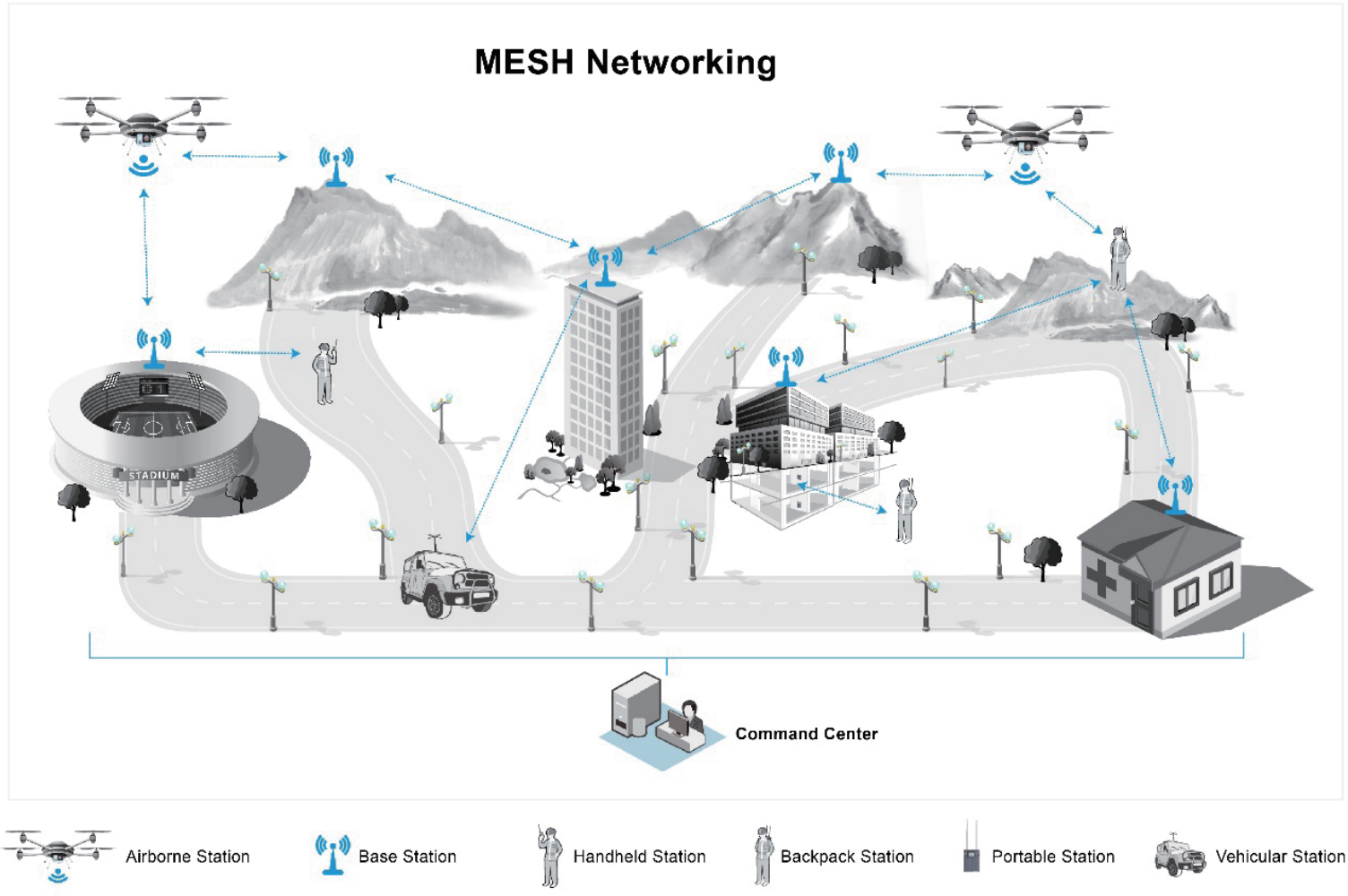
MESH(MC-M) Wide Area and Multimedia Broadband System

BelFone
Communications for Efficiency and Safety

ACCELERATES THE PACE OF BROADBAND CONNECTIVITY AND TWINNED PERFORMANCE WITH COST BENEFITS

In real situation, things are more complicated than what we can imagined, which means voice data is not enough to make rescue decisions, more information are required necessarily for commanders. Wireless MESH network is a new network architecture consisting of a wide variety of nodes. Utilizing no-center distributive network to realize real-time interaction of multimedia like voice, data and pictures, it operates under condition of non-line-of-sight and quick-move, and enjoys advantages of self-repairing, multi-hop connections, self-organizing, self-managing, etc.

TOPOLOGY &NETWORKING



FEATURES & BENEFITS

High Reliability

Conforms to military standards, the infrastructure is tough and robust, water& dust proof, easy to carry and can operate in adverse environments. It can be quickly deployed to meet the communication needs of an emergency scene. There are multi links for a single AP node in our WMN system, which effectively guarantees the normal operation of the whole system even if some links should break down, as there is more than one path between a source and its destination in the network.

Fast Deployment, Easy Non-invasive Installation

In emergency response, a fast, precise and informed understanding of the onsite RTK is of crucial importance, because it determines whether the commanders can have the information and courage to make the right call. Adopting the technology of single frequency network, BF-MR920B is a mobile base station with high performance which brings maximum simplicity and convenience to onsite deployments. With BF-MR920B, field workers can quickly establish network with minimum equipment.

Great Motility

It' s impossible to predict where a disaster might strike and the emergency scene can change at any moment. Therefore, it' s both important and necessary to deploy the temporary mobile base stations according to the specific situation. All the base stations are mobile and temporary. They are established as the emergency arises and immediately evacuated when everything is clear.

NLOS Transmission

The technology of Wireless MESH Network (WMN) can easily achieve NLOS transmission with its routing technique. Signals can automatically choose the best transmission path, hopping from one node to another, and finally reach the NLOS object node. This is the key to achieving 100% coverage for PMR users in all walks of life.

ELEMENTS

High Power Base Station
BF-MR920B

Backpack Station
BF-MR902P

Airborne Station
BF-MR925ms

Handheld Station
BF-MR901H

BF-MR920B

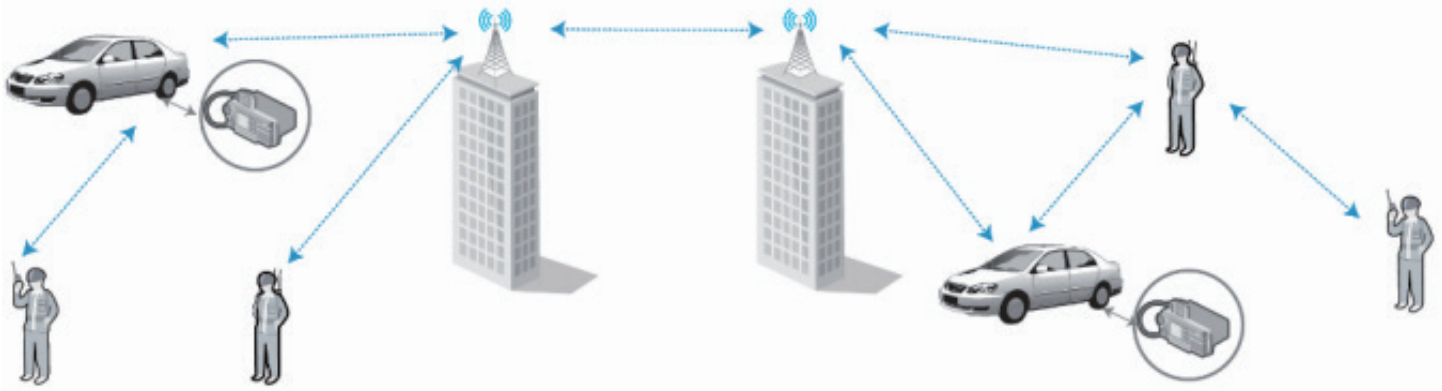
MESH High Power Base Station

MESH base stations are mainly deployed at fixed points. The equipment has high transmission power and long coverage distance. It is especially suitable for scenarios such as long-distance coverage communication, information convergence and return, regional coverage support, commanding coverage, and repeater transmission nodes.

FEATURES & BENEFITS

- Long-range and wide area coverage as high ground node.
- Converged network and interconnection, full IP network design and support different data transmission, interconnect with different networks.
- Flexible networking, no-center distributive star/tree/chain/ comprehensive network
- Simply constructed, economic solution, get rid of fiber, cables, digging trenches, cutting walls, threading pipes.
- Adaptive bandwidth based on resolution, built-in audio and video recorder.
- WIFI function, interoperate with other devices with WIFI in real time.
- Network interface, data transparent transmission mode.
- Satellite positioning, support GPS/Beidou/GLONASS/Galileop position system.
- External Mic communication, support 4 nodes voice broadcast simultaneously.
- Picture transmission: built-in coding module, support HDMI/CVB, image bandwidth, resolution and frame rate are adaptive as to the channel bandwidth.
- RS485 is optional, support remote control of pan/tilt rotation, focal length and other functions.

APPLICATION



SPECIFICATION

General		
Frequency	320 ~ 650MHz, 1.0 ~ 1.5GHz,2.1 ~ 2.5GHz, 1MHz adjustable and customized	
Carrier Bandwidth	2.5/5.0/10.0MHz, flexible and configurable; 20.0MHz, 40MHz(optional)	
Transmission System	COFDM	
Duplex Mode	TDD	
Modulation	QPSK/16QAM/64QAM/256QAM (adaptive)	
Transmission Capacity (TC)	Standard rate 28Mbps or 180Mbps (optional)	
Network Capacity	Same frequency networking can support 32 or 64 nodes	
Transmit Power	10W or 20W per channel, dual channel	
Receiver Sensitivity	≤-100dBm	
Video Encoding	External audio and video encoder	
Picture Resolution	CIF/HD1/D1/720P/1080P	
Encryption	DEC/AES128/AES256 (Optional)	
Input	External power supply, DC10-48V	
Power Consumption	≤140W (10W transmit power)	≤180W (20W transmit power)
Size	356mm* 217mm * 88mm	
Weight	7kg	
Water & Dust Prof	IP54	
Operating Temperature	-30℃ ~ +65℃	
Interface		
Antenna Interface	N type×2	
Controller Interface	Waterproof aviation plug (Ethernet)	
Video Interface	HDMI, CVBS waterproof aviation plug	
GPS Interface	Waterproof aviation plug	
MIC Interface	Waterproof aviation plug	
WIFI Antenna Interface	SMA(2.4GHz)	

BF-MR902P

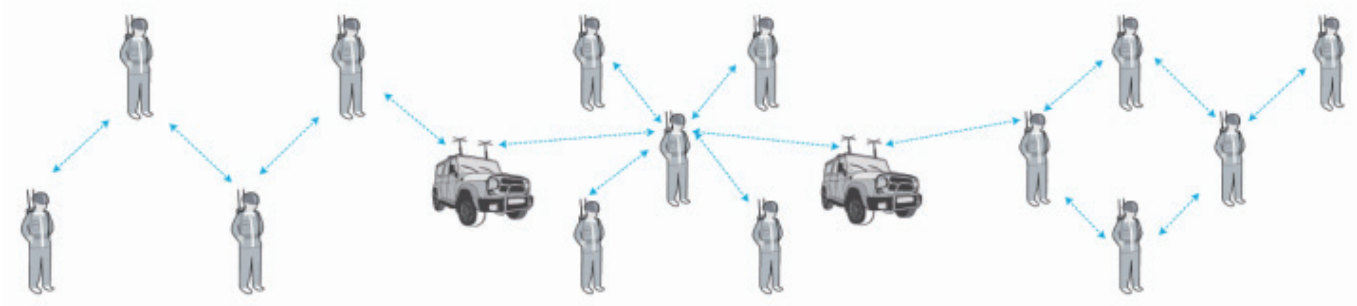
Backpack Station

The MESH backup station can be deployed quickly, with great mobility, and is mainly deployed on motor vehicles, fleets, and backpacks to achieve remote real-time collaboration between on-site operation and the command center. At the same time, it can be access to the backbone network of the BMC system when working with BF-TR925 series repeater, which is especially applied to on-site command, regional emergency communication, fleet self-organized communication, security patrol, mobile monitoring, etc.

FEATURES & BENEFITS

- Versatile and ease of free fixing, support manpack, vehicular, desktop mounted.
- Waterproof interface and strong vibration resistance, stable under various harsh conditions.
- Flexible networking: no-center distributive network, carries and bandwidth is adjusted automatically, and users can choose different networking deployment based on actual requirements like chain, tree, star, connected network etc.
- Intelligent routing, nodes update quickly as to vehicle movement, dynamically reconfigure routing, and network intelligently in real time without affecting the overall transmission and communication.
- Adaptive bandwidth: the built-in audio and video recorder will adjust picture and video resolution and frame rate based on bandwidth.
- The power automatically switches to the preset value when mounted on vehicular or manpack.
- WIFI function, interoperate with other devices with WIFI in real time.
- Network interface, data transparent transmission mode.
- Satellite positioning, support GPS/Beidou/GLONASS/Galileop position system.
- External Mic communication, support 4 nodes voice broadcast simultaneously.
- Picture transmission: built-in coding module, support HDMI/CVB, image bandwidth, resolution and frame rate are adaptive as to the channel bandwidth.
- RS485 is optional, support remote control of pan/tilt rotation, focal length and other functions.

APPLICATION



SPECIFICATION

General	
Frequency	320 ~ 450MHz, 450 ~ 650MHz, 1.0 ~ 1.5GHz, 2.1-2.5GHz, 1MHz adjustable and customized
Carrier Bandwidth	2.5/5.0/10.0MHz, flexible and configurable; 20.0, 40.0MHz(optional)
Transmission System	COFDM
Duplex Mode	TDD
Modulation	QPSK/16QAM/64QAM/256QAM (adaptive)
Transmission Capacity (TC)	Standard rate 28Mbps or 180Mbps (optional)
Network Capacity	Same frequency networking can support 32 or 64 nodes
Transmit Power	2W per channel, dual channel
Receiver Sensitivity	≤-100dBm
Video Encoding	Built-in audio and video encoder
Picture Resolution	CIF/HD1/D1/720P/1080P
Encryption	DEC56/AES128/AES256 (Optional)
Input	Vehicular: AC220V, DC10-48V Battery: DC12.6V
Power Consumption	≤30W (2W transmit power)
Size	Manpack: 277mm×76mm×286mm (Including battery: 94mm)
Weight	5.4kg
Water & Dust Prof	IP67
Operating Temperature	-30℃ ~ +65℃
Interface	
Antenna Interface	N type×2
Controller Interface	Waterproof aviation plug (Ethernet * 2)
Video Interface	HDMI, CVBS waterproof aviation plug
GPS Interface	Waterproof aviation plug
MIC Interface	Waterproof aviation plug
WIFI Antenna Interface	SMA (2.4GHz)

BF-MR925MS

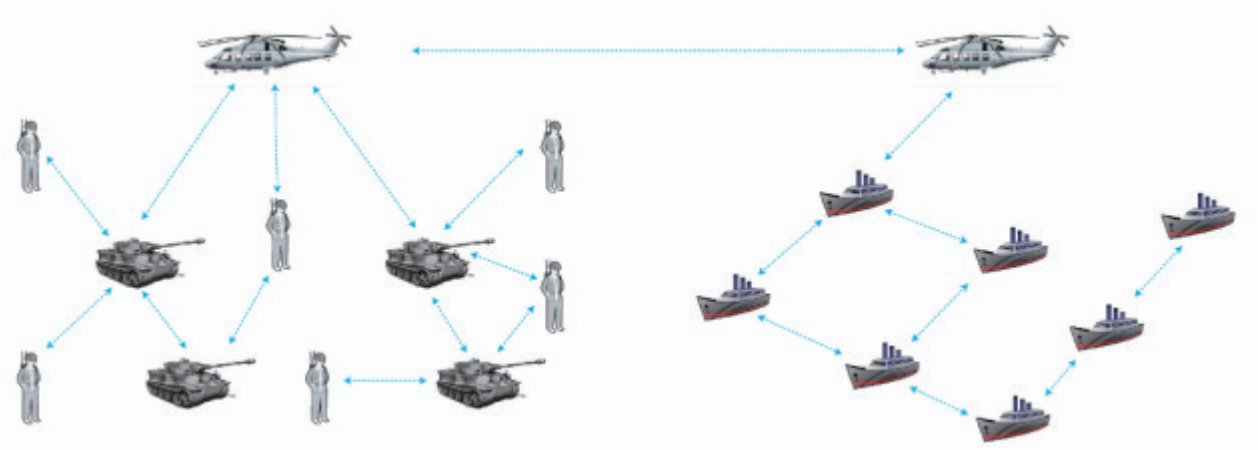
Airborne Station

Featured with small size, light, lower power and long battery life, the MESH airborne module is designed to work with hot air balloons and drones as to special emergency conditions. As a MESH high-altitude node, it can achieve ultra-long-distance relay with less power, and overcome block of terrain and buildings on the ground. By combining with related equipment, to activate more functions like take pictures or videos at high altitude, control leaflet distribution, and material delivery.

FEATURES & BENEFITS

- Compact Structure, agile and portable, small size, lightweight, lower power and long working life, flexible in connection mode, which fit perfectly with drones.
- Fast Deployment, high reliability, waterproof interface and strong vibration resistance, stable under various harsh conditions.
- Flexible Networking, no-center distributive network, carries and bandwidth is adjusted automatically, and users can choose different networking deployment based on actual requirements like chain, tree, star, connected network etc.
- Intelligent Routing: nodes update quickly as to vehicle movement, dynamically reconfigure routing, and network intelligently in real time without affecting the overall transmission and communication.
- WIFI function, interoperate with other devices with WIFI in real time.
- Network interface, data transparent transmission mode.
- Satellite positioning, support GPS/Beidou/GLONASS/Galileop position system.
- External Mic communication, support 4 nodes voice broadcast simultaneously.
- Picture transmission: built-in coding module, support HDMI/CVB, image bandwidth, resolution and frame rate
- are adaptive as to the channel bandwidth.
- RS485 is optional, support remote control of pan/tilt rotation, focal length and other functions.

APPLICATION



SPECIFICATION

General	
Frequency	320 ~ 450MHz, 450 ~ 650MHz, 1.0 ~ 1.5GHz, 2.1-2.5GHz, 1MHzx adjustable and customized
Carrier Bandwidth	2.5/5.0/10.0MHz, flexible and configurable; 20.0, 40.0MHz(optional)
Transmission System	COFDM
Duplex Mode	TDD
Modulation	QPSK/16QAM/64QAM/256QAM (adaptive)
Transmission Capacity (TC)	Standard rate 28Mbps or 180Mbps (optional)
Network Capacity	Same frequency networking can support 32 or 64 nodes
Transmit Power	250mW per channel, dual channel
Receiver Sensitivity	≤-100dBm
Encryption	DEC/AES128/AES256 (Optional)
Input	Battery: DC12.6V
Power Consumption	≤10W (No audio and video encoding module); ≤13W (With audio and video encoding module)
Size	114 mm × 104mm × 42mm
Weight	470g (including Li-ion battery except antenna)
Water & Dust Prof	IP67
Operating Temperature	-30℃ ~ +65℃
Interface	
Antenna Interface	SMA type×2
Controller Interface	Waterproof aviation plug (Ethernet)
GPS Interface	Waterproof aviation plug
WIFI Antenna Interface	Built-in WIFI antenna (2.4GHz)

BF-MR901H

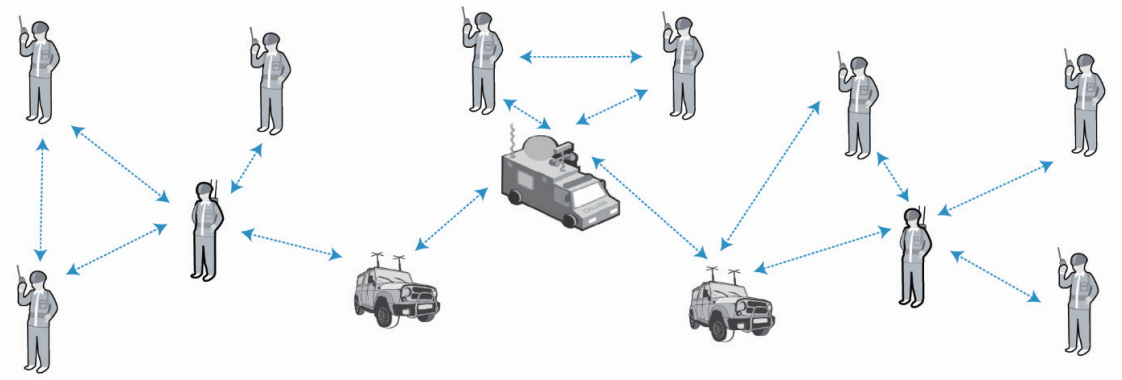
Handheld Station

MESH handheld device is small and equipped with removable lithium battery. It can be held or carried on the shoulder, back or waist of an individual soldier. As a wireless ex tension and extension of the portable device, it is convenient to go into the scene of emergencies or crowded people, and send multimedia information such as high-definition video back in real time, so that commanders can directly control the scene situation in real time. At the same time, each individual node can also carry out multi media interaction, to achieve efficient cooperation. The equipment is suitable for a variety of application scenarios such as local cooperative/emergent work of small teams, interconnection of high-rise or underground areas inside buildings, dense crowd and hidden work needs.

FEATURES & BENEFITS

- 1.8-inch LCD display, view the online list, real-time status, and set up, etc.
- Highly portable, small size, lightweight, incorporates high-performance integrated voice and data, delivering
- smart connectivity anywhere.
- Multimedia dispatching, send and receive real-time videos, pictures, voice and text for improved situational awareness to facilitates visualized dispatching.
- Flexible networking, no-center distributive network, carries and bandwidth is adjusted automatically, and users can choose different networking deployment based on actual requirements like chain, tree, star, connected network etc.
- Intelligent routing, nodes update quickly as to vehicle movement, dynamically reconfigure routing, and network intelligently in real time without affecting the overall transmission and communication.
- WIFI function, interoperate with other devices with WIFI in real time.
- Network interface, data transparent transmission mode.
- Satellite positioning, support GPS/Beidou/GLONASS/Galileop position system.
- External Mic communication, support 4 nodes voice broadcast simultaneously.
- Picture transmission: built-in coding module, support HDMI/CVB, image bandwidth, resolution and frame rate are adaptive as to the channel bandwidth.

APPLICATION



SPECIFICATION

General	
Frequency	520 ~ 650MHz, 1.2 ~ 1.5GHz, 1MHz, adjustable and customized
Carrier Bandwidth	2.5/5.0/10.0MHz, flexible and configurable;
Transmission System	COFDM
Duplex Mode	TDD
Modulation	QPSK/16QAM/64QAM/256QAM (adaptive)
Transmission Capacity (TC)	Standard rate 21Mbps or 28Mbps (optional)
Network Capacity	Same frequency networking can support 32 or 64 nodes
Transmit Power	520-650MHz: 1W, single transmitter and dual receivers 1.2-1.5GHz: 500mW, single transmitter and dual receivers
Receiver Sensitivity	≤-100dBm
Video Encoding	External audio and video encoder(optional)
Picture Resolution	CIF/HD1/D1/720P/1080P
Encryption	DEC/AES128/AES256 (Optional)
Input	Battery: DC7.6V
Power Consumption	≤7.5W
Screen	1.8 inch, TFTLCD (320*240)
Size	155mm × 66mm × 32mm (including battery except antenna and belt-clip)
Weight	450g (including battery except antenna and belt-clip)
Water & Dust Prof	IP67
Operating Temperature	-20℃ ~ +55℃
Interface	
Antenna Interface	SMA type×2
Controller Interface	Waterproof aviation plug (Ethernet)
GPS Interface	Built-in BD/GPS
MIC Interface	Wired headset (PTT)
WIFI Antenna Interface	Built-in WIFI Antenna(2.4GHz/5.8GHz)

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Communications for Efficiency and Safety

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