Appendix_6

FZ760_Location Mode Details

Version 0.1.0

Data 2009-06-10

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1. Location Mode

Location Mode is a function by which the approximate location of a moving device can be recognized by the data received from it.

The Location function is carried out on the basis of the Bridge Mode.

Carrying out of the Location function requires a Location Data Receiving Device (Fixed Device: Location Mode Device) and a Location Data Transmitting Device (Moving Device).

Unlike the Bridge function, the Location function enables the device to only communicate data unilaterally. In other words, it is only possible to communicate data from the moving device to the terminal Location Mode device. (Data transmission from the terminal locating mode device to the moving device is meaningless.)

The Location Data Receiving Device has to know the Network Address of the previous device (data transmitting device) and the Network Address of the next device (data receiving device). (A basic rule of the Bridge Mode)

To perform the Location function, the Location Data Receiving Device has to use a Unicast Address that is unique in the network, not the Broadcast Address(FFFF). (A basic rule of the Bridge Mode)

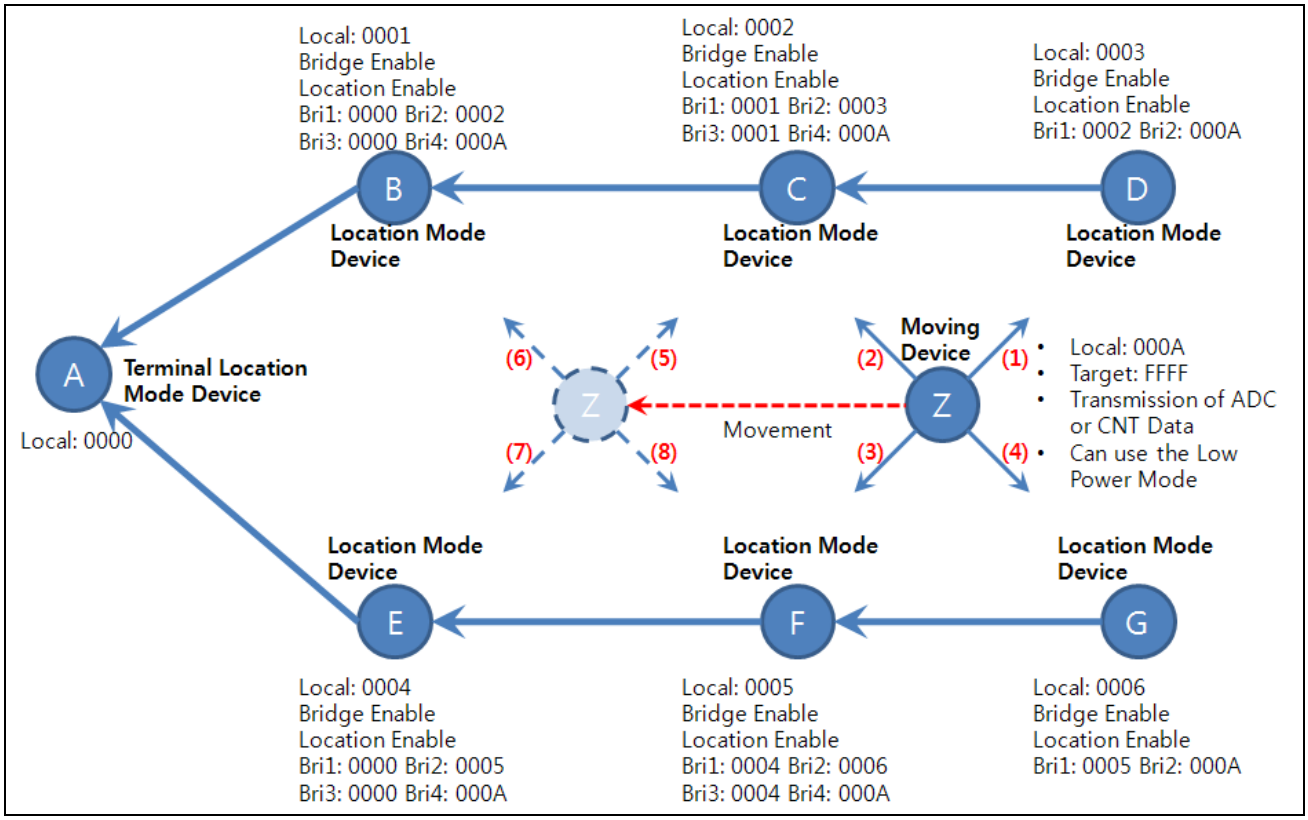
The Location Data Receiving Device outputs the wirelessly received data serially or in other forms and resends (bridges) the data to the device having Bridge 1 Address or Bridge 2 Address of the device.
(A basic rule of the Bridge Mode)

The Location Data Receiving Device does not use the Low Power Mode. (A basic rule of the Bridge Mode)
For the Location Data Receiving Device, the Bridge Option has to be set to 1 (Enable) and the Location Option has to be set to 1 (Enable).
The Location Data Transmitting Device has to send ADC or COUNT data by certain set interval.
The Location Data Transmitting Device has to use the one Network Address designated by the user.

To locate N moving devices, 16bit Network Address of each Location Data Transmitting Device has to be set to the one Network Address designated by the user (to recognize each of N moving devices, unique IEEE Addresses are used).

The Target Network Address of the Location Data Transmitting Device has to be set to Broadcast.

2. Configuration Map of Location Mode Devices

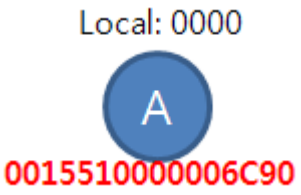


3. Settings for Location Mode Devices

The IEEE Address (**0015510000006C90, 0015510000006C91, etc.**) of the device is the unique address for the device. Users cannot change this address.

3-1. Device A Setting (Terminal Location Mode Device)

(1) Set the Local Device Address of Device A to 0000.



3-2. Device B Setting (Location Mode Device - Bridge Mode)

(1) Set the Local Device Address of Device B to 0001.

(2) Set the Bridge 1 Address of Device B to 0000.

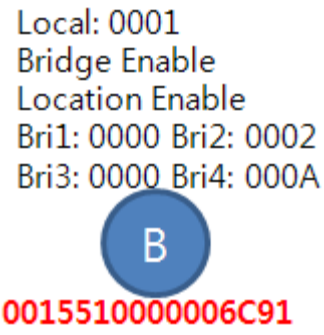
(3) Set the Bridge 2 Address of Device B to 0002.

(4) Set the Bridge Option of Device B to 1.

(5) Set the Location Option of Device B to 1.

(6) Set the Bridge 3 Address of Device B to 0000.

(7) Set the Bridge 4 Address of Device B to 000A **(Moving device's address)**.



3-3. Device C Setting (Location Mode Device – Bridge Mode)

(1) Set the Local Device Address of Device C to 0002.

(2) Set the Bridge 1 Address of Device C to 0001.

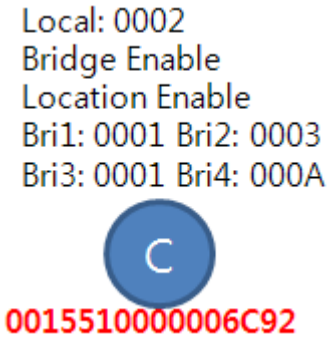
(3) Set the Bridge 2 Address of Device C to 0003.

(4) Set the Bridge Option of Device C to 1.

(5) Set the Location Option of Device C to 1.

(6) Set the Bridge 3 Address of Device C to 0001.

(7) Set the Bridge 4 Address of Device C to 000A **(Moving device's address)**.



3-4. Device D Setting (Location Mode Device – Bridge Mode)

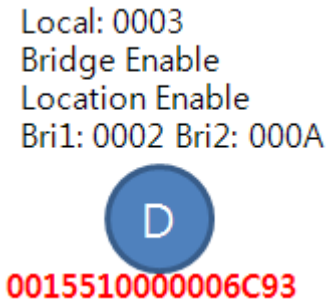
(1) Set the Local Device Address of Device D to 0003.

(2) Set the Bridge 1 Address of Device D to 0002.

(3) Set the Bridge 2 Address of Device D to 000A **(Moving device's address)**.

(4) Set the Bridge Option of Device D to 1.

(5) Set the Location Option of Device D to 1.



3-5. Device E Setting (Location Mode Device – Bridge Mode)

(1) Set the Local Device Address of Device E to 0004.

(2) Set the Bridge 1 Address of Device E to 0000.

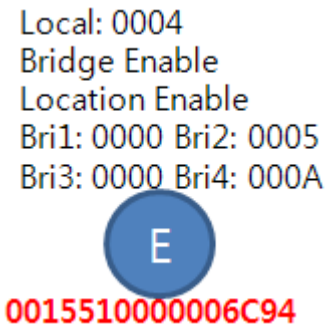
(3) Set the Bridge 2 Address of Device E to 0005.

(4) Set the Bridge Option of Device E to 1.

(5) Set the Location Option of Device E to 1.

(6) Set the Bridge 3 Address of Device E to 0000.

(7) Set the Bridge 4 Address of Device E to 000A **(Moving device's address)**.



3-6. Device F Setting (Location Mode Device – Bridge Mode)

(1) Set the Local Device Address of Device F to 0005.

(2) Set the Bridge 1 Address of Device F to 0004.

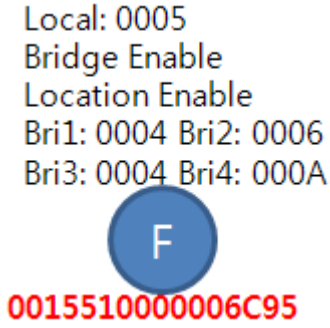
(3) Set the Bridge 2 Address of Device F to 0006.

(4) Set the Bridge Option of Device F to 1.

(5) Set the Location Option of Device F to 1.

(6) Set the Bridge 3 Address of Device F to 0004.

(7) Set the Bridge 4 Address of Device F to 000A **(Moving device's address)**.



3-7. Device G Setting (Location Mode Device – Bridge Mode)

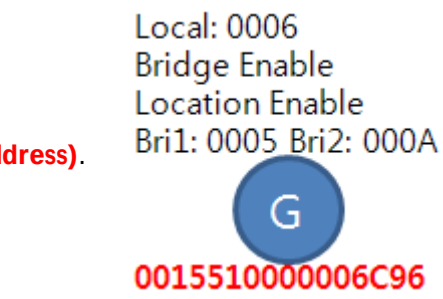
(1) Set the Local Device Address of Device G to 0006.

(2) Set the Bridge 1 Address of Device G to 0005.

(3) Set the Bridge 2 Address of Device G to 000A **(Moving device's address)**.

(4) Set the Bridge Option of Device G to 1.

(5) Set the Location Option of Device G to 1.



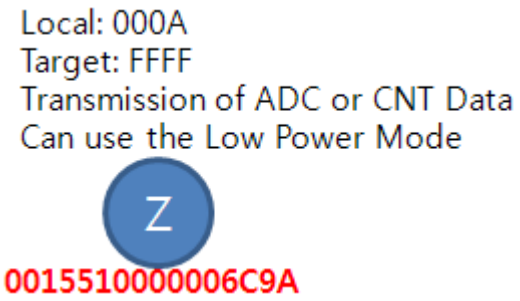
3-8. Device Z Setting (Moving Device)

(1) Set the Local Device Address of Device Z to **000A**.

(2) Set the Target Device Address of Device Z to FFFF.

(3) Set the ADC Data Transmission function of Device Z to Enable.

(4) Set the wireless output power (Txpower) of Device Z properly.
(In the minimum wireless output setting (Txpower:1C), the communication range is 4~5m.)



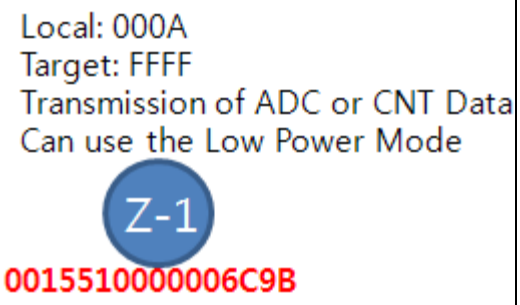
3-9. Device Z-1 Setting (Moving Device)

(1) Set the Local Device Address of Device Z-1 to **000A**.

(2) Set the Target Device Address of Device Z-1 to FFFF.

(3) Set the ADC Data Transmission function of Device Z-1 to Enable.

(4) Set the wireless output power (Txpower) of Device Z-1 properly.
(In the minimum wireless output setting (Txpower:1C), the communication range is 4~5m.)



※ To locate N moving devices, their settings have to the same (especially for the Local Device Address).

※ To recognize each N moving device, unique IEEE Addresses are used.
In other words, internal settings of N moving devices are the same, but unique address of each device differs.

4. Meanings of Device Settings

(1) Local Device Address

The Local Device Address of the device is an address needed for communication between devices in the wireless network.

The device includes its Local Device Address inside the data packet when it sends the data packet wirelessly in the network.
Users can find the transmitting device by analyzing the Local Device Address inside the data packet.

(2) Target Device Address

The Target Device Address of the device is an address needed for communication between devices in the wireless network.

The device includes the Target Device Address inside the data packet when it sends the data packet wirelessly in the network.
Users can find the receiving device by analyzing the Target Device Address inside the data packet.

The device that receives the data packet compares the Target Device Address of the transmitting device included in the received data packet with its Local Device Address.
If the Target Device Address of the transmitting device included in the received data packet matches its Local Device Address, the device recognizes the data packet as its own data.
If the Target Device Address of the transmitting device included in the received data packet is FFFF (Broadcast Address), the data receiving device does not compare it to its Local Device Address and recognizes the data packet as its own data.

(3) Bridge 1 Address/Bridge 2 Address

Bridge 1 Address/Bridge 2 Address of the device are addresses needed for its bridging function.

The device that receives the data packet compares the Local Device Address of the transmitting device included in the received data packet with its Bridge 1 Address/Bridge 2 Address.
If the Local Device Address of the transmitting device included in the received data packet matches its Bridge 2 Address, the device transmits (bridges) the data packet to Bridge 1 address again.

Location function allows unilateral data resending (bridging) only.
In other words, comparing the Local Device Address with Bridge 1 Address and resending (bridging) the data to Bridge 2 address is meaningless.

(4) Bridge Option

The Bridge Option sets the device to perform the Bridging function.

(5) Location Option

The Bridge Option sets the device to perform the Location function.

If the Location Option is set to 1 (Enable), the device proceeds to reconfigure the data for the Location function.

(6) Bridge 3 Address/Bridge 4 Address

Bridge 3 Address/Bridge 4 Address of the device are addresses needed to perform the Location function.

Basic rules are the same as the address needed for the Bridging function.

Bridge 4 Address of the device sets the Local Device Address of the moving device.

Setting for Bridge 3 Address of the device is the same as the setting for Bridge 1 Address.

The Location Data Receiving Device that receives the data packet from the moving device compares the Local Device Address of the transmitting device included in the received data packet with its Bridge 4 Address.

If the Local Device Address of the transmitting device included in the received data packet matches its Bridge 4 Address, the device resends (bridges) the data packet to Bridge 3 address.

In this case, data is resent after being reconfigured as the data for Location function by the Location Option.

(7) ADC Data Transmission Function Option

This setting data is needed to perform the Location function of the device.

To perform the Location function of the device, the moving device has to send data by the set interval.

Set the Internal Time for the moving device and set the ADC Option to 1 (Enable).

Usable data for the Location function is ADC or COUNT data.

Therefore, ADC or COUNT data is sent by the moving device.

The Low Power Mode can be used for the moving device.

(8) Wireless Output Power (Txpower)

This is the data transmission power needed for the device to perform the Location function.

In the case of the Location Data Receiving Device (fixed device), the maximum data transmission power has to be used.
Since the Location Data Receiving Device (fixed device) performs the Bridging function for wireless data, it cannot perform the Bridging function normally if the data transmission power is low.

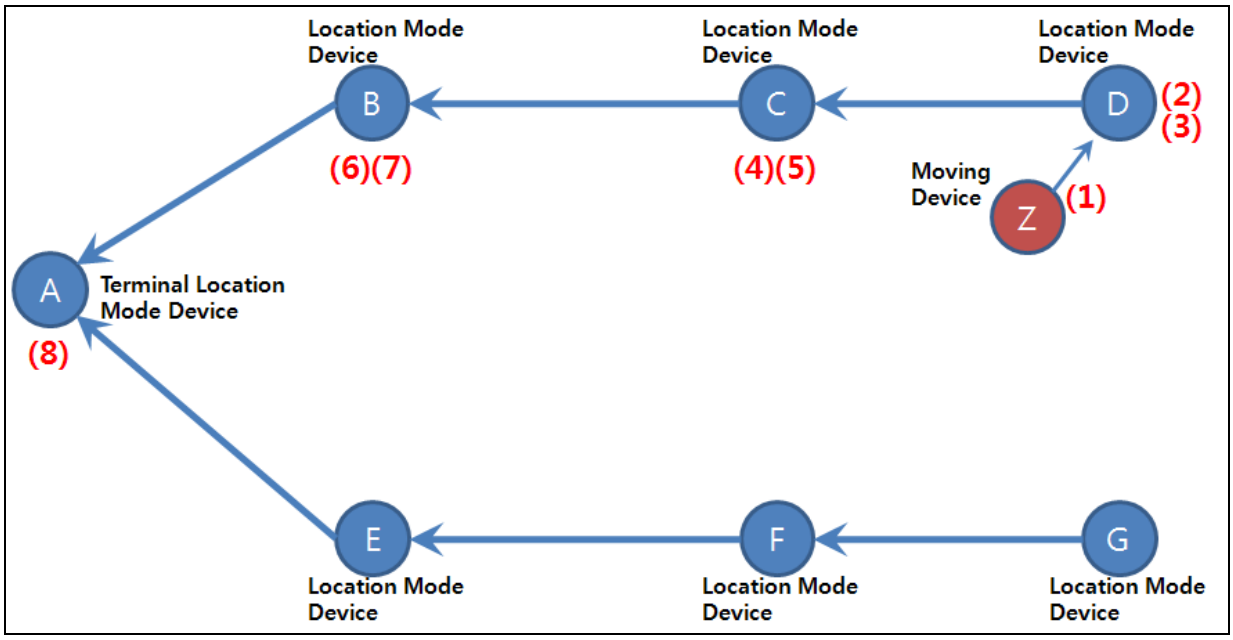
In the case of the Location Data Transmitting Device (moving device), the minimum data transmission power has to be used.

The Location Data Transmitting Device (moving device) has to send the location data to let the Location Data Receiving Device recognize the starting point to perform the Location function.
If the data transmission power of the Location Data Transmitting Device (moving device) is high and all Location Data Receiving Devices within a radius of 100m receive the data, the location data becomes meaningless.
Therefore, the data transmission power of the Location Data Transmitting Device (moving device) has to be set low so that the Location function works only when it comes near the Location Data Receiving Device (fixed device).

If the wireless output power is set to the minimum (Txpower: 1C), the communication range is around 4~5m.
If the wireless output power is set to the maximum (Txpower: 00), the communication range is around 100~120m.
Users have to set the level of wireless output power of the moving device properly to use the Location function.

5. Dataflow between Location Mode Devices

5-1. Case 1: Moving Device Z and Location Mode Device D



(1) The Moving Device Z transmits ADC or COUNT data in broadcast mode.

(2) Device D receives data sent from Device Z (Moving Device).

① Device D serially outputs "ADC01F0_0015510000006C9A₩r₩n" or "CNT0010_0015510000006C9A ₩r₩n".

② It means Device D received ADC or COUNT data from the device (moving device) having IEEE Address of "**0015510000006C9A**"

(3) Device D compares the Bridge Address.

① Device D compares the Local Device Address(000A) of the transmitting device included in the data packet received from Device Z with its own Bridge 2 Address(000A).

② Device D adds its own IEEE Address to the data received from Device Z and reconfigure the data into the data for the Location function "**LOC01F0_0015510000006C9A_0015510000006C93₩r₩n**".

③ It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

④ Device D resends (bridges) the reconfigured data packet to the Bridge 1 Address(0002).

(4) Device C receives data sent from Device D.

① Device C serially outputs "LOC01F0_0015510000006C9A_0015510000006C93₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

(5) Device C compares the Bridge Address.

① Device C compares the Local Device Address(0003) of the transmitting device included in the data packet received from Device D with its own Bridge 2 Address(0003).

② Device C resends (bridges) the data packet to the Bridge 1 Address(0001).

(6) Device B receives data sent from Device C.

① Device C serially outputs "LOC01F0_0015510000006C9A_0015510000006C93₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

(7) Device B compares the Bridge Address.

① Device B compares the Local Device Address(0002) of the transmitting device included in the data packet received from Device C with its own Bridge 2 Address(0002).

② Device B resends (bridges) the data packet to the Bridge 1 Address(0000).

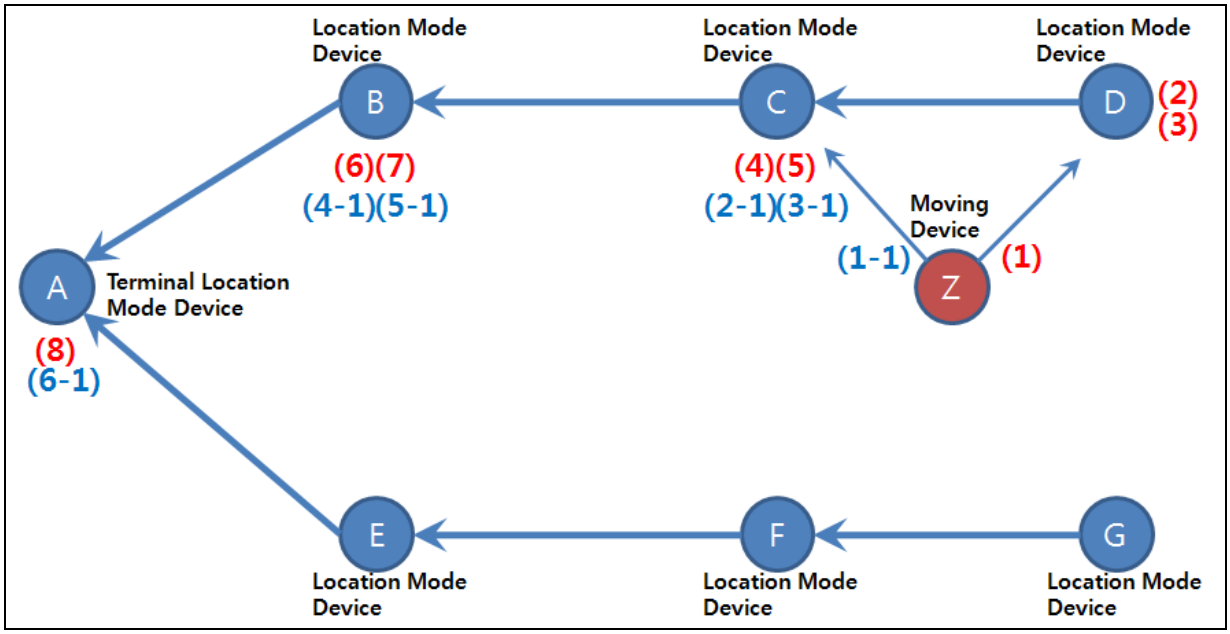
(8) Device A receives data sent from Device B.

① Device A serially outputs "LOC01F0_0015510000006C9A_0015510000006C93₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

③ Users can determine if the moving device (**0015510000006C9A**) is near Device D (fixed device: **0015510000006C93**) by using the serial data output from the terminal Location Mode device A.

5-2. Case 2: Moving Device Z and Location Mode Device C, D



5-2-1. 1st Dataflow

(1) The Moving Device Z transmits ADC or COUNT data in broadcast mode.

(2) Device D receives data sent from Device Z (Moving Device).

① Device D serially outputs "ADC01F0_0015510000006C9A₩r₩n" or "CNT0010_0015510000006C9A₩r₩n".

② It means Device D received ADC or COUNT data from the device (moving device) having IEEE Address of "**0015510000006C9A**".

(3) Device D compares the Bridge Address.

① Device D compares the Local Device Address(000A) of the transmitting device included in the data packet received from Device Z with its own Bridge 2 Address(000A).

② Device D adds its own IEEE Address to the data received from Device Z and reconfigures the data into the data for the Location function "**LOC01F0_0015510000006C9A_0015510000006C93₩r₩n**".

③ It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

④ Device D resends (bridges) the reconfigured data packet to the Bridge 1 Address(0002).

(4) Device C receives data sent from Device D.

① Device C serially outputs "LOC01F0_0015510000006C9A_0015510000006C93₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

(5) Device C compares the Bridge Address.

① Device C compares the Local Device Address(0003) of the transmitting device included in the data packet received from Device D with its own Bridge 2 Address(0003).

② Device C resends (bridges) the data packet to the Bridge 1 Address(0001).

(6) Device B receives data sent from Device C.

① Device B serially outputs "LOC01F0_0015510000006C9A_0015510000006C93₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

(7) Device B compares the Bridge Address.

① Device B compares the Local Device Address(0002) of the transmitting device included in the data packet received from Device C with its own Bridge 2 Address(0002).

② Device B resends (bridges) the data packet to the Bridge 1 Address(0000).

(8) Device A receives data sent from Device B.

① Device A serially outputs "LOC01F0_0015510000006C9A_0015510000006C93₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

③ Users can determine if the moving device (**0015510000006C9A**) is near Device D (fixed device: **0015510000006C93**) by using the serial data output from the terminal Location Mode device A.

5-2-2. 2nd Dataflow

(1-1) The Moving Device Z transmits ADC or COUNT data in broadcast mode.

(2-1) Device C receives data sent from Device Z (Moving Device).

① Device C serially outputs "ADC01F0_0015510000006C9A₩r₩n" or "CNT0010_0015510000006C9A₩r₩n".

② It means Device C received ADC or COUNT data from the device (moving device) having IEEE Address of "**0015510000006C9A**".

(3-1) Device C compares the Bridge Address.

① Device C compares the Local Device Address(000A) of the transmitting device included in the data packet received from Device Z with its own **Bridge 4 Address**(000A).

② Device C adds its own IEEE Address to the data received from Device Z and reconfigures the data into the data for the Location function "**LOC01F0_0015510000006C9A_0015510000006C92₩r₩n**".

③ It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C92**".

④ Device C resends (bridges) the reconfigured data packet to the **Bridge 3 Address**(0001).

(4-1) Device B receives data sent from Device C.

① Device B serially outputs "LOC01F0_0015510000006C9A_0015510000006C92₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C92**".

(5-1) Device B compares the Bridge Address.

① Device B compares the Local Device Address(0002) of the transmitting device included in the data packet received from Device C with its own Bridge 2 Address(0002).

② Device B resends (bridges) the data packet to the Bridge 1 Address(0000).

(6-1) Device A receives data sent from Device B.

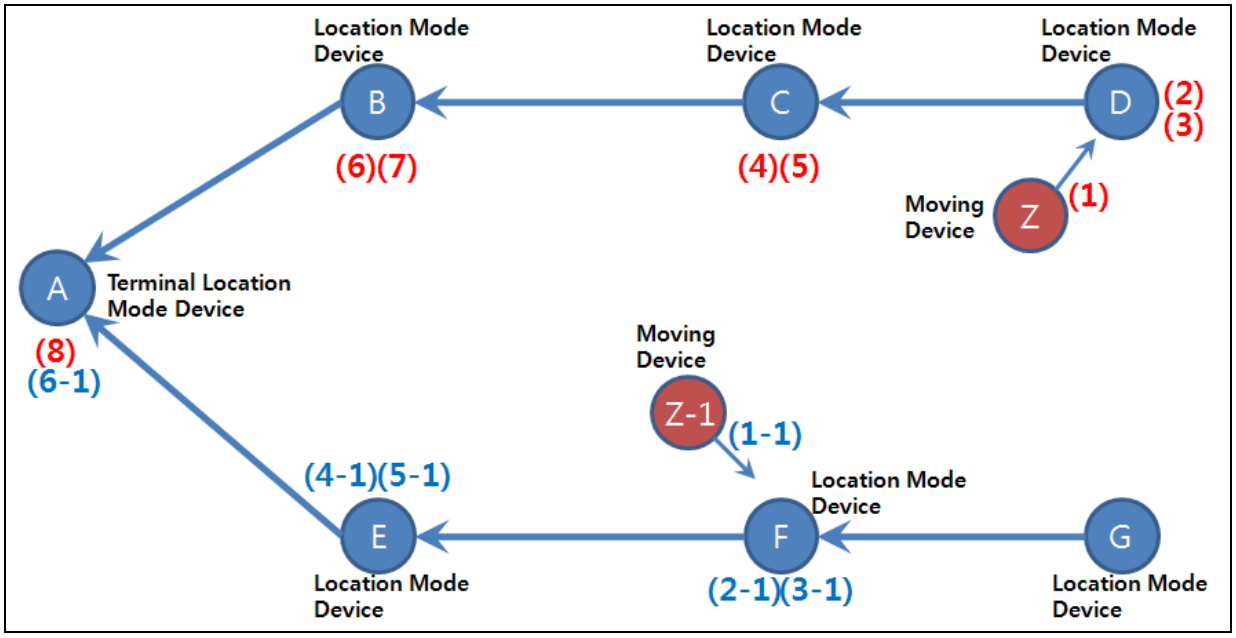
① Device A serially outputs "LOC01F0_0015510000006C9A_0015510000006C92₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C92**".

③ Users can determine if the moving device (**0015510000006C9A**) is near Device D (fixed device: **0015510000006C92**) by using the serial data output from the terminal Location Mode device A.

※ Users can find the moving device (0015510000006C9A) is between Device D (fixed device:0015510000006C93) and Device C (fixed device: 0015510000006C92) by using the serial data of "the 1st dataflow" and the serial data of "the 2nd dataflow" output from the terminal Location Mode device A

5-3. Case 3: Moving Device Z and Location Mode Device D, Moving Device Z-1 and Location Mode Device F



5-3-1. Dataflow from Moving Device Z

(1) The Moving Device Z transmits ADC or COUNT data in broadcast mode.

(2) Device D receives data sent from Device Z (Moving Device).

① Device D serially outputs "ADC01F0_0015510000006C9A₩r₩n" or "CNT0010_0015510000006C9A₩w₩n".

② It means Device D received ADC or COUNT data from the device (moving device) having IEEE Address of "**0015510000006C9A**".

(3) Device D compares the Bridge Address.

① Device D compares the Local Device Address(000A) of the transmitting device included in the data packet received from Device Z with its own Bridge 2 Address(000A).

② Device D adds its own IEEE Address to the data received from Device Z and reconfigures the data into the data for the Location function.
"**LOC01F0_0015510000006C9A_0015510000006C93₩r₩n**".

③ It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

④ Device D resends (bridges) the reconfigured data packet to the Bridge 1 Address(0002).

(4) Device C receives data sent from Device D.

① Device C serially outputs "LOC01F0_0015510000006C9A_0015510000006C93₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

(5) Device C compares the Bridge Address.

① Device C compares the Local Device Address(0003) of the transmitting device included in the data packet received from Device D with its own Bridge 2 Address(0003).

② Device C resends (bridges) the reconfigured data packet to the Bridge 1 Address(0001).

(6) Device B receives data sent from Device C.

① Device B serially outputs "LOC01F0_0015510000006C9A_0015510000006C93₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

(7) Device B compares the Bridge Address.

① Device B compares the Local Device Address(0002) of the transmitting device included in the data packet received from Device C with its own Bridge 2 Address(0002).

② Device B resends (bridges) the reconfigured data packet to the Bridge 1 Address(0000).

(8) Device A receives data sent from Device B.

① Device A serially outputs "LOC01F0_0015510000006C9A_0015510000006C93₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9A**" for the Location function is "**0015510000006C93**".

③ Users can determine if the moving device (**0015510000006C9A**) is near Device D (fixed device: **0015510000006C93**) by using the serial data output from the terminal device A in the Location Mode.

5-3-2. Dataflow from Moving Device Z-1

(1-1) The Moving Device Z-1 transmits ADC or COUNT data in Broadcast Mode.

(2-1) Device F receives data sent from Device Z-1 (Moving Device).

① Device F serially outputs "ADC01F0_0015510000006C9B₩r₩n" or "CNT0010_0015510000006C9B₩w₩n".

② It means Device C received ADC or COUNT data from the device (moving device) having IEEE Address of "**0015510000006C9B**".

(3-1) Device F compares the Bridge Address.

① Device F compares the Local Device Address(000A) of the transmitting device included in the data packet received from Device Z-1 with its own **Bridge 4 Address**(000A).

② Device F adds its own IEEE Address to the data received from Device Z-1 and reconfigures the data into the data for the Location function "**LOC01F0_0015510000006C9B_0015510000006C95₩r₩n**".

③ It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9B**" for the Location function is "**0015510000006C95.**"

④ Device F resends (bridges) the reconfigured data packet to the **Bridge 3 Address**(0004).

(4-1) Device E receives data sent from Device F.

① Device E serially outputs "LOC01F0_0015510000006C9B_0015510000006C95₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9B**" for the Location function is "**0015510000006C95**".

(5-1) Device E compares the Bridge Address.

① Device E compares the Local Device Address(0005) of the transmitting device included in the data packet received from Device F with its own Bridge 2 Address(0005).

② Device E resends (bridges) the reconfigured data packet to the Bridge 1 Address(0000).

(6-1) Device A receives data sent from Device E.

① Device A serially outputs "LOC01F0_0015510000006C9B_0015510000006C95₩r₩n".

② It means that the first data receiving device from the moving device having IEEE Address of "**0015510000006C9B**" for the Location function is "**0015510000006C95**".

③ Users can determine if the moving device (**0015510000006C9B**) is near Device F (fixed device: **0015510000006C95**) by using the serial data output from the terminal Location Mode device A.

※ Users can find the moving device Z (**0015510000006C9A**) is near Device D (fixed device: **0015510000006C93**) and the moving device Z-1 (**0015510000006C9B**) is near Device F (fixed device: **0015510000006C95**) by using the serial data of "dataflow of the moving device Z" and the serial data of "dataflow of the moving device Z-1" output from the terminal Location Mode device A.

6. LQI (Link Quality Indication)

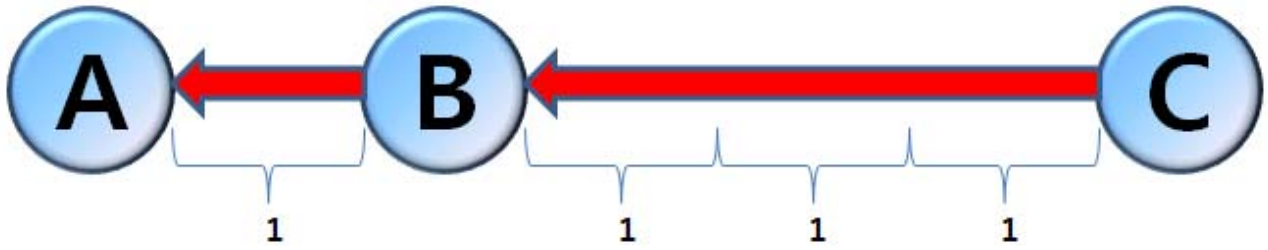
LQI (Link Quality Indication) is the quality level value of data communicated between devices.

The LQI between Device A and Device B is the quality level value of the data packet received by Device B when data is sent by Device A and received by Device B. Or the quality level value of the data packet received by Device A and sent by Device B.

6-1. Bridging of Link Quality Indication between Devices

6-1-1. Link Quality Indication between Devices A/B/C

When configuration of Devices A/B/C is as follows,



If the distance between Device A and B is 1, we can say the distance between Device B and C equals to 3.

Assuming that the maximum value of the Link Quality Indication between devices is 10, we can say the Link Quality Indication between Device A and B is 9(10-1) and the Link Quality Indication between Device B and C is 7(10 -3).

(1) We can say the Link Quality Indication of Device A, the quality level value of the data packet received from Device B, is 9.

(2) We can say the Link Quality Indication of Device B, the quality level value of the data packet received from Device A, is 9.

(3) We can say the Link Quality Indication of Device B, the quality level value of the data packet received from Device C, is 7.

In the above case, the Link Quality Indication of Device A is determined by Device B. Also, the Link Quality Indication of Device B is separately determined by Device A or C.

The Link Quality Indication of Device A is output as "LQI_009_0015510000006C91₩r₩n".
This means that the quality level value of the data packet received from the device (Device B) having IEEE Address of "**0015510000006C91**" is 9.

The Link Quality Indication of Device B is output as "LQI_009_0015510000006C90₩r₩n".
This means that the quality level value of the data packet received from the device (Device A) having IEEE Address of "**0015510000006C90**" is 9.
Also, "LQI_007_00155100000006C92₩r₩n" is output from Device B. This means that the quality level value of the data packet received from the device (Device C) having IEEE Address of "**0015510000006C92**" is 7.

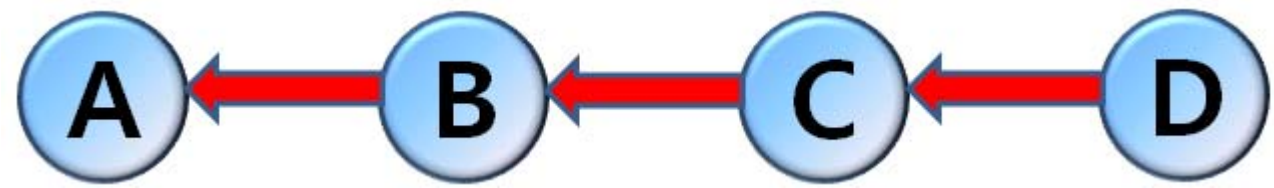
6-1-2. Bridging of Link Quality Indication by Device B

If Device A knows the Link Quality Indication between Device B and C, we can assume that Device A knows where Device C is located in connection with Device B. For example, the Link Quality Indication output from Device A is "LQI_009_00155100000006C91_007_00155100000006C92₩r₩n", user can understand that device having IEEE Address of 0015510000006C92 (Device C) is located at the distance of 007 from the device having IEEE Address of 0015510000006C91 (Device B) and device having IEEE Address of 0015510000006C91 (Device B) is located at the distance of 009 from the device having IEEE Address of 0015510000006C90 (Device A: itself).
.

6-1-3. Ineffectiveness of the Link Quality Indication Bridging

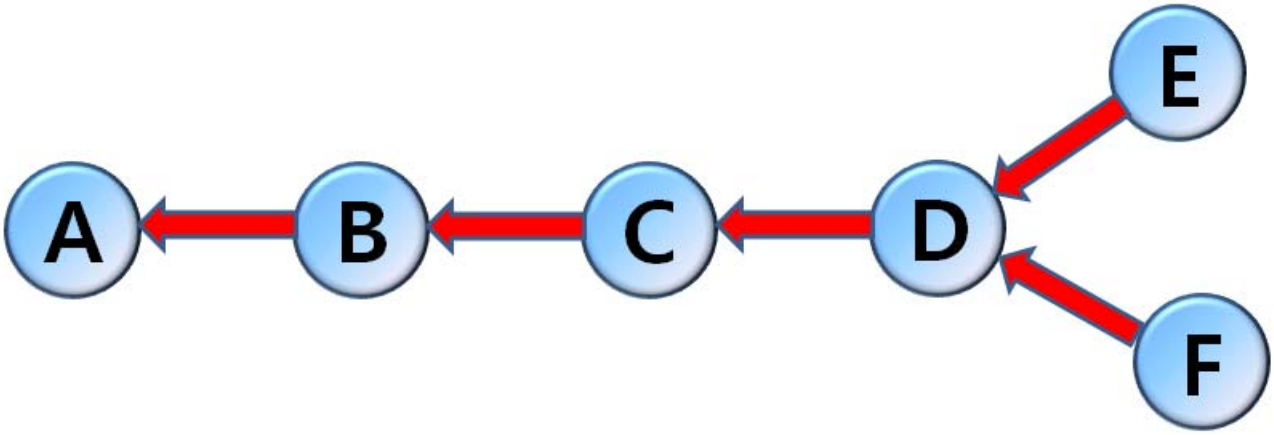
However, many Link Quality Indication data is output from Device A ineffectively if we assume there are Devices D, E or F next to Device C. (About 22 bytes of data has to be added when a bridging device is added.)

For example, in the case of the network consisted of devices A, B and C, Device A outputs 49 bytes of data to locate Device C.
If Device D is added behind Device C, Device A outputs a data of 71 (49 + 22) bytes to locate Device D.

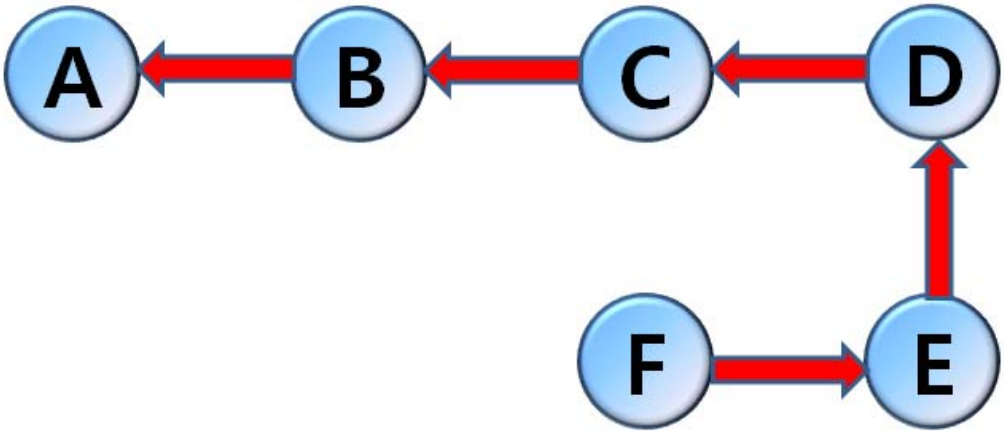


< If Device D is added: 71 bytes of data length >

If Device E and F are added to the network consisted of devices A/B/C/D, Device A outputs 115 bytes of data to locate Device F in the worst case. **(Maximum length of data packets is limited to 99 bytes.)**



<If Device E and F are added (1): 93 byte data packet length >



<If Device E and F are added (2): 115 bytes of data packet length >

When devices are added and number of bridging devices increases, the data packet length output to locate the final added device gets longer ineffectively from Device A's point of view.

In such case, number of bridging devices has to be unavoidably limited.

In addition, the Link Quality Indication between devices differs a lot by the device state or the surrounding environment.

Therefore, **the Link Quality Indication is used for data between devices and not used for the Location function.**