MANDATORY STANDARDS FOR QUALITY OF SERVICE

(PUBLIC CELLULAR SERVICES) DETERMINATION NO. 2 OF 2002

REPORT ON ASSESSMENTS OF
PUBLIC CELLULAR SERVICES
FOR THE PERIOD ENDING DECEMBER 2004

Background

1. The seven separate Commission Determinations are as follows:

Commission Determination on the Mandatory Standards	Licensees subject to Determination	Effective date
Public Switched Telephone Network Service *Determination 1 of 2002*	ASP	1 January 2003
Public Cellular Service *Determination 2 of 2002*	ASP	1 January 2003
Dial Up Internet Access Service *Determination 3 of 2002*	ASP	1 January 2003
Content Applications Services *Determination 4 of 2002*	CASP	1 January 2003
Public Payphone *Determination 3 of 2003*	ASP	1 June 2004
Digital Leased Line *Determination 4 of 2003*	NSP	1 January 2004
Broadband Access Determination 5 of 2003	NSP	1 January 2004

2. Non-compliance to the MS Quality of Service is a breach of section 105 (3) CMA where a person subject to a Mandatory Standard shall comply with the mandatory standard.

3. In the event a person omits or neglects to comply with such mandatory standard, he shall be liable to a fine not exceeding one hundred thousand ringgit or to imprisonment for a term not exceeding two years or both as provided for by Section 242.

4. Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service), Determination 2 of 2002 contains standards which are reported by licensees as well as technical assessments which The Malaysian Communications and Multimedia Commission (MCMC) conduct.

5. MCMC has recently completed the technical assessment on cellular networks. The assessment was conducted on three cellular networks, namely Celcom, DiGi and Maxis.

6. The primary objective of the assessment is to assess the level of service quality through the Key Performance Indicators indicated in the Mandatory Standards for Quality of Service (Cellular), i.e.:

    6.1   Dropped Call Rate of intra-network calls which should not be more than 5%

    6.2   Endpoint Service Availability (ESA) for intra and inter network calls should not be less than 90%, as depicted in the formula below;

    (No. of attempted calls – No. of calls blocked – No. of dropped calls) x 100
    No. of attempted calls

Methodology and Assessment

7. Assessments on cellular services are based on 2 methodologies, drive test and static test;

    7.1   Drive test is performed to assess network performance from a moving subscribers' point of view. Intra-network test calls were made to individually owned switch number provided exclusively by each cellular operator to MCMC.

    7.2   Static test is performed to measure cellular network coverage in selected main buildings. Calls were made in different locations of the building, primarily main entrances and common spots for public.   Additionally, static test also conducted to observe performance with the involvement of Point of Interconnect,

where both intra-network calls and inter-network calls were performed.

Measurements for drive test and indoor test were only conducted on business days, Monday through Friday, between 9:00am and 5:00pm.

8.   The assessment was conducted in selected locations i.e. Penang, Klang Valley, Johor Bharu, Kuantan, Kuching and Kota Kinabalu.   The whole assessment was conducted from 2 December 2004 through 30 December 2004.   For the list of areas assessed, please refer to Appendix 1.

Findings

9.   Below are results of the assessment conducted within the specified time period and locations.

9.1   Percentage of Dropped Call for Intra network

Overall performance is good where all networks performed within the requirement of the Mandatory Standards, which is not more than 5 %. The table below gives detailed performance of each network;

Dropped Call Rate

Region	Celcom			DiGi			Maxis		
	Drive (%)	Static Intra (%)	Static Inter (%)	Drive (%)	Static Intra (%)	Static Inter (%)	Drive (%)	Static Intra (%)	Static Inter (%)
Standard	Not more than 5%								
Klang Valley	0.53	0.08	1.04	2.72	0.50	0.00	1.84	0.08	0.83
Penang	0.57	0.33	1.33	3.06	0.83	0.00	0.57	0.33	0.67
Kuantan	0.47	0.00	0.00	0.47	0.00	0.00	0.00	0.00	0.00
Johor Bharu	1.04	0.00	0.70	1.04	0.67	0.00	0.69	0.00	0.00
Kuching	3.23	0.42	1.67	0.92	1.25	1.25	0.00	2.5	0.83
Kota Kinabalu	0.52	2.22	1.67	1.04	1.11	0.56	1.04	2.22	0.56

9.2   Endpoint Service Availability (ESA) for Intra network and Inter network.

Overall performance is good where all networks performed within the requirement of Mandatory Standards, which is not less than 90%. The table below gives detailed performance of each network;

Endpoint Service Availability (ESA)

Region	Celcom		DiGi		Maxis	
	Intra network (%)	Inter network (%)	Intra network (%)	Inter network (%)	Intra network (%)	Inter network (%)
Standard	Not less than 90%					
Klang Valley	99.32	97.50	98.04	99.79	98.25	98.75
Penang	97.95	98.67	98.04	100	99.47	99.00
Kuantan	98.23	100	98.68	99.17	100	100
Johor Bharu	97.79	98.95	98.47	99.65	99.15	93.33
Kuching	96.28	97.50	98.47	97.92	93.65	99.17
Kota Kinabalu	96.78	97.22	98.12	96.67	96.51	97.22

a. Table below delineates areas covered for Drive Test;

Region	Area
Klang Valley	1. Seremban – KL Highway 2. Elite Highway 3. Federal Highway 4. North Klang Valley Expressway 5. SPRINT Highway 6. Lebuhraya Damansara Puchong 7. Sistem Lingkaran Kajang(SILK) 8. Middle Ring Road (MR2) 9. Ampang – KL Highway (AKLEH) 10. KLIA Highway 11. KESAS Highway 12. BESRAYA Highway 13. New Pantai Expressway 14. Lebuhraya Jln Duta – Sg Buloh 15. Puchong – Sg Besi Link Road (Lintasan Puchong) 16. All roads in Putrajaya & Cyberjaya 17. KL City routes – Jalan Kuching, Jalan Istana, Jln Tun Razak, Lebuhraya Mahameru, Jalan Parlimen, KLCC, KL Tower, The Mall etc. 18. Bangi – Kajang – KL 19. Nilai – KLIA – Shah Alam 20. Klang – KL Federal Highway 21. NKVE – KL Highway 22. Rawang – KL Highway 23. Sg. Buloh – Kepong – Jln Kuching 24. Klang – Jln Klang Lama – KL 25. Lingkaran Tengah Highway 26. KL - Karak Highway 27. Rawang – Selayang – Jln Kuching
Penang	1. North East Penang: KOMTAR - Transfer Road, Lebuh Farquhar, Lebuh Light, Weld Quay, Lebuh Chulia, Jalan Penang, Jalan Burmah, Jalan Sultan Ahmad Shah, Persiaran Gurney, Jalan Kelawei, Lebuh Raya Peel, Jalan Macalister, Jalan Utama, Jalan Kebun Bunga, Jalan Gottlieb, Jalan Bagan Jermal, Jalan Tanjong Tokong, Jalan Tanjong Bunga, Jalan Mount Erskine, Jalan Brown , Jalan Utama, Jalan Scotland, Jalan Ayer Itam, Jalan Paya Terubong, Jalan Angsana, Lebuhraya Thean Teik, Lorong Batu Lancang, Jalan Masjid Negeri, Jalan Delima, Jalan Yeap Chor Ee, Jalan Kg.

Region	Area
	Kastam, Jalan Gelugor, Jalan Perak, Jalan Free School, Jalan Terengganu, Jalan P. Ramlee, Jalan Sg. Pinang, Jalan C.Y. Choy, Jalan Magazine and Jalan Perak. 2. South East Penang: Bulatan Jalan Tunku Kudin, Jalan Tunku Kudin, Jalan Pantai Jerejak, Jalan Batu Maung, Jalan Bayan Lepas, Jalan Bayan Baru, Bulatan Tengah, highway to Penang Bridge, Penang Bridge, Jalan Sg. Nibong, Jalan Sg. Dua, USM, Jalan Gelugor, Jalan Masjid Negeri, Jalan Bukit Gambir, Jalan Dato' Ismail Hashim. 3. Seberang Perai Penang: Terminal Feri, Jalan Bagan Ajam, Teluk Air Tawar, Jalan Sg. Dua, Jalan Permatang Pauh, Bandar Sunway Seberang Jaya, Butterworth, Perai, Jalan Utama, Bandar Bukit Mertajam and Juru.
Johor Bharu	1. Metro JB: JB Metro, Taman Pelangi, Tampoi and Ngee Heng 2. East JB: Pandan, Johor Jaya, Plentong and Ulu Tiram 3. North JB: Kempas, Skudai, Silong, Senai and Kulai 4. West JB: Skudai, TUTA, UTM, Gelang Patah, Link 2 and Ulu Choh.
Kuantan	1. Cluster 1: Hotel Hyatt, Royal Golf Club, Annex Resort and Hotel Vistana 2. Cluster 2: Jabatan Ukur dan Pemetaan Pahang, Sek. Men. Sultan Abu Bakar, Sek. Keb. Galing and Semambu 3. Cluster 3: Megamall, Bus Terminal, Kuantan Parade, State Government Office and Kolej Universiti Kejuruteraaan & Teknikal Malaysia (KUKTEM) 4. Cluster 4: Kompleks Sukan Pahang and Sek. Keb. Cenderawasih
Kuching	1. Cluster 1: Kuching, Bau and Lundu 2. Cluster 2: Kuching, Asiajaya and Sadong Jaya 3. Cluster 3: Kuching, Seria and Gng. Ampungan 4. Cluster 4: Northern Kuching business and administration areas including Petrajaya 5. Cluster 5: Southern Kuching business and administration areas (3rd Mile)

Region	Area
Kota Kinabalu	1. City centre: Kota Kinabalu city centre, Karamunsing, Signal Hill and Sutera Harbour 2. Tanjung Aru: Tanjung Aru and Sembulan 3. Putatan: Putatan, Kepayan, Petagas and Lok Kawi 4. Penampang: QEH, Lido and Donggongon 5. Luyang: Damai, Lintas and Bukit Padang 6. Inanam: Menggatal and Telipok 7. Likas: Stadium Likas, Yayasan Sabah, Kg. Likas and UMS

b. For static test, below are buildings covered during the assessment;

Region	Building
Klang Valley	1. Parcel A, Putrajaya 2. Kompleks Seri Perdana (Prime Minister Official Residence), Putrajaya 3. Deputy Prime Minister Official Residence, Putrajaya 4. Istana Melawati 5. Putrajaya National Convention Center 6. Parcel B 7. Parcel C 8. Parcel D (2,3,4) 9. Wisma Putra 10. Kompleks Kementerian Kewangan -2G2 (MOF) 11. Parcel E 12. Parcel Z – Plaza Alamanda 13. Marriot Putrajaya 14. Shangri-la Putrajaya 15. Kompleks 2G1A – Akauntan Negara (MOF 2) 16. Kompleks 2G1B – Kastan (MOF 2) 17. Palace of Justice – 3G3 18. KLCC Shopping Complex
Penang	1. Bukit Jambul 2. Bangunan Tunku Syed Putra 3. KOMTAR 4. Mega Mall, Perai 5. Carrefour Seberang Jaya 6. Ferry Terminal 7. Summit, Bukit Mertajam 8. Penang International Airport 9. Gurney Plaza 10. One Stop Midland Park
Johor Bharu	1. City Square 2. Larkin Bus Terminal 3. Plaza Angsana 4. UTM 5. Senai Airport 6. Kompleks Pusat Bandar Pasir Gudang 7. Pelangi Leisure Mall 8. IOI Mall, Kulai 9. Plaza Tasek, TUTA 10. The Store, Johor Jaya
Kuantan	1. Megamall Complex 2. Kuantan Parade 3. Teruntum Complex

Region	Building
	4. Kuantan Bus Terminal
Kuching	1. Riverside Complex 2. Kuching International Airport 3. Bangunan Sultan Iskandar, Simpang Tiga 4. Crown Tower 5. Tun Jugah Mall 6. Wisma Satok 7. Wisma Bapa Malaysia 8. Kuching Plaza
Kota Kinabalu	1. Centre Point 2. Kota Kinabalu International Airport 3. Putatan Plaza 4. Servay Hypermarket, Penampang 5. Likas Square 6. Lintas Plaza