Office of Utilities Regulation

Harmonization of Call Disposition Indicators

Determination Notice

OFFICE OF UTILITIES REGULATION

Publication Date: March 12, 2014

DOCUMENT TITLE AND APPROVAL PAGE

DOCUMENT NUMBER: 2014/TEL/001/DET.001

1. **DOCUMENT TITLE:** Determination Notice: Harmonization of Call Disposition Indicators

2. PURPOSE OF DOCUMENT

This document contains the main decisions of the Office of Utilities Regulation regarding the use of Call Disposition Indicators within Telecommunications Network.

ANTECEDENT DOCUMENTS

Document Number	Description	Date
2013/TEL/004/CON.002	Consultation Document on Harmonization of Call Disposition Indicators	July 19, 2013

3. APPROVAL

This document is approved by the Office of Utilities Regulation and the decisions therein become effective March 12, 2014.

On behalf of the Office:

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Albert C. Gordon
Director General

Abstract

Section 4 of the Telecommunications Act ("the Act"), mandates the Office of Utilities Regulation ("the OUR" or "the Office") to "*…regulate specified services and facilities;…*" so as to ensure the proper operation of the Telecommunications sector within Jamaica as well as the effective delivery of the services offered by Telecommunications Networks.

Pursuant to the powers granted under Section 4 of the Act, the OUR issued a consultation document entitled "Harmonization of Call Disposition Indicators" Document No: TEL2013/TEL/004/CON.002 ("Consultation Document") for the purpose of eliciting comments from the Industry on the parameters and other relevant procedures that should be considered for standardization of Call Disposition Indicators within the Telecommunications Networks.

Following the receipt of comments from respondents to the Consultation Document, the Office made its determination on the relevant Call Disposition Indicators.

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1.0 Introduction

1.1 The Consultation Document entitled "*Harmonization of Call Disposition Indicators*" Document No: 2013/TEL/004/CON.002 was issued on the 19th of July, 2013. The OUR would like to thank all who participated in the consultation exercise.

1.2 Written responses to the Consultation Document were received from the following organisations:

- Digicel Jamaica Limited ("Digicel"); and
- Cable & Wireless Jamaica Limited ("LIME")

1.3 Digicel's response to the Consultation Document is entitled "*Digicel's Comments on the Harmonization of Call Disposition Indicators*" and dated August 19, 2013 ("Digicel's Response").

1.4 LIME did not submit a direct response to the Consultation Document, but rather made a comment on Digicel's response entitled "*LIME's Response to the Industry Comments on the OUR's Consultation on Harmonization of Call Disposition Indicators*" dated September 2, 2013 ("LIME's Response").

1.5 The consultation was done solely by way of the standard "(written) comments and response to comments" method.

Purpose of Document

1.6 Pursuant to Section 4 of the Act, the OUR is responsible for the regulation of specified services and facilities within the Jamaican Telecommunications Sector.

1.7 The Office seeks to ensure that operators deploy networks that are consistent with global industry best practices. It also wishes to ensure that networks can easily interconnect, provide access to services in prescribed formats, provide timely, unambiguous, and situation-appropriate indications, through the application of audible tones and recorded voice announcements of the progress and status of call connections, and other defined network conditions so as to enable callers to take appropriate response actions.

1.8 This document summarises the comments of respondents to the Consultation Document, and the Office's responses to those comments. It

also outlines the basis for the Office's decision on the Harmonization of Call Disposition Indicators, and the technical characteristics or verbal composition of those indicators.

1.9 Attention is given to the network tones and announcements that are used within an operator's network, and how well the public interfaces with these elements for ease of use of Telecommunication services.

2.0 Responses

Summary of Consultation Issues

2.1 The Consultation document was issued to elicit responses from operators on various issues connected to their network. This was done in order to come to some consensus around what particular technical elements should be standardized for the sake of enhancing the user's experience.

Comments from Interested Parties

Q1. What are your views on the use of the Toll Notification Tone and do you plan to provide one to subscribers using your network? If there are no such plans, could you please indicate the reasons for such a decision?

Digicel

2.2 In its response, Digicel agreed with the use of a toll notification tone "*particularly when Number Portability is implemented*".[1]

Q2. What are your views on the use of call disposition indicators and the particular provisions that should be made for users that suffer from disabilities in respect of these indicators?

Digicel

2.3 Digicel stated that it "*welcome[d] efforts to assist individuals with disabilities*" however it stated it would be helpful if the OURwould indicate what particular difficulties are being experienced by individuals with disabilities and through what service medium (whether fixed or mobile telecommunications) are such difficulties being experienced.

2.4 Digicel further suggested that such difficulties could be minimized if subscribers are made aware of how their calls are processed on the network in order for effective interaction with the network. Digicel also opined that indicators should "*utilise the same medium that the customer utilised, or attempted to utilise in their communication*"[2].

2.5 Digicel reiterated that further guidance from the OUR in respect of the specific challenges faced by persons with disabilities would be welcomed.

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[1] Pg. 1 of Digicel's Response

[2] Ibid.

Q3. What are your views on the user-defined models presented and their applicability to the Jamaican market?

Digicel

2.6 Digicel responded that *"the models presented are based on research and the findings appear to be general to all human beings."* Digicel further stated that consequently, it was to be expected that these models would be applicable to the Jamaican market[3].

Q4. What particular challenges, do you believe, will be created by new technologies, such as next-gen networks, in respect of tones, announcements etc. and the possible potential impact that this may have on network-user interaction?

Digicel

2.7 Digicel stated that new standards are often formulated using the best of old technology whilst allowing for some backward-compatibility. It was further stated that "*interaction with NGN will continue to be audio and visual and it is expected that allowance will be made for familiar tones and announcements where relevant*"[4].

Q5. With reference to the tones listed above [what other tones] should be considered for standardization under the exercise?

Digicel

2.8 Digicel stated that the following tones should be considered: *busy, congestion, call hold, dial tone, warning tone, and the special information tone*.

2.9 Digicel also stated that "*ring tone does not need to be standardized as this usually follows a common format that customers are able to recognize despite the differences*"[5].

Q6. What other tones, announcements etc. do you believe should also be considered?

[3] Page 2 of Digicel's Response.
[4] Ibid.
[5] Ibid.

Digicel

2.10 Digicel stated that the list of tones given in **Q5.** would be sufficient and that "*announcements should be customisable by operators to meet technical and commercial requirements, for example, as it relates to network utilization and customer experience respectively*"[6].

Q7. Are there any guidelines for the use of announcements within your respective networks? Please provide clear references and state any specific principles related to such.

Digicel

2.11 In its response, Digicel stated that "*as a rule [it has] tried to keep announcements between 8 and 10 seconds long*" with the aim of getting "*a useful message across while utilizing network resources efficiently.*[7]"

2.12 Digicel further stated that the "*announcements are used to give subscribers sufficient information for them to address the issue if possible without needing external assistance*"[8].

Q8. What are your views on the specific Recommendations of ITU E.182 and the level of compliance in respect of your network in terms of the application of the tones and announcements?

Digicel

2.13 Digicel stated that the Recommendation was helpful in "*facilitating better understanding of the document prepared by the OUR*"[9] and while it had implemented all the tones as described in the Recommendation, it could at least identify those that had been implemented within its network. Digicel also expressed similar sentiments with respect to the categorization of announcements[10].

Q9. What particular problems do you believe are posed by the use of PBXs and how should these be addressed where tones and announcements are concerned?

Digicel

2.14 Digicel posited that PBXs in many instances are owned and operated by the end-user who may possess "*varying degrees of skill with the operation*

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[6] Page 2 of Digicel's Response.
[7] Ibid.
[8] Ibid.
[9] Ibid
[10] Ibid.

of the PBX's"[11]. Further, the systems could span "*multiple manufacturers and technological eras*", and that the "*limitations with machines and skill of operation ... would make enforcing compliance of these systems difficult*"[12].

2.15 Digicel suggested that the issue of "*the management of compliance"* of PBXs be omitted from the scope of harmonization as it may present an "*unquantifiable and ... unmanageable challenge*".

2.16 Digicel also noted that any difference in the announcement and tones from PBXs could be used to determine whether problems exist in the PBX or within the connected PSTN or PLMN[13].

Comments on Responses from Interested Parties

LIME

2.17 LIME, in its response welcomed the opportunity to comment on the Consultation Document and stated it supported, in principle, the Harmonization of Call Disposition Indicators as it would "*enhance the customer experience*".[14] LIME also stated that it "*anticipate[d] that its introduction will be appropriately timed to complement other pending changes to fixed and mobile networks*" such as the introduction of number portability etc.[15]

Q1. What are your views on the use of the Toll Notification Tone and do you plan to provide one to subscribers using your network? If there are no such plans, could you please indicate the reasons for such a decision?

2.18 LIME agreed with Digicel that there were circumstances where a toll indicator would be helpful in alerting callers to a possible difference in tariff but went on to state that there was the need for clarification in some instances.[16]

2.19 Regarding Digicel's comments that "*the option of using a toll notification tone will be helpful to subscribers particularly when Number Portability is implemented*", LIME stated that the statement needed to be qualified given the differential in termination rates between on-net and off-net rates.

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[11] Page 3 of Digicel's Response
[12] Page 3 of Digicel's Response
[13] Ibid.

[14] Page 1 of LIME's Response
[15] Page 2 of LIME's Response.
[16] Page 3 of LIME's Response.

LIME's considered view was that "*the high off-net rates (relative to the low on-net rates) that Digicel charge[d] on some of its plans, act[ed] as a deterrent for subscribers...to call off-network. The effect of this [was] a distortion of the traffic ...between networks*"[17].

2.20 LIME further stated that presently customers use the NXXs of the network operator to identify off-net calls. It concluded that, if the large differential between on-net and off-net rates remains when number portability is introduced, "*callers [would] no longer rely on the NXXs per [se], but on the toll notification tone (if provided), when seeking to place calls.*"[18]Therefore, "*when callers (that subscribe to a network that charges very high off-net rates) hear the toll notifications tone they [would] likely choose to abort the call to avoid the high charges*." Thus, LIME contended that it did not view the tone as being useful to callers, nor competition, unless the fundamental issue of on-net, off-net rate disparity was addressed. Otherwise, the notification tone would only serve to reinforce the status quo[19].

2.21 LIME indicated that it would "*reserve the option to introduce a toll notification tone*" and that since its existing plans did not reflect a major difference between on-net and off-net rates for calling then there may not be a need for them to do so[20].

Q2. What are your views on the use of call dispositions indicators and the particular provisions that should be made for users that suffer from disabilities in respect of these indicators?

2.22 LIME agreed with Digicel's views on the matter and expressed support for the use of "*call disposition indicators that could improve user experience for persons with disabilities*"[21].

Q3. What are your views on the user-defined models presented and their applicability to the Jamaican market?

2.23 LIME agreed with Digicel's views and stated additionally that further research may be necessary in order to discern whether there were "*any distinct characteristics within the Jamaican population that would warrant customization*" as it was not aware of any at this time[22].

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[17] Page 3 of Lime's response
[18] Ibid.
[19] Ibid.
[20] Ibid.
[21] Ibid.
[22] Page 4 of Lime's response.

Q4. What particular challenges, do you believe, will be created by new technologies, such as next-gen networks, in respect of tones, announcements etc. and the possible potential impact that this may have on network-user interaction?

2.24 LIME agreed with Digicel's response and further indicated that it was of the view that challenges were not anticipated given the level of standardization that existed within the telecoms industry.

Q5. With reference to the tones listed above should be considered for standardization under the exercise?

2.25 LIME agreed with Digicel's position on this matter[23].

Q6. What other tones, announcements etc. do you believe should also be considered?

2.26 LIME agreed with Digicel's position on this matter[24].

Q7. Are there any guidelines for the use of announcements within your respective networks? Please provide clear references and state any specific principles related to such?

2.27 LIME stated that announcements were played twice and typically did not exceed twenty-five (25) seconds in length, with the consideration being the efficient use of announcements with the aim of preventing congestion[25].

Q8. What are your views on the specific Recommendations of ITU E.182 and the level of compliance in respect of your network in terms of the application of the use of tones and announcements?

2.28 LIME agreed with Digicel's position and stated that it accepted the ITU E.182 recommendations. LIME further stated that, like Digicel, there was some level of compliance on its network.

Q9. What particular problems do you believe are posed by the use of PBXs and how should these be addressed where tones and announcements are concerned?

2.29 In relation to this question, LIME agreed with the position outlined by Digicel[26].

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[23] Ibid.
[24] Ibid.
[25] Ibid.
[26] Ibid.

OUR's Response to Comments

2.30 The comments from stakeholders aid the formulation of a definitive regime to address the issues raised in the Consultation Document although the responses unfortunately, were not as extensive as was anticipated by the OUR.

2.31 With regard to the issue of the particular provisions that should be made for users that suffer from disabilities in respect of these indicators, the OUR concludes, evidenced by the responses, that the consultation process does not adequately address the broad implications raised by the topic, and as such it will be considered further in a separate consultation process at a later date.

2.32 In examining the responses to the issue of the possible challenges that new technologies presented to Call Disposition Indicators and its impact on network-user interactions, it is the OUR's view that this may require further consideration at a later date. However, further consideration would be dependent on the changes in the technology and whether the concerns that were articulated have now been addressed or mitigated by the new technology. The comments on the use of the toll notification tone highlighted the disparity of call rates between networks and the impending implementation of number portability. The OUR agrees with LIME's position on the underlying importance of the call rates, and the role that they play in influencing caller behaviour, both for on-net and off-net calling.

2.33 Another critical consideration is the extent of public perception that the presence of a toll indicator is still indicative of a significant cost to the caller, should they continue with the call. The nature of this concern was addressed in the consultation on the formulation of a Uniform Domestic Dialling Plan (UDDP) and the subsequent Determination Notice dated January 8, 2008 (Document No. TEL 2008/01) that was issued by the OUR.

2.34 The Office in the UDDP Determination Notice regarding the use of a Toll Notification tone indicated that the implementation of the tone was to be on a permissible basis once uniform domestic dialling had been implemented.

2.35 The networks that have the greatest calling rate disparity are the mobile networks. However through adjustments in the interconnection rates these rates have also been reduced along with the possibility of any adverse charges related to it. In that regard, should the retail rates for calling across networks (especially between fixed-mobile and mobile-mobile calls) continue to decline, the need for the use of a toll indicator may also be similarly reduced.

3.0 Summary Considerations

3.1 The Office regards the concerns expressed by Service Providers as material regulatory considerations. Pursuant to Section 3 of the Telecommunications Act, the Office is mandated to promote and protect the interest of customers in the delivery of Telecommunications services. In this regard, it is necessary for the OUR to ensure that the providers of Telecommunications services give due regard to the quality and variety of the services they provide. Having therefore considered the various views articulated by the respondents to the Consultation and other relevant facts presented above, the Office sets out the following summary considerations to guide its final decision.

3.2 Significant growth and developments have occurred within the Telecommunications sector over the last ten (10) years, with many of the changes occasioned by the move from a monopoly to a liberalized market.

3.3 These changes include, among others, the introduction of new networks, new technologies and service innovations, and a broadening of the demographic profile of the subscriber population. How these developments have impacted the need for call disposition indicators is important to an Office decision.

3.4 The incumbent (LIME) operated and continues to operate its network on long-established notification parameters as well as the inherent capabilities of telecommunications terminal devices used in the provision of services. In this context, it is important to consider the new capabilities of terminal devices to generate customizable call indicators, such as "ring tones".

3.5 Already, there is a significant degree of standardization within the industry based on the traditional applications of call disposition indicators that largely remain relevant.

3.6 There is still a need to explore, through the formal consultative process, and incorporate any new harmonization considerations arising from anticipated changes in technology, policy objectives and the interest of customers.

3.7 A standard for the Harmonization of Call Disposition Indicators should identify the most commonly used indicators on networks and conform to international best practices. Thus, considered call disposition indicators should be audible indications.

3.8 An audible indication is understood to be a sound composed of frequencies within the range 300-3400 Hz (the useful human voice frequency range)

which is used to inform the user about the state of a telephone call or supplementary service, or other particular network conditions.

3.9 The two applicable alert mechanisms are a recorded voice announcement and an audible tone signal. A tone is an audible indication comprising a small number of discrete frequencies, and a given period and cadence (inflection or modulation), but excluding speech.

3.10 In adopting call disposition indicators, consideration should be given to technical feasibility and practicality in network application.

3.11 A recorded voice announcement and an audible tone signal have important advantages and disadvantages as weighed against the following criteria:

- **Precision of information as to purpose** - A recorded announcement can impart more detailed and specific information and can have less chance of being misunderstood than a tone. However, a recorded announcement requires more time than a tone indication would to convey simple information.

- **Impact on call set-up** - A recorded announcement could significantly increase call set-up time for each call dialled in some cases. A tone within the duration range of common telephone tone signals is not likely to have such effect.

- **Customer irritation potential** - A recorded announcement potentially could be an irritation to some callers, depending on the content and length of the message. A short distinctive tone is not likely to have such effect. However, the use of an excessive number of different tones can be confusing to the user.

- **International Standards** - The responses that telephone networks should provide to subscribers may vary among administrations in application.

4.0 Decisions

4.1 Consequent upon the foregoing discussions, analyses and conclusions, the Office makes the following determinations:

Determination 1.0:

All public networks shall support the following tones as so described by ITU-T Recommendation E.182 for the express purpose of communicating to the user, the state of the network and the status of a call connection:

- ***Ring*** *– tone advising that call connection has been made and that a calling signal is being applied to a telephone number*
- ***Dial*** *– tone advising that the exchange is ready to receive call information and that user may send call information*
- ***Busy*** *– tone advising the caller that the telephone number is busy.*
- ***Congestion*** *– tone advising that network resources necessary for the establishment of the call or a specific service are temporarily engaged.*
- ***Call Hold*** *– tone used to reassure a calling subscriber that has been put on hold*
- ***Warning*** *– tone advising participants in a call that the conversation is being recorded at the subscriber's station*
- ***Special Information*** *– tone advising that the caller that the called number cannot be reached for reasons other than "subscriber busy" or "congestion".*

Determination 1.1:

The technical characteristics of the tones outlined above shall be configured, save where it is not technically feasible and practical to do so, in accordance with the terms specified in Recommendation E.180 as summarized in Table 1 below:

Table 1: List of tones from ITU-T Recommendation E.180/Q.35

Tone	Description	Frequencies	Duration
Dial	Continuous tone.	Single tone of **400- 450 Hz.** Combined frequency of 3 tones in the range of **340-425Hz/400-425Hz**	
Ringing	Slow tone with tone period shorter than silent period.	Recommended range **400-450 Hz.** Acceptable range: **340-500Hz**. Tone may be modulated by freq. of 16-100 Hz and tones should be between **450-500Hz**.	Recommended Tone period: **0.67-1.5s.** Acceptable Tone period: **0.67-2.5s.** Silent period: **3-5s.**
Busy or Congestion Tone	Quick tones in which the duration of the tone period ~ silent period. Busy and congestion may be identical. Where different, a slower cadence for busy tone should be used.	Recommended range **400-450Hz.** Acceptable range: **340-500Hz**. Use of a single frequency of **425Hz** is recommended for both tones.	1. Total for tone duration (E) and silent period (S) => **300-1100ms**. 2. E/S = **0.67-1.5**
Special Information Tone	Used when busy/congestion cannot relay the required information.	Uses 3 frequencies in order shown: • 950±50Hz • 1400±50Hz • 1800±50Hz	Tone period **330±70ms** with gap of up to **30ms** in between tones.
Warning tone	Used to indicate conversation is being recorded.	1400 Hz ±1.5%	For 350-500ms for every 15±3 seconds of recording time.
Call Waiting Tone	It advises a subscriber on a call that another subscriber is attempting to call.	400- 450 Hz	f on 300-500ms, silence 8-10s. f on 100 to 200ms, silence 100 to 200ms, f on 100 to 200ms (the total to be no more than 500ms); 8 to 10s silence.

Determination 1.2:

The purpose, application and technical characteristics of the Toll Notification Tone shall remain as determined by the Office in its "Reconsideration (Phase 2) Decision: Uniform Domestic Dialling Plan Determination Notice: Document No. Tel 2009/02:Rcn/01" dated January 22, 2009.

Determination 2.0:

Public voice networks shall provide to subscribers in accordance with ITU Recommendation E.182 recommendations on the "*Application of tones and recorded announcements in Telephone Services*" and where applicable, the following announcements:

- Vacant code
- Insufficient digits
- Circuit busy
- Insufficient funds
- Account restricted

These shall serve to complement, where necessary, the use of network tones with suggested announcements being of the form as shown in Table 2 below:

Table 2: List of supplementary announcements

Description of Recorded Announcement	Narrative
Vacant code	1. We're sorry, but your call cannot be completed as dialled. Please check to ensure that you are dialling the correct number and try your call again. This is a recording from XXX. 2. We are sorry, the number you have dialled is not assigned. Please check the number and dial again.
Account Restricted	1. We are sorry the instrument you are attempting to use has been barred from making calls. This is a recording from XXX. 2. We are sorry the owner of this account that you are calling from has restricted outgoing calls. 3. We are sorry the owner of this account that you are calling has restricted incoming calls. 4. I am sorry your call cannot be completed because you have exceeded your credit limit; please contact our customer care centre by dialling XXX from your mobile phone or XXXXX from a regular phone. 5. Sorry, your calls have been restricted; please recharge your account to resume normal service.
Circuit busy	1. We are sorry all circuits are busy, please try your call again later. 2. We are sorry all our circuits are busy at this time please try your call again later. This is a recording from XXX.
Insufficient funds	1. Sorry, you have insufficient balance for this transaction. Please recharge your account and try again. 2. Please check to ensure that you have enough credit to make this call. If you do have enough credit, please hang up and try your call again later.
Insufficient digits	1. We are sorry your call cannot be completed as you have not entered enough digits. Please check the number and dial again. 2. We're sorry, you have dialled too few digits. Please start again or dial zero for instructions.

Determination 3.0:

Network announcements provided to subscribers should be given in English in a clear and understandable manner with minimal technical jargon so as to enable comprehension by the widest cross section of users.

Determination 3.1:

Announcements shall be composed in format and content to ensure optimal efficiency in the use of network resources whilst fulfilling the need to effectively communicate to subscribers any specific network information.