
FOB Smart Key (FOB-4F89U44)

H/W Version: 1.00

HYUNDAI MOBIS Co., Ltd.

#80-1 Mabuk-dong, Giheung-gu, Yongin-si, Gyeonggi-do, Korea

Outline & Description

1. The Outline of FOB-4F89U44

- This unit is a Transmitter.
- FOB-4F89U44 is a part of Remote Keyless System.
- This unit controls door lock/door unlock/trunk open/panic/remote engine start-stop/forward/backward/Frunk wirelessly.
- This unit also uses UWB signals to enhance security of vehicle, which automatically communicates with the ibu regardless of button

2. Description of FOB-4F89U44

(1) Introduction

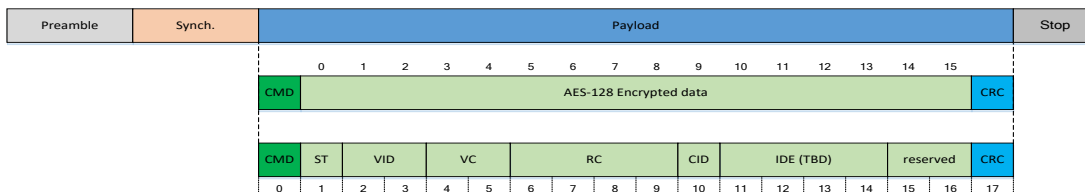
- This unit has 8 buttons.
- This unit uses a battery(CR2450)

(2) Electrical Characteristics

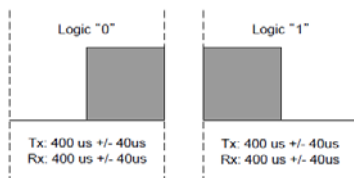
Model	Transmitter	Approval No.	FOB-4F89U44
Center freq.	433.92MHz/6.5GHz	Oper. Voltage	3V DC
Power	1mW under	Oper. Temp.	-10 ~ +60 °C
Modulation	FSK		

(3-1) Data Format : UHF 433.92MHz

- Data Frame



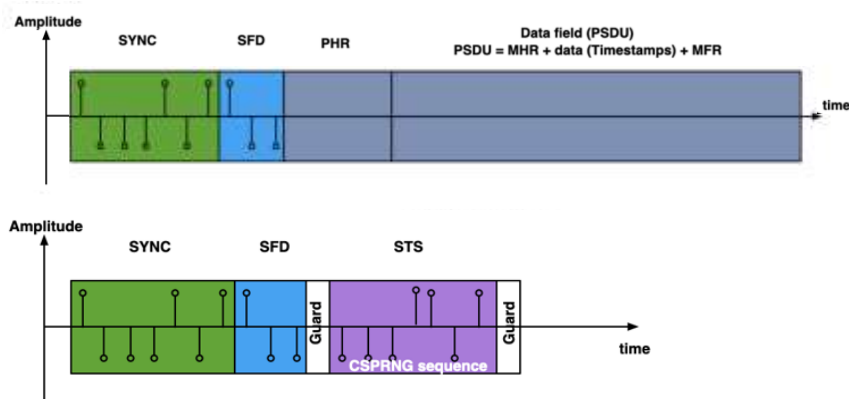
- Transmission Specification



- * Baud Rate : 7.8 kbps
 - * Coding Method : Manchester
 - * Total Data for 1 sending : 178bit/fra
- Total Time for 1 sending : 309ms
(with off-time)

(3-2) Data Format : UWB 6.5GHz(ch.5)

– Data Frame : SP0(Pre-poll/Final Data), SP3(poll/final)



– UWB physical layer protocol

	RAD Protocol				STS Packet Type3 (SP3) – IEEE802.15.4z parameters							STS Packet Type3 (SP0) – IEEE802.15.4z parameters						
	UWB Configuration	UWB Channel (IEEE802.15.4)	SYNC Preamble Code (IEEE802.15.4)	PulseShape Combo	Corresponding IEEE BPRF Mandatory Set	phyHrpUwbPsr	SFD (phyHrpUwbSfdSelector)	STS Segment x (unit of 512 chips)	phyHrpUwbPhrDataRate	PHR phyHrpUwbPhrDataRate	Data phyHrpUwbPhrDataRate	Corresponding IEEE802.15.4z BPRF Set	phyHrpUwbPsr	SFD (phyHrpUwbSfdSelector)	STS Segment x (unit of 512 chips)	phyHrpUwbPhrDataRate	PHR bit rate	PSDU bit rate
Mandatory	0	5	9	{0}	n.a	64	Ternary (0)	1 x 64	n.a			BPRF #1	64	Ternary (0)	no	DRBM LP	0.85 Mbps	6.81 Mbps

(4) Antenna type: PCB Pattern Antenna

(5) Antenna Gain:

– 433.92 MHz: –11.45 dBi

– UWB: –3.13 dBi

(6) GENERAL DESCRIPTION

PRIMARY Function

- Remote door lock/door unlock/trunk open/panic/remote engine start

–stop/forward/backward - Operating voltage: 3V DC

- Center freq.: 433.92MHz

UWB Function

– UWB signal is used to enhance vehicle security and it operates automatically under necessary conditions regardless of the user's specific action of pressing any buttons.

FCC/ISED NOTICE

[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.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This transmitter must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the FCC

[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.

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.

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment.

This transmitter must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the ISED

Cet appareil est conforme aux limites d'exposition aux rayonnements de l'ISDE pour un environnement non contrôlé.

L'émetteur ne doit pas être colocalisé ni fonctionner conjointement avec à autre antenne ou autre émetteur, à moins d'y être autorisé par l'ISDE.

Grant Restriction

15.521(a)

- UWB devices may not be employed for the operation of toys.
- Operation onboard an aircraft, a ship or a satellite is prohibited.

15.519(d)

- Antennas mounted on outdoor structures such as antennas mounted on the outside of a building or on a telephone pole, or any fixed outdoor infrastructure are prohibited for use with this device.