potential for loss of business opportunities and revenue

- The potential for loss of service and resulting customer dissatisfaction
- The likelihood of suffering a competitive disadvantage

The supporting view propounded the economic benefits of extraterritorial use of HNIs by mobile network operators in the Caribbean. These included:

- Cheaper mobile phones for consumers; this because of the possibility to maximize the standardization of equipment regionally
- Wider and quicker availability of roaming services within the region
- Increased revenue to regional governments

This latter view also denied the existence of any inherent technical problems that prohibits out-of-jurisdiction use of HNIs...

The Office as yet has made no determination on the subject issues as they have significant implications for the broader Caribbean community. And in this context, it is our belief that finding an appropriate solution requires a harmonized, transparent and objective approach at the regional level – recognizing, nonetheless, each country’s sovereign right to make a determination as to what ultimately applies in its jurisdiction.

This present stance of the Office is not one of relative passivity. Rather, it demonstrates recognition of the critical importance of the issues and hence, a willingness to allow all involved parties, adequate time to accomplish the following:

1. develop a proper understanding of the governing policy concerns and the underlying principles - technical and otherwise
2. carefully consider and evaluate the immediate and long-term consequences of all reasonable solution alternatives
3. prepare to debate their positions formally in a regional forum.

This in fact is consistent with the course followed by the CTU and which has lead to this workshop...

[The Office is] acutely aware that dynamic technological changes and an increasingly competitive market place are driving the development of new services and service delivery approaches to provide innovative solutions to similarly changing communication needs. It recognizes that in this environment of rapid change, and because of the growing national and regional economic dependence on the telecommunications sector, regulators and policy makers have a responsibility to ensure that the governing policies and guidelines remain adaptable and relevant.

...[thus], a resolution of the matter is contingent on...[the treatment of] key issues, namely the interpretation of ITU Recommendation E.212, reciprocity in the use of

foreign HNIs, the possibility of revenue loss and stakeholder confidence in code sharing.

However, until or unless a judicious case is made for the change of existing policies and guidelines, the Office is constrained to be guided by them.

...[therefore] the present extraterritorial use of the Jamaican HNI should not be interpreted as prior approval of the principle and practice”.

3.22 Other previous statements on the position of the OUR

**At: The IMSI Oversight Council (IOC)
Virtual meeting
April 29, 2004**

The OUR opposed the IMSI Oversight Committee’s move for approval of the AT&T’s proposed change to the IMSI Assignment and Management Guidelines and Procedures⁵ to allow for extraterritorial use of MCC+MNC resources in NANP countries, on the ground that the industry had not been consulted on the matter. Cable & Wireless Jamaica was a participant in that meeting. The minutes of the meeting stated:

“The group agreed that more time was needed to review the AT&T contribution and to consider the impact of the proposed change, especially as they pertain to regulatory processes among Caribbean nations”.

At the following IOC meeting AT&T withdrew its proposal.

**To: The Deputy Director
Department of Telecommunication Affairs
Aruba
September 28, 2004**

“Further to our letter of June 11, 2004, it is our understanding that the issue regarding the use of Foreign HNIs in the Caribbean is currently being addressed by the Caribbean Telecommunications Union (CTU) with a view towards the adoption of a common regional position on that matter.

The Office of Utilities Regulation (OUR) will therefore await the outcome of the CTU’s deliberations before taking further action regarding extraterritorial uses of Jamaican HNIs.

⁵ Guidelines for assignment of IMSIs within NANP countries - necessitated by the shared E.164 country code to which all NANP MCCs normally will point in global translations associated with roaming

However, we felt that it would be expedient to share with the Department of Telecommunications Affairs, Aruba, as we did the CTU, the OUR's letter of August 17, 2004, to Digicel, which stated the OUR's principled position on extraterritorial use of the Jamaican HNI, to ensure that all parties involved in the matter at hand have a common understanding of our position.

We have advised Digicel regarding our sharing of the above-mentioned OUR/Digicel correspondence, a copy of which is enclosed herewith".

To: Digicel
June 23, 2006

"Mossel Jamaica Ltd, T/A Digicel, wishes to use the Home Network Identifier (HNI = MCC + MNC) issued to them by the Office of Utilities Regulation in Jamaica in the operation of mobile networks which are external to Jamaica.

The Office wishes to make it known that it has no objection subject to Digicel's meeting all its legal and regulatory obligations with respect to the use of this HNI code. It is expected that the relevant authorities in the respective countries will make their own determination of the appropriateness of this practice in their jurisdiction".

It had become clear to the OUR up to this point that Caribbean administrations were gradually becoming less averse to the concept of extraterritorial use of MCC+MNC resources.

To: Ms. Karlene Francis
Ministry of Industry, Technology, Energy & Commerce
May 16, 2007

"Two workshops were conducted by the CTU to garner the contributions of all interested countries, persons and entities in the region to facilitate the resolution of the issues raised by the extraterritorial use of HNIs...

The reports on the workshops correctly reflect the very successful deliberations and, importantly, set out good premises on which the OUR may base its decision on the HNI issue. The relevant propositions, which were clearly defined as the positions of a large majority represented at workshops, are that:

- Operators must not be allowed to dictate which HNIs are used in any given country.
- Operators currently using foreign HNIs should be allowed continue to do so for a limited time and that a transition period of 2-3 years should be specified, after which they must revert to the home country HNI and conform to ITU-T Recommendation E.212. This takes into consideration the fact that an immediate reversion could be excessively disruptive and costly.

- New operators should not be allowed to use foreign HNIs.

The OUR has received [further] inquires from the regulatory authorities in Aruba and Haiti and we have responded indicating that the above was our general position and in that context, we had no objection to the initial use of the Jamaican HNI in their jurisdictions provided that all other local regulatory requirements were met by the companies. [However]... we are awaiting the final resolution of the matter at the ITU level after which operators will be expected to conform to any resulting guidelines”.

4. ITU DELIBERATIONS AND DEVELOPMENTS

General

- 4.1** At least one Jamaican mobile operator was represented at the various scheduled meetings of the ITU-T Study Groups, and the Regional Tariff Group for Latin America and the Caribbean (TAL) which functions under the auspices of Study Group 3, that had responsibility for particular aspect of the deliberations on the MCC+MNC matter. The OUR kept abreast and provided the ministry with further requested updates on the ITU developments.
- 4.2** It is clear that over time consensus built up among participating ITU members, positively, towards the acceptability of extraterritorial use of MCC+MNCs, as the various concerns were meticulously investigated and, addressed through amendments of relevant ITU-T Recommendations and other governing industry instruments, or regarded as inconsequential and having not indicated a need for further consideration.
- 4.3** Importantly, the technical problem that was evidenced, initially in the case of the Cayman Islands, (when subscribers roamed overseas, and by the attendant billing anomalies) and which, potentially, could have occurred elsewhere, was satisfactorily resolved by Cable & Wireless and AT&T Wireless by appropriate network configuration settings. In essence, the problem was a “location update” mobility management issue that was exposed, rather than caused, by the extraterritorial use of the MCC+MNC code.

Discussion and Developments

- 4.4** During the Study Period⁶ 2005 – 2008, ITU-T Study Group 2 considered several amendments to Recommendation ITU-T E.212, some of which had direct or indirect bearing on the issue of extraterritorial use of the MCC+MNC code.
- 4.5** Work on the MCC+MNC matter progressed on two fronts at the ITU:
1. The ongoing work in Study Group 2 to revise Recommendation E.212 including adding ‘Annex E’ to govern extraterritorial use of MCC+MNC along with supporting textual changes to the main body and other Annexes, and the referral of E.212 amendments to Study Group 3 for
 2. Study by Study Group 3 as to whether there were tariff and accounting consequences to cross-border use of MCCs.
- 4.6** For this part of the consultation, the Office considers, mainly, the ITU’s deliberations at the **October 30 – November 08, 2007** Study Group meetings, and onwards,

⁶ A 4-year period for studying specific Questions approved by the ITU’s World Telecommunication Standardization Assembly (W TSA) The WTSA is the regular four-yearly event that defines the next period of study for ITU-T.

regarding the proposals to amend Recommendation E.212, and in particular to develop the new Annex E on extraterritorial use of MCC+MNCs. The meetings considered, among other matters, Contributions from Telcordia Technologies, Digicel, Cable & Wireless International, Immerse UK, the United Kingdom of Great Britain and Northern Ireland, and the People's Republic of China.

Summary of Contributions to October 30 –November 08, 2007 Meeting

- 4.7 The UK and Northern Ireland** supported the work on the revision of Recommendation E.212, in general, but reserved their position on the extraterritorial use of MCC+MNCs. The UK also expressed concern over the fact that E.212 text tabled at the meeting treated with the applications for mobile networks only and excluded the implications for fixed networks.
- 4.8 Digicel** initially opined that the decision regarding extraterritorial use of an MCC+MNC should rest entirely with the Administrations in the countries involved, that is, with no ITU intervention. However, the member modified its position on the issue and submitted a proposal for an annex to Recommendation E.212 to provide limited ITU guidance on the use of the MCC+MNC resources. This proposal was given consideration, and provided the base for the development of Annex E to Recommendation E.212.
- 4.9 Cable and Wireless International** weighed some aspects of the proposal for an Annex E to Recommendation E.212 and proposed additional draft text as a basis for further discussion. The draft text was not intended as a definitive text but rather as a means to attempt to “capture all the salient point that might be included in Annex E”. This proposal was given due consideration.
- 4.10 Telcordia Technologies** proposed modifications to the text in Annex E in relation to notification and reclamation procedures for MCC + MNCs in extraterritorial use. This contribution sought to require, among other things: (1) that both National Administrations agree on the extraterritorial use and subsequently notify the ITU-T of such agreed use; (2) that extraterritorial use does not transfer control of the exported portion of an MCC + MNC to the importing Administration. The objective of these requirements was to ensure that in the event that the extraterritorial use was no longer required or the operator, to whom the MNC was assigned, ceased operation, the MNC would be returned to the National Administration with plenary responsibility for the MCC.

SG2/SG3 Liaisons on Billing, Charging and Accounting Implications for MCC+MNC Use

- 4.11** An output from SG2's October/November 2007 discussion was a liaison statement⁷ to SG3 requesting the latter to review the proposed Annex E text in terms of the billing, charging and accounting aspects of the extraterritorial use of MCC+MNC resources.

⁷ A document containing inputs from another SG and submitted by a Study Group meeting ‘official’

- 4.12** The request was made notwithstanding SG2' belief that the likelihood of ambiguities that potentially could cause billing charging and accounting anomalies had been minimised by proposed Annex E provisions (e.g., that the operator using an MCC+MNC extra-territorially must provide unique and unambiguous information to its roaming partners, in order to allow them to identify the location of their subscribers thereby providing the correct basis for routing, billing, charging and accounting) that the extraterritorial use of an MCC+MNC in another country should not change any of the service and operational aspects compared with the use of an MCC+MNC assigned to that country.
- 4.13** SG3 responded in April 2008 with suggested minor amendments to Annex E to further ensure that all affected parties are appropriately notified in cases of extraterritorial use of MCC+MNC, and thus further minimised the potential for negative billing charging and accounting consequences. SG2 incorporated the suggested modification in its subsequent revision of Annex E. SG2 was also advised of SG3's proposed revisions to ITU-T Recommendation D.93 as part of the solution to the problem.
- 4.14** At this juncture, all indications were that the revision of Recommendation E.212 would receive consent for consideration under the ITU's Traditional Approval Procedure (**TAP**) at the next Study Group meeting scheduled (for the consideration) for **May 06-08, 2008**. Only one response to the call for Contributions on the E.212 revision was published on the ITU-T website. This submission was from Sweden on April 1, 2008 and entitled: "Editorial comments on revised Recommendation E.212"
- 4.15** The TAP provides, in part:
- "If 70% or more of the replies from Member States support consideration for approval at the Study Group meeting (or if there are no replies), the Director should advise the chairman that consideration of the approval may proceed. (With the authorization given by Member States that the Study Group may proceed with the approval process, they also recognize that the Study Group may make the necessary technical and editorial changes...)"

Treatment of MCC+MNC-related Billing, Charging and Accounting Issues by TAL Group

- 4.16** The TAL Group meeting on February 20-22, 2008 in Trinidad & Tobago addressed the tariff and billing implications of extraterritorial use of MCC+MNC resources.
- 4.17** In an effort to allow the TAL Group to arrive at a consensus, Digicel and Cable & Wireless International (C&WI) prepared and presented a joint contribution to the Group on extraterritorial use of MCC+MNC resources.
- 4.18** Both operators also proposed amendments to ITU-T Recommendation D.93 (presented in Annex 4 to this document) to reflect their view that the Mobile Station Roaming Number⁸ (MSRN) to be used in roaming scenarios should be derived only

⁸ A network internal number used for routing of calls to a roaming (visiting) mobile station

from identification resources assigned under ITU-T Recommendation E.164⁹ for use in the actual physical location where a roaming handset is located.

- 4.19** C&WI noted that there had been negative consequences but that the GSM Association (GSMA) and ITU initiatives were to add clear process and transparency requirements. C&WI noted too that the GSMA's position was stable and in force and that C&WI was confident that ITU SG2 and SG3 could complete work on the matter in the current study period.
- 4.20** The TAL Group agreed to present the joint Digicel/C&WI contribution to SG3, noting reservations¹⁰ by Trinidad and Tobago and Suriname, and issues that required further study.
- 4.21** The presentation included an important comparison of the essential issues considered in the work of the ITU, and that of the GSMA, in connection with the MCC+MNC matter. The comparison reflected the desired industry consensus that was sought. As stated in the presentation:

“CONCLUSION

- *GSMA rules and ITU ongoing work on ITU Recommendations are substantially the same*
- *Only substantive difference is the MSRN Range that is used*
 - *GSMA recommends a unique and separate MSRN range used belong to one of the countries that are sharing an MCC/MNC*
 - *ITU ongoing work recommends that the MSRN range used belong to the country in which the roaming service is being provided (D.93)*
- ***C&WI and Digicel are recommending that the modification of D.93 be made so that the MSRN range used belong to the country in which roaming service is being provided [conforming with ITU recommendation]***
- *Digicel complies with the joint proposal submitted with C&WI – in each of the markets in which we use an MCC/MNC extraterritorially we use a local MSRN Range*
 - *In Barbados Digicel uses a Barbadian MSRN range*
 - *In Haiti Digicel uses a Haitian MSRN range”*

⁹ Titled “The international public telecommunication numbering plan”, the Recommendation provides the number structure and functionality for the four categories of numbers used for international public telecommunication: geographic areas, global services, Networks and Groups of Countries.

¹⁰ Portugal also has expressed reservation regarding the application of the amended Recommendation D.93

Final ITU Developments

4.22 As mentioned earlier, several other issues related to ITU-T Recommendation E.212 were addressed simultaneously with the matters relating to extraterritorial use of MCC+MNCs; all of these saw amendments to the Recommendation which are summarized below. Contributions submitted to SG2 meetings in Geneva, 6-15 December 2005 and 3-11 May 2006 by United Kingdom and Digicel, respectively, were used as the baseline to begin the work to update and clarify the main text of the Recommendation. Those amendments that are not directly related to extraterritorial use of MCC+MNCs will be considered fully in the planned revision of the National Number Plan.

- **Relevant Modifications to the Title and Main Text of Recommendation E.212**

The title of the Recommendation was changed from “The International Identification Plan for Mobile Terminals and Mobile Users” to “The international identification plan for public networks and subscriptions”. Modifications to the main body of Recommendation E.212, removed all exclusive references to mobile networks and services. These changes were not solely an outcome of the treatment of extraterritorial use of the E.212 resources.

The main body of Recommendation E.212 describes the pure identification plan. Guidance on how to use the IMSI resource is described in the annexes.

- **Amendments to existing Annexes (A - D) which cover:**

A - Criteria and procedures for the assignment and reclamation of shared E.212 Mobile Country Codes, MCCs, for Networks and their respective Mobile Network Codes, MNCs

B - Principles for the assignment of Mobile Network Codes (MNCs) within geographic MCC

C - Procedures for the assignment of an additional MCC to a country

D - Use of Mobile Subscription Identification Number (MSIN) within Geographic MCCs

- **Creation of new annexes (E – G) which cover:**

E - **The use of an MCC+MNC in a country other than the country to which the MCC has been assigned by the Director of TSB** [Extraterritorial use of MCC+MNC]

F - Illustration of uses of E.212 resources [including uses in fixed, satellite, and other non-terrestrial networks]

G - Creation of a new Country (A) from a former Country (C)

- **Approvals**

1. The amendments to the Main Text and Annexes A, B, C and D were approved at the Study Group 2 meeting in Geneva on March 5-15, 2008 and are now in force.
2. Annexes E and F were approved at the Study Group 2 meeting in Geneva on Tuesday September 23, 2008 and are now in force as indicated on the ITU-T website. **Annex E is reproduced in Annex 1 of this document.**
3. The amendments to Recommendation 93 were approved at the Study Group 3 meeting in Geneva on Friday January 23, 2009 and are now in force as indicated on the ITU-T website. **Amendments to Recommendation 93 are reproduced in Annex 2 of this document.**

5. OUR POSITION ON EXTRATERRITORIAL USE OF MCC+MNC

- 5.1** The Office, from the outset, has taken a pragmatic approach to dealing with the question of extraterritorial use of MCC+MNCs and has also sought for a regional, if not international, approach to the solution. The Office has borne in mind the reasonable concerns for, security, adverse competitive impacts and revenue leakage, among others.
- 5.2** However, the Office has been mindful that the reality of these perceived threats (in some instances reasonable possibilities) has not been proven and therefore has properly avoided making decisions based solely on speculative probabilities, which, seemingly, at times, were advanced as factual occurrences.
- 5.3** The Office, nevertheless, awaited the results of the deliberations of the competent industry bodies and was committed to act, in accordance with the dictates of its mandate, in the overall national interest.
- 5.4** The following therefore summarises the Office's current position on the matter of extraterritorial use of the ITU-T Recommendation E.212 MCC+MNC resources. The outline does not indicate the order of importance:

1. The Office is not averse to the concept of extraterritorial use of the E.212 MCC+MNC where there are no proven or highly probable adverse economic or social consequences for its application, and there is full endorsement by the ITU and broad industry support.
2. There may be need for formal regional consultation to agree a common policy approach for the export/import of MCC/MNCs based on Annex E and Appendices I & II of Recommendation E.212.
3. Notwithstanding any ITU approval, there should be formal consultation with the local industry before a formal adoption in Jamaica.
4. The Office is not constrained by any current instance of extraterritorial use of an MCC+MNC code originally assigned to a service provider in Jamaica
5. The new provisions Recommendation E.212 do not oblige an administration to allow extraterritorial use of an MCC+MNC code under its jurisdiction. This is reinforced in Annex E by the statement:

The extraterritorial use of MCC+MNC:

- ...
- is on an exceptional basis and is subject to this Annex,
-

6. The Office interprets the foregoing statement to mean that extraterritorial use of an MCC+MNC code may not be considered a normal provision to which there is a primary entitlement as in the case of an intra-territorial use by the assignee, which is the rule. It is interpreted to mean also that the use may be allowed at the discretion of the administrator, subject of course to any applicable statute.
7. Since, also, the E.212 provisions do not require the ceding of control over the numbering resources to another Administration, as was originally proposed, the Office does not believe that a position of not opposing the concept of extraterritorial use of an MCC+MNC presents a regulatory crisis. The Office is thus at liberty to act in the best national interest.

5.5 The Office has also tried to balance the views on out-of-jurisdiction use (the extraterritorial use of an MCC+MNC is one example of this) of numbering resources especially against the backdrop of the rapidly expanding practice by VoIP service providers in many countries, including Jamaica, of assigning ITUT-E.164 numbering resource of foreign countries to their local customers.

5.6 The Office has been approached by all major existing and prospective VoIP service providers in Jamaica, for permission to assign numbers from the North American Numbering Plan (NANP) '876' area code serving Jamaica to their customers in foreign countries, even outside the NANP area. The Office has not taken a definitive position on this matter which it had referred to the North American Numbering Council. The council in turn had referred the matter to its Future of Numbers Working Group for consideration.

5.7 It is instructive to compare the policy implications of these two types of out-of-jurisdiction use of **National numbering resources**, the E.212 **MCC+MNC** and the E.164 **CC+NDC**, and barring any proven or highly probable adverse economic consequences for any adoption, it may be indefensible to wholly support one and reject the other.

6. CONSIDERATIONS FOR EXTRATERRITORIAL USE OF MCC+ MNCs

Key provisions on extraterritorial use OUR takes account of:

- 6.1** In the standard E.212 design, the country to which the IMSI relates is denoted by the three digits of the MCC; there is no provision within the arrangement for the MSIN field to contain any additional, variant country identification information.
- 6.2** With extraterritorial use of the MCC+MNC, the country identification in the MCC, for all practical purposes, is nullified, and alternatively, the country identification is created using some other digit(s) in the MSIN. Thus the respective IMSIs whilst they appear to be in E.212 format do not actually conform, in the strictest sense, to E.212 and therefore cannot be unambiguously translated by anyone other than those who actually are aware of the extraterritorial provision. In other words, it is not possible by ordinary inspection to ascertain if that range has been subdivided over more countries than the one defined by the MCC.
- 6.3** In this connection, Annex D of Recommendation E.212, which outlines the general uses of the Mobile Subscription Identification Number (MSIN) within geographic MCCs, highlights the fact that some operators use the initial or leading digits of the MSIN for allocating the resource to provide for, among other things, the identification of geographic areas, as shown in the following example:

Example of Extraterritorial use of MCC+MNC Code

	MCC Assignee	Extraterritorial Uses of the MCC+MNC	
Country	A	B	C
MCC	338	338	338
MNC	999	999	999
MSIN	0XXXXXXXX	1XXXXXXXX	2XXXXXXXX

X represents the decimal digits 0 through 9

- 6.4** For the MSIN allocation in this example, the leading digit ‘0’ identifies the MSIN range to be used in Country A; the leading digit ‘1’ identifies the MSIN range to be used in Country B, and digit ‘2’, the range to be used in Country C. **As provided in Annex E, operators using MCC+MNCs extraterritorially must provide unique and unambiguous information to their roaming partners, in order to allow them to identify the location of their subscribers.** In the example above, if the IMSI received by the visited network contains MCC 338 and MNC 999 that network will examine the first digit of the MSIN to determine the home location of the visiting terminal/user.
- 6.5** The IMSI assigned to a subscription under the E.212 identification plan should not be directly related to numbers assigned to that same subscription under "The international public telecommunications numbering plan" [ITU-T E.164]. In essence, therefore, the ITU-T E.212 Mobile Country Code and the ITU-T E.164 Country Code

are not required to identify one and the same country, in respect of their assignment to a subscription

- 6.6** IMSIs are a public resource and, therefore, the assignment of any portion of an IMSI (i.e., MNC, MSIN) does not imply ownership of the resource by either the entity to which it is assigned or by the national numbering plan administrator.
- 6.7** By far, the most extensive use of the E.212 resources is for international roaming arrangements, in networks using the GSM standard; the standard is used in an estimated 80% of the global mobile market. The GSM Association has recognised extraterritorial use of MCC+MNCs and established appropriate supporting rules concur with the ITU provisions.

Proposed Adoption of Extraterritorial use of Jamaican MCC+MNCs

- 6.8** The Office Utilities Regulation supports extraterritorial use of Jamaican MCC+MNCs and therefore supports this 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 resource.
- 6.9** Further, it is the view of the Office that Administrations in countries where currently a Jamaican MCC+MNC is used extraterritorially, must advise the Office in writing of their approval for the continued use of the resource in those jurisdictions. The Office and each of the Administrations must then notify the Director of TSB (using Form A in Appendix I to Recommendation E.212, and as required by the ITU) that the parties have agreed that an operator can use the Jamaican MCC+MNC in the respective countries. The Office intends to include this requirement in the Jamaican IMSI Assignment Guidelines and thus incorporate it in the Telecommunications Numbering Rules.
- 6.10** Thus, the Office Utilities Regulation intends to formally adopt the provisions of Annex E of ITU-T Recommendation E.212, for extraterritorial use of Jamaican MCC+MNCs. To this end therefore, the Office seeks comments the foregoing discussions and proposals and the following specific questions:

QUESTIONS

1. Do you agree with the Office's adoption of extraterritorial use of Jamaican MCC+MNC resources as prescribed in Annex E to Recommendation ITU-T E.212.
2. Should the Office permit the use of foreign MCC+MNC resources in Jamaica?
3. Should reciprocity be a condition for the use of foreign MCC+MNC resources in Jamaica?

4. What technical, commercial, legal or other important impediment is there that should preclude any application of the provisions of Annex E to Recommendation ITU-T E.212 in Jamaica?
5. In light of the notification, approval and cancellation requirements of Rec. E.212 for extraterritorial use of MCC+MNC resources, and the jurisdictional control over those resources, do you agree with the Office's approach to not grandfather existing extraterritorial uses of MCC+MNC resources?
6. Which is preferred or more appropriate or convenient for local industry use and why – the term "MCC+MNC" or "HNI"?
5. Why should extraterritorial use of the Jamaican MCC+MNC resources not be restricted to the geographic region served by the North American Numbering Plan?
6. Do you think there is a need for any formal regional coordination for extraterritorial use of MCC+MNC resources?
7. What MSIN allocation scheme would you recommend to best conserve MCC+MNC resources? Please provide justification for your recommendation?
8. What other concerns do you have regarding extraterritorial use of the Jamaican MCC+MNC resources?

ANNEX 1 Amendment to Recommendation E.212 for Extraterritorial use of MCC+MNC Resources

Annex E

The use of an MCC+MNC in a country other than the country to which the MCC has been assigned by the Director of TSB

(Annex E forms an integral part of Recommendation E.212)

E.1 Introduction

Extraterritorial use of MCC+MNC 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 base station established in Country B. Extraterritorial use does not include situations where a subscriber in one country receives service from a base station in another country nor to address roaming issues.

The extraterritorial use of MCC+MNC:

- should not negatively impact services being provided by any other operators,
- is on an exceptional basis and is subject to this annex,
- is not intended to include situations where a subscriber in one country receives service from a base station located in another country (e.g., cross-border coverage leakage), or roaming,
- must comply with all national regulations of each of the Administrations.

The operator using an MCC+MNC extra-territorially must provide unique and unambiguous information to its roaming partners, in order to allow them to identify the location of their subscribers. The use of MCC+MNC extra-territorially should be communicated to the international community by those Administrations which have permitted such usages.

E.2 Procedure to be followed for the implementation of an extraterritorial use of an MCC+MNC

In the event that an operator wishes to implement the extraterritorial use of an MCC+MNC, it will seek the approval of the Administrations of both Country A and Country B.

The operator will apply to each of the Administrations providing the information required by these Administrations. It is suggested that the Administrations should obtain from the operator the information they will need to complete form A (see Appendix I), in addition to any other documentation required.

The Administrations should confer together on the use of the MCC+MNC extra-territorially and notify the operator which applied for extraterritorial use of the MCC+MNC, and all other PLMNs operating in either or both of Country A and Country B of their decision.

In the event that both of the Administrations agree that an operator can use the MCC+MNC extra-territorially, then each of the Administrations will advise the Director of TSB of the following:

- the MCC+MNC that is to be used extra-territorially;
- the countries where an MCC+MNC is being used extra-territorially;
- the name of operator(s) who are using an MCC+MNC extra-territorially;
- the MSIN range used by the operator in each country.

It is expected that normal roaming practices, tariffing, and other country identification mechanisms of Country B will be followed.

Each of the Administrations will notify the Director of TSB using the completed form A for an extraterritorial usage of an MCC+MNC. The Director of TSB shall publish the extraterritorial use via the appropriate media (e.g., ITU website, Operational Bulletin).

E.3 Voluntary return of an MNC

If an operator determines that the part of an MCC+MNC resource being used for extraterritorial use is no longer required, then the operator would notify the National administration of the MCC (Country A) of that fact in writing.

The National Administration of the MCC will respond in writing to the applicant acknowledging the return of that part of the MCC+MNC and, in turn, notify the Director of TSB and all PLMNs operating in either or both of Country A and Country B.

The Director of TSB is to publish the date of the return of the part of the MCC+MNC for extraterritorial use in the appropriate media (e.g., ITU website (TIES), and in the Operational Bulletin).

E.4 Criteria for cancellation of extraterritorial use

The assigned part of the MCC+MNC is subject to cancellation by the National Administration of Country B if, for example, any of the following occurs:

- The assigned part of MCC+MNC is not implemented;
- The network no longer satisfies the assignment criteria;
- The network is not operational; or
- The part of the MCC+MNC is not in use for a period of 2 years.

E.5 Cancellation procedures

The operator will cease to use that portion of the MCC+MNC for extraterritorial use upon the request of Country B.

Country B will ask Country A to cancel the authorization it has issued to the operator for the extraterritorial use.

Country A cancels the extraterritorial use of the part of the MCC+MNC resource in Country B. Country A and Country B will notify the Director of TSB by completing form B (see Appendix II). They should also notify all PLMNs operating in either or both of Country A and Country B.

The Director of TSB shall publish the date of the cancellation of the extraterritorial use via the appropriate media (e.g., ITU website (TIES), and in the Operational Bulletin).

ANNEX 2 Notification of the use of an MCC/MNC extraterritorially

Appendix I

Form A: Notification of the use of an MCC/MNC extra-territorially

(This appendix does not form an integral part of this Recommendation E.212)

To be returned to the Director of TSB Fax No.: +41 22 730 5853

This form should be used by each of the Administrations to notify the Director of TSB that the Administration has agreed that an operator can use an MCC+MNC of Country A in Country B.

MCC/MNC: _____

Administration Contact-Person Name: _____

Address: _____

Telephone: _____ **Fax:** _____ **Email:** _____

MCC/MNC	Operator(s) Name	Country B – Where the MCC/MNC is to be used extra-territorially	MSIN range to be used in Country A	MSIN range to be used in Country B

ANNEX 3 Notification of the cancellation of use of an MCC/MNC extraterritorially

Appendix II

Form B: Notification of the cancellation of use of an MCC/MNC extra-territorially

(This appendix does not form an integral part of Recommendation E.212)

To be returned to the Director of TSB Fax No.: +41 22 730 5853

This form should be used by each of the Administrations to notify the Director of TSB that the Administration has agreed that an operator can cancel the use of an MCC+MNC of Country A in Country B.

MCC/MNC: _____

Administration Contact-Person Name: _____

Address: _____

Telephone: _____ **Fax:** _____ **Email:** _____

MCC/MNC	Operator(s) Name	Country B – Where the MCC/MNC is used extra-territorially	MSIN range used in Country A	MSIN range used in Country B

ANNEX 4 Amendments to Recommendation ITU-T D.93

Recommendation ITU-T D.93

Charging and accounting in the international land mobile telephone service (provided via cellular radio systems)

Summary

This Recommendation establishes principles for charging, billing, international accounting and settlement for the international land mobile telephone service provided via cellular radio systems, and also covers the applications of charging and accounting principles for various call routing scenarios.

1. General Conditions

1.1...

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1.5...

1.6 Definitions

1.6.1 home PLMN

The PLMN in which a mobile station is permanently registered

1.6.2 Home Location Register

The location register to which a mobile station is assigned for record purposes such as subscriber information

1.6.3 Visited PLMN

The PLMN, other than the home PLMN, in which a roaming subscriber is currently located

1.6.4 Visitor Location Register

The location register, other than the home location register used by an MSC to retrieve information for, for instance, handling of calls to or from a roaming mobile station, currently located in its area.

1.6.5 Mobile Station Roaming Number

The network internal number used for routing of calls to the mobile station See Recommendation ITU-T E.213

2. ...

3...

4....

5. Mobile Station Roaming Numbers (MSRNs)

VPLMN should assign MSRN(s) from the E.164 resource of the actual physical location of the roamed mobile station. In the case of a shared MCC for networks assigned by the ITU TSB, VPLMN should assign MSRN(s) from the associated E164 resources assigned by the ITU TSB to the assignee for the specific MNC of the shared MCC for networks.

END OF DOCUMENT