



**Suruhanjaya Komunikasi dan Multimedia Malaysia**  
Malaysian Communications and Multimedia Commission

**REVIEW OF  
COMMISSION DETERMINATION ON THE MANDATORY STANDARDS FOR QUALITY OF SERVICE  
(PUBLIC CELLULAR SERVICE) (DETERMINATION NO. 2 OF 2002)  
AND  
VARIATION TO COMMISSION DETERMINATION ON THE MANDATORY STANDARDS FOR QUALITY  
OF SERVICE (PUBLIC CELLULAR SERVICE) (DETERMINATION NO. 2 OF 2002) - DETERMINATION NO.  
1 OF 2013**

**1 April 2015**

This Public Inquiry Paper is prepared in fulfilment of Sections 58 and 61 of the Communications and  
Multimedia Act 1998.

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## PREFACE

The Commission is hereby holding a Public Inquiry to review the Commission Determination on Mandatory Standards for Quality of Services (Public Cellular Service) (Determination No. 2 of 2002) and Variation to Commission Determination on Mandatory Standards for Quality of Service (Public Cellular Service) (Determination No. 2 of 2002) – Determination No. 1 of 2013 and invites members of the public and interested parties to participate in this inquiry by making written submissions on any matter they consider relevant to the inquiry. Written submissions, in both **hardcopy and electronic form** should be provided to the Commission in full by **12 noon on Thursday, 18 May 2015** and addressed to:

Chairman  
Malaysian Communications and Multimedia Commission  
Off Persiaran Multimedia  
63000 Cyberjaya  
Selangor Darul Ehsan  
(Attention: Mr. Mohd Norhisham Ahmad Kamil, Policy Development Division)

E-mail : qospcs@cmc.gov.my

Fax : +60 3 86 88 10 01

In the interest of fostering an informed and robust consultative process, the Commission may make available extracts of or entire submissions for others to read. Any commercially sensitive information should be provided under a separate cover and clearly marked “**CONFIDENTIAL**”.

Respondents are encouraged to support their comments with reasons and where appropriate provide or refer to evidence or other relevant information in support of their comments.

The Commission thanks the public and all interested parties for their participation in this consultative process and for providing their submissions and feedback.

## **GLOSSARY**

|            |  |
|------------|--|
| CMA1998    | Communications and Multimedia Act 1998 (Act 588)   |
| Commission | Malaysian Communications and Multimedia Commission |
| ESA        | Endpoint Service Availability                      |
| MS         | Mandatory Standards                                |
| MSQoS      | Mandatory Standards for Quality of Service         |
| PCS        | Public Cellular Service                            |
| PI         | Public Inquiry                                     |
| QoS        | Quality of Service                                 |

## **PREAMBLE**

1. The Determination No. 2 of 2002, Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service) came into force on 1 January 2003. This MSQoS covers the standards for Quality of Service for delivery of voice over the public cellular platform and was based on the network technology in use at that point of time.
2. The variation on standards on ESA and Dropped Call as outlined in the Variation to Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service) (Determination No. 2 of 2002) – Determination No.1 of 2013 came into force on 9 July 2013.
3. The Commission recognizes the need to review the MSQoS for Public Cellular Service in light of technology advancements over the past 12 years, significant changes in network usage, and changes in customer expectations and perception towards service delivery. Therefore, pursuant to section 104 (2) of the CMA1998, the Commission hereby undertakes a review of Determination No. 2 of 2002 and Determination No.1 of 2013.
4. The proposed revision is based on international best practices and seeks to address current issues in relation to public cellular service in Malaysia. This revision also seeks to strengthen and streamline the QoS framework.

## **PUBLIC INQUIRY PROCESS**

5. Section 58(2) of the CMA1998 provides that the Commission may hold a public inquiry if it is satisfied that the matter is of significant interest to either the public or to current or prospective licensees under the CMA1998. The objective of such a public inquiry is to inform as well as to invite views of the public and the licensees under the CMA1998 on the matter at hand.
6. The Commission is of the view that it is appropriate in the circumstances to hold a public inquiry under section 58 (2)(b) of the CMA1998 in order to obtain industry and public comment, and to promote transparency in the exercise of its powers.
7. Under section 61 (1) (d) of the CMA1998, the Public Inquiry period shall be a minimum of forty-five (45) days, within which public submissions are invited. In the present Public Inquiry, licensees and the public are being given 45 days to formulate and submit their views on the matter.
8. The Commission shall take into consideration all submissions received within the Public Inquiry period. The Commission is required under section 65 of the CMA1998 to publish a report setting out its findings as a result of any inquiry it conducted, and such report shall be published within thirty (30) days of the conclusion of the inquiry. The Commission shall summarize the submissions received and publish the same in the report.

## **PART A: INTERPRETATION PART OF THE STANDARDS**

9. The following interpretations shall be used in the revised Mandatory Standards for Quality of Service for Public Cellular Service:

“ASP” means Applications Service Provider;

“business day” means a day in which commercial banks in the respective states in Malaysia are normally open for business, and excludes gazetted public holidays;

“complaint” means any verbal or written expression of dissatisfaction by customer to service provider regarding the service provider’s service and product, which requires action by the service provider to address the issues raised;

“customer” means a person who, for consideration, acquires or subscribes to the public cellular service;

“designated routes and areas” means those routes and areas as specified by the Commission in the guidelines;

“end user” means a person who receives, requires, acquires, uses or subscribes to the public cellular service and may include a customer;

“guidelines” means a guidelines issued by the Commission pursuant to paragraph ‘X’ of the Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service);

“mobile switching centre” (MSC) means the switching centre that performs all the switching needed for public cellular service located in an associated geographical area;

“reporting period” means the calendar quarters ending 31 March, 30 June, 30 September and 31 December;

“resolved” in relation to a complaint means that the complaint was addressed and the problem was rectified;

“public cellular service” means an applications service involving a network of base stations or cells for the delivery of voice and data communications.

## **PART B: REQUIREMENT FOR REPORT SUBMISSION**

10. The Commission intends to change the current reporting period to a calendar quarter, as practised in many other jurisdictions. The Commission is of the view that the current reporting period (half yearly) does not provide sufficient granular data for end user information, nor will the Commission be in a position to effectively monitor the relevant QoS standards in a timely manner and react to any significant issue. This approach is also in line with the recommendation from the European Telecommunications Standards Institute (ETSI)<sup>1</sup>.
11. The Commission is proposing for the Quality of Service performance reports to be submitted to the Commission no later than 30 days from the end of the reporting period. The timelines for reporting are as follows:

***Table 1: Reporting Timelines***

| <b>No.</b> | <b>Reporting Period</b>      | <b>QoS Report Submission Date</b> |
|------------|------------------------------|-----------------------------------|
| 1.         | 1st January to 31st March    | By 30th April of the same year    |
| 2.         | 1st April to 30th June       | By 31st July of the same year     |
| 3.         | 1st July to 30th September   | By 31st October of the same year  |
| 4.         | 1st October to 31st December | By 31st January of the next year  |

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<sup>1</sup> ETSI EG 202 057 4.7 Data collection period



## PART C: EXISTING AND PROPOSED QUALITY OF SERVICE STANDARD

12. A summary of the existing QoS standard and proposed QoS standards are outlined in Table 2 below:

**Table 2: Existing and proposed QoS standard**

|      | Quality of Service Indicator                       | Existing Quality of Service Standard  | Proposed Quality of Service Standard  |
|------|--|---|---|
| i.   | Endpoint Service Availability                      | Not less than 95.0%, for intra or inter network calls                         | * No change in standard<br><br>“Endpoint Service Availability” to be renamed as “Call Setup Success Rate”   |
| ii.  | Dropped call rate                                  | Not more than 3% of the number of successful call attempts (nationwide)       | <ul style="list-style-type: none"> <li>Not more than 1.7% for designated routes and areas for intra or inter network calls.</li> <li>Not more than 3.0% for areas other than designated routes and areas for intra or inter network calls.</li> </ul> |
| iii. | Advance notice of scheduled downtime               | *Not available  | New standard to be introduced (please see details in Part D).   |
| iv.  | Service Disruption                                 | *Not available  | New standard to be introduced (please see details in Part D).   |
| v.   | Percentage of billing related complaints           | Not more than 2% per 12 months (based on total number of bills in the period) | Not more than 1% per quarter (based on total number of customers for the period)  |
| vi.  | Non-billing related complaints per 1,000 customers | Not more than 50 complaints per 1,000 customers in a 12-month period          | Not more than 6.0 complaints per 1,000 customers per quarter  |

|       |   |   |   |
|-------|---|---|---|
| vii.  | Promptness in resolving customer complaints       | <ul style="list-style-type: none"> <li>90% of complaints resolved within 15 working days;</li> <li>95% of complaints resolved within 30 working days</li> </ul> | <ul style="list-style-type: none"> <li>60% of complaints resolved within 3 working days;</li> <li>95% of complaints within 5 working days;</li> <li>99% of complaints within 15 working days</li> </ul> |
| viii. | Promptness in answering calls to Customer Hotline | *Not available  | New standard to be introduced (please see details in Part D).   |

## **PART D: QUALITY OF SERVICE INDICATORS, MEASUREMENTS, STANDARDS, NOTIFICATION AND REPORTS**

13. The Mandatory Standards shall be segregated into two (2) parts, namely Network Performance Quality of Service and Customer Service Quality of Service. The applicable indicators, measurements and standards are listed in Tables 3 & 4.

14. Standards for Network Performance Quality of Service are outlined in Table 3 below:

**Table 3: Network Performance Quality of Service**

|    | Quality of Service Indicator   | Description / Definition / Formula / Measurement / Reporting Requirement  | Quality of Service Standard   | Remarks / Rationale / Justification   |
|----|--------------------------------|---|---|---|
| i. | Call setup success rate (CSSR) | <p>Call setup success rate measures the percentage of calls successfully established between two cellular mobile devices which enable communication to proceed.</p> <p>Formula:</p> | Call setup success rate must be not less than 95.0%, for intra or inter network calls | <p>* No change in standard</p> <ul style="list-style-type: none"> <li>“Endpoint Service Availability” (current term) to be renamed as “Call Setup Success Rate” to be end user friendly and in line with internationally accepted terms<sup>2</sup>.</li> </ul> |

<sup>2</sup> 3GPP TR 32.814 V7.0.0 (2007-03) –Technical Report. 3rd Generation Partnership Project

|     |                         |   |  |   |
|-----|-------------------------|---|--|---|
|     |                         | <p><b><i>Number of successful call attempts</i></b></p> <hr/> <p>× 100%</p> <p><b><i>Number of call attempts</i></b></p> <p>Intra-network call means a call connection within the network service of the same provider.</p> <p>Inter-network call means a call connection between the network services of two providers.</p>  |  | <ul style="list-style-type: none"> <li>• The testing parameter is updated with a more accurate measurement based on parameters outlined by ETSI<sup>3</sup>.</li> </ul>   |
| ii. | Dropped call rate (DCR) | <p>A dropped call means a call where a connection succeeds (i.e. the network is accessed and set up is successful) but is disconnected due to abnormal call release. An abnormal call release occurs when the call is terminated other than by the command from the calling party or the called party.</p> <p>Formula:</p> <p><b><i>Number of dropped calls</i></b></p> <hr/> <p>× 100%</p> <p><b><i>Number of successful call attempts</i></b></p> | <p>Dropped call rate for Designated Routes and Areas must be not more than 1.7%, for intra or inter network calls.</p> <p>Dropped call rate for areas other than Designated Routes and Areas must be not more than 3.0%, for intra or inter network calls.</p> | <ul style="list-style-type: none"> <li>• A two tier standard is introduced to enable more stringent QoS measures to be imposed in certain key areas, which are frequently used by the general public. The designated routes and areas identified in the Guidelines would be for the first phase (Klang Valley) and an expansion to these routes and areas will be considered in the future, depending on the performance of the service providers,</li> <li>• 1.7% QoS standard has been set based on the results of the DCR test conducted by the Commission in 2014<sup>4</sup> within the designated routes and areas. The rate of 1.7% is considered to be an achievable standard based on the service providers' current network setting.</li> </ul> |

<sup>3</sup> ETSI TS 102 250-2 V1.6.1.

<sup>4</sup> DCR test results for all service providers in 2014 is 1.84% (average)

|      |                                      |  |  |  |
|------|--------------------------------------|--|--|--|
| iii. | Advance notice of scheduled downtime | Service provider is required to inform customers and the Commission in advance in respect of any network service downtime planned and scheduled by the service provider to take place for the purpose of maintenance and upgrading of the network.   | <p>Every session of scheduled downtime due to occur in a quarterly reporting period must be notified to customers not less than 48 hours in advance; and</p> <p>Every session of scheduled downtime due to occur in a quarterly reporting period must be notified to the Commission in writing not less than 14 days in advance.</p>   | <ul style="list-style-type: none"> <li>• This standard will assist the Commission to deal with possible complaints by customers due to disruption of services whilst ensuring that customers are notified about any service disruption caused by maintenance or upgrading of network.</li> </ul>   |
| iv.  | Service Disruption                   | <p>Service disruption means the unplanned interruption of the services that a customer subscribes to but does not include disruption of service from scheduled downtime. Service provider shall notify customers as soon as practicable in respect of any service disruption incident.</p> <p>A service provider is considered to have breached the service disruption standard where a Mobile Switching Centre (MSC) is out of service for 30 minutes or longer. A MSC is out of service when it is unable to perform the functions for which it is intended.</p> <p>If more than one Mobile Switching Centre is out of service for 30 minutes or longer in a quarterly reporting period, each and every one of such incidents are regarded as separate breaches of this standard.</p> <p>In the event a Mobile Switching</p> | <p>Any Mobile Switching Centre (MSC) must not be out of service for 30 minutes or longer.</p> <p>Service provider must notify the Commission within 20 minutes of any single service disruption incident that involves a Mobile Switching Centre (MSC) being out of service for any duration.</p> <p>Service provider must submit a comprehensive report to the Commission within 7 business days of</p> | <ul style="list-style-type: none"> <li>• Currently, the Commission obtains information about service disruption from complaints lodged by customers, after the incident has occurred.</li> <li>• This is not acceptable as the Commission needs to have sufficient information to deal with customer complaints and to also ensure that the service providers take necessary steps to address the service disruption expeditiously.</li> <li>• The report submitted by the service providers will also enable the Commission to monitor the disruption frequency and how effectively the service providers deal</li> </ul> |

|  |  |  |  |                  |
|--|--|--|--|------------------|
|  |  | Centre is out of service for 30 minutes or longer, the service provider must submit a comprehensive report to the Commission within 7 business days of the incident. | the occurrence any single service disruption incident that involves a Mobile Switching Centre (MSC) being out of service for 30 minutes or longer. | with the issues. |
|--|--|--|--|------------------|

15. Standards for Customer Service Quality of Service as Table 4 below:

**Table 4: Customer Service Quality of Service**

|    | Quality of Service Indicator             | Description / Definition / Formula / Measurement / Reporting Requirement  | Quality of Service Standard   | Remarks / Rationale / Justification  |
|----|--|---|---|--|
| i. | Percentage of billing related complaints | <p>This indicator measures the percentage of billing related complaints to the number of customers per reporting period. Billing related complaint is any complaint related to the service provider's billing made or charges imposed on customers including, but not is limited to, complaints regarding payments made and wrongly credited or not credited, non-refund of deposits, late billing, non-receipt of bills, fraud, wrongly addressed bills and other billing errors. Bills issued by service provider may include, but are not limited to, bills sent by postal service, email or accessible online by customer. Billings of pre-paid and post-paid services are included for this indicator.</p> <p>Formula:</p> $\frac{\text{Total number of billing related complaint received at the end of the reporting period}}{\text{Total number of active customer at the end of the reporting period}} \times 100\%$ | Percentage of billing related complaints must be not more than 1.0% per quarterly reporting period. | <ul style="list-style-type: none"> <li>Despite the compliance rate of the service providers to the current standard on percentage of billing related complaints (2%), complaints received by the Commission on billing and charging dispute<sup>5</sup> are high.</li> <li>The proposed standard seeks to compel the service providers to take additional measures to improve their process and billing system.</li> </ul> |

<sup>5</sup> Billing and charging is the 2nd highest type of complaint received by the Commission from 2008-2013.

|      |  |   |  |   |
|------|--|---|--|---|
| ii.  | Non-billing related complaints per 1,000 customers | <p>This indicator measures the percentage of non-billing related complaints per 1,000 customers per reporting period.</p> <p>Non-billing related complaint means any complaint other than billing related complaint. It includes, but is not limited to, complaints received on service matters including late or no service activation after a report has been made, unprofessional staff or contractors and other complaints related to customer service.</p> <p>Formula:</p> $\frac{\text{Total number of non – billing related complaint received in the reporting period}}{\text{Total number of active customer at the end of the reporting period}} \times 1000$ | Non-billing related complaints must be not more than 6.0 complaints per 1,000 customers per quarterly reporting period.  | <ul style="list-style-type: none"> <li>• The telecommunication sector topped the number of customer complaints registered by NCC<sup>6</sup> for three straight years which may indirectly suggest that there is a need for improvement on the QoS.</li> <li>• It should be noted that the current standard was set in 2002 and the penetration rate for public cellular services has increased substantially since then. Due to the pervasiveness and high dependence by end users on the services, standards for the manner in which complaints are dealt with by service providers have to be more stringent.</li> </ul> |
| iii. | Promptness in resolving customer complaints        | <p>This indicator measures the percentage of customer complaints resolved by the service provider within specified timeframes, measured from the day the complaint was received to the time the complaint was resolved.</p> <p>Formula:</p> $\frac{\text{Total number of complaints resolved within the specific timeframe}}{\text{Total number of complaints received within the reporting period}} \times 100\%$ <p>This Quality of Service indicator is to be separately measured and reported</p>   | <p>The standard on promptness in resolving customer complaints, separately measured for billing related complaints and non-billing related complaints, for every quarterly reporting period is:</p> <p>Not less than 60.0% must be resolved within 3 business days, and</p> <p>Not less than 95.0% must be resolved within 5</p> | <ul style="list-style-type: none"> <li>• With the significantly large numbers of customers that rely on public cellular services, it is incumbent upon service providers to resolve complaints effectively and quickly.</li> <li>• The proposed standards are achievable as there are a few tiers provided depending on the complexity of the issue.</li> </ul>   |

<sup>6</sup> National Complaints Centre (NCC) 2012 Annual Report

|     |   |   |   |  |
|-----|---|---|---|--|
|     |   | <p>for billing related complaints and non-billing related complaints, where the same QoS standard is applicable for both categories of complaints.</p> <p>Unresolved complaints due to the following are excluded from the computation:</p> <p>(a) Damage to network facility due to force majeure or third parties;</p> <p>(b) Customer premises inaccessible; and</p> <p>(c) Faulty Customer Premise Equipment (CPE), customer infrastructure or internal wiring.</p> <p>Service provider is required to inform customers of their right to refer any unresolved complaint to the Consumer Forum of Malaysia (CFM).</p>                                   | <p>business days, and</p> <p>Not less than 99.0% must be resolved within 15 business days</p>   |  |
| iv. | Promptness in answering calls to Customer Hotline | <p>This indicator measures the service provider's promptness in answering customer phone calls to the Customer Hotline, from the time when the customer presses the button opting for a human operator to the time it is answered by a human operator. The duration when the call is attended to by the interactive voice response system (IVRS) before being transferred to a human operator's phone is excluded.</p> <p>Formula:</p> $\frac{\text{Number of calls answered by human operator within the specific timeframe}}{\text{Total number of calls to Customer Hotline opting for human operator assistance in the reporting period}} \times 100\%$ | <p>At least 80.0% of calls to Customer Hotline that opted for human operator in a quarterly reporting period must be answered within 15 seconds.</p> <p>100.0% of calls to Customer Hotline that opted for human operator in a quarterly reporting period must be answered within 30 seconds.</p> | <ul style="list-style-type: none"> <li>The Commission has also received complaints relating to unanswered calls to the customer hotline, long waiting period, no free customer hotline and the need to repetitively press a number of buttons before being finally connected to human operator. As such, this new standard is introduced to address these complaints.</li> <li>The standard is based on benchmarking of standard on the promptness in answering calls to customer hotline imposed by other countries<sup>7</sup>.</li> </ul> |

<sup>7</sup> Brazil:95% in 10s, Qatar:75% in 15s, Romania: 90% in 30s, India: 60% in 60s

## **PART E: APPLICABLE GUIDELINES**

16. The Commission has developed a set of guidelines that sets out the testing procedures, examples of computations, reporting templates, explanatory notes and list of designated routes and areas to the standards proposed in this document. The said guidelines is annexed in **Appendix** – Guidelines to the Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service).
17. The said guidelines shall replace the Guideline on the Testing Procedure for Endpoint Service Availability and Dropped Calls issued by the Commission in 2013 pursuant to the Variation to Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service) (Determination No. 2 of 2002) - Determination No. 1 of 2013.

## **PART F: VIEWS SOUGHT**

18. **The Commission seeks views on the proposed interpretations and the proposed revised Mandatory Standards highlighted in Parts A, B and D above, including comments on the proposed Guidelines stated in Part E, which will be used for the purpose of the revised Determination.**

19. **The Commission also welcomes comments on related matters that stakeholders or respondents believe are relevant to improve the existing Mandatory Standards for Quality of Service for Public Cellular Service.**

20. **The Commission also seeks views on other possible approaches that may be employed to improve quality of service for the public cellular services in Malaysia.**





**Suruhanjaya Komunikasi dan Multimedia Malaysia**

*Malaysian Communications and Multimedia Commission*

**GUIDELINES TO THE COMMISSION DETERMINATION ON THE  
MANDATORY STANDARDS FOR QUALITY OF SERVICE (PUBLIC  
CELLULAR SERVICE), DETERMINATION 'X' OF 2015**

**(MCMC/PDD/PRD/MSPCS/No. 'X' of 2015)**

**APRIL 2015**

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## PART A: OBJECTIVE AND SCOPE

1. These guidelines are developed by the Malaysian Communications and Multimedia Commission (the "Commission") pursuant to paragraph 'X' of the Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service), Determination 'X' of 2015 ("Mandatory Standards").
2. These guidelines set out the testing procedures, examples of computations, reporting templates, explanatory notes and list of designated routes and areas to the standards proposed in the Mandatory Standards.

## PART B: REQUIREMENT FOR REPORT SUBMISSION

3. All reports (including notices and notifications) that are required to be sent to the Commission should be sent to Monitoring & Compliance (Communications) Department's address and/or email as follows:

Monitoring & Compliance (Communications) Department  
Malaysian Communications and Multimedia Commission  
Off Persiaran Multimedia  
63000 Cyberjaya  
Selangor Darul Ehsan  
Email : [qos.admin@cmc.gov.my](mailto:qos.admin@cmc.gov.my)

4. These reports shall be in the form and format as described in these guidelines. Each report shall be accompanied by a declaration signed by an officer of the service provider duly authorised by the board of directors, stating that each report is true and accurate.
5. The timelines for reporting are as follows:

**Table 1: Reporting Timelines**

| No | Item   | Reporting Period          | QoS Report Submission Date     |
|----|--|---------------------------|--------------------------------|
| 1. | QoS performance report (1 <sup>st</sup> Quarter) | 1st January to 31st March | By 30th April of the same year |
| 2. | QoS performance report (2 <sup>nd</sup> Quarter) | 1st April to 30th June    | By 31st July of the same year  |

|    |   |                              |                                  |
|----|---|------------------------------|----------------------------------|
| 3. | QoS performance report (3 <sup>rd</sup> Quarter)                | 1st July to 30th September   | By 31st October of the same year |
| 4. | QoS performance report (4 <sup>th</sup> Quarter)                | 1st October to 31st December | By 31st January of the next year |
| 5. | Advance notice of scheduled downtime                            | -                            | 14 days in advance*              |
| 6. | Notification of service disruption<br>( <i>via email only</i> ) | -                            | Within 20 minutes*               |
| 7. | Comprehensive report of service disruption                      | -                            | Within 7 working days*           |

*\*Please see details below*

## **PART C: NETWORK PERFORMANCE QUALITY OF SERVICE**

### **CALL SETUP SUCCESS RATE AND DROPPED CALL RATE**

6. Number of successful call attempts means the number of call attempts minus the number of blocked calls. A blocked call means that the call failed to be established due to a lack of available resources or no alerting within the call setup timeout.
7. The tests to measure the compliance with the standards on call setup success rate and dropped call shall be by way of a drive test or static test, or both drive and static tests. The Commission will, at its sole discretion, decide on which test should be conducted.
8. These tests will be carried out by the Commission or the Commission's appointed consultant in accordance with these guidelines. However, the Commission may, at its sole discretion, request the Public Cellular Service Providers to conduct the tests, if necessary.

### **Route or Location Identification**

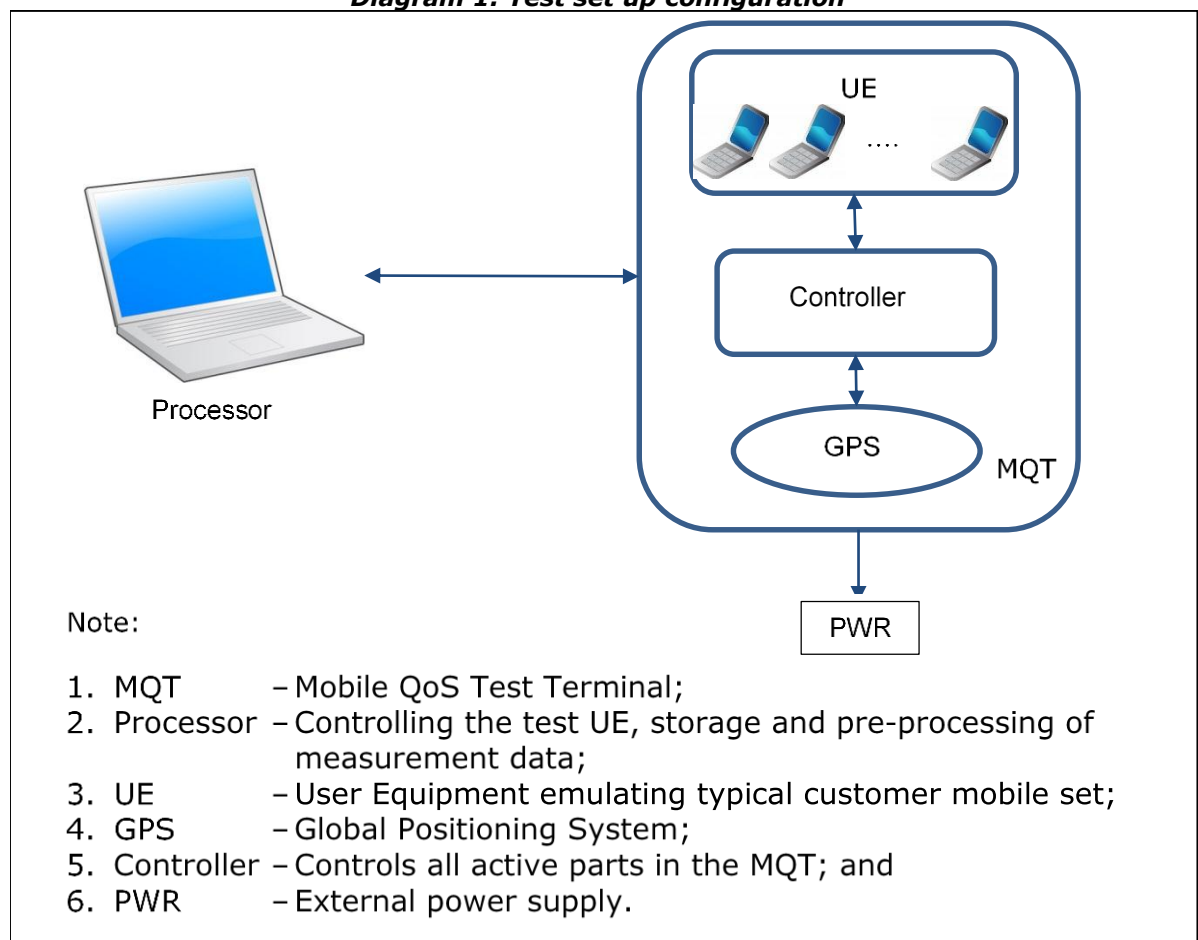
9. The tests are to be carried out along routes (for the drive test) or locations (for the static test) that have been ascertained to have cellular coverage.
10. Cellular coverage will be ascertained in the following manner:

- a. Confirmation from the public cellular service providers; or
- b. Through the coverage information advertised by the public cellular service providers; or
- c. Through the network indicator display on test phones.

### **Testing parameters**

11. The test set up configuration is as shown below:

***Diagram 1: Test set up configuration***



12. The test call number will be a switch terminating number (for inter and intra network testing) i.e. the test will only measure the call setup success rate and dropped call rates of the mobile originated call network.
13. The tests would be based on the following parameters:

- a. Call holding time = 120 seconds
- b. Interval time = 30 seconds
- c. Call setup timeout = 20 seconds
- d. Test samples = minimum of 100 samples

*Note: Call window = 170 seconds = (a + b + c)*

- 14. The software/measurement tools used for the tests shall be in compliance with the relevant European Telecommunications Standards Institute (ETSI)'s standards.
- 15. For the purposes of multi-network testing, the test call windows must be synchronized. If there are calls that have failed or dropped, the next call attempt shall be made only when the next call window arrives.
- 16. Geographical positioning will be based on the Global Positioning System (GPS) and the WGS-84 digital map or its equivalent.

#### **Designated routes and areas**

- 17. For the purpose of dropped call rate measurement, the designated routes and areas are as follows (detailed maps are annexed in **Appendix** of this document):
  - a. Selected routes and areas in Putrajaya;
  - b. Selected routes and areas in Cyberjaya;
  - c. Maju Expressway (both ways);
  - d. Selected routes from Kuala Lumpur International Airport (KLIA) to Sultan Abdul Aziz Shah (Subang) Airport via ELITE Highway; and
  - e. Selected routes from Sultan Abdul Aziz Shah (Subang) Airport to Jalan Duta via North Klang Valley Expressway (NKVE).

## ADVANCE NOTICE OF SCHEDULED DOWNTIME

18. Advance notice of scheduled downtime to customers should clearly state at least the following via electronic and print media:
  - a. Date, time and location of scheduled downtime;
  - b. Type of service affected; and
  - c. Details of Helpline.
19. Advance written notice of scheduled downtime to the Commission should clearly state at least the following:
  - a. Date, time and location of scheduled downtime;
  - b. Type of service affected;
  - c. Details of Helpline; and
  - d. Justification for the scheduled downtime.

## SERVICE DISRUPTION

20. The Service Provider shall submit quarterly reports on service disruption as per the following format:

**Table 2: Format for service disruption in quarterly reports**

| Report Items   | Impact of single incident of service disruption | QoS Standard         | Compliance |
|--|---|----------------------|------------|
| Duration the Mobile Switching Centre (MSC) is out of service (minutes) |   | Less than 30 minutes | Yes/No     |

21. The Service Provider must notify the Commission within 20 minutes of the occurrence of any single service disruption incident that involves a Mobile Switching Centre (MSC) being out of service for any duration. The details of the report shall be presented in the following format:

**Table 3: Format for service disruption (involving MSC) notification report**

| No | Report Items                         | Details/Remarks                                 |
|----|--------------------------------------|---|
| 1. | Date and time of service disruption  | (a) Start: (date/time)<br>(b) End : (date/time) |
| 2. | Location of the service disruption   |   |
| 3. | Type of services affected            | (a) Service Impact:<br>(b) Network Impact:      |
| 4. | Current status of service disruption |   |

22. The service provider must submit a comprehensive report to the Commission within 7 business days of the occurrence any single service disruption incident where a Mobile Switching Centre (MSC) is out of service for 30 minutes or longer. The details of the report shall be presented in the following format:

**Table 4: Format for service disruption (involving MSC) comprehensive report**

| No | Report Items                                     | Details/Remarks  |
|----|--|--|
| 1. | Date and time of service disruption              | (a) Start: (date/time)<br>(b) End : (date/time)                                |
| 2. | Location of the service disruption               |  |
| 3. | Exact duration of service disruption             |  |
| 4. | Type of services affected                        | (a) Service Impact:<br>(b) Network Impact:                                     |
| 5. | Number of affected customers                     |  |
| 6. | Status of service disruption                     | <i>*The date and time are to be specified if the service is fully restored</i> |
| 7. | Photographic evidence of faulty network element  |  |
| 8. | Description of the cause and problem             |  |
| 9. | Rectification steps taken to restore the service |  |



|     |  |  |
|-----|--|--|
| 10. | Preventive actions to avoid the recurrence of the same or similar service disruption |  |
| 11. | Compensation Plan offered to affected customers, if any                              |  |

23. Service Provider shall notify customers via electronic or print media as soon as is practicable in respect of any service disruption incident.

## **PART D: CUSTOMER SERVICE QUALITY OF SERVICE**

### **PERCENTAGE OF BILLING RELATED COMPLAINTS**

24. Service Provider shall submit quarterly reports on billing related complaints as per the following format:

***Table 5: Format for billing related complaints quarterly reports***

| <b>Report Items</b>               | <b>Total number over the reporting period</b> | <b>QoS Standard</b> | <b>Compliance</b> |
|-----------------------------------|---|---------------------|-------------------|
| Total number of customers         |   |                     |                   |
| No. of billing related complaints |   |                     |                   |
| % of billing related complaints   |   | not more than 1.0%  | Yes/No            |

25. Service provider is required to provide details on the types of billing related complaints received in a quarter as per the following format:

**Table 6: Format for types of billing related complaints quarterly reports**

| No. | Types of Billing related complaints                             | No. of complaints received in a reporting period |
|-----|---|--|
|     |   | Total 3 Months                                   |
| 1.  | Wrongly / not credited  |  |
| 2.  | Double charges  |  |
| 3.  | Non-refund of deposits  |  |
| 4.  | Late bills  |  |
| 5.  | Non-receipt of bills  |  |
| 6.  | Fraud   |  |
| 7.  | Wrongly addressed   |  |
| 8.  | Other billing errors  |  |
| 9.  | (Please list other types of billing related complaints, if any) |  |

26. The above list of types of billing related complaints is not exhaustive. The report should include all billing related complaints and not just those specified in the report format.

## **NON-BILLING RELATED COMPLAINTS PER 1000 CUSTOMERS**

27. Service Provider shall submit quarterly reports on non-billing related complaints as per the following format:

**Table 7: Format for non-billing related complaints quarterly reports**

| Report Items                          | Total number over the reporting period | QoS Standard | Compliance |
|---------------------------------------|--|--------------|------------|
| Total number of customers             |  |              |            |
| No. of non-billing related complaints |  |              |            |

|  |  |                   |        |
|--|--|-------------------|--------|
| No. of non-billing related complaints per 1000 customer per reporting period |  | not more than 6.0 | Yes/No |
|--|--|-------------------|--------|

28. Service provider is required to provide details of the types of non-billing related complaints received in a quarter as per the following format:

**Table 8: Format for types of non-billing related complaints quarterly reports**

| <b>Types of non-billing related complaints</b>                      | <b>Total no. of complaints for 3 months</b> |
|---|---|
| No or late service activation                                       |   |
| No or late service restoration                                      |   |
| Customer service related complaints                                 |   |
| Slow internet speed   |   |
| (Please list other types of non-billing related complaints, if any) |   |

29. The above list of types of non-billing related complaints is not exhaustive. The report should include all non-billing related complaints and not just those specified in the report format.

## **PROMPTNESS IN RESOLVING CUSTOMER COMPLAINTS**

30. For this standard, the indicator is to be separately measured and reported for (a) billing related complaints and (b) non-billing related complaints.
31. Service Provider shall submit quarterly reports on performance of promptness in resolving customer complaints as per the following format:
- a. Billing related complaints

**Table 9: Format for performance of promptness in resolving customer complaints (billing related) quarterly reports**

| Report items                     | Total for 3 months of the reporting period | QoS Standards       | Compliance |
|----------------------------------|--|---------------------|------------|
| No. of complaints received       |  |                     |            |
| No. of complaints resolved       |  |                     |            |
| Resolved within 3 business days  |  | Not less than 60.0% | Yes/ No    |
| Resolved within 5 business days  |  | Not less than 95.0% | Yes/ No    |
| Resolved within 15 business days |  | Not less than 99.0% | Yes/ No    |

b. Non-billing related complaints

**Table 10: Format for performance of promptness in resolving customer complaints (non-billing related) quarterly reports**

| Report items                     | Total for 3 months of the reporting period | QoS Standards       | Compliance |
|----------------------------------|--|---------------------|------------|
| No. of complaints received       |  |                     |            |
| No. of complaints resolved       |  |                     |            |
| Resolved within 3 business days  |  | Not less than 60.0% | Yes/ No    |
| Resolved within 5 business days  |  | Not less than 95.0% | Yes/ No    |
| Resolved within 15 business days |  | Not less than 99.0% | Yes/ No    |

\* No. of complaints resolved as per the template refers to the number of complaints resolved regardless of the number of days it took to resolve the complaints.

32. Service provider shall submit quarterly reports on the unresolved complaints excluded from the above report as per the following format:

**Table 11: Format for excluded (from Table 9 & Table 10) unresolved complaints quarterly reports**

|       | <b>Exclusion</b>   | <b>No. of unresolved complaints excluded from the computation for 3 months of the reporting period</b> |
|-------|--|--|
| 1.    | Damage to network facility due to force majeure or third parties.                    |  |
| 2.    | Customer premises inaccessible.  |  |
| 3.    | Faulty Customer Premise Equipment (CPE), customer infrastructure or internal wiring. |  |
| Total |  |  |

## **PROMPTNESS IN ANSWERING CALLS TO CUSTOMER HOTLINE**

33. Service Provider shall submit quarterly reports on performance of promptness in answering calls to Customer Hotline as per the following format:

**Table 12: Format for performance of promptness in resolving customer complaints quarterly reports**

| <b>Report items</b>                     | <b>Total for 3 months of the reporting period</b> | <b>QoS Standards</b> | <b>Compliance</b> |
|---|---|----------------------|-------------------|
| No. of calls opted for human operator   |   |                      |                   |
| No. of calls answered by human operator |   |                      |                   |
| Answered within 15 seconds              |   |                      |                   |
| Answered within 30 seconds              |   |                      |                   |
| % answered within 15 seconds            |   | Not less than 80.0%  | Yes/ No           |
| % answered within 30 seconds            |   | 100.0%               | Yes/ No           |

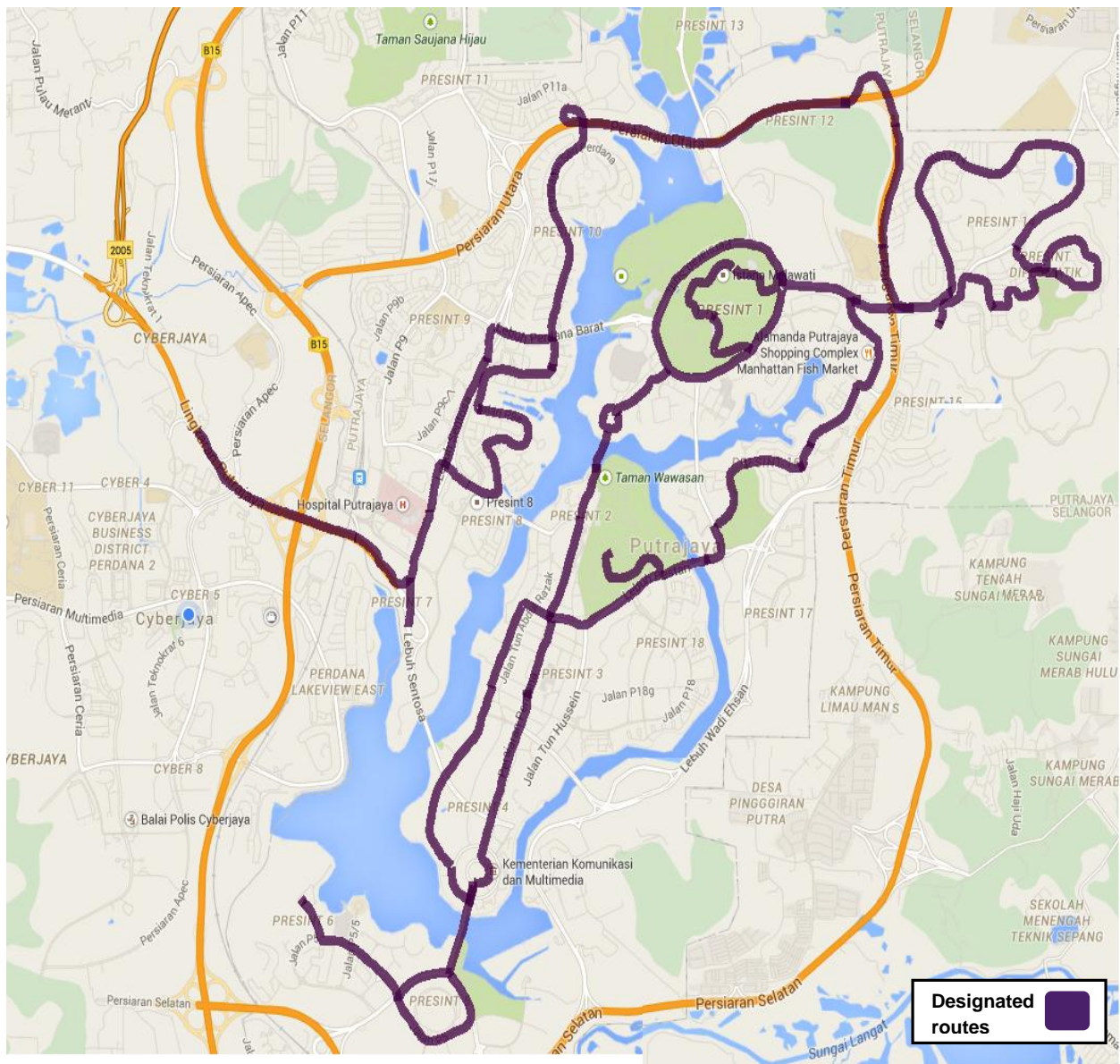
## **PART E: EFFECTIVE DATE AND COMMISSION CONTACT**

34. These guidelines shall come into effect on 'Xx (*date*)', and shall continue to be effective unless modified, varied or revoked by the Commission.
35. These guidelines shall replace the Guideline on the Testing Procedure for Endpoint Service Availability and Dropped Calls issued by the Commission in 2013 pursuant to the Variation to Commission Determination on the Mandatory Standards for Quality of Service (Public Cellular Service) (Determination No. 2 of 2002) - Determination No. 1 of 2013.
36. For any queries and further information on these Guidelines please contact:
  - a. **In respect of Network Performance Quality of Service:**  
The Infrastructure Development & Standards Division  
Phone : 03 8688 8000  
Email : [idsd@cmc.gov.my](mailto:idsd@cmc.gov.my)
  - b. **In respect of Customer Service Quality of Service:**  
The Monitoring & Compliance (Communications) Department  
Phone : 03 8688 8000  
Email : [qos.admin@cmc.gov.my](mailto:qos.admin@cmc.gov.my)

## DETAILED MAPS OF THE DESIGNATED ROUTES AND AREAS

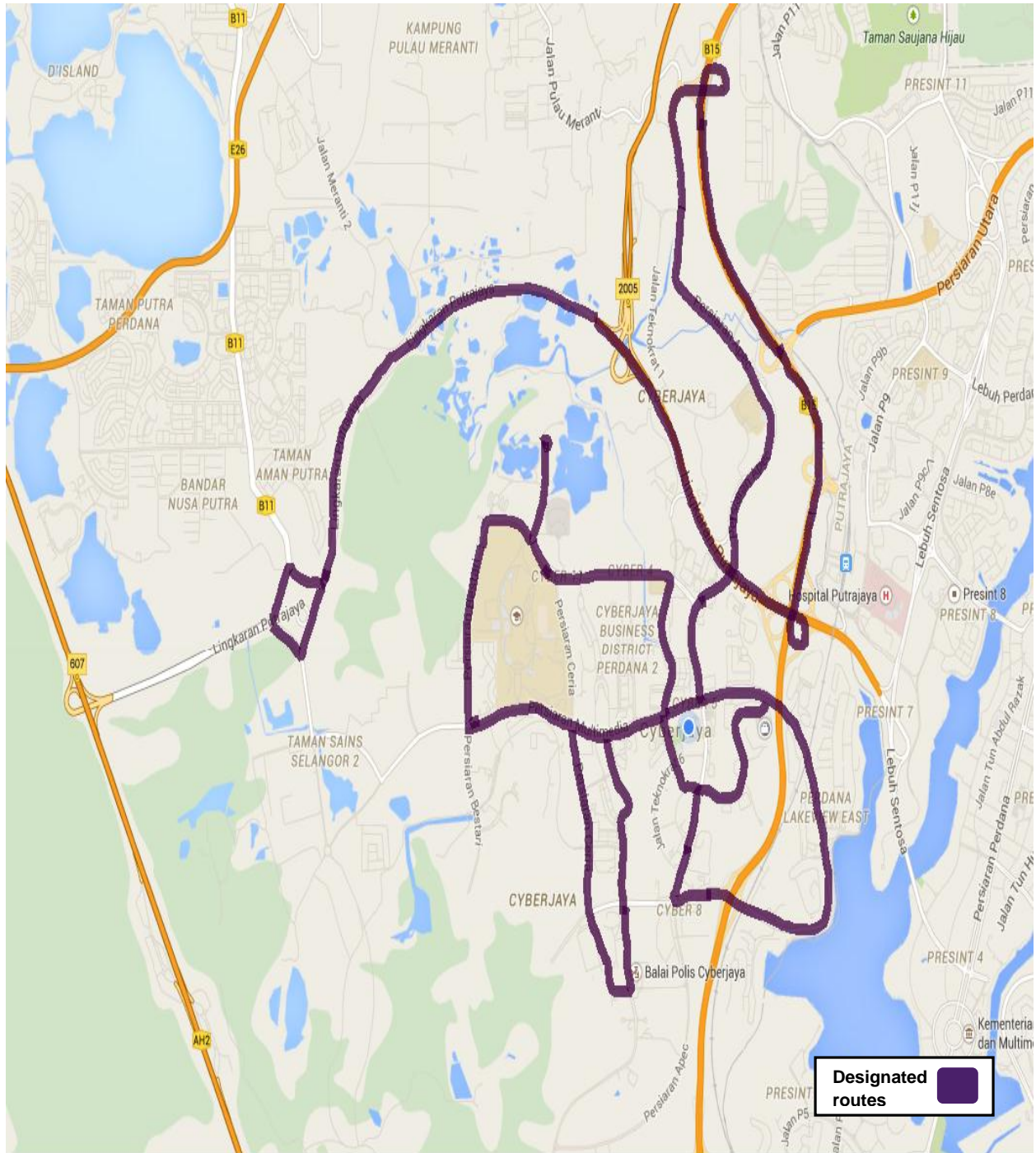
The designated routes and areas are as follows:

- a. Selected routes and areas in Putrajaya.



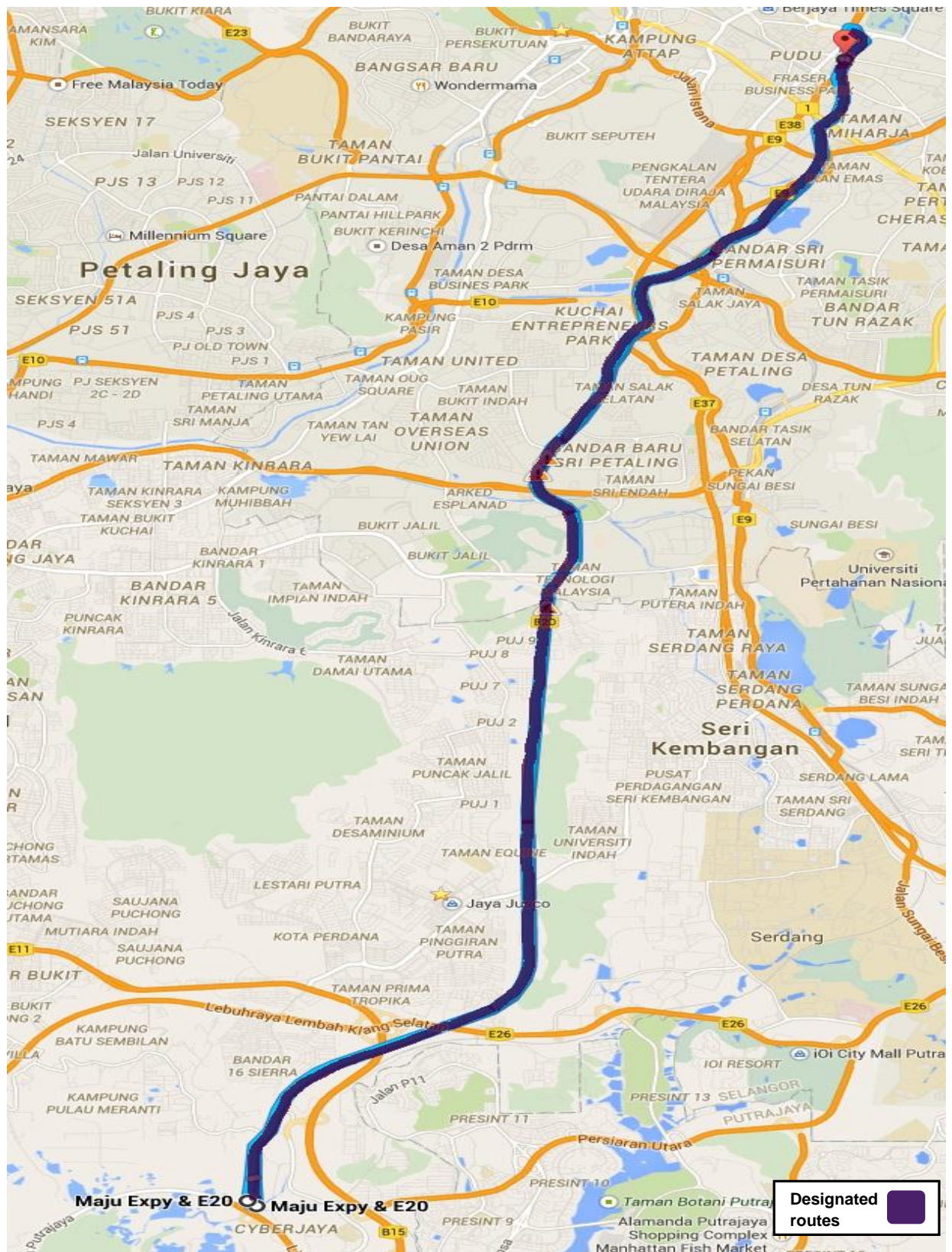
- b. Selected routes and areas in Cyberjaya.





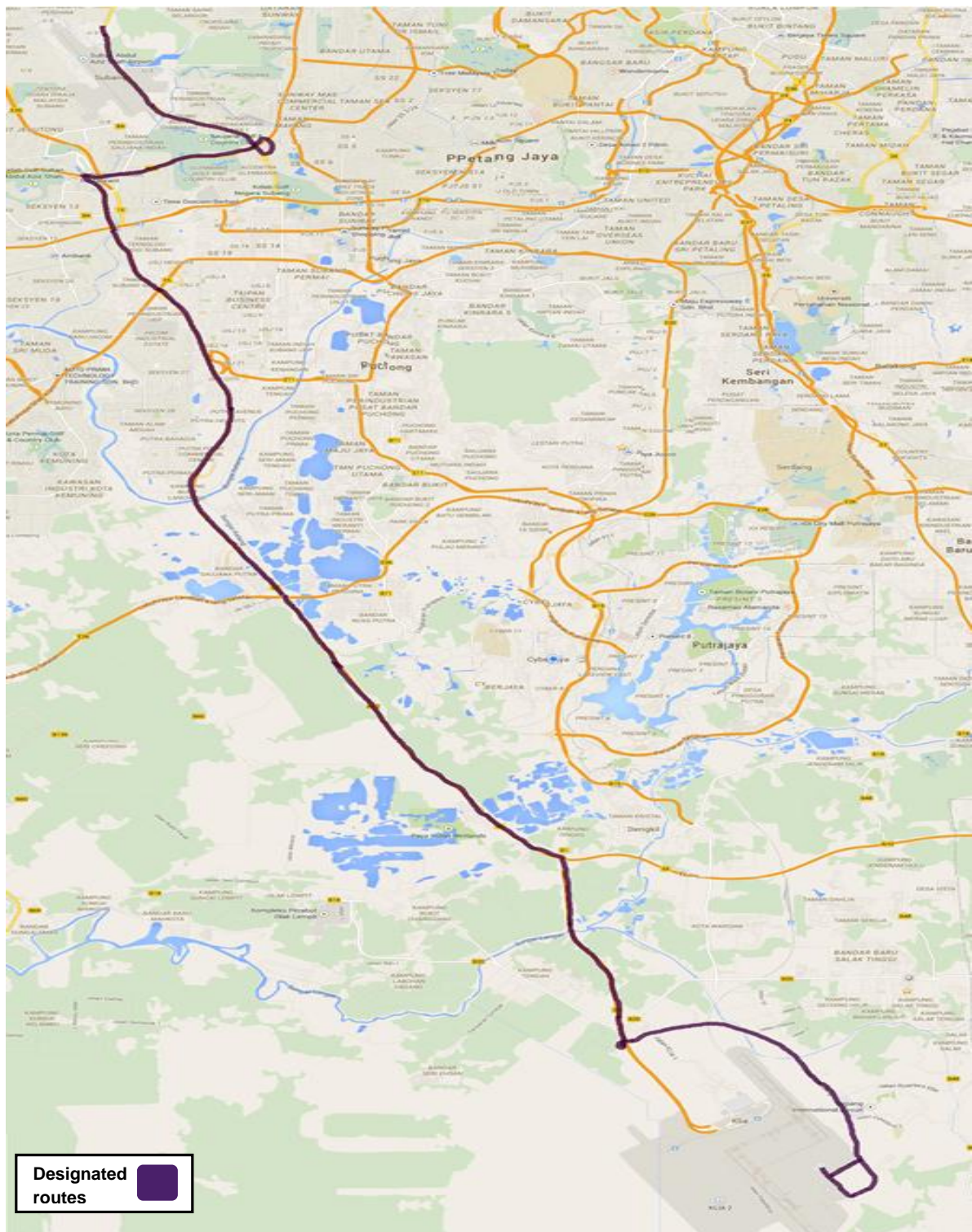
c. Maju Expressway (both ways).





- d. Selected routes from Kuala Lumpur International Airport (KLIA) to Sultan Abdul Aziz Shah (Subang) Airport via ELITE Highway.





- e. Selected routes from Sultan Abdul Aziz Shah (Subang) Airport to Jalan Duta via North Klang Valley Expressway (NKVE).

