WONDERNICA AGROMON PROGRAMMING PROTOCOL

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Document Release Note

Document Release Number	A.0
Document Release Date	9th September 2022

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Version Number	A.0
Project Name	Agromon Programming Protocol

Document Revision History

Version No.	Revision Date	Revision Description	Reviewed By	Pages/Section Affected
A.0	9th September 2022	Initial document created.	KL Teng	All

1.0 UART CONFIGURATION

Press on the REFRESH button to scan the available COM port. Pull down the COM port list and select the port number that is connected to Agromon. Upon selecting the correct COM port, press on CONNECT button to make connection. Figure 1 shows the user interface for the COM port settings.

The COM port settings for Agromon is as below:

Baud Rate: 9,600 bps
Start Bit: 1
Stop Bit: 1
Parity: None
Data: 8 bits

> The communication setting is fixed to 9,600bps, 1-stop bit, 8-bit data, and No Parity. Other setting chosen will cause failure in communication.

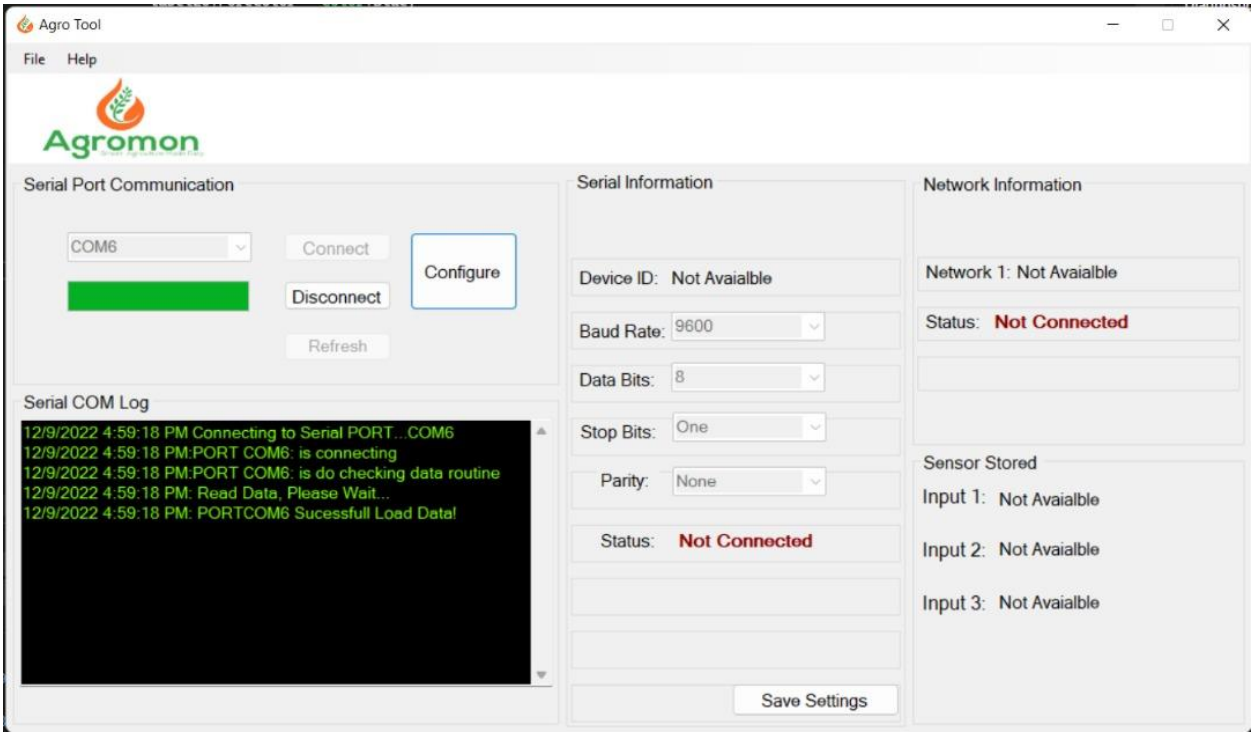


Figure 1. Serial Port Configuration Settings

2.0 INITIAL CONNECTION

Upon applying power to Agromon, user has **10 second** to make connection with Agromon for **configuration mode** else upon time expiration Agromon will enter **normal mode**. To enter configuration mode simple send Hex AA 55 follows by Carriage Return (CR) and Line Feed (LF), and Agromon will respond with "CONFIGURATION MODE" and follows by "OK". Figure 2 shows the sequence diagram for entering configuration mode.

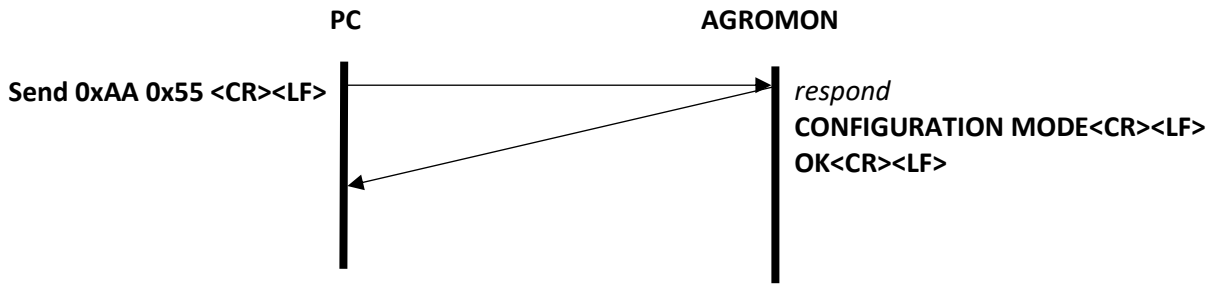


Figure 2. Sequence Diagram – Entering Configuration Mode

For fresh Agromon without any configuration stored, upon entering configuration mode, no information is available under Network Information and Sensor Stored. Figure 3 shows the respond from Agromon for fresh unconfigured device.

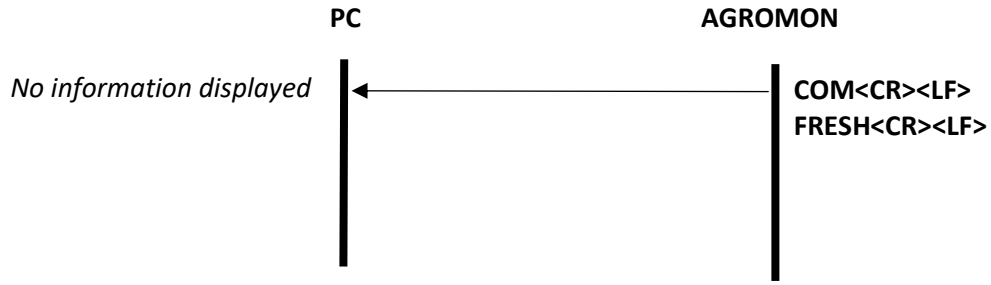


Figure 3. Sequence Diagram – Display Configuration Settings (Fresh)

If configuration is discovered upon entering configuration mode, information will be shown in the Network Information and Sensor Stored boxes accordingly. Figure 4 shows the sequence diagram for retrieving data from stored configuration settings.

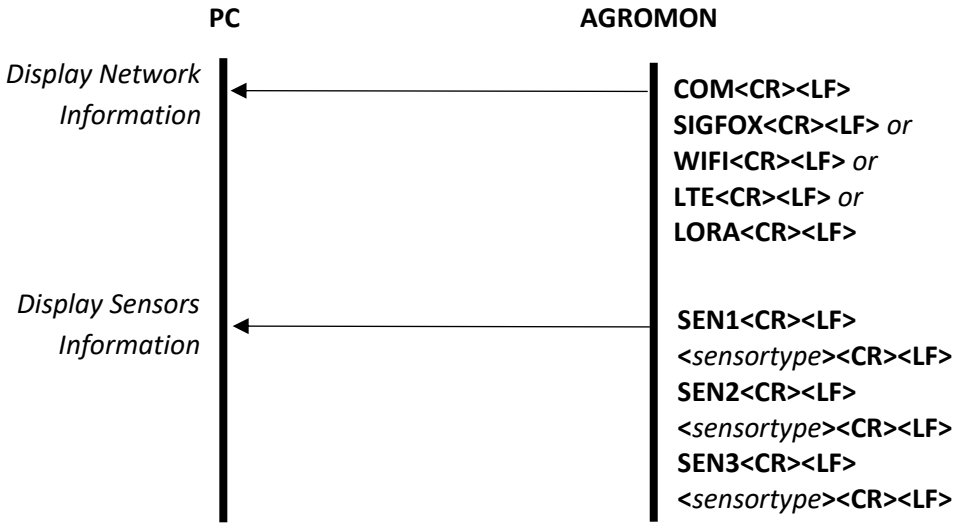


Figure 4. Sequence Diagram – Display Configuration Settings

For **<***sensortype***>**, please refer to Appendix A for list of available sensors.

3.0 NETWORK CONFIGURATION

There are four network types to select from. They are,

a) WiFi,
b) Sigfox,
c) LoRa, and
d) 4G/LTE.

Figure 5 shows the user interface to select the network type.

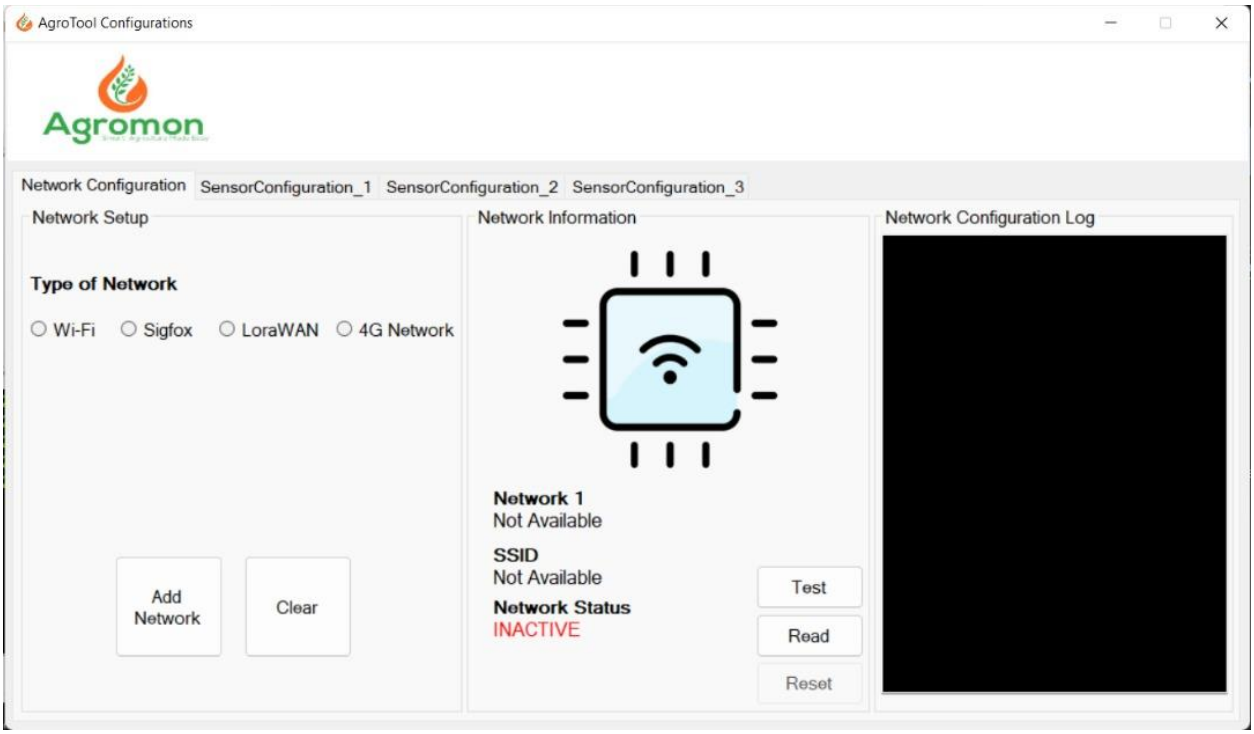


Figure 5. Network Selections

Upon the network type is selected, the Network Information section will change accordingly to reflect the network selected. For example, if WiFi is selected, the Network Information section will change with user entry box for SSID, password, etc.

3.1 **Add Network**

3.1.1 If WiFi is selected, the Network Information section will appear the box entry for user to enter *SSID* and *Password*. After entering all the information required in the user entry box, clicking on the **Add Network** button will store the configuration to Agromon. Figure 6.1 shows the sequence diagram to store the configuration for **WiFi**.

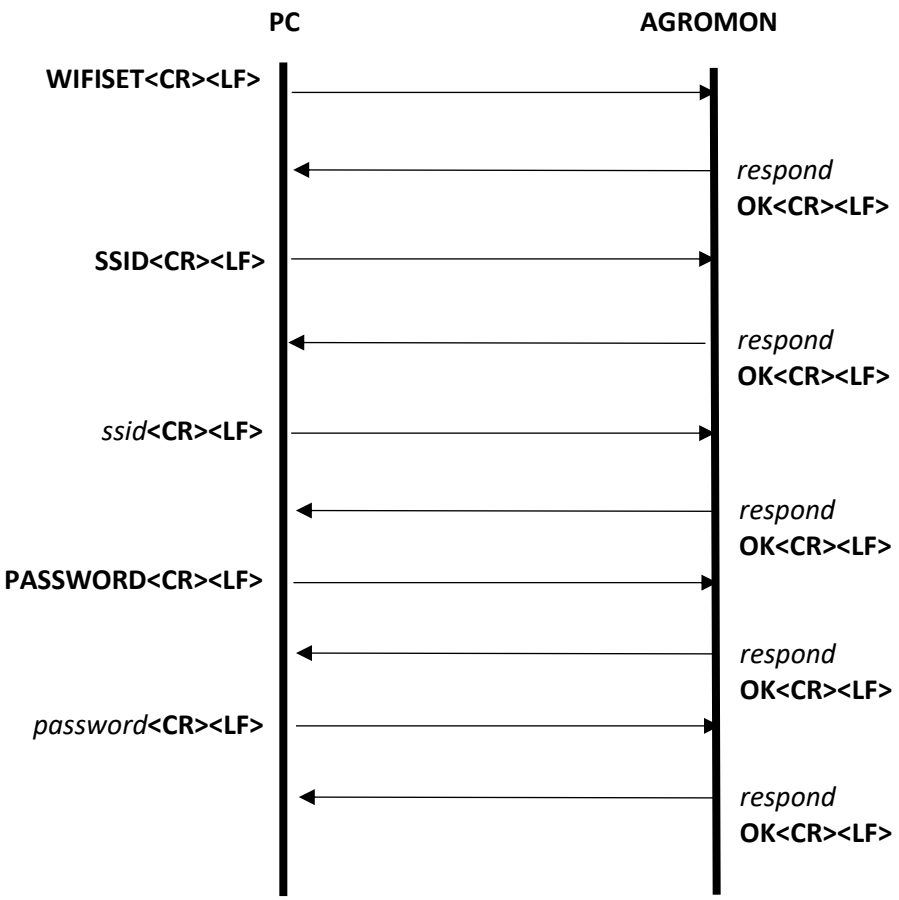


Figure 6.1. Sequence Diagram – Network Configuration Settings (**WIFI**)

3.1.2 If Sigfox is selected, the Network Information section will appear the pull-down list for user to select from *RC1* to *RC7.* After making the selection, clicking on the **Add Network** button will store the configuration to Agromon. Figure 6.2 shows the sequence diagram to store the configuration for **Sigfox**.

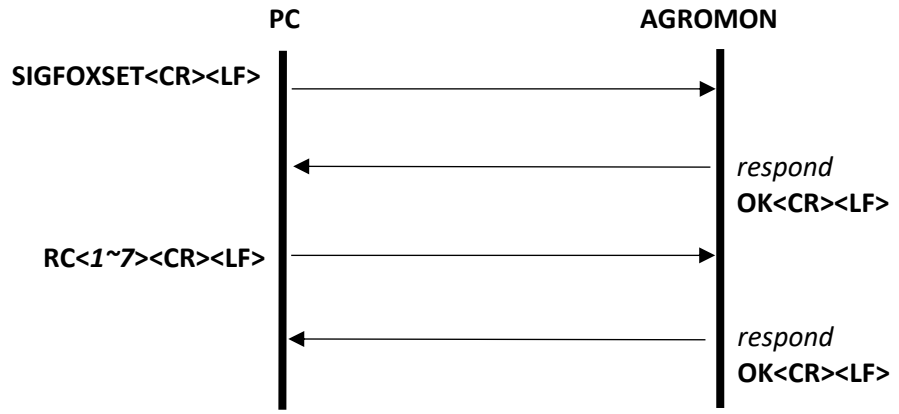


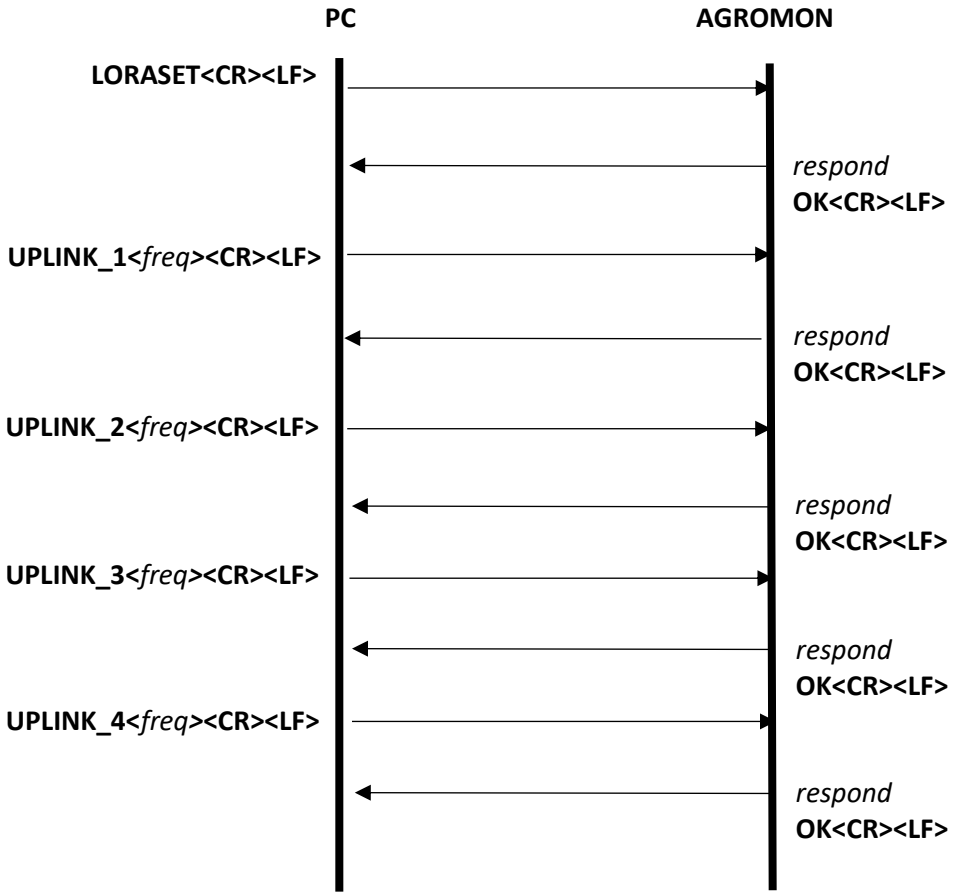
Figure 6.2. Sequence Diagram – Network Configuration Settings (**SIGFOX**)

3.1.3 If LoRaWAN is selected, the Network Information section will appear box entry for frequency plan. Example of frequency plan as follows,

Uplink:
923.2 - SF7BW125 to SF12BW125
923.4 - SF7BW125 to SF12BW125
922.2 - SF7BW125 to SF12BW125
922.4 - SF7BW125 to SF12BW125
922.6 - SF7BW125 to SF12BW125
922.8 - SF7BW125 to SF12BW125
923.0 - SF7BW125 to SF12BW125
922.0 - SF7BW125 to SF12BW125
922.1 - SF7BW250
921.8 – FSK

Downlink:
Uplink Channel 1-10
923.2 – SF10BW125

After entering the uplink and downlink frequency plan, clicking on the **Add Network** button will store the configuration to Agromon. Figure 6.3 shows the sequence diagram to store the configuration for **LoRaWAN**.



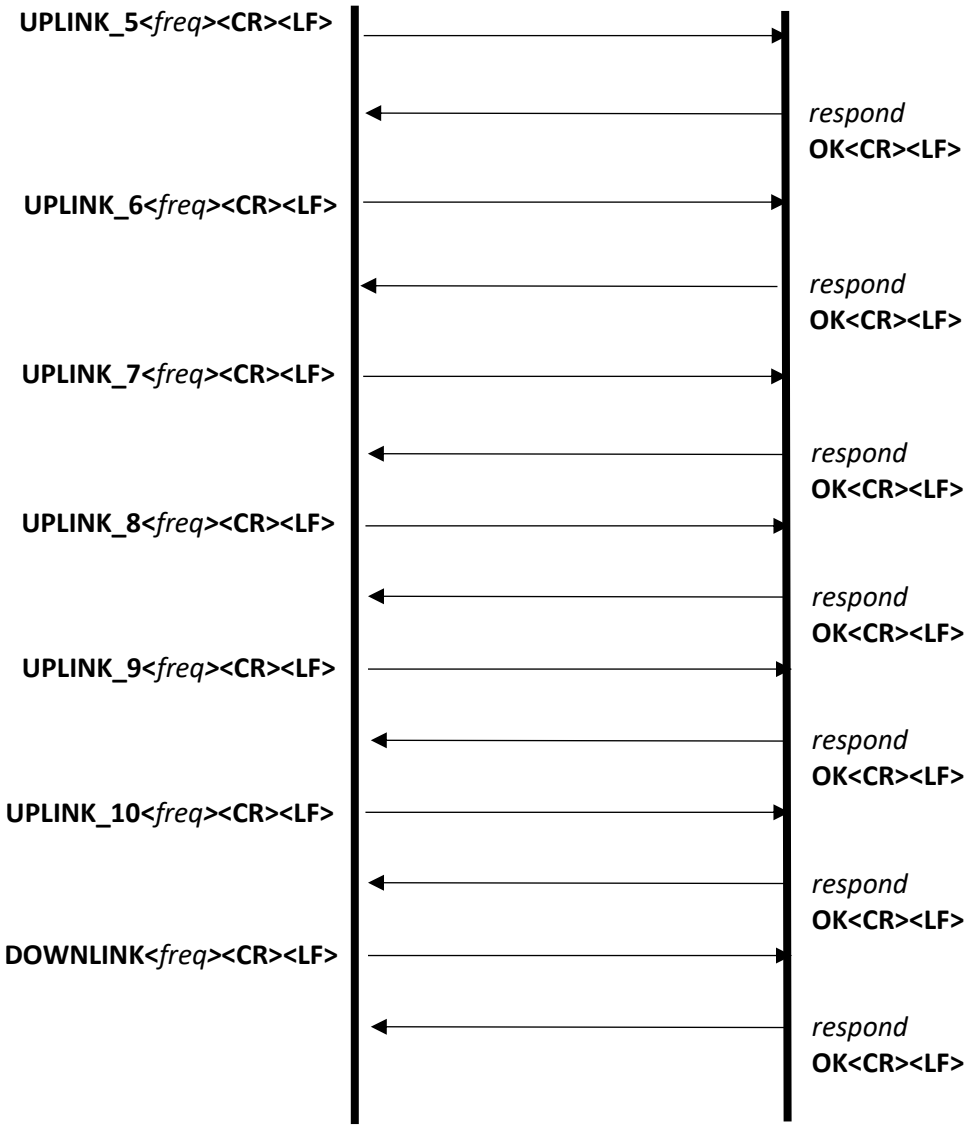


Figure 6.3. Sequence Diagram – Network Configuration Settings (**LORAWAN**)

Note that when sending the <*freq*> data to Agromon, the decimal point is removed.

3.1.4 If 4G/LTE is selected, the Network Information section will appear the pull-down list for user to select from *SIM* or *eSIM.* After making the selection, clicking on the **Add Network** button will store the configuration to Agromon. Figure 6.4 shows the sequence diagram to store the configuration for **LTE/4G**.

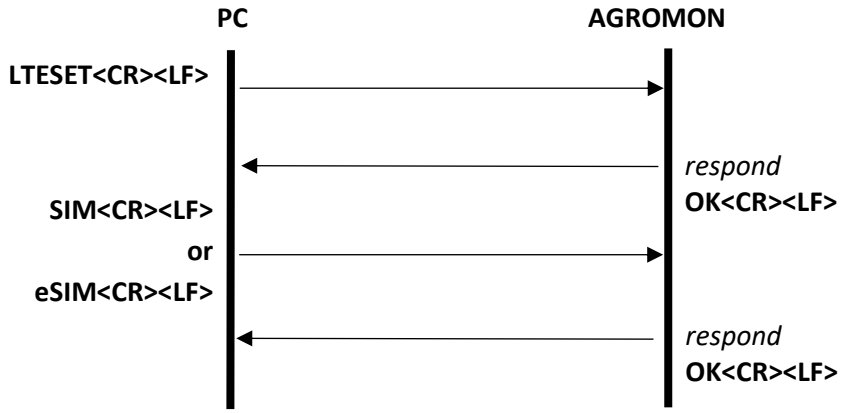


Figure 6.4. Sequence Diagram – Network Configuration Settings (**LTE/4G**)