Title : Information Document	Brand : SEOYON ELECTRONICS CO., LTD. MODEL : SYECIBUB1907

PMN : UNIT ASSY-I.B.U

3. USER MANUAL

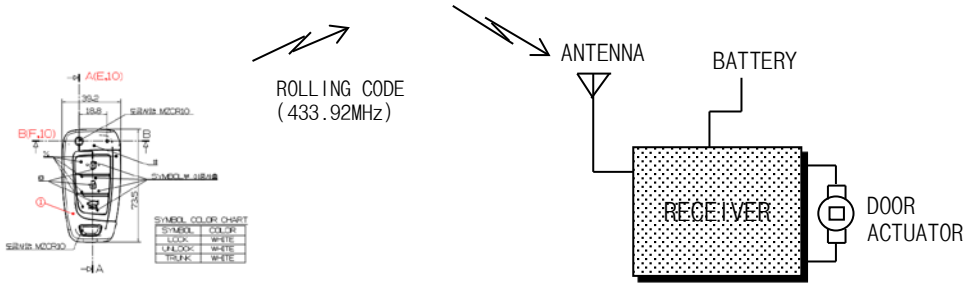
3.1 NAME : IBU_BCM system

- This system is BCM and inculdes RKE.
- RKE in BCM system is intended for auto door lock or unlock or TAIL-GATE in vehicle.
- This BCM system is to be installde on motor vehicles as *OE item.

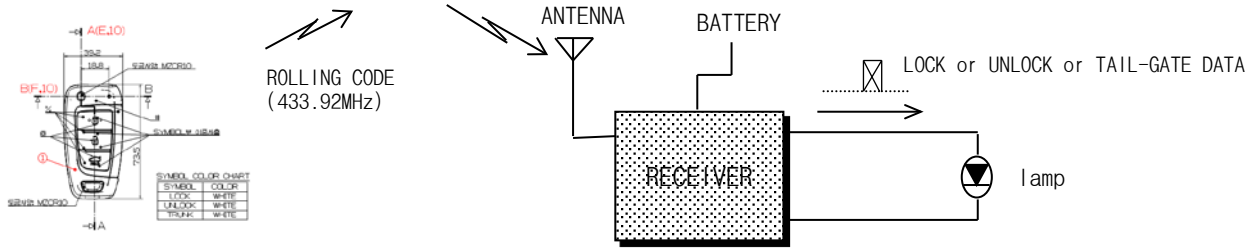
*OE : Original Equipment.
*BCM : Body Control Module.
*RKE : Remote Keyless Entry.

3.2 SYSTEM CONSTRUCTION

3.2.1 SYSTEM IN VEHICLE



3.2.2 SYSTEM FOR TEST



* Through the use of lamp, operating state is displayed by lamp.
lamp 'ON' means that actuator is operated by door lock or unlock or tail-gate output signal.

Title : Information Document	NO. Date

4. IMMO system description

1.1 product summary

Immobilizer is a vehicle anti-theft system by electronic identification of owner.

The starter does not operate if a thief forces the door open and the engine started.

1.2 specification

list	specification
use frequency	output freq. 134.2kHz
consumption current	30ms(typ.) 500mA(Max.)
use power	DC12V (vehicle BATTERY)
oscillation mathod	RESONATOR
modulation mathod	ASK modulation
signal form	F1D
communication method	intermittent run HALF DPX
Rated Supply Voltage	DC 12V
Operating Voltage	DC 9 ~ 16V
Operating Temperature	- 35 ~ + 75℃

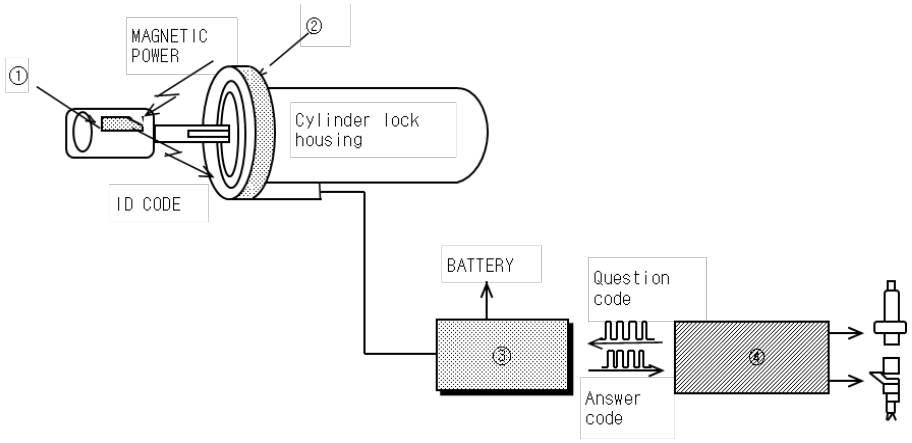
* The two reason why two reason for input frequency:

CPU can recognize when CPU recognition CODE used for immobilizer send descripted data as radio frequency at transponder using binary code.

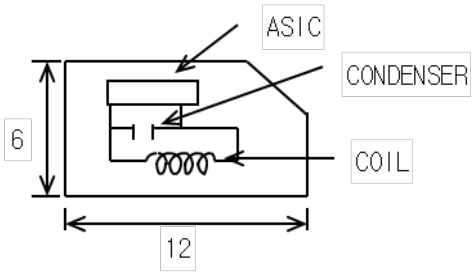
That's why we establish 134.2khz for recognizing at CPU

Title : Inf Information Document	NO. Date

4.3 Configuration



① TRANSPONDER



Transponder send response and SERIAL NUMBER to immobilizer changed ENCRYPTION KEY in ASIC whenever the Transponder receive ENERGY or CHALLENGE from radio frequency.

② COIL ANTENNA

Ls (Inductance) : 444±20uH at 134.2KHz(equipped with STR'G LOCK)
coil antenna is supplied the energy and challenge to transponder
That is receiving and transmiited the signal from transponder to IMMOBILIZER in the SHL(STEERING HANDLE LOCK)

③ IMMOBILIZER ECU

IMMO is operated the COIL ANTENNA.
The information ,that is Receiving signal from COIL ANTENNA compared and analyzed, is transmitted to ENGINE ECU

④ ENGINE ECU

If the Igition is on, ENGINE ECU are received related with transponder information from IMMOBILIZER ECU then perform engine starting or impossible starting.

Title : Information Document	NO. Date

5 Operation Method

1. It is possible to use as loaded TRANSPONDER inside the KEY, after teaching the KEY.
2. ICU start TRASPONDER communication when IGN is on by the Learnt key
3. If normal communication of transponder key code is failed, normal communication is performed the maximum 5 times.
4. ICU send engine starting command(answer code) to ENGINE ECU after entering normal transponder key code and receiving the question code from ENGINE ECU.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

15.21
- Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.
- This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

λ. 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.

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.

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.

IMPORTANT NOTE:
IC Radiation Exposure Statement:
This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 10cm between the radiator & your body.
Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 10cm de distance entre la source de rayonnement et votre corps.

The transmitter module may not be co-located with any other transmitter or antenna.

Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

CAN ICES-3 (B)/NMB-3(B)

低功率電波輻射性電機管理辦法

1.經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

2.低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。