



Republic of the Philippines
NATIONAL POLICE COMMISSION
NATIONAL HEADQUARTERS, PHILIPPINE NATIONAL POLICE
OFFICE OF THE CHIEF, PNP
Camp BGen. Rafael T Crame, Quezon City

MEMORANDUM CIRCULAR
NO.: 2020-076

09 NOV 2020

**TEST PARAMETERS IN THE CONDUCT OF TEST AND EVALUATION
FOR 125kVA SILENT DIESEL GENERATOR (TRAILER TYPE)**

1. REFERENCES:

- a. Republic Act (RA) 9184 entitled "An Act Providing for the Modernization, Standardization and Regulation of the Procurement Activities of the Government and for other Purposes and its Revised Implementing Rules and Regulations (RIRR);
- b. NAPOLCOM Resolution No. 2019-999 "Prescribing the Minimum Standards for 125kVA Silent Diesel Generator (Trailer Type);
- c. PNP Memorandum Circular (MC) No. 2020-014 entitled, "Prescribing the Technical Specifications for 125kVA Silent Diesel Generator (Trailer Type)" dated February 14, 2020;
- d. UESB Resolution No. 2020-004 "Approving the Proposed Technical Specifications for 125kVA Silent Diesel Generator (Trailer Type)" dated March 5, 2020;
- e. Inspection and Testing of Emergency Generators;
- f. Consulting and Specifying Engineer sponsored by ABB;
- g. Underwriters Laboratories (UL) 2200, Utility Interactive Engine Generator System Assemblies; and
- h. Generator Load Bank Testing - An Important Aspect of Preventative Maintenance, Generator Service and Supply.

2. RATIONALE:

- a. To establish test and evaluation procedures for post qualification and acceptance tests for 125kVA Silent Diesel Generator set (Trailer Type);
- b. To determine whether the particular equipment/device meets or exceeds the performance standards and test methods identified in these guidelines;
- c. To make sure the generator will perform as designed, when it is needed most; and
- d. To ensure compliance and conformity to the approved NAPOLCOM Standard Specifications for the 125kVA Silent Diesel Generator Set (Trailer Type).

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3. SITUATION:

A backup electricity source is vital, particularly for monitoring, use of power life-saving machines for critical patients, and power sustainability of PNP equipment inside the PNP infrastructure and facilities or projects. The trailer mounted generators provide a quiet and mobile option and are therefore suited for emergency use in areas where electricity is not readily available for PNP projects or activities.

A mobile generator set is a mobile generation system in which a truck or trailer is equipped with a power generator, alternator, and other incidental equipment. This system is effective in providing emergency power supply in case of a disaster or large-scale power outage aside from its use as temporary power source during power line installation/inspection or power maintenance at PNP infrastructures and facilities.

Mobile generators are linked to preparedness. Its primary advantage is the ability to bring power to a location where none is available.

4. PURPOSE:

This Memorandum Circular (MC) sets forth the policy guidelines, procedures and test parameters for the conduct of functional test and evaluation of 125kVA Silent Diesel Generator (Trailer Type) during post-qualification and acceptance.

5. DEFINITION OF TERMS:

For purposes of this MC, the following terms shall mean:

- a. **Acceptance Testing** – refers to the test conducted on goods or product to determine if the requirement specifications in the contract are met. It may involve physical tests (visual and dimensional), chemical tests (laboratory tests), and/or performance tests;
- b. **Alternator** – refers to an electrical generator that converts mechanical energy to electrical energy in the form of alternating current.
- c. **A-weighted decibels (dBA, or dBa, or dB((a)))** – refers to an expression of the relative loudness of sounds in air as perceived by the human ear;
- d. **Defect** – refers to any nonconformance of the unit or product with the specified requirement;
- e. **Functional Test** – refers to the activity demonstrating that the product unit can meet the performance requirements as specified in the specifications and/or for intended purpose;
- f. **Generator set** – set comprising of a diesel engine of specified capacity, an alternator of specified capacity, and various ancillary devices, mounted over a common base frame with Anti-vibro-mounts (AVM pad as recommended by Engine Manufacturer). Developing required BHP @

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1800 rpm under NTP condition of BS 5514 with an over load capacity of 110% for one hour in any specified 12 hours of continuous operation;

- g. **Kilo Volt Ampere (kVA)** –refers simply to 1,000 volt amps;
- h. **Load Bank test** – refers to a test where an artificial load is placed on the generator. The test is timed and gradually increases the kW load in specific increments;
- i. **Major Defect** – refers to a defect, other than critical, that is likely to result in failure, or to reduce materially/significantly the usability or performance of the unit or product of its intended purpose;
- j. **Post-Qualification** – refers to an orderly evaluation performed to ascertain if an item is capable of meeting necessary requirements prior to the Acceptance Test;
- k. **Power Factor** – refers to the ratio of the real power flowing to the load to the apparent power in the circuit;
- l. **Prime Power Rating** – refers to the output available with a varying load for an unlimited time. It is set approximately 10% below the standby power ratings for each model/configuration;
- m. **Standby Power Rating** – refers to the output available with varying load for the duration of the interruption of the normal source of power;
- n. **Technical Working Group (TWG)** – refers to a pool of technical, financial and/or legal experts to assist in the procurement process;
- o. **Trailer Type Generator** – refers to a mobile silent diesel generator set suited for emergency use in areas where electricity is not readily available for PNP projects or activity.

6. GENERAL GUIDELINES:

- a. The Directorate for Research and Development (DRD) shall function as independent testing facility of the PNP. The DRD Test Team shall perform their duties pursuant to PNP MC No. 2015-015;
- b. The DRD Test Team shall conduct physical inspection (components) and functional test on the sample item submitted to determine its conformity with the NAPOLCOM Minimum Standards and PNP MC 2020-014;
- c. The test result containing findings shall be forwarded to the Bids and Awards Committee (BAC), Committee on Inspection and Acceptance (CIA), and PNP unit/office which requested the conduct of test and evaluation of a particular sample/test specimen/prototype;

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- d. Sample unit/test specimen submitted for post-qualification and test and evaluation shall not be considered part of the delivered item, ***unless otherwise specifically provided in the bidding documents***;
- e. If test equipment is not available in the DRD facility, or any certified government/private agencies/reputable scientific organization during the conduct of test and evaluation procedures specified under this MC, the test and evaluation shall be conducted by any accredited government institution or by third party (organization) consistent with international standard procedures;
- f. In case additional tests, which are not included in the approved test parameters are imposed by the BAC, the same maybe allowed only if the additional test parameters are properly reflected in the bidding documents or in its Supplemental Bid Bulletin (SBB) with proper consultation with the DRD;
- g. GPPB Circular No. 06-2016 with subject "Expenses Related to the Conduct of Post-Qualification" shall be observed during the conduct of post-qualification. Hence, the administrative and operational expenses shall be charged to the proceeds of the sale of the bidding documents as indirect cost or administrative cost pursuant to GPPB Resolution No. 04-2012;
- h. Administrative and Operational expenses for the conduct of test and evaluation during inspection and acceptance shall be imposed upon the supplier if the same were included in the computation of the Approved Budget and Contracts and integrated in the preparation of the Project Management Plan. If such expenses were not considered therein, the same may be charged to the proceeds of the sale of the bid documents as indirect cost or administrative cost allocated to the bidding activities, pursuant to GPPB Resolution No. 04-2012;
- i. Consistent with the "pass or fail criteria," non-conformance with the NAPOLCOM approved minimum standard and PNP MC No. 2020-014 during post-qualifications test is ground for post-disqualification;
- j. As appropriate, all testing fees and/or needed materials/equipment (automated and calibrated equipment) and other incidental expenses related to the test and evaluation shall be borne by the requesting party during post qualification and acceptance; and
- k. Manufacturer/Supplier/Distributor for the 125kVA Silent Diesel Generator set (Trailer Type) must have the equipment and technicians throughout the required testing.

7. TEST PROPER:

- a. **Purpose:** To determine conformity of the physical appearance and performance of 125kVA Silent Diesel Generator Set (Trailer Type):

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b. Procedure:

- 1) Visually and manually inspect the typical nameplate rating, components, and parts of the 125kVA Silent Diesel Generator set (Trailer Type); and
- 2) Visually inspect the electrical system (wiring and connections; check circuit breakers/fuses) before starting the generator set.

c. Physical Inspection (visual and dimensional):

SPECIFICATIONS PNP MC No. 2020-014		Result	Remarks	Class of Defects
A. Engine				
a. Type or Configuration	: Turbocharged			Major
b. No. of Cylinder	: 4			Major
c. Speed	: 1800rpm			Major
d. Fuel	: Diesel			Major
e. Minimum Fuel Tank Capacity	: 600 liters			Major
f. Power Factor	: 0.8pf			Major
g. Excitation Method	: Self-Excitation or shunt with AVR			Major
h. Design	: Brushless			Major
2. Leads/Wiring leads	: 12			Major
3. Trailer	: Four wheels Heavy duty; Mechanical parking; and Drop Jack			Major
B. Alternator				
a. Standby Power	: 125kVA			Major
b. Prime Power	: 100kVA			Major
c. Frequency	: Philippine Standard			Major

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d. Rated Voltage	:	Philippine Standard			Major
e. No. of Phase	:	3 phase 4 wire			Major
f. Maximum Fuel Consumption @ Full Load	:	28 L/hr			Major
g. Enclosure/Protection	:	IP 23			Major
h. Maximum Sound Level	:	75dBa at 7m			Major

d. Standard:

	Result	Remarks	Class of Defects
The 125kVA Diesel Generator set shall be complete, free from dents, blister, cracks, chipped or sharp corners, loose connections, and broken strands of conductor, bushings and other visible defects that can affect its serviceability.			Major
The Diesel Generator set must be complete with control panel, fuel tank of suitable capacity, battery with leads and anti-vibration pads, and residential type silencer.			Major
A. Operators Interface:			
Physical Construction:			
a) LCD alpha- numeric display			Major
b) LED display- faults, warnings/alarms and generator set status Key switch for OFF/RUNS/START			Major
Measurements/Instrumentation:			
a) Lube oil pressure			Major
b) Coolant temperature			Major
c) Engine speed			Major

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B. General Requirements:			
Fuel Tank:			
The tank shall have level indicators marked in liters/gallons, filling inlet with removable screen.			Major
Casing:			
It should be labeled "Weather Proof" and Environment Friendly" and should meet the DENR requirements on environmental protection (smoke emission standards, Ingress Protection) and smoke exhausting or recognized institution and/or other third party (DOST) that meets the applicable/equivalent international regulation standard/code (European or American Standard) to be furnished by supplier.			Major

8. FUNCTIONAL AND EVALUATION TEST

a. Operation and Technical Components Standard

1) Purpose:

- a) To determine the operational capability of the technical components of 125kVA Silent Diesel Generation (Trailer Type) Generator; and
- b) To ensure that the engine and generator system will produce and maintain its full load without overheating, unusual noise, and without shutting down.

2) Test equipment:

- a) Resistive and Reactive Load Bank (Dummy Load);
- b) Voltmeter;
- c) Ammeter; and
- d) Wattmeter

3) Procedure:

- a) The test must be initiated by operating the push button (start/stop) of the 125kVA Diesel Generator set for at least 30 minutes;
- b) After 30 minutes of running, check the generator; and
- c) Test shall be carried out on the generator set using resistive and reactive load bank. All apparatus, instrument, fuel and lubricating oil for these tests shall be provided by the manufacturer/supplier if the DRD test team has no available test equipment.

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4) Standard:

	Result	Remarks	Class of Defects
The entire generator set has no signs of leaks from the fuel system, cooling system or lubrication seals after 30 minute of operation.			Major
Engine Noise Level:			
The maximum permissible sound pressure level for new diesel generator (DG) sets with rated capacity up to 1000 KVA, manufactured on shall be 65 to 75 dB(A) at 1 meter from the enclosure surface using Sound Level Meter / Noise Level Meter class 2.			Major
Dummy test: Test at various loads shall be made for the following periods and in the same sequence. The engine shall be made to run under the following load conditions.			
Note: The Resistive and Reactive Load Bank equipment shall be properly calibrated by recognized and/or accredited government agency/institution or third party.			
½ hour at 25% rated load, no unusual noises and shutting down of Diesel Generator Set			Major
1 hour at 50% rated load, no unusual noises and shutting down of Diesel Generator Set			Major
1 hour at 75% rated load, no unusual noises and shutting down of Diesel Generator Set			Major
3 hours at 100% rated load, no unusual noises and shutting down of Diesel Generator Set			Major
1 hour at 110% rated load, no unusual noises and shutting down of Diesel Generator Set			Major

b. Fuel Consumption:

1) Purpose:

To determine the 125kVA Diesel Generator set fuel consumption.

2) Procedure:

a) Start by filling up the fuel tank of the Diesel Generator set;

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- b) Take note/record the exact number of liters/gallons of fuel that were added;
- c) Then set the generator to the load setting of 100% which is typically used and run it for an hour;
- d) Refill the fuel tank, noting exactly the amount of fuel that is needed to fill the tank; and
- e) Record the result at b.5 row.

9. PROCEDURES:

a. For Post-qualification:

- 1) The submitted sample/s will be used in the conduct of functional and evaluation test; and
- 2) One Major defect shall be a ground for post-disqualification.

b. For Acceptance:

- 1) The sample must pass the given functional test otherwise it shall mean outright rejection; and
- 2) One Major defect shall be a ground for rejection.

10. RESCISSION:

All other test parameters, guidelines or SOP, contrary to or inconsistent with the provisions of these test parameters are hereby rescinded, modified or amended.

11. EFFECTIVITY:

This MC shall take effect after 15 days from filing a copy thereof at the UP Law Center in consonance with Section 3, Chapter 2, Book VII of Executive Order 292 otherwise known as the "Revised Administrative Code of 1987, as amended.



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