

## **TELECOMMUNICATIONS NUMBERING ADVISORY COMMITTEE**

### **Assignment of Mobile Network Codes to 3G Mobile Systems and TETRA Systems**

#### **Purpose**

For the proper operations of the future 3rd Generation (3G) mobile systems and Terrestrial Trunked Radio (previously called Trans-European Trunked Radio) (TETRA) systems in Hong Kong, it is necessary for these systems to make use of Mobile Network Codes (MNCs) in the operation in accordance with the relevant recommendations and standards from the Telecommunication Standardisation Sector of International Telecommunication Union (ITU-T) and European Telecommunications Standards Institute (ETSI). This paper proposes the assignment of the MNCs for the future 3G mobile systems and TETRA systems in Hong Kong.

#### **Introduction**

2. Referring to the ITU-T recommendations and ETSI standards, the MNC in the National Mobile Station Identity (NMSI) and International Mobile Station Identity (IMSI) uniquely identifies the home public land mobile network (PLMN) of the mobile station (MS) nationally and internationally respectively.

3. According to ITU-T Recommendation E.212, the NMIN is structured as:

**MNC + Mobile Station Identity Number (MSIN)**

and the IMSI is structured as:

**Mobile Country Code (MCC) + MNC + MSIN**

where

MCC Mobile Country Code uniquely identifies the country of domicile of the mobile station. The MCC "454" is assigned for use in Hong Kong.

MNC Mobile Network Code identifies the home public land mobile network (PLMN) of the mobile station. The MNCs for PLMN operators in Hong Kong are assigned by the TA.

MSIN            Mobile Station Identity Number uniquely identifies the mobile station within a PLMN. The MSINs are assigned by the operators.

4.     In the past, the TA had assigned unique MNC to each of Public Mobile Radiotelephone Service (PMRS) and Personal Communications Service (PCS) networks. Since the MNC is in a 2-decimal digit format, the total capacity of MNC available for assignment in Hong Kong is 100. The existing assignment of MNCs to PMRS and PCS networks is shown in the Annex. SmarTone Mobile Communications Ltd. (SmarTone) will relinquish the MNC "22" to the Office of the Telecommunications Authority by March 2000. Subsequently, the whole of "2X" range of MNC will become vacant.

### **Assignment and Reservation of MNC**

5.     Since the future 3G mobile systems and private/public TETRA systems will be introduced in Hong Kong, there is a need for the TA to assign or reserve to each of these networks a MNC for the required operation.

### **3G Mobile Systems**

6.     Although the technical specifications of 3G mobile systems, also called IMT-2000 systems, are under preparation/endorsement by the ITU, the International Mobile User Identity (IMUI) will be used to uniquely identify the 3G mobile stations internationally. As MCC and MNC are part of the IMUI, it is necessary for the TA to reserve the MNC for the future 3G mobile systems. It is recommended to assign/reserve the MNC under the "**2X**" and "**3X**" ranges to the existing and future 3G mobile systems such that all the MNCs assigned or to be assigned for the public mobile networks will be under the "0X" to "3X" ranges.

### **TETRA System**

7.     The TETRA system is a new open digital trunked radio standard which is defined by ETSI to meet the need of the most demanding professional mobile radio users such as security and police forces. It supports voice, circuits switched data and packet switched data services with a wide selection of data transmission rates and error protection levels. A TETRA Memorandum of Understanding (TETRA MoU) was established on 1 December 1994 to create a forum which could act on behalf of all interested parties, representing users, manufacturers, operators, test house and telecom agencies. It now represents 56 organisations from 19 countries. In fact, the Hong Kong Police Force is implementing a digital trunked radio system based on the TETRA standards.

8.     In the TETRA numbering system, MNC is a part of the Individual TETRA Subscriber Identity (ITSI). The MNC, in conjunction with the MCC, is used by mobility management of the system for the roaming and migration feature (i.e. for

locating MSs in foreign networks). Migration implies the change of Location Area (LA) that each LA belongs to a different TETRA network. LA is an area within a TETRA network that may comprise one, several or all cells. A mobile station may move freely without re-registering within a LA. Roaming implies the change of LA within the same TETRA network.

9. Therefore, for the proper operations of public/private TETRA systems in Hong Kong, it is proposed to assign a MNC under the "**4X**" range to each of these systems/networks.

10. The assignment of the above MNCs will follow the procedures given in the "Code of Practice Relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan (Cap.269)". In addition, it would be necessary to amend "The Numbering Plan for Telecommunications Services in Hong Kong" in order to implement the above proposals.

### **Advice Sought**

11. Members are invited to give their comments and views on the above proposals given in paragraphs 6 to 10 above.

Office of the Telecommunications Authority  
19 January 2000

**Mobile Country Code (MCC)  
& Mobile Network Code (MNC) Assignments**

<b>MCC - MNC</b>	<b>Mobile Network</b>	<b>Network Operator</b>
454 - 00	GSM900	Cable & Wireless HKT CSL Ltd.
454 - 04	GSM900/GSM1800	Hutchison Telephone Co. Ltd.
454 - 05	CDMA	Hutchison Telephone Co. Ltd.
454 - 06	GSM900	SmarTone Mobile Communications Ltd.
454 - 10	GSM1800	New World PCS Ltd.
454 - 12	GSM1800	Peoples Telephone Co. Ltd.
454 - 16	GSM1800	Mandarin Communications Ltd.
454 - 18	GSM1800	Cable & Wireless HKT CSL Ltd.
454 - 22	GSM1800	SmarTone Mobile Communications Ltd.