LSM1x0A LoRa CLI Command interface manual

Rev 1.0

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History

Date	Contents	Version	
2022-05-31	Create	V1.0	

1. AT command complete set

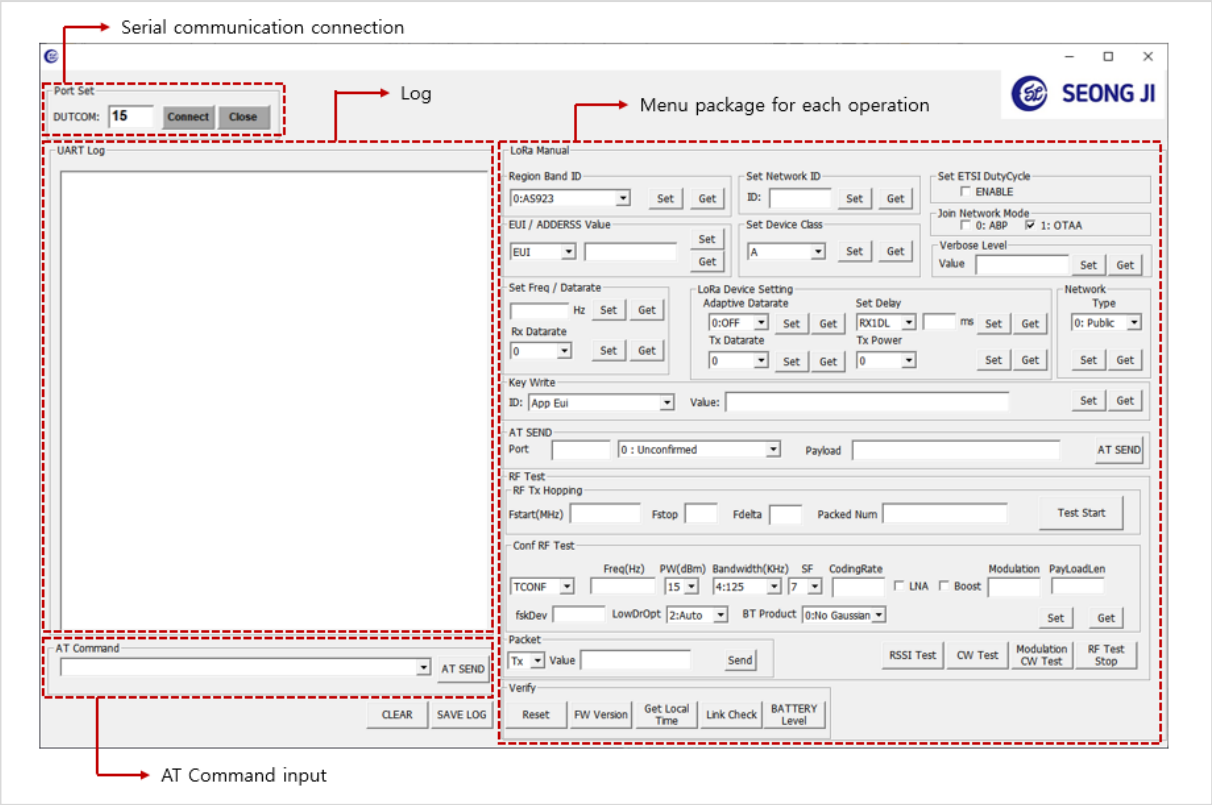
A typical serial terminal emulator can also be used to control the EVK instead of the proposed test SW. In that case the following parameters should be used:

- Speed : 9600 bauds
- Data bits: 8
- Stop bits: 1
- Parity: None

The following table gather all AT command available:

2. LoRa RF Test Description

2.1 Lora command GUI



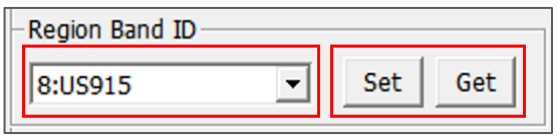
[Fig. Screen of execute Test program]

1) Write command on AT Command edit box located on left bottom and then click Send button to execute command. Configuration value list is defined on chapter "AT command complete set"

2) Instead of the item 1), can click button to execute on each AT command menu package on the right.

Example)

Command : AT+BAND=5 (CR) AT+BAND=? (CR)



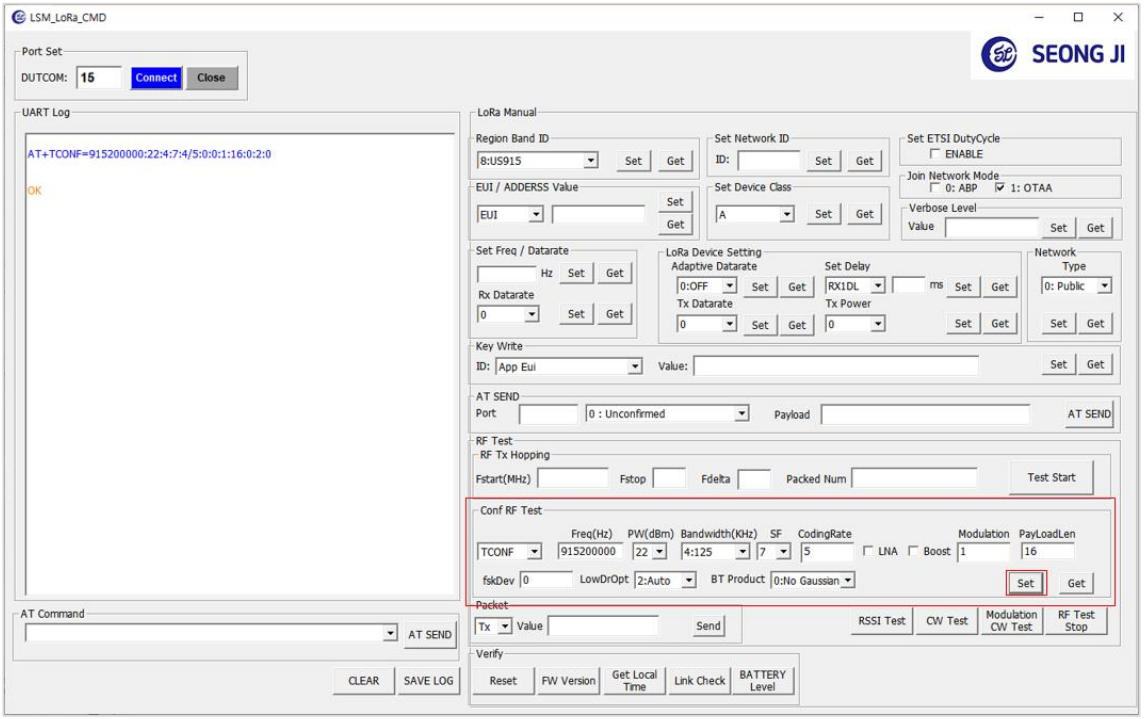
[Fig. Region Band ID Set Command]

2.2 Lora RF Test Description

1) Configure RF test

General Setting

*** Conf RF Test Setting**(Required to set every device reset)



- As in the picture above, enter parameters without spaces and Set

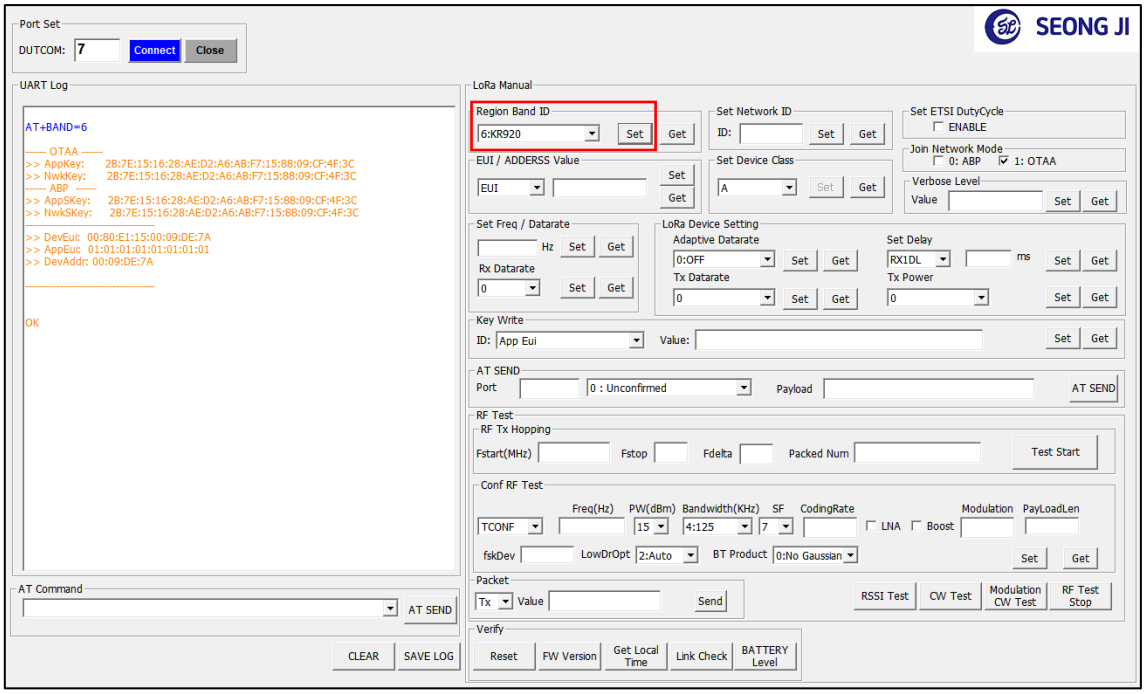
AT+TCONF=<Frequency>:<Power>:<LoRa Bandwidth>:<Lora SF>:<CodingRate>:<Lna>:<PA Boost>: <Modulation>:<PayloadLen>:<FskDeviation>:<LowDrOpt >:<BTproduct:><CR>

EX) AT+TCONF=915200000:22:4:7:4/5:0:0:1:16:0:2:0

2.2 RF test – OTAA

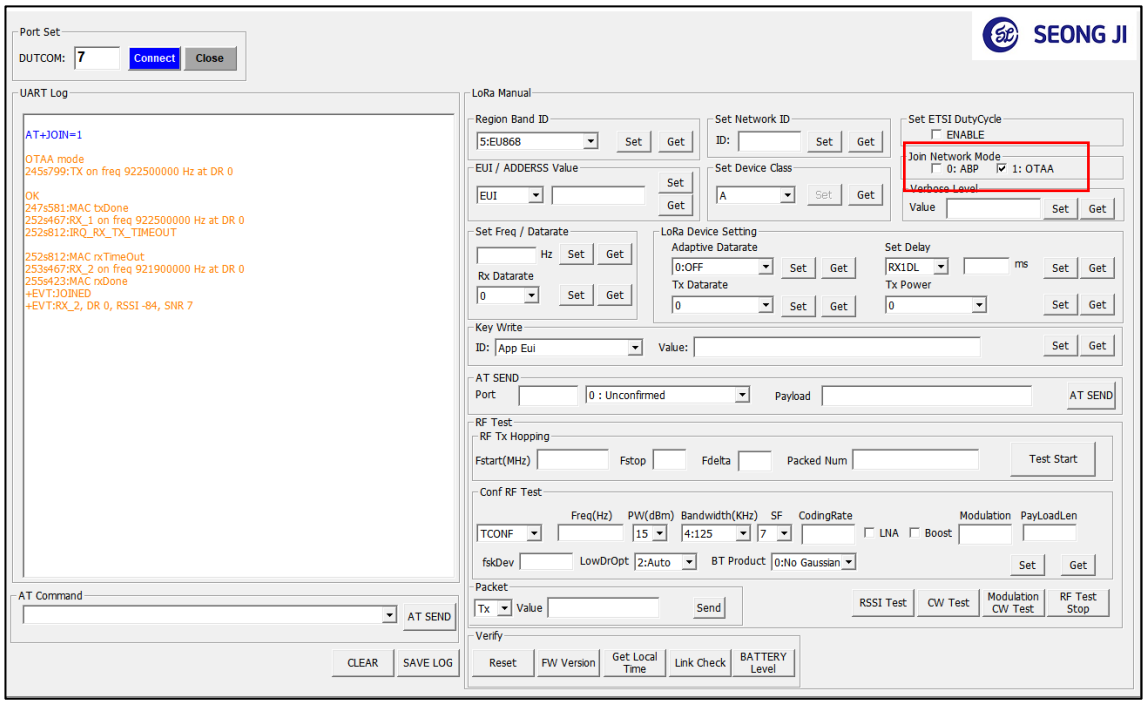
1) Select region band ID

Ex) EU- AT+BAND=5, Korea- AT+BAND=6



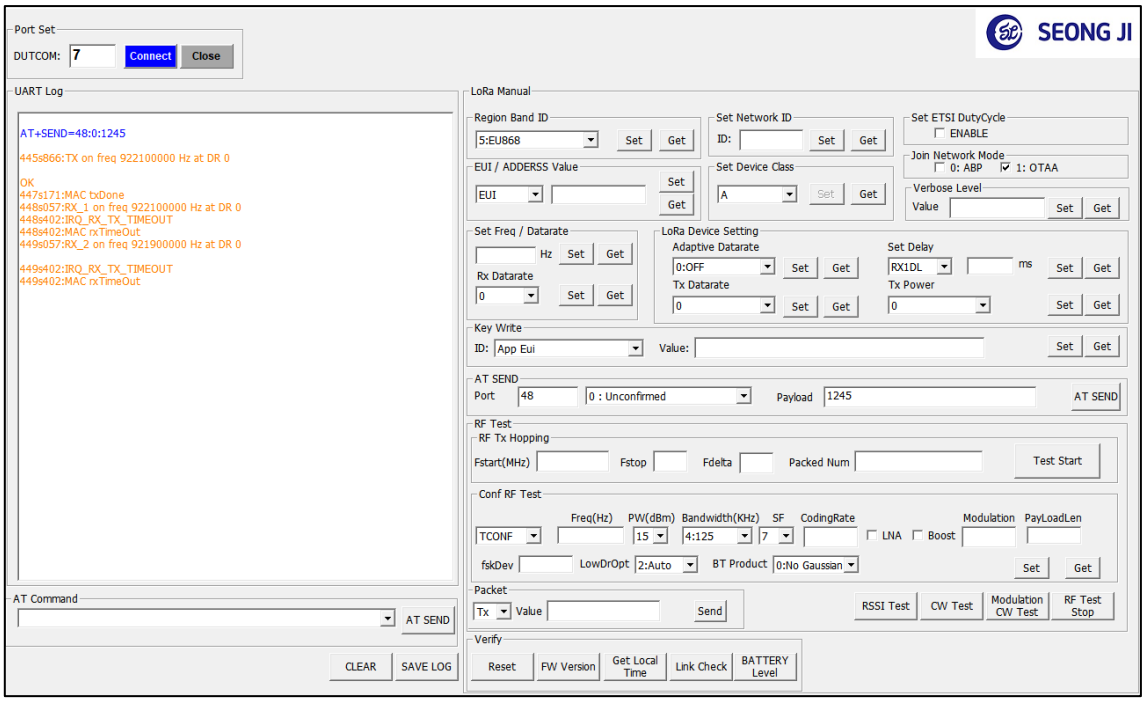
2) Join the basesyarion

Ex) AT+JOIN=1



3) Send data

Ex) AT+SEND=48:0:1245



3. LoRa Command

Command	Name	Description
AT?	Help on all <CMD>	Help on All Commands. Ex) AT? (CR)
ATZ	Reset	Trig a MCU reset. Ex) ATZ (CR)
AT+BAT=?	Battery level	Get the battery level (in mV). Ex) AT+BAT=? (CR)
AT+VL=level AT+VL=?	Verbose level	Set or Get the verbose level. <level>: [0: off ~ 3: High] Ex) AT+VL=3 (CR)
AT+MODE=mode AT+MODE=?	Mode Change	LoRa & Sigfox Mode Change. After a MCU reset. <mode>: [0: SigFox, 1: LoRa] Ex) AT+MODE=1 (CR)
AT$SSWVER=?	Software version	Get the Software version. Ex) AT$SSWVER=? (CR)
AT+VER=?	Firmware and library versions	Get the version of firmware and libraries. Ex) AT+VER=? (CR)
AT+LTIME=?	Local time in UTC format	Get the local time in UTC format. Ex) AT+LTIME=? (CR)
AT+LINKC?	Link Check	Piggyback a Link Check Request to the next uplink. Ex) AT+LINKC? (CR)
AT+APPEUI=eui AT+APPEUI=?	Application EUI	Set or Get the Application EUI. Ex) AT+APPEUI=00:00:00:00:00:00:00:07 (CR)
AT+NWKKEY=key AT+NWKKEY=?	Network Key	Set or Get the Network Key. Ex) AT+NWKKEY=00:11:22:33:44:55:66:77:88:99:AA:BB:CC:DD:EE:FF (CR)
AT+APPKEY=key AT+APPKEY=?	Application Key	Set or Get the Application Key.

		Ex) AT+APPKEY=00:11:22:33:44:55:66:77:88:99:AA:BB:CC:DD:EE:FF (CR)
AT+NWKSKEY=key AT+NWKSKEY=?	Network Session Key	Set or Get the Network Session Key. Ex) AT+NWKSKEY=00:11:22:33:44:55:66:77:88:99:AA:BB:CC:DD:EE:FF (CR)
AT+APPSKEY=key AT+APPSKEY=?	Application Session Key	Set or Get the Application Session Key. Ex) AT+APPSKEY=00:11:22:33:44:55:66:77:88:99:AA:BB:CC:DD:EE:FF (CR)
AT+DADDR=address AT+DADDR=?	Device address	Set or Get the Device address. Ex) AT+DADDR=00:11:22:33 (CR)
AT+DEUI=?	Device EUI	Get the Device EUI. Ex) AT+DEUI=? (CR)
AT+NWKID=id AT+NWKID=?	Network ID	Set or Get the Network ID. <id>: [0 ~ 127]. Ex) AT+NWKID=100 (CR)
AT+JOIN=mode AT+JOIN=?	Join network with Mode	Join network with Mode. <mode> [0: ABP, 1: OTAA] Ex) AT+JOIN=1 (CR)
AT+SEND=port:ack:data	Send binary data	Send binary data with the application <Port> [1 ~ 199] <Ack> [0: unconfirmed, 1: confirmed] Ex) AT+SEND=1:1:12345678901234567890123456789012345678901234567890123456789012345678901234567890123456 (CR)
AT+ADR=mode AT+ADR=?	Adaptive DataRate	Set or Get the Adaptive DataRate setting. <mode>: [0: Off, 1: On] Ex) AT+ADR=0 (CR)

AT+DR=datarate AT+DR=?	Tx DataRate	Set or Get the Tx DataRate. Activation when ADR off Only <datarate>: [0 ~ 7] [AU915 : 2 ~ 7 / US915 : 0 ~ 4] 0: LoRa - SF12 / 125 kHz, bit rate – 250 bit/s 1: LoRa - SF11 / 125 kHz, bit rate - 440 bit/s 2: LoRa - SF10 / 125 kHz, bit rate - 980 bit/s 3: LoRa - SF9 / 125 kHz, bit rate - 1760 bit/s 4: LoRa - SF8 / 125 kHz, bit rate - 3125 bit/s 5: LoRa - SF7 / 125 kHz, bit rate - 5470 bit/s 6: LoRa - SF7 / 250 kHz, bit rate - 11000 bit/s 7: FSK - 50 kbps, bit rate - 5000 bit/s Ex) AT+DR=0 (CR)
AT+TXP=power AT+TXP=?	Transmit Power	Set or Get the Transmit Power. (valid range according to region) <power>: [0 ~ 15] AS923: [0~7] AU915: [0~14] CN779: [0~5] EU868: [0~7] KR920: [0~7] IN865: [0~10] US915: [0~14] RU864: [0~7] Ex) AT+TXP=0 (CR) (in KR920 0: MAX ERP)
AT+BAND=band AT+BAND=?	Active Region Band ID	Set or Get the Active Region Band ID. [0 ~ 9] <band>: [0: AS923, 1: AU915, 2: CN470, 3: CN779, 4: EU433, 5: EU868, 6: KR920, 7: IN865, 8: US915, 9: RU864] Ex) AT+BAND=0 (CR)
AT+CLASS=class AT+CLASS=?	Device Class	Set or Get the Device Class. <Class>: [A, B, C] Ex) AT+CLASS=? (CR)
AT+DCS=mode AT+DCS=?	ETSI DutyCycle	Set or Get the ETSI DutyCycle. <mode>: [0: disable, 1: enable] - Only for testing Ex) AT+DCS=0 (CR) (for KR920, AS923, AU915,..)

AT+RX2FQ=freq AT+RX2FQ=?	Rx2 window Freq	Set or Get the Rx2 window. <freq>: Frequency (in Hz) Ex) AT+RX2FQ=915200000 (CR)
AT+RX2DR=datarate AT+RX2DR=?	Rx2 window DataRate	Set or Get the Rx2 window DataRate. <datarate>: [0 ~ 13] AS923: [0~7] AU915: [2~13] CN779: [0~7] EU868: [0~7] KR920: [0~5] IN865: [0~5] US915: [8~13] RU864: [0~7] Ex) AT+RX2DR=0 (CR)
AT+RX1DL=delay AT+RX1DL=?	Delay between end of Tx and Rx Window 1	Set or Get the delay between the end of the Tx and the Rx Window 1. <delay>: delay (in ms) Ex) AT+RX1DL=1000 (CR)
AT+RX2DL=delay AT+RX2DL=?	Delay between end of Tx and Rx Window 2	Set or Get the delay between the end of the Tx and the Rx Window 2 in ms. <delay>: delay (in ms) Ex) AT+RX2DL=2000 (CR)
AT+JN1DL=delay AT+JN1DL=?	Join Accept Delay between end of Tx and Join Rx Window 1	Set or Get the Join Accept Delay between the end of the Tx and the Join Rx Window 1 in ms. <delay>: delay (in ms) Ex) AT+JN1DL=5000 (CR)
AT+JN2DL=delay AT+JN2DL=?	Join Accept Delay between end of Tx and Join Rx Window 2	Set or Get the Join Accept Delay between the end of the Tx and the Join Rx Window 2 in ms. <delay>: delay (in ms) Ex) AT+JN2DL=6000 (CR)
AT+NWKTYPE=type AT+NWKTYPE=?	Network Type	Set or Get the Network Type setting Type <type>: [0: Public, 1: Private] Ex) AT+NWKTYPE=1 (CR)
AT+DEVNONCE=0 AT+DEVNONCE=?	OTAA DevNonce	Set to 0 or Get the OTAA DevNonce Ex) AT+DEVNONCE=0 (CR)

AT+CNFRETX=retxnb AT+CNFRETX=?	Confirmed Uplink Retransmission	Set or Get Number for the Confirmed Uplink Retransmission <retxnb>: [1 ~ 15] Ex) AT+CNFRETX=1 (CR)
AT+UNCNFRETX=retxnb AT+UNCNFRETX=?	Unconfirmed Uplink Retransmission	Set or Get Number for the Unconfirmed Uplink Retransmission <retxnb>: [1 ~ 15] Ex) AT+UNCNFRETX=1 (CR)
AT+PGSLOT=period AT+PGSLOT=?	Ping Slot	Set or Get the unicast ping slot Period <period>: [0:1s ~ 7:128s] (=2^Period) Ex) AT+PGSLOT=3 (CR)
AT+TTH=fstart:fstop:fdelta:packetnb AT+TTH=?	Test Tx Hopping	Starts RF Tx hopping test from Fstart to Fstop in Hz or MHz, Fdelta in Hz. Class B test. <fstart>: frequency (in Hz or MHz) <fstop>: frequency (in Hz or MHz) <fdelta>: frequency (in Hz) Ex) AT+TTH=915:922:500000:10 (CR)
AT+TCONF=frequency:power:bandwidth:sf:codingrate:lna:paboost:modulation:payloadlen:fskdeviation:lowdropt:btproduct AT+TCONF=?	Configure RF	Configure RF test. <Frequency>: [ex: 915200000]Hz <Power>: [-9 ~ 22]dBm Max 22dBm at High Power <Bandwidth>: Lora [4: 125, 5: 250, 6: 500]kHz, or FSK: [4800Hz : 467000]Hz <SF>: [7 ~ 12] or <FSK>: [600 ~ 300000] <CodingRate>: [4/5, 4/6, 4/7, 4/8] <Lna>: [0: Off, 1: On] <PA Boost>: [0: Off, 1: On] <Modulation>: [0: FSK, 1: LoRa, 2: BPSK] <PayloadLen>: [1 ~ 256] <FskDev>: FSK Only [600 ~ 20000] <LowDrOpt>: Lora Only [0: off, 1: On, 2: Auto] <BTproduct>: [0: no Gaussian Filter Applied, 1: BT=0,3, 2: BT=0,5, 3: BT=0,7, 4: BT=1] Ex) AT+TCONF=915200000:22:4:7:4/5:0:0:1:16:0:2:0 (CR)
AT+TTONE	RF Tx Tone test	Starts RF Tx Tone test **(CW Test Mode)** Ex)AT+TTONE (CR)

AT+TRSSI	RF Rx RSSI test	Starts RF Rx RSSI test. Ex) AT+TRSSI (CR)
AT+TTX=packetnb	Test RF Tx	Starts RF Tx test: Nb of packets sent. Ex) AT+TTX=16 (CR)
AT+TRX=packetnb	Test RF Rx	Starts RF Rx test: Nb of packets expected. Stop by input 'X' Ex) AT+TRX=16 (CR)
AT+MTX	Test RF Modulation wave	Starts RF Tx test: Modulation Continuous Wave Ex) AT+MTX (CR)
AT+MRX	Test RF Continuous Rx	Starts RF Rx test: Continuous receive Stop by input 'X' Ex) AT+MRX (CR)
AT+TOFF	Stop RF test	Stops on-going RF test. Ex) AT+TOFF (CR)
AT+PCONF=frequency:power:bandwidth:sf:codingrate:lna:paboost:modulation:payloadlen:fskdeviation:lowdropt:btproduct	P2P Configure	Set or Get configure P2P. <Frequency>: [ex: 915200000]Hz <Power>: [-9 ~ 22]dBm Max 22dBm at High Power <Bandwidth>: Lora [4: 125, 5: 250, 6: 500]kHz, or FSK: [4800Hz : 467000]Hz <SF>: [7 ~ 12] or <FSK>: [600 ~ 300000] <CodingRate>: [4/5, 4/6, 4/7, 4/8] <Lna>: [0: Off, 1: On] <PA Boost>: [0: Off, 1: On] <Modulation>: [0: FSK, 1: LoRa, 2: BPSK] <PayloadLen>: [1 ~ 256] <FskDev>: FSK Only [600 ~ 20000] <LowDrOpt>: Lora Only [0: off, 1: On, 2: Auto] <BTproduct>: [0: no Gaussian Filter Applied, 1: BT=0,3, 2: BT=0,5, 3: BT=0,7, 4: BT=1] Ex) AT+PCONF=915200000:22:4:7:4/5:0:0:1:16:0:2:0 (CR)

AT+PSEND=data	P2P Data Send	Send binary data with P2P. Ex) AT+PSEND=00112233445566778899AABBCCDDEE (CR)
AT+PRECV	P2P Data Receive	Starts P2P data receive. Stop by input 'X' Ex) AT+PRECV (CR)