



13 December 2016

MEMORANDUM CIRCULAR: 10-12-2016

**SUBJECT: RULES ON THE MEASUREMENT OF MOBILE BROADBAND/INTERNET ACCESS SERVICE**

WHEREAS, the National Telecommunications Commission (Commission) has promulgated Memorandum Circular No. 07-08-2015 (MC 07-08-2015);

WHEREAS, more than 70% of subscribers/users of broadband/internet access service subscribe to mobile broadband/internet access service;

NOW, THEREFORE, pursuant to R.A. No. 7925, Executive Order (EO) No. 546 series of 1979, and to maintain and foster fair competition in the telecommunications industry, and promote and protect the rights of mobile broadband service customers/subscribers/users, the Commission hereby promulgates the following rules in addition to the rules prescribed in MC 07-08-2015:

**A. DEFINITIONS**

1. "Mobile Broadband Service" refers to the internet/broadband service accessible by mobile devices using wireless mobile networks.
2. "Mobile device" refers to any device that has the capability of accessing wireless mobile networks, and whose inherent design enables it to be portable and is not inherently designed to be located permanently or semi-permanently.

For purposes of this MC, devices such as USB dongles, mobile Wi-Fi hotspots, cellular phones, tablet PCs with subscriber identification modules (SIMs), and the like, shall be considered mobile devices.

3. "GSM" refers to the 2<sup>nd</sup> generation wireless mobile networks with maximum download speed of 14.4 kbps, and its variants GPRS (General Packet Radio Services) with maximum download speed of 57.6 kbps and EDGE (Enhanced Data Rates for GSM Evolution) with maximum download speed of 236 kbps.
4. "3G" refers to 3<sup>rd</sup> generation mobile networks based on the IMT-2000 standard with maximum download speed of 384 kbps, and its variants including High Speed Packet Access (HSPA) with maximum download speed of 13.98 Mbps and HSPA+ with maximum download speed of 21 Mbps.
5. "LTE (Long Term Evolution)" refers to the standard for wireless mobile communications of high speed data for mobile devices, with a maximum download speed of 173 Mbps.

**B. MEASUREMENTS AND METRICS**

1. The Commission shall conduct the monitoring and measurements.
2. The following parameters shall be monitored and measured:
  - Downstream and upstream average data rate
  - Latency
  - Jitter
  - Packet loss

3. The measurement shall be conducted taking into consideration the ISPs' uncontrollable variables. Uncontrollable variables shall be classified into:
  - Naturally-caused uncontrollable variables:
    - Increased solar noise and increased sunspot activity, determined to have significant impact on radio frequency propagation at high frequencies, as documented by way of official reports by the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA);
    - Increased atmospheric noise, as monitored and documented in CCIR-reports (CCIR: "Comité Consultatif International des Radiocommunications"); and,
    - Adverse weather conditions causing damage or destruction of transmission equipment.
  - Static man-made uncontrollable variables:
    - The lease of bandwidth from broadband connectivity providers for mobile ISPs providing only the access network, wherein the measurements shall be conducted within the access network of the said mobile ISPs;
    - Misoptimized propagation settings and other wrong or misapplied equipment settings;
    - Normally high contention ratios within the coverage of base transmitter stations (BTSs) where measurement is being performed, thus affecting measurement results;
    - Normal intermittency, sub-performance, or absence of service coverage at the measurement location.
  - Dynamic man-made uncontrollable variables:
    - BTSs not equipped with generator sets and uninterruptible power supplies (UPSs) affected by unforeseen power outages;
    - Rapid movement of the test device forcing handover between BTSs, or signal interruptions due to the distance traveled;
    - Unexpected, significantly-large, and sporadic (as opposed to expected and periodic) increase in subscriber volume within BTS range, attributable to unusually heavy traffic, lightning rallies, and the like;
    - Damage or destruction of transmission equipment caused by deliberate or inadvertent human intervention.
  - Other uncontrollable variables: subscribers and/or ISPs may choose to identify other uncontrollable variables, and shall submit the same for the public and consumer groups to review, and for the Commission to approve after due notice and hearing.
4. In accordance with Section C, paragraph 4 of this Memorandum Circular, the Commission shall send measurement findings to ISPs, and ISPs shall have five (5) days from the receipt of their findings within which to present evidence of the existence of uncontrollable variables that may have affected the measurement, if any.
5. Any evidence of uncontrollable variables affecting specific measurements, and/or specific measurement locations, shall be published in the monthly report of the Commission, in accordance with Section C, paragraph 1 of this Memorandum Circular. The evidence of and the measurements affected by said uncontrollable variables shall also be made available by the Commission to the public by request, in accordance with Section C, paragraph 1 of this Memorandum Circular.



6. The presence of uncontrolled variables affecting the measurement for that particular testing period shall not invalidate any measurement done.
7. The measurements shall be conducted where the test device registers full received power (bar) and least received power (one bar), for each technology generation of mobile network.
8. There shall be no applications that are running on the device conducting the test while the measurements are being conducted.
9. The Commission shall ensure that test equipment shall be free from viruses or any form of malware.
10. The places where the measurements shall be conducted, Point "A", shall be a combination of known and unknown locations. The "known" locations shall be agreed upon by the ISPs, the consumer groups, and the Commission. The "unknown" locations shall be selected by the Commission. The "unknown" locations shall be made known to the ISPs and the consumer groups not later than 2 days after the conduct of the measurements.
11. The server that shall be accessed during the tests, Point "B", shall be:
  - Within the Local Area Network (LAN) of the mobile ISP;
  - Outside the LAN of the mobile ISP but within the national network; and,
  - Outside the LAN of the mobile ISP and located outside the Philippines.
12. To ensure high reliability of the results, the Commission shall perform the monitoring and measurements during peak and off peak hours, using different subscribers/consumers/users broadband/internet access data plans, among others. The monitoring and measurements shall be performed at least twice (2x) a week. There shall be no monitoring and measurement activities during adverse weather conditions.
13. The Commission shall prescribe the official measurement and monitoring tool to be used. The official measurement and monitoring tool shall be downloadable and available to the public.
14. The Test Manual shall be prepared upon the purchase of the test measurement facility by the Commission and shall form part of this Memorandum Circular. Representatives from the mobile broadband service providers and the consumer groups shall be invited in the preparation of the Test manual.

### C. PUBLICATION OF RESULTS OF MONITORING AND MEASUREMENTS

1. The results of the monitoring and measurements, including any and all explanations from the ISPs, shall be posted in the Commission's website not later than five (5) days from the end of each month and shall be released to the media. Results of the test shall be made available to the public upon request.
2. The results shall be averaged for each of the ISPs.
3. The results shall indicate at least the following:
  - Points "A" and "B" where the monitoring and measurements were performed;
  - Date and time of the monitoring and measurements;
  - Subscriber/consumers/users data plans; and

- Uncontrollable variables.
4. Before the posting of the results, each of the mobile ISPs shall be informed of the same and shall be given the opportunity to explain their side.

**D. OTHER RULES**

1. The measurement of succeeding generation wireless technologies above LTE shall be governed by NTC MC 07-08-2015 or by this Memorandum Circular, as applicable, depending on its implementation as either fixed wireless or wireless mobile, respectively.
2. Memorandum Order No. 07-07-2011 and Memorandum Circular No. 07-08-2015 shall remain effective, and shall have supplementary effect with this Memorandum Circular.
3. Any other circular, order, memoranda or parts thereof inconsistent herewith are deemed repealed or amended accordingly.
4. This Circular shall take effect fifteen (15) days after publication in a newspaper of general circulation and upon filing with the UP Law Center of three (3) certified copies of this MC.



**GAMALIEL A. CORDOBA**  
Commissioner



**EDGARDO V. CABARIOS**  
Deputy Commissioner



**DELILAH F. DELES**  
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