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**STANDARDISATION GUIDE
FOR PROVISION OF TONES AND
RECORDED ANNOUNCEMENTS
IN PUBLIC TELECOMMUNICATIONS
SERVICES**



**TELECOMMUNICATIONS AUTHORITY
HONG KONG**

FOREWORD

1. This Standardisation Guide sets out the requirements for the provision of tones and recorded announcements in public telecommunications services provided in Hong Kong.

2. The Guide provides guidelines for the application of tones by fixed/mobile networks and service platforms and specifies the basic tones used in Hong Kong.

3. The Guide also provides guidelines for the application of recorded announcements in lieu of or in addition to tones by fixed/mobile networks and service platforms. In particular for calls which are unsuccessful due to a variety of reasons, such as network failures and congestion, called party busy / unavailable, number changes etc, the Guide defines the criteria under which no answer signal should be returned by the terminating network/platform providing the recorded announcements to the originating network to avoid charging of the caller. In order to discourage frivolous calls and reduce network inefficiency due to the recorded announcements, the Guide also recommends the maximum duration and the release treatment for the recorded announcements.

4. The Guide shall be followed by the operators of Fixed Telecommunication Network Services (FTNS), Public Mobile Radiotelephone Service (PMRS) / Personal Communications Service (PCS) and Public Non-Exclusive Telecommunications Services (PNETS) licensed by the Telecommunications Authority (TA) to provide public telecommunications services in Hong Kong..

5. In case of doubt about the interpretation of this Guide, the decision of the TA shall be final.

6. The HKTA series documents as well as other information notes issued by the TA can be obtained through one of the following methods:-

- download direct through the OFTA's Internet Home Page. The Home Page address is <http://www.ofta.gov.hk>;
- hard copies will be available upon request to :-

Senior Telecommunications Engineer (Standards)
Office of the Telecommunications Authority
29/F, Wu Chung House,
213 Queen's Road East,
Wanchai,
Hong Kong.

7. If further information is required regarding this Standardisation Guide, please contact :

Senior Telecommunications Engineer (Standards)
Office of the Telecommunications Authority
29/F, Wu Chung House,
213 Queen's Road East,
Wanchai, Hong Kong.

Fax: +852 2803 5112
Email: standards@ofta.gov.hk

AMENDMENT HISTORY

Item	Issue No.	Paragraph	Descriptions
1.	Issue 2	Title	Re-name title of document as "Standardisation Guide for Provision of Tones and Recorded Announcement in Public Telecommunications Services".
2.	Issue 2	Foreword	Include editorial changes and extend applicability of Guide to operators of Public Non-Exclusive Telecommunications Services (PNETS).
3.	Issue 2	Clause 2 (new)	Add new clause 2 on "Application of Tones" and re-number original clauses 2-3 as new clauses 3-4.
4.	Issue 2	Clause 3 (new)	Add new clause 3.1 on general requirement of recorded announcement according to ITU-T Recommendation E.182.
5.	Issue 2	Appendix I (new)	Add new Appendix I on "Basic Tones used in Hong Kong".

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APPENDIX I BASIC TONES USED IN HONG KONG

1. INTRODUCTION

This Standardisation Guide sets out the requirements for the provision of tones and recorded announcements in public telecommunications services provided in Hong Kong. The Guide shall be followed by the operators of Fixed Telecommunications Network Services (FTNS), Public Mobile Radiotelephone Service (PMRS) / Personal Communications Service (PCS) and Public Non-Exclusive Telecommunications Services (PNETS) (hereafter referred to as "the Operators" in this Guide).

2. APPLICATION OF TONES

2.1 GENERAL

The Operators shall in general follow ITU-T Recommendation E.182 in the application of tones for the provision of public telecommunications services by their networks/platforms.

2.2 BASIC TONES

2.2.1 The Operators shall comply with the technical characteristics of basic tones used in Hong Kong as defined in Appendix I to this Guide, if such tones are used by their networks/platforms in the provision of public telecommunications services.

2.2.2 The Operators shall not cause tones to be sent to users of public telecommunications services which might be confused with any of the basic tones defined in Appendix I.

2.2.3 The Operators shall observe ITU-T Recommendation E.180 for the technical characteristics of other audible tones not defined in Appendix I.

3. APPLICATION OF RECORDED ANNOUNCEMENTS

3.1 GENERAL

3.1.1 The Operators may use recorded announcements in lieu of or in addition to tones for the provision of public telecommunications services. The Operators shall in general follow ITU-T Recommendation E.182 in the application of such recorded announcements by their networks/platforms.

3.1.2 For the provision of recorded announcements in the case of unsuccessful calls, the Operators shall observe clauses 3.2 to 3.3 below.

3.2 ANSWER SIGNAL FOR RECORDED ANNOUNCEMENT IN UNSUCCESSFUL CALLS

3.2.1 Answer signal for unsuccessful calls terminating on a recorded announcement should NOT be transmitted by the terminating network/platform for the following reasons:

- a) suspended, cancelled or transferred subscribers;
 - b) network failures;
 - c) changes in the numbering plan of the area/country;
 - d) network management actions;
 - e) congestion in the network; and
 - f) other reasons of a more general nature.
- 3.2.2 For the case of "other reasons of a more general nature", the following criteria should be followed by the operator of the terminating network/platform in applying a no-answer treatment:
- a) the purpose of the recorded announcement is to provide a user-friendly substitute for network tones; and
 - b) the status of the terminating calls should be "unsuccessful".
- 3.2.3 For calls terminating on recorded announcements provided by the called party, such as an automatic answering machine or a private network, the terminating call is regarded as "successfully completed" and normal answer treatment should be applied.
- 3.3. EXPIRATION OF RECORDED ANNOUNCEMENT IN UNSUCCESSFUL CALLS
- 3.3.1 If a recorded announcement is provided by the terminating network/platform with a no-answer treatment, the concerned operator should:
- a) limit the overall duration of the announcement to NO more than 30 seconds; and
 - b) implement appropriate treatment to avoid holding of network resource by the caller, such as by releasing the trunk or reverting to network tones.
- 3.3.2 Notwithstanding the guideline in clause 3.3.1, the operator of the originating network/platform may implement normal ringing time-out treatment (as defined by HKTA 2201 issued by the TA) or any appropriate measure(s) to reduce network overheads due to recorded announcements with no-answer treatment by the terminating network.

4. REFERENCE

- [1] ITU-T Recommendation D.103 "Charging in Automatic Service for Calls Terminating on a Recorded Announcement stating the Reason for the Call Not Being Completed"
- [2] ITU-T Recommendation E.124 "Discouragement of Frivolous International Calling to Unassigned or Vacant Numbers Answered by Recorded Announcement Without Charge"
- [3] ITU-T Recommendation E.180/Q.35 "Technical characteristics of tones for the telephone service"
- [4] ITU-T Recommendation E.182 "Application of tones and recorded announcements in telephone services"
- [5] ITU-T Recommendation E.183 "Guiding Principles for telephone announcements"

- [6] HKTA 2202 "Network Connection Specification for Network-to-Network Connection of the Public Telecommunications Network (PTN) In Hong Kong based on ITU-T Common Channel Signalling System No. 7" issued by the Telecommunications Authority
- [7] HKTA 2201 "General Technical Characteristics of the Fixed Telecommunication Networks in Hong Kong" issued by the Telecommunications Authority

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APPENDIX I - BASIC TONES USED IN HONG KONG

1. DEFINITION OF TONES

1.1 DIAL TONE

When the calling party initiates a call to the network, dial tone shall be returned as soon as the network is in a state ready to receive the incoming dialling signals. The tone shall be removed as soon as the network detects the first dialled digit.

1.2 RINGING TONE

When the called party is ready to receive a call, ringing tone shall be returned to the calling party.

1.3 BUSY TONE (Customer Busy)

Busy tone shall be returned to the calling party when the called party is engaged or in a "locked-out" condition.

1.4 CONGESTION TONE (Network Busy)

Congestion tone shall be returned to the calling party when the network is busy.

1.5 NUMBER UNOBTAINABLE (NU) TONE

Number unobtainable tone shall be returned to the calling party to indicate that the called number is :

- out of service,
- a spare code or number,
- the access code of a service which is not available to the calling party, or not accessible due to certain service restrictions.

2. TECHNICAL CHARACTERISTICS

2.1 FREQUENCIES AND CADENCES

- (a) The frequency and cadence of the basic tones are defined in the following table.

Item	Type of Tone	Frequency (Hz)	Cadence (Second)
i.	Dial Tone	350 + 440	Continuous
ii.	Ringing Tone	440 + 480	0.4 sec ON / 0.2 sec OFF / 0.4 sec ON / 3.0 sec OFF
iii.	Busy Tone	480 + 620	0.5 sec ON / 0.5 sec OFF
iv.	Congestion Tone	480 + 620	0.25 sec ON / 0.25 sec OFF
v.	Number Unobtainable Tone	480 + 620	Continuous

- (b) The frequency tolerance for the above tones is $\pm 1.0\%$.
- (c) The cadence tolerance for the above tones is $\pm 10\%$.

2.2 POWER LEVELS

- (a) In accordance with ITU-T Recommendation E.180 (equivalent with Q.35), the power levels of the ringing tone, busy tone, congestion tone, and number unobtainable tone are defined at a zero relative level point at the incoming (in the traffic direction) end of the interface between two networks or between a network and a service platform. For the combined tone signals resulting from combination of frequency components, the power levels so defined shall have a nominal value of -10 dBm₀ measured with continuous tone (or -16 dBm₀ at the main distribution frame (MDF) of the local exchange of the network) and the values shall be in the range -5 to -15dBm₀ (or -11 to -21dBm₀ at the MDF).
- (b) For the power level of the dial tone, the point of reference is the MDF of the local exchange of the network, where the DEL is connected. The absolute power of the combined tone signal at the 2-wire access in the direction towards the CPE is normally in the range of $-10 \text{ dBm} \pm 5 \text{ dB}$. To avoid interference with multi-frequency push button receivers at the local exchange, dial tone level higher than -10dBm should be avoided.
- (c) Each harmonic shall not exceed -50 dBm or shall be at least 30 dB below the signal level for individual frequency component.

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