



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

DEC 03 2020

MEMORANDUM CIRCULAR
 NO.: 2020-083

**PRESCRIBING THE MINIMUM TECHNICAL SPECIFICATIONS
 FOR REBAR CORROSION DETECTOR**

1. REFERENCES:

- a. NAPOLCOM Resolution No. 2020-0392 entitled, "Prescribing the Minimum Standards for Rebar Corrosion Detector" dated June 11, 2020;
- b. NAPOLCOM Memorandum Circular (MC) No. 2019-002 entitled, "Defining the Duty and Authority of the NAPOLCOM to Prescribe Minimum Standards for Uniforms, Arms, and Equipment to be Procured by the PNP" dated January 29, 2019;
- c. PNP MC No. 2019-016 entitled, "Implementing Guidelines of NAPOLCOM resolution No. 2019-002 Defining the Commission's Function to Prescribe Minimum Standards for Uniforms, Arms and Equipment for the Philippine National Police (PNP) and Delineation of Authority to the Chief, Philippine National Police and to Set Technical Specifications of PNP Uniforms, Arms and Equipment" dated April 4, 2019; and
- d. PNP UESB Resolution No. 2020-020 entitled, "Approving the Proposed Minimum Technical Specifications for Rebar Corrosion Detector" dated August 20, 2020.

2. RATIONALE:

This MC sets forth the minimum technical specifications for Rebar Corrosion Detector to be used in the procurement of the said equipment.

3. SITUATION:

The problem of rebar corrosion has been recognized for over a century. Early realization of deterioration due to corrosion is a key issue affecting the durability, safety, and sustainability of PNP buildings and structures. PNP infrastructure located in coastal areas and many reinforced concrete structures in these areas are exposed to aggressive marine environments. Therefore, it is important to provide protection and offer appropriate repair methods of buildings vulnerable to the degrading effects of corrosion and subsequently, the failure of structure. Corrosion detection provides a categorization of solution methods for protection, maintenance, and repair, based on standards and codes culled from around the world.

JENIFER BONJOC
 POLICE LIEUTENANT COLONEL
 Chief, Administrative Section

CERTIFIED PHOTO COPY
 FROM THE ORIGINAL

Therefore, there is a necessity to formulate minimum technical specifications for Rebar Corrosion Detector as an equipment to be used by the PNP during ocular inspection, maintenance, and monitoring of PNP infrastructure.

4. PURPOSE:

To provide and establish the minimum technical specifications for Rebar Corrosion Detector that will serve as reference in the procurement of the said equipment.

5. DEFINITION OF TERMS:

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

- a. **Electrode** – refers to an electrical conductor used to make contact with a nonmetallic part of a circuit.
- b. **Half Cell Potential** – refers to the potential developed at the electrode of each half cell in an electrochemical cell. In an electrochemical cell, the overall potential is the total potential calculated from the potentials of two half cells. The measurement of half-cell potential is used to evaluate: Presence of corrosion and Potential vulnerability of element surface area to corrosion.
- c. **Impedance** – refers to the amount of resistance that a component offers to current flow in a circuit at a specific frequency.
- d. **Ingress Protection (IP)** – refers to the degree of protection provided by mechanical casings and electrical enclosures against intrusion, dust, accidental contact, and water.
- e. **Rebar Corrosion Detector** – refers to a battery-powered, portable corrosion meter capable of measuring all types of electrical resistance (ER) corrosion probes. The half-cell method is used to identify active corrosion of rebar based on the electro chemical properties of reinforced concrete.
- f. **Software** – refers to the programs and other operating information used by a computer.
- g. **Voltage** – refers to the difference in electric potential between two points, which (in a static electric field) is defined as the work needed per unit of charge to move a test charge between the two points.

6. GUIDELINES:

- a. General Guidelines:

- 1) Description:

A portable, digital measuring instrument for on-site mapping both rebar assessment and corrosion analysis functionalities for estimating the service life of concrete structure, and scheduling repair or

JENNIFER IDONJOC
POLICE LIEUTENANT COLONEL
Chief, Administrative Section

CERTIFIED PHOTO COPY
FROM THE ORIGINAL

maintenance operation. The instrument has dedicated software to measure the electrical potential continuously along its linear paths and statistically store data for interpretation using a rod electrode, one-wheel electrode and four-wheel electrode for single and multi-line scan.

2) Technical Specifications:

- a) Display: with 7" Color LCD Display
- b) Minimum Internal Memory: 8GB
- c) Dimension: Manufacturer's Standard
- d) Maximum Weight: 1.6 kg
- e) Minimum Battery Operation: 8hrs
- f) Electrodes: Rod, wheel and four-wheel electrodes
- g) Voltage Range: -1000 to +1000 mv
- h) Voltage Resolution: 1mV
- i) Impedance: 100MΩ
- j) Environmental Rating: IP54
- k) Included items: Software, charger, 82 ft cable with clamp for connection to reinforcing grid, USB Cable Carrying case and strap


JENIFER IBONJOC
POLICE LIEUTENANT COLONEL
Chief, Administrative Section

CERTIFIED PHOTO COPY
FROM THE ORIGINAL

7. EFFECTIVITY:

This MC shall take effect immediately 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.




DEBOLD M SINAS
Police General
Chief, PNP

Distribution:
IG, IAS
D-Staff
P-Staff
D, NSUs
RD, PROs

Copy furnished:
Command Group
SPA to the SILG

CPNP Ltrs'20 S083792



S083792