

CLI Command Interface

SeongJi Industrial

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▪ RF Test Tx mode	LRW 80 <TxID> <Freq> <SF> <Tx power> <BW> (delay time)
▪ RF Test Rx mode	LRW 81 <Freq> <SF> <BW>
▪ RF Test CW mode	LRW 82
▪ RF Test mode stop	LRW 83

Document revision history

Date	File name	Updated
January 11, 2017	[WISOL]AppNote_LOM202A_CLICommandList_170111.pdf	First release
July 01, 2018	[WISOL]AppNote_LOM20xA_CLICommandList.pdf	[Add] Set Rx1 Delay Time
June 3, 2019	AppNote_LOM20XA_CLI_Command_Interface_20190603.pdf	Wisol -> SeongJi Industrial
September, 5, 2019	AppNote_LOM20XA_CLI_Command_Interface_for_WAN_20190905.pdf	Change F/W platform Increased process speed(reduces BUSY signal outputs)
October, 23,2019	AppNote_LOM20XA_CLI_Command_Interface_for_WAN_20191023_En.pdf	Add command LRW 21,22,43,4E,6F
December, 01, 2019	AppNote_LOM20XA_CLI_Command_Interface_for_WAN_20191201_En.pdf	Add command LRW 6F Add contents LRW 39
April, 01, 2020	AppNote_LOM20XA_CLI_Command_Interface_for_WAN_20200401_En.pdf	Add return value for LOM202AZ0 LRW 6D
January, 04, 2021	AppNote_LOM20XA_CLI_Command_Interface_for_WAN_20210104_En.pdf	Add Command "LRW 7F" Join status

Module Model

Model

LOM20XA00 (CLI version SKT version)

LOM20XAZ0 (CLI version KR version)

LOM20XA02 (API version Global version)

Precautions

The user must understand and implement the following points.

- Implement exception handling

When the LoRa module is unable to operate the process due to abnormal operation, it must include an exception handling function that can recover the LoRa module through a hardware system reset.

You should only use a software reset or a hardware reset if you are certain that the module will not continue to function normally.

Example of abnormal operation

- ① If one of 'OK', 'ERROR', 'DONE', 'FAIL' or 'BUSY' is not returned when executing CLI Command (CLI Command is not executed)

However, the following cases are normal.

A. When a module operated in CLASS A mode enters Sleep mode When a CLI command is entered without using the wake up pin.

B. If you enter another command before one command outputs a response.

Even if it is abnormal, you need to retry the command before executing the Reset command to make sure of it.

- ② If 'BUSY' is returned when CLI command is executed but it is not in the sending or receiving progress state and CLI command is still re-executed even after a certain period of time (2 minutes or more) has elapsed
- ③ The message "Ready" is not returned after the message has been sent or after the message has been received or failed. [LOM202A00 only]

- [**LOM20xA02 only**]

The "LOM20xA_IAP_V111_non_security_uart1.hex" file is already downloaded at the time of shipment, and the module ID is stored at the same flash area

Downloading this file will destroy the ID

If you can not boot , download it to the LOM204A module.

And then you have to enter the "LRW 7B 30" command.

CLI Command

Serial port setup

In order to execute the CLI Command, EVB and UART communication. At this time, the serial port setting is as follows.

- Baud rate : 115200
- Data : 8bit
- Parity : none
- Stop : 1bit
- Flow control : none

CLI Command

The CLI Command has the following format.

Each argument is separated by a space, and the command is executed by inputting CR, LF at the end of the command.

{Command} {a blank space} {CID(Command ID)} {a blank space} {Options} CR LF

CLI Command return value

When CLI Command is executed, the following string is returned.

- If the execution is successful : "OK"
- If execution fails : "ERROR"
- Transmit and receive, or other processes in progress : "BUSY"
- When the command process is complete : "DONE" [LOM20xA02/Z0 only]
- When the command process is complete : "READY" [LOM20xA00/Z0 only]
- When the command process fails : "FAIL" [LOM20xA02/Z0 only]

If the above string is not returned after CLI command is executed, it is as follows.

- ① If LoRa module is transmitted through UART without wake-up in Class A sleep mode (Refer to Application Note: Using UART document for wake-up method)
- ② When the LoRa module stops the process due to an unexecutable exception handling condition.
- ③ LoRa device of the user If the physical UART between the Main MCU and the LoRa module is not normally connected
- ④ LoRa device of the user If the CLI command is not actually transferred from the Main MCU to the LoRa module via the UART

※ Except in the case above If you do not receive a response after executing CLI Command or if you can not receive it after sending it, you need a hardware reset.

Set Activation mode

Select LoRaWAN activation mode

(default : over the air activation mode)

※ The module is reset after the execution is completed to apply the set value.

Command	CID	Option1				
LRW	30	Activation				

- Option 1
 - (1) otaa : over the air activation mode
 - ▶ execution Message : "Set over the air activation"
 - (2) abp : activation by personalization
 - ▶ execution Message : "Set activation by personalization"
- Ex) LRW 30 otaa

Tx confirm/unconfirm msg

Uplink confirmed data or Uplink unconfirmed data

Command	CID	Option1	Option2	Option3		
LRW	31	Message	Mtype	Fport		

- Option 1
 - (1) Message
 - (2) Maximum size of message differs according to DataRate(DR).
 - See the document "LoRaWAN Regional Parameters" provided by Lora alliance.
 - Option 2
 - (1) cnf : confirmed data
 - (2) uncnf : unconfirmed data
 - Option 3
 - (1) Fport : 1~221
- Ex) LRW 31 abcd1234 cnf 1

Set Report time

Set report time (unit : sec)

(default : 60sec)

Command	CID	Option1				
LRW	32	Report time				

- Option 1
 - (1) Report time : 1~2592000 (2,592,000 = 30days, Set max 30days)
 - ▶ Execution Message : "Set Report Time : <Report time value>"

Set App EUI

Application EUI setting

Command	CID	Option1				
LRW	33	AppEUI				

- Option 1 : 8byte Hexadecimal AppEUI

► Execution Message : "AppEui : xxxxxxxxxxxxxxxx"

Ex) LRW 33 1234567812345678

Get Report time

Get report time

Command	CID					
LRW	34					

► Execution Message : "Report Time : <Report time value>"

Set Data rate

Data rate setting

Command	CID	Option1				
LRW	35	data rate				

- Option 1 : 0 ~5(SKT/KR) , 0 ~ 6(AU915), 2 ~ 6(Brazil)

(1) 0 : SF12/125KHz

(2) 1 : SF11/125KHz

(3) 2 : SF10/125KHz

(4) 3 : SF9/125KHz

(5) 4 : SF8/125KHz

(6) 5 : SF7/125KHz

(7) 6 : SF8/500KHz

► Execution Message : "Set DR : <data rate value>"

- See the document "LoRaWAN Regional Parameters" provided by Lora alliance.

Ex) LRW 35 2

Set ADR

Adaptive data rate function on/off
(default : ON)

Command	CID	Option1				
LRW	36	on or off				

- Option 1

(1) on : ADR on

► Execution Message : "Set ADR ON"

(2) off : ADR off

► Execution Message : "Set ADR OFF"

Ex) LRW 36 off

Set ReTx

Re-transmission number setting
(default : 8)

Command	CID	Option1				
LRW	37	ReTx				

- Option 1

(1) ReTx : Re-transmission number 1~8

▶ Execution Message : "Set cnf_retx_nb : <ReTx number >"

Ex) LRW 37 8

Send Link Check Request

Send a message for Link Check Request

Command	CID					
LRW	38					

Send TimeSync Request

Send a message for TimeSync Request

Command	CID					
LRW	39					

▶ Execution Message : ex)

"ProcessMacCommands: SRV_MAC_TIME_SYNC_ANS: S 1257643114 FS 8691"

=> Korea time(GMT+9) : 2019-11-13 10:18:34 132616159

SRC_MAC_TIME_SYBC_ANS Payload format

Size(Bytes)	4	2
SRC_MAC_TIME_SYBC_ANS	32bit integer : Seconds since epoch*	Fractional-second in $(1/2)^{16}$ second steps

(*) The GPS epoch (i.e Sunday January the 6th 1980 at midnight) is used as origin. The "seconds" field is the number of seconds elapsed since the origin. This field is monotonically increasing by 1 every second. To convert this field to UTC time, the leap seconds must be taken into account

Enhanced Provisioning ON / OFF (Only for SKT KR version)

Enhanced provisioning On/Off

(default : ON)

※ 실행 완료 후 설정 값 적용을 위해 자동으로
system software reset이 된다.

Command	CID	Option1	Option2	Option3	Option4	Option5
LRW	3B	0 or 1				

- Option 1

(1) 0 : Provisioning off

▶ Execution Message : "Set Normal Provisioning"

"Reset for config"

(2) 1 : Provisioning on

▶ Execution Message : "Set Enhanced Provisioning"

"Reset for config"

**Enhanced Provisioning NONE / DONE
(Only for SKT KR version)**

Enhanced provisioning의 Join request 시작방식 설정

- NONE : pseudo key로 Join request 시작
- DONE : real key로 Join request 시작

※ 실행 완료 후 설정 값 적용을 위해 자동으로 system software reset이 된다.

Default는 NONE으로 되어 있으며 첫번째 pseudo Join이 완료되고 real key를 받으면 자동으로 DONE으로 변경 저장됨. 따라서 이미 최종적으로 real Join이 완료 된 상태에서 다시 새로운 AppEUI와 AppKey를 입력하여 pseudo Join부터 시작하기 위해서는 반드시 NONE으로 설정 해야 함.

Command	CID	Option1	Option2	Option3	Option4	Option5
LRW	3C	0 or 1				

- Option 1

(1) 0 : Enhanced Provisioning none

▶ Execution Message : "Enhanced Provisioning status : None"
"Reset for config"

(2) 1 : Enhanced Provisioning done

▶ Execution Message : "Enhanced Provisioning status : Done"
"Reset for config"

Set Rx1 Delay Time

Set Rx1 Delay time
(default : 1000)

Command	CID	Option1				
LRW	3D	Rx1Delay				

- Option 1

(1) Rx1Delay : Rx1 Delay time : 100 ~ 6000

▶ Unit : ms

▶ Execution Message : "RX1 Delay : <Rx1Delay >"

Ex) LRW 3D 1000

Get device EUI

Check device EUI

Command	CID					
LRW	3F					

▶ Execution Message : "DevEui : xxxxxxxxxxxxxxxx"

Get App EUI

Check App EUI

Command	CID					
LRW	40					

► Execution Message : "AppEui : xxxxxxxxxxxxxxxx"

Get Tx data rate

Check Tx data rate

Command	CID					
LRW	42					

► Execution Message : "DR : <data rate value>"

Join request (Only for API version)Join request (Initialize the variable) **Untested**

Command	CID					
LRW	43					

► Execution Message : "Join Request"

Get ADR

Check if Adaptive data rate function is on/off

Command	CID					
LRW	44					

► Execution Message : "ADR status : <ON or OFF>"

Get ReTx

Check Uplink Re-transmission number of Confirmed Message

Command	CID					
LRW	45					

► Execution Message : "Cnf_retx_nb : <ReTx number>"

Get Rx1 delay

Check delay time of RX1

Command	CID					
LRW	46					

► Execution Message : "RX1 Delay : <delay time>"

Check connectionCheck status of Serial connection.
Return "OK" when inputting command

Command	CID					
LRW	49					

Get the Last RSSI & SNR

Check the RSSI and SNR values of the last received data.

Command	CID					
LRW	4A					

► Execution Message : "RSSI : <RSSI value> "
"SNR : <SNR value> "

Set Class type

LoRaWAN Class setting

(default : CLASS A)

※ The module is reset after the execution is completed to apply the set value

Command	CID	Option1				
LRW	4B	0 ~2				

- Option 1

(1) 0 : Class A

► Execution Message : "Set CLASS A"
"Reset for config"

(2) 1 : Class B

► Execution Message : "Not Support CLASS B "

(3) 2 : Class C

► Execution Message : "Set CLASS C"
"Reset for config"

Ex) LRW 4B 0

Get Class type

Check LoRaWAN Class settings

Command	CID					
LRW	4C					

► Execution Message : When the setting value is Class A "CLASS A"
When the setting value is Class C "CLASS C"

Set Fcnt for ABP

Set Uplink Frame count value for ABP mode

Command	CID					
LRW	4E					

► Execution Message : NONE

Get Firmware version

Check Firmware version

Command	CID					
LRW	4F					

► Execution Message : "Firmware version : <version> "

Set Application key

Application key setting

Command	CID	Option1				
LRW	51	AppKey				

- Option 1 : 16byte Hexadecimal AppKey
 - ▶ Execution Message : "AppKey : <AppKey value>"
- Ex) LRW 51 12345678901234567890123456789012

Get Application key

Check Application key setting

Command	CID					
LRW	52					

- ▶ Execution Message : "AppKey : <AppKey value>"

Set Atten

Atten(Antenna gain) setting

(default : 0)

Command	CID	Option1				
LRW	53	atten				

- Option 1
 - (1) atten : 0~6
 - ▶ Execution Message : "Set Atten : <atten value> dBm"
- Ex) LRW 53 0

Get Atten

Check Atten(Antenna gain) value

Command	CID					
LRW	63					

- ▶ Execution Message : "Atten : <atten value> dBm"

Set unconfirmed msg retransmission number

Unconfirmed message retransmission number setting

(default : 1)

Command	CID	Option1				
LRW	54	ReTx				

- Option 1
 - (1) ReTx : 1~8
 - ▶ Execution Message : "Set uncnf_retx_nb : <ReTx value>"
- Ex) LRW 54 1

Get unconfirmed msg retransmission number

Check retransmission number value of Unconfirmed message

Command	CID					
LRW	55					

- ▶ Execution Message : "Uncnf_retx_nb : <ReTx value>"

Get RX1 DataRate offset

Check value of RX1 DataRate offset of RX2, Frequency

Command	CID					
LRW	56					

► Execution Message : "RX1 DR Offset : <offset value>"

"RX2 DR : <DataRate value>"

"RX2 Freq : <Frequency value>"

Set sleep mode

Sleep mode entry setting

※ **This command must be executed before the join is completed.**

The command is for measuring the sleep current.

After the command is executed, it goes into sleep mode and does not operate normally until reset.

Command	CID					
LRW	60					

► Execution Message : "Start sleep mode"

System software reset

Run system software reset

Command	CID					
LRW	70					

► Execution Message : "System reset!"

Set Channel Tx power
 (Only for SKT KR version)

Set channel TX power

(default value:

Ch ID 1 : Tx Power Index: 0 (14dBm)

Ch ID 2 : Tx Power Index: 0 (14dBm)

Ch ID 3 : Tx Power Index: 0 (14dBm)

Ch ID 4 : Tx Power Index: 4 (10dBm)

Ch ID 5 : Tx Power Index: 0 (14dBm)

Ch ID 6 : Tx Power Index: 0 (14dBm)

Ch ID 7 : Tx Power Index: 0 (14dBm)

Ch ID 8 : Tx Power Index: 0 (14dBm)

)

Command	CID	Option1	Option2			
LRW	5E	Channel ID	Tx Power ID			

- Option 1

(1) Channel Index : 1 ~ 8

Index 1 : 922.1 MHz

Index 2 : 922.3 MHz

Index 3 : 922.5 MHz

Index 4 : 921.9 MHz

Index 5 : 922.7 MHz

Index 6 : 922.9 MHz

Index 7 : 923.1 MHz

Index 8 : 923.3 MHz

(2) Tx Power Index: 0 ~ 14

Index 0 : 14 dBm

Index 1 : 13 dBm

Index 2 : 12 dBm

Index 3 : 11 dBm

Index 4 : 10 dBm

Index 5 : 9 dBm

Index 6 : 8 dBm

Index 7 : 7 dBm

Index 8 : 6 dBm

Index 9 : 5 dBm

Index 10 : 4 dBm

Index 11 : 3 dBm

Index 12 : 2 dBm

Index 13 : 1 dBm

Index 14 : 0 dBm

► Execution Message : "Set CH<Channel ID> PWR : <Tx Power ID>"

Get Channel Tx power
(Only for SKT KR version)

전체 채널 Tx power 설정 값 확인

Command	CID					
LRW	5F					

► Execution Message : "CH<channel ID> Freq <Frequency value>Hz PWR <Tx Power ID>"

Set Network ID
(Only for ABP mode)

Network ID setting

Command	CID	Option1				
LRW	65	Net ID				

- Option 1

(1) Net ID: 3 byte Hexadecimal

► execution Message : "Set NetID : <value>"

Ex) LRW 65 123456

Set Device Address

(Only for ABP mode)

Device Address setting

Command	CID	Option1				
LRW	66	Devaddr				

- Option 1

(1) Devaddr: 4 byte Hexadecimal

► Execution Message : "Set DevAddr : <value>"

Ex) LRW 66 12345678

Set Network Session Key

(Only for ABP mode)

Network Session Key setting

Command	CID	Option1				
LRW	67	NwkSKey				

- Option 1

(1) NwkSKey: 16 byte Hexadecimal

► Execution Message : "Set NwkSKey : <value>"

Ex) LRW 67 12345678901234567890123456789012

Set Application Session Key

(Only for ABP mode)

Application Session Key setting

Command	CID	Option1				
LRW	68	AppSKey				

- Option 1

(1) AppSKey: 16 byte Hexadecimal

► Execution Message : "Set AppSKey : <value>"

Ex) LRW 68 12345678901234567890123456789012

Get Device Address

(Only for ABP mode)

Check device address

Command	CID					
LRW	6A					

► Execution Message : "DevAddr : <value>"

Set Channel Mask

(Only for AU915/LA915/US915)

Set channel Mask

Command	CID	Option1	Option2	Option3	Option4	Option5	Option6
LRW	6D	Channel 0	Channel 1	Channel 2	Channel 3	Channel 4	dummy

- Option 1, ~Option 6

(1) Channel mask table 0 ~ 4

(2) 4 digits Hexa format

Ex) LRW 6D ff00 0000 0000 0000 0002 0000 (for LA915)

- Channel list

Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Option 1 Channel 0	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Option 2 Channel 1	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
Option 3 Channel 2	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
Option 4 Channel 3	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	48
Option 5 Channel 4									71	70	69	68	67	66	65	64
Option 6 Dummy	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Get Channel Mask

Check channel mask

Command	CID					
LRW	6E					

► Execution Message : "Channel Mask = 0xffff, 0xffff, 0xffff, 0x00ff, 0x0000"

Save Fcnt for ABP

Save Frame count value for ABP mode

In ABP mode, if the module is powered down to reduce current consumption, it can be used before powering off.

Command	CID					
LRW	6F					

► Execution Message : NONE

Get Data Infomation

Check Data Infomation

Command	CID					
LRW	57					

► Execution Message :

Mode	OTAA	ABP
Display Mode	OTAA	ABP
Data	DevAddr:<value>	NetID:<value>
	J_A_Delay1:5000	DevAddr"<value>
	J_A_Delay2:6000	NwkSKey:<value>
		AppSKey:<value>

Get Rx1 Delay

Check RX1 Delay

Command	CID					
LRW	46					

► Execution Message : "RX1 Delay : <value>"

- Unit : ms

Get Rx1DrOffset & Rx2 Info

Check Rx1DrOffset & Rx2 Info

Command	CID					
LRW	56					

► Execution Message : "RX1 DR Offset : <value>"

"RX2 DR : <value>"

"RX2 Freq : <value>"

Set TX Power

TX Power setting

Command	CID	Option1				
LRW	5C	TX PowerID				

- Option 1

(1) TX Power index : 0 ~ 15

► execution Message : "Set TxPower : <value>"

- See the document "LoRaWAN Regional Parameters" provided by Lora alliance.

- 0: 14dBm, 14: 0dBm(SKT/KR), 0:30dBm, 15: 0dBm(AU, Brazil)

- LOM202A : Max 14dBm, LOM204A : Max 20dBm

Ex) LRW 5C 5

Get TX Power & Channel Info

Check TX Power & Channel Info

Command	CID					
LRW	5D					

► Execution Message :

"TxPower : <value>"

"CH<value> Freq <value> DR <value>"

Set Repeater SupportRepeater Support setting
(default : 0)

Command	CID	Option1				
LRW	47	0 or 1				

- Option 1

(1) 0 : Repeater Support off

► Execution Message : "Set Repeater Support OFF "

(2) 1 : Repeater Support on

► Execution Message : "Set Repeater Support ON "

Ex) LRW 47 0

Get Repeater Support

Check Repeater Support

Command	CID					
LRW	48					

► Execution Message : "Repeater Support" or "Repeater Support ON "

Set Debug Message on/off

Debug Message on/off setting
(default : 0)

Command	CID	Option1				
LRW	50	0 , 1 , 2				

- Option 1
 - (1) 0 : Debug message off (There is a simple debug message)
 - Execution Message : "Set Debug MSG OFF"
 - (2) 1 : Debug message on (There is a full debug message)
 - Execution Message : "Set Debug MSG ON"
 - (3) 2 : Debug message none (There is no debug message)
 - Execution Message : "Set Debug MSG NONE"

Get Debug Message ON/OFF

Check Debug Message ON/OFF

Command	CID					
LRW	64					

► Execution Message : "Debug MSG OFF" or "Debug MSG ON"

Set UART baudrate

Check the UART baudrate and Save the settings
(default : 115200 bps)
※ The module is reset after the execution is completed to apply the set value

Command	CID	Option1				
LRW	61	baudrate				

- Option 1
 - (1) baudrate : Supported baudrates are as follows.
 - 19200 bps
 - 38400 bps
 - 57600 bps
 - 115200 bps
 - 230400 bps
 - 460800 bps
 - Execution Message : "Set UART BaudRate : <baudrate> bps"
"Reset for config"

Ex) LRW 61 115200

Get UART baudrate

Check UART baudrate

Command	CID					
LRW	62					

► Execution Message : "UART BaudRate : <baudrate> bps"

Set GMT

Save GMT value

(default : +9 : Korea)

Command	CID	Option1				
LRW	71	GMT				

- Option 1

(1) GMT : -24 ~ +24

GMT is used in TimeSync. Can be set to GMT for each country.

► Execution Message : "Set GMT : <value>"

Ex) LRW 71 9

Get GMT

Check GMT value

Command	CID					
LRW	72					

► Execution Message : "GMT : <value>"

Set DutyCycle on/off

DutyCycle on/off setting

(default : off)

Command	CID	Option1				
LRW	73	0 or 1				

- Option 1

(1) 0 : dutyCycle off

(2) 1 : dutyCycle on

► Execution Message : When set to 0 "Set DutyCycle : Off"

When set to 1 "Set DutyCycle : On"

Ex) LRW 73 0

Get DutyCycle on/off

Check DutyCycle on/off

Command	CID					
LRW	74					

► Execution Message : When set to 0 "DutyCycle : Off"

When set to 1 "DutyCycle : On"

Get Country Check country

Command	CID					
LRW	79					

► Execution Message : US915 : "US"

EU868 : "EU"

KOREA : "KR", KOREA(SKT) : "KR/SKT"

JAPAN : "AS/JP"

AU915 : "AU"

Get Model info Check model info

Command	CID					
LRW	7A					

► Execution Message : "LOM202A02, 1.0.1"

Get Join Status Check Join Status

Command	CID					
LRW	7F					

► Execution Message : "JOINED" , "NOT JOINED"

Set US915 Channels number
(Only for US915 public version)

US915 Channels number setting

(default : 8)

※ The module is reset after the execution is completed to apply the set value

Command	CID	Option1				
LRW	2C	Channels number				

- Option 1

(1) Channels number : 1 ~ 72

► Execution Message : When setting to 8 channels

"set US915 Channels : 8"

"Reset for config"

Get US915 Channels number
(Only for US915 public version)

Check US915 Channels number

Command	CID					
LRW	2D					

► Execution Message : When setting to 8 channels

"US915 Channels : 8"

Set OneSecondDelay enable/disable

OneSecondDelay enable/disable setting

(default : enable)

disable: Send a Join-Request immediately after System reset

enable : Send a Join-Request after 1 second delay after system reset

In order to use command after system reset.

Command	CID	Option1				
LRW	2E	0 or 1				

- Option 1

- (1) 0 : OneSecondDelay disable

- (2) 1 : OneSecondDelay enable

- Execution Message : When set to 0 "Set OneSecondDelayEnable : Diable"

- When set to 1 "Set OneSecondDelayEnable : Enable"

Get OneSecondDelay enable/disable

Check OneSecondDelay enable/disable

Command	CID					
LRW	2F					

- Execution Message : When set to 0 "OneSecondDelayEnable : Diable"

- When set to 1 "OneSecondDelayEnable : Enable"

Tx confirm/unconfirm binary data commands follow a different format from the CLI Commands introduced so far (following the specifications of Array [0] ~ Array[n+2])

Tx confirm/unconfirm binary data

Uplink confirmed binary data or Uplink unconfirmed binary data

	Command				CID		
Array	Array [0]	Array [1]	Array [2]	Array [3]	Array [4]	Array [5]	Array [6]
Character	L	R	W		4	D	
Hex value	0x4C	0x52	0x57	0x20	0x34	0x44	0x20

	Mtype	Fport	Length	Message	CR	LF
Array	Array [7]	Array [8]	Array [9]	Array [10] ~ [n]	Array [n+1]	Array [n+2]
Character						
Hex value	0x00 or 0x01	0x01 ~ 0xDD	0x01 ~ FF	Binary data	0x0D	0x0A

- Command

- (1) 0x4C 0x52 0x57 : LRW

- CID

- (1) 0x34 0x44 : 4D
 - Mtype
 - (1) 0x01 : confirmed data
 - (2) 0x00 : unconfirmed data
 - Fport : 0x01 ~ 0xDD (1~221)
 - Length : 0x01 ~ 0xF2
 - (1) The maximum transmission size of Tx data differs for each DataRate(DR) of each country according to the LoRaWAN standard. (For details, refer to the [LoRaWAN specification document](#))
 - Message
 - n
 - (1) Variable according to the length of the Message (Array [10] ~ [252])
 - (2) When the transmitted message is 1 byte, n = 10
 - (3) When the message to be transmitted is 242bytes, n = 252
- Ex) 4C 52 57 20 34 44 20 01 01 0A 01 02 03 04 05 06 07 08 09 0A 0D 0A

Set Syncword			Set Syncword for WAN (default : 0x34)			
Command	CID	Option1				
LRW	21	Syncword				

- Option 1
 - Syncword(hex) : 01 ~ FE
 - ▶ Execution Message : When set to 0x34 "Set Syncword : 0x34" => Default
 - When set to 0x12 "Set Syncword : 0x12" => private

Ex) LRW 21 34

Get Syncword			Get Syncword for WAN			
Command	CID					
LRW	22					

- ▶ Execution Message : For SKT CLI version "Syncword : 0x34"
- For other "Get Syncword : 0x34"

Save current Fcnt value for ABP			Save current Fcnt value for ABP mode			
Command	CID					
LRW	6F					

- ▶ Execution Message : OK

RF Test CLI Command

RF Test CLI Command can be executed without the join completed.

It should be used only for RF test, and system reset must be performed in order to operate normally after joining after execution

RF Test Tx mode			RF Test Tx mode				
Command	CID	Option1	Option2	Option3	Option4	Option5	Option6
LRW	80	TxID	Frequency (Unit : KHz)	SF	Tx power (Unit : dBm)	BW	(delay time)

- Option 1
 - (1) TxID : 1 ~ 999 (ID assignment for Tx data)
 - ▶ Enter any value.
- Option 2
 - (1) Frequency : 0 ~ 999999
 - ▶ Unit : kHz
- Option 3
 - (1) SF : 7 ~ 12
 - ▶ SF : SpreadingFactor
- Option 4
 - (1) Tx power : 0 ~ 14(LOM202A), 20(LOM204A)
 - ▶ Unit : dBm
- Option 5
 - (1) BW : 0 ~ 2 (0 : 125KHz, 1 : 250KHz, 2 : 500KHz)
 - ▶ BW : Bandwidth
- Option 6
 - (1) delay time : 0 ~ 10000 // recommend min value : 100
 - ▶ Unit : ms
 - default 0 ms

ex) LRW 80 1 923200 7 20 0 100

RF Test Rx mode			RF Test Rx mode			
Command	CID	Option1	Option2	Option3		
LRW	81	Frequency (Unit : KHz)	SF	BW		

- Option 1
 - (1) Frequency : 0 ~ 999999
 - ▶ Unit : kHz

- Option 2
(1) SF : 7 ~ 12
 ▶ SF : SpreadingFactor
- Option 3
(1) BW : 0 ~ 2 (0 : 125KHz, 1 : 250KHz, 2 : 500KHz)
 ▶ BW : Bandwidth

Ex) LRW 81 923200 7 0

RF Test CW mode		RF Test CW mode				
		※ Be sure to execute Tx mode first and then execute CW mode command				
Command	CID					
LRW	82					

RF Test mode stop		RF Test mode stop				
Command	CID					
LRW	83					