



## Single Frequency Repeater (HR658/HM788 SFR)

### Overview

Single Frequency Repeater (SFR) refers to the repeater uses the same frequency for both TX and RX, and operates in one slot for TX, and another slot for RX.

SFR can extend the communication range and increase spectrum efficiency.

### Principle

In the conventional direct mode, if the distance between MS1 and MS2 exceeds the communication range, but the repeater is within the communication range for both MS 1 and MS2, you can turn on SRF to establish communication

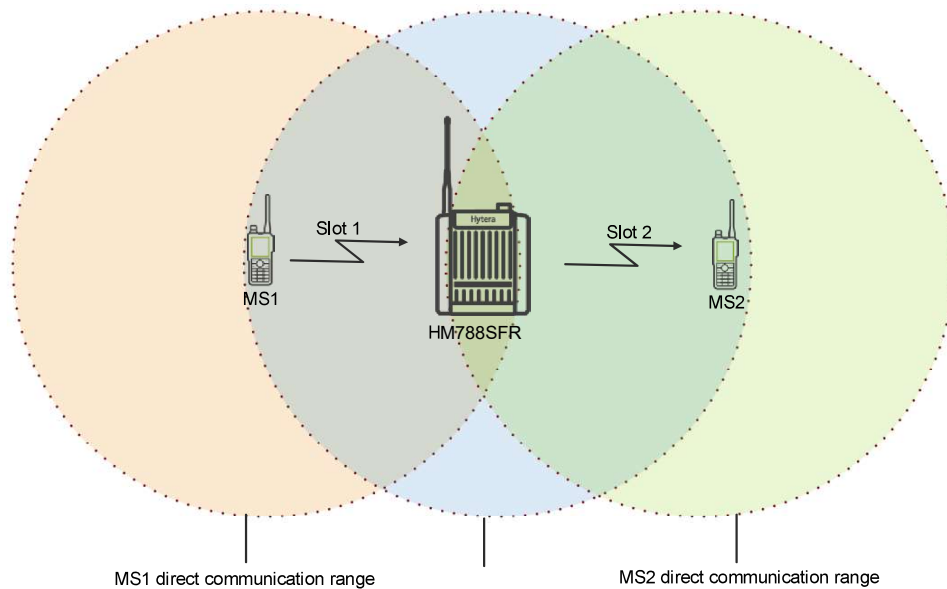
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between MS1 and MS2. Here takes private call as an example:

1. MS1 initiates a call to MS2 on slot 1.
2. When the repeater receives the call on slot 1, it transmits the call on neighboring slot 2.

On the repeater, Digital Mode Indicator, Slot A RX Indicator, Slot A TX Indicator, and Slot B TX Indicator glow simultaneously.

3. MS2 receives the call on slot 2.



The transmitted services include all voice call services (except call with confirmation and phone call), as well as group call messages. These services are securely end-to-end encrypted.

## Application Scenarios

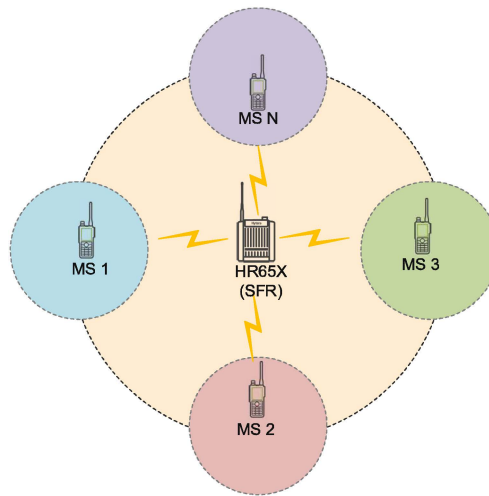
SFR applies to scenarios where you need to extend communication range in conventional direct mode, including remote areas, underground parking lots, commercial buildings, tunnels, communication between trains, and more.

- Outdoor: **HM 788SFR** can be carried with you for easy SFR wherever you go.

### Example 1

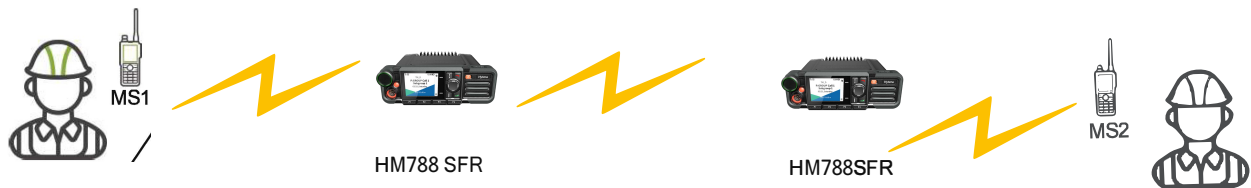
In a large industrial park, radios at the edges are unable to communicate directly due to long distance. To address this issue, you can place an **HM 788SFR** in the central area, which achieves communication among all radios within the park.

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## Example 2

When the staff equipped with MS1 in the tunnel communicates with the colleague equipped with MS2 in the project office, communication fails because the distance between two locations is beyond the direct communication range of two radios. To address this issue, you can place 1 or 2 HM788 SFR in both the tunnel and the project office, connecting them through network, which achieves communication between MS1 and MS2 office.



## Constraints

- The SFR repeater eliminates the need for a duplexer, which reduces power consumption.
- For SFR repeater, only one antenna needs to be installed at the TX antenna port.
- The SFR repeater must be within the communication range of TX and RX radios operating in the conventional direct mode.
- The SFR repeater, TX radio, and RX radio must use the same channel.
- The SFR is only available in the digital direct mode.