



Operational description

PAGE

ESTABLISHED BY
MOBASE ELECTRONICS

MBECNWPC2307

SPEC NO.

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-	RELEASED	ALL	2023. 03. 31	J W PARK	
Rev. NO	DESCRIPTION OF CHANGE	CHANGE PAGE	REV. DATE	REV. BY	
REL. DATE 2023. 03. 31	REFERENCE	SORT	PREPARED	CHECKED	APPROVED
Original archive (PLM SYSTEM)		APPR OVAL	J W PARK	J Y JIN	J H LEE



Document Change History

Date	Ver.	Editor	Chap.	Description	CR#



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1. GENERAL INFORMATION

1.1 Description of WPC UNIT

The actual distance used by the EUT is 20cm.

WPC UNIT provides the following functions.

- MAX 15W Wireless Charging
- NFC Vehicle Start status
- Wireless Charging : 114~116kHz (5W, 15W), 1126~128kHz (7.5W)
- NFC Reader : 13.56MHz



Picture 1: System configuration



1.3 System overview

Wireless charging controller <LP, MP> – System for charging mobile phone wirelessly in vehicle using electromagnetic induction between coils

- ① After inputting IGN1 power, the reception coil (cell phone RX Coil)
- ② Confirmation of non-mobile NFC mounting via NFC Multi Tagging <MP + NFC>
- ③ (TX side charging pad: wireless charger side) Current flows in the transmission coil
- ④ The magnetic field generated by the current of the transmission coil is guided to the receiving coil and induction current is generated in the receiving coil
- ⑤ The charging current starts to be charged through PMIC (Power module IC) of mobile phone

NFC Communication Controller <MP + NFC> – Vehicle start, key registration, and vehicle information transmission / reception device through mutual communication with NFC (near field communication) installed in mobile phone and ECU.

- ① After inputting B + power, put Smart Phone on top of ECU
- ② When charging C_WPCNFCCmd = 0x01 (NFCSearchingOnHCE) from the authentication unit, stop wireless charging && NFC Start
- ③ PhoneKeyAuth Mode (SmartPhone ↔ WPC ↔ IAU AUTH certification)
- ④ RTC SYNC MODE (RTC synchronization)
- ⑤ CertificateChain SYNC MODE (Certificate Synchronization)
- ⑥ PhoneKey Sync MODE MODE (Synchronize PhoneKey and Spare Key)
- ⑦ When C_WPCNFCCmd = 0x02 (NFC Searching Off) is input from the authentication unit NFC Mode Stop && When IGN1 is ON,
Wireless charging Start

2 ELECTRICAL CHARACTERISTICS

2.1 Operating characteristics of MP

Item	Specification
Rated Supply Voltage	DC 12V
Operating Voltage	DC 9 ~ 16V
Operating Temperature	- 30 ~ + 75°C
Storage temperature range	- 40 ~ + 85°C
MP<WPC> Frequency	114 - 116 kHz 126 - 128 kHz
Standby Current	Below than 1mA

Table 1: Electrical characteristics of MP



2.2 Operating characteristics of MP+NFC

Item	Specification
Rated Supply Voltage	DC 12V
Operating Voltage	DC 9 ~ 16V
Operating Temperature	- 30 ~ + 75°C
Storage temperature range	- 40 ~ + 85°C
MP<WPG> Frequency	114 - 116 kHz 126 - 128 kHz
NFC Frequency	13.56MHz
Standby Current	Below than 1mA

Table 2: Electrical characteristics of MP+NFC

2.3 UNIT Input/Output Interface

Pin No.	Description	Reference
1	GND	
2	GND	
3	WC_AMBER_IND_OUT	
4	WC_GREEN_IND_OUT	
5	B_CAN_LOW	
6	B_CAN_HIGH	
7	NC	
8	AUTH_CAN_LOW	
9	AUTH_CAN_HIGH	
10	NC	
11	IGN1	
12	BAT+	



FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications (including the antennas) to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement: This equipment complies with FCC RF Radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

ISED

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

IC RF Radiation Exposure Statement: This equipment complies with Radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 10 cm between the radiator and your body.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage;
- (2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF du IC d'exposition aux radiations: Cet équipement est conforme à l'exposition de IC rayonnements RF limites établies pour un environnement non contrôlé. L'antenne pour ce transmetteur ne doit pas être même endroit avec d'autres émetteur sauf conformément à la IC procédures de produits Multi-émetteur. Cet équipement doit être installé et utilisé avec une distance minimale de 10 cm entre le radiateur et votre corps.