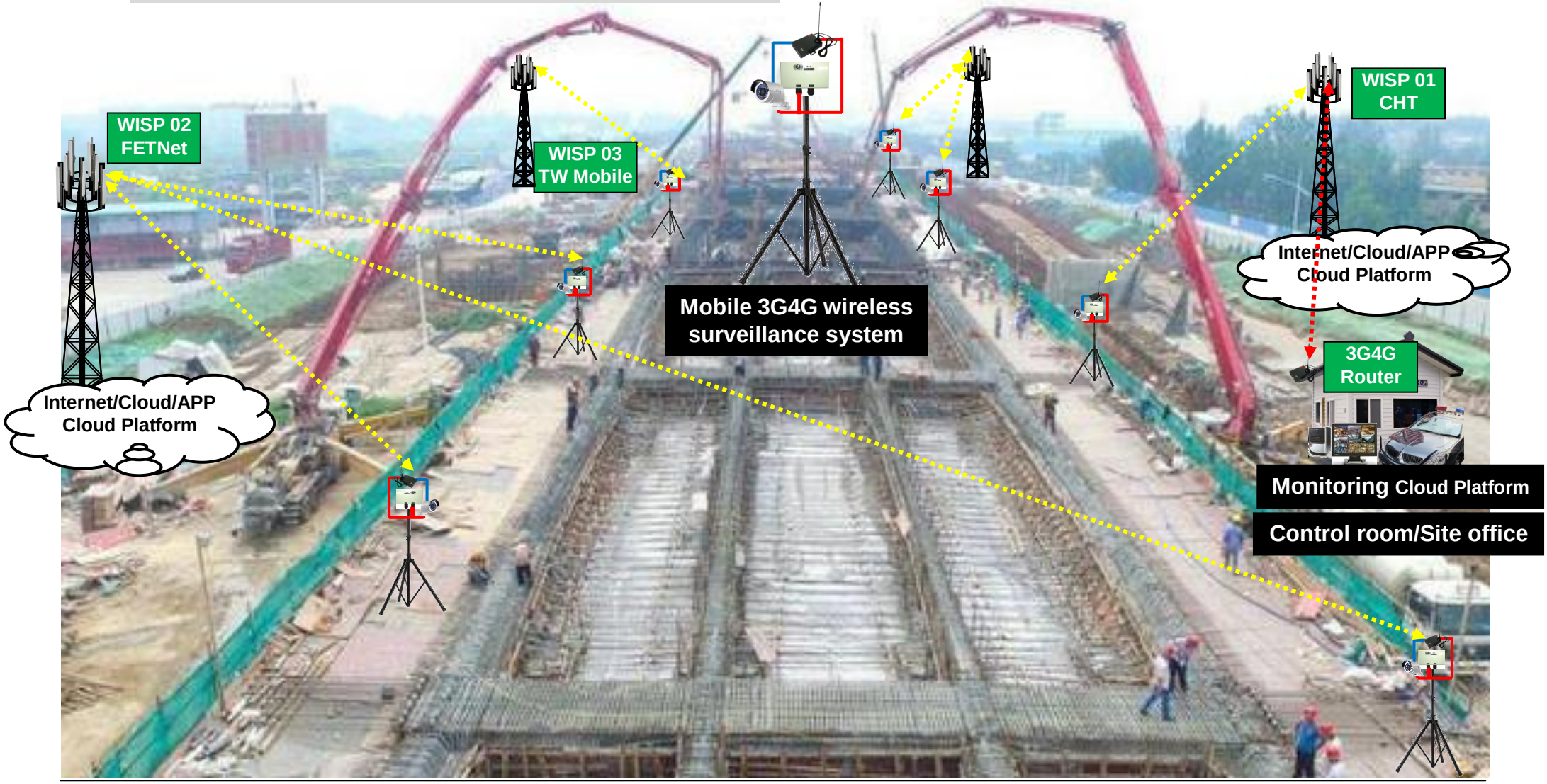
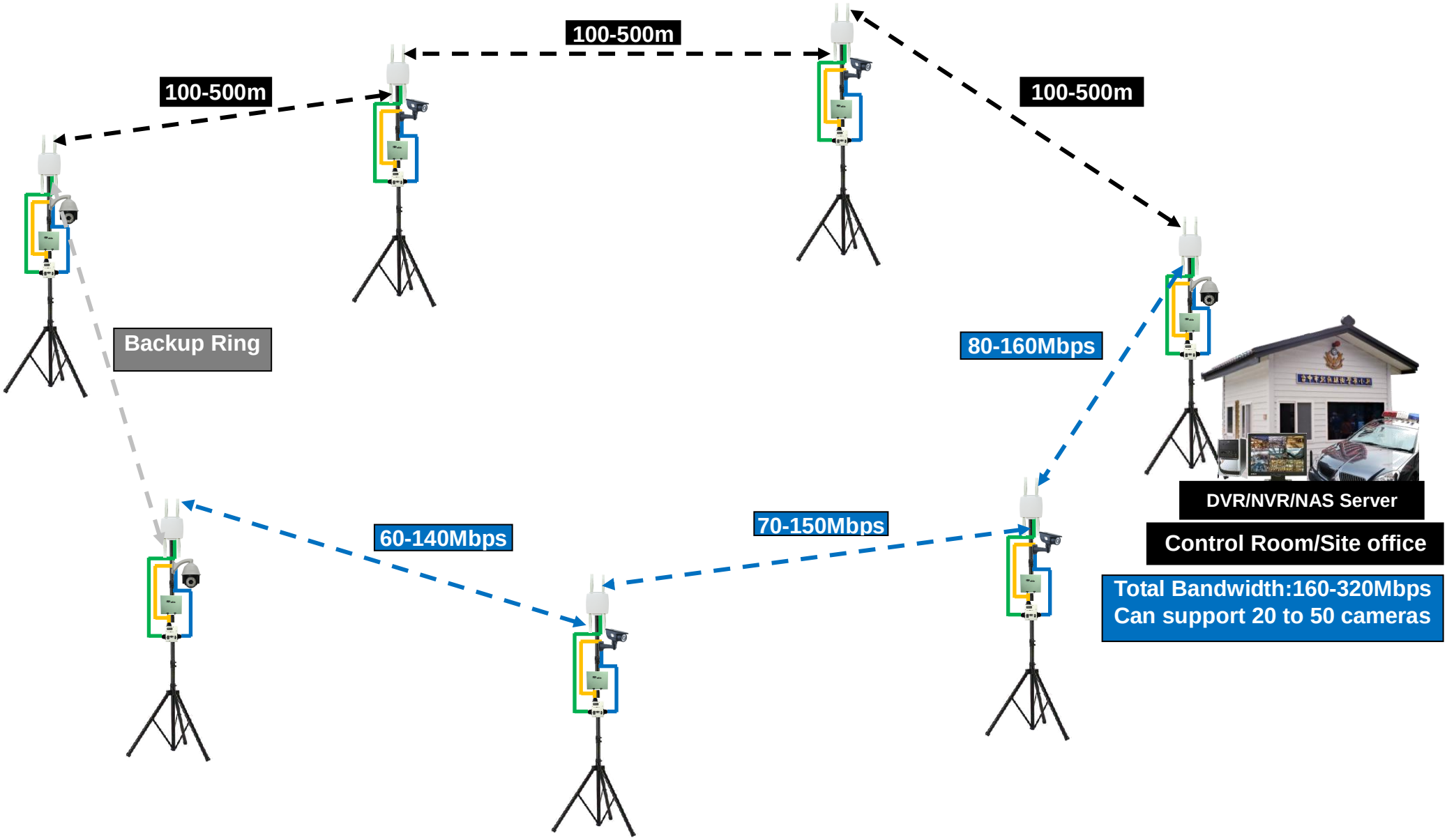
『Mobile PTP MESH wireless surveillance system』with

『Mobile 3G4G wireless router multi-WAN backup export』application design

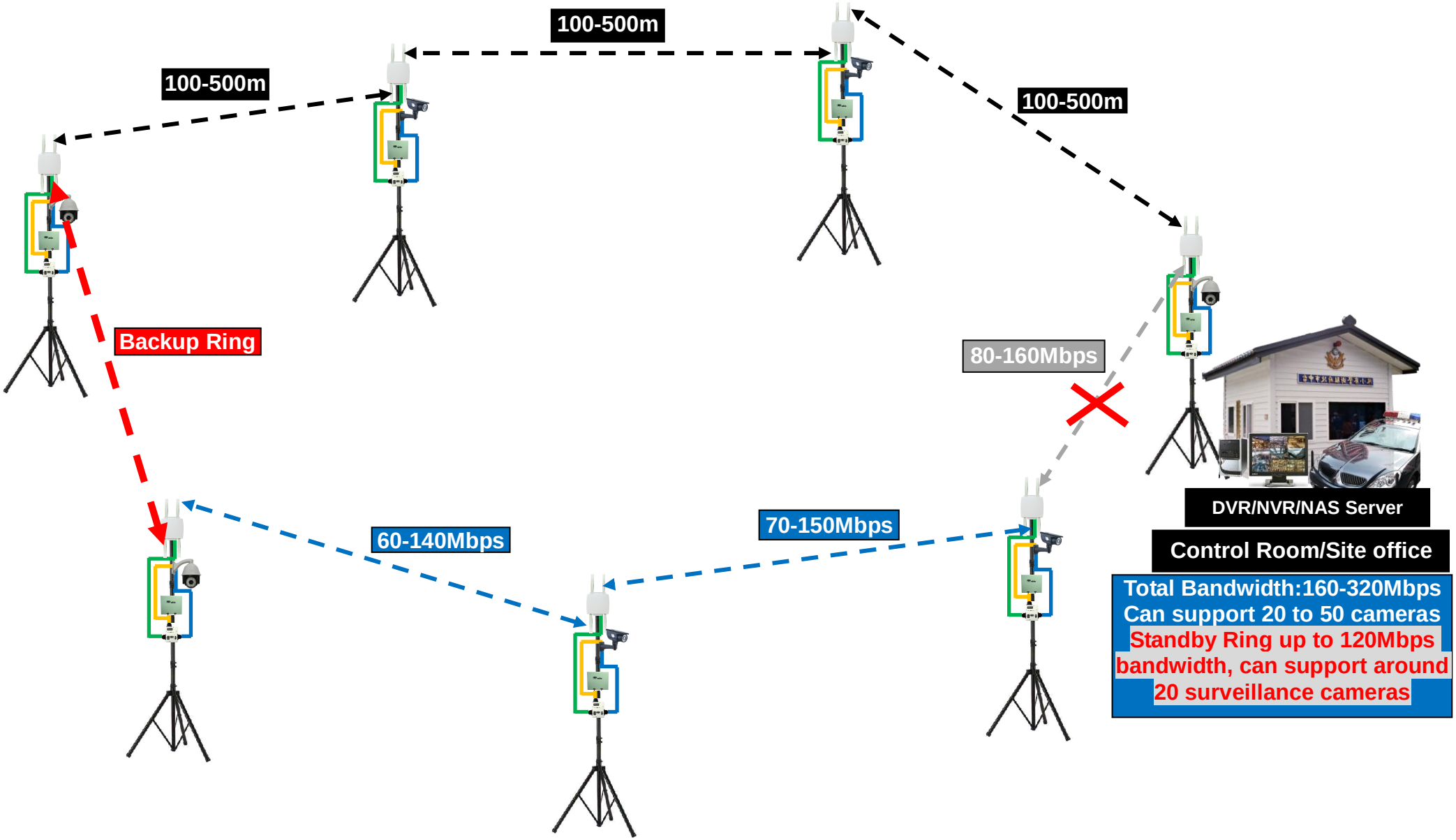
1、 Mobile 3G4G wireless cloud surveillance system



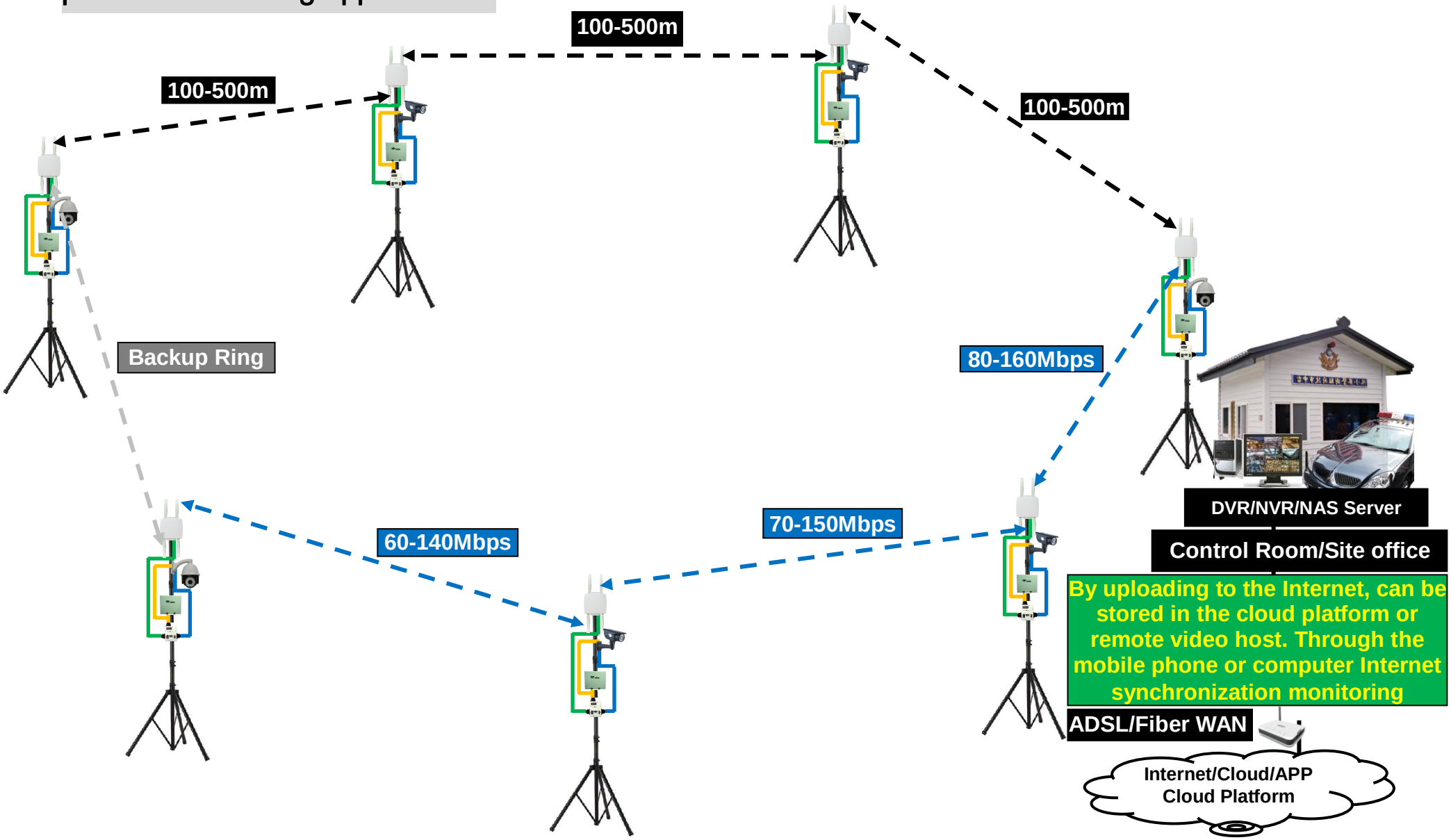
2、 Mobile PTP MESH backup ring wireless surveillance system



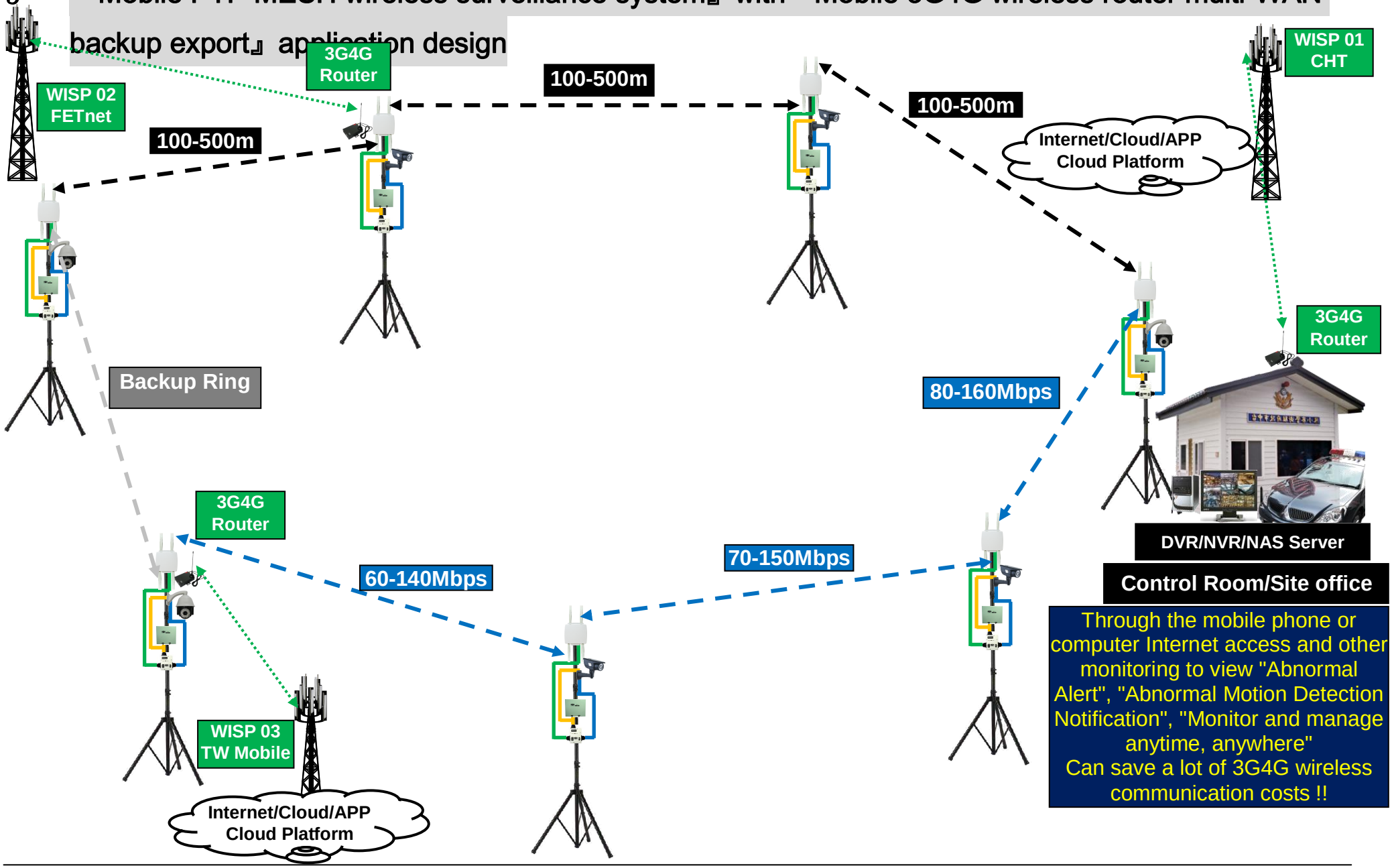
3、 Mobile PTP MESH "Backup Ring enable operation" diagram



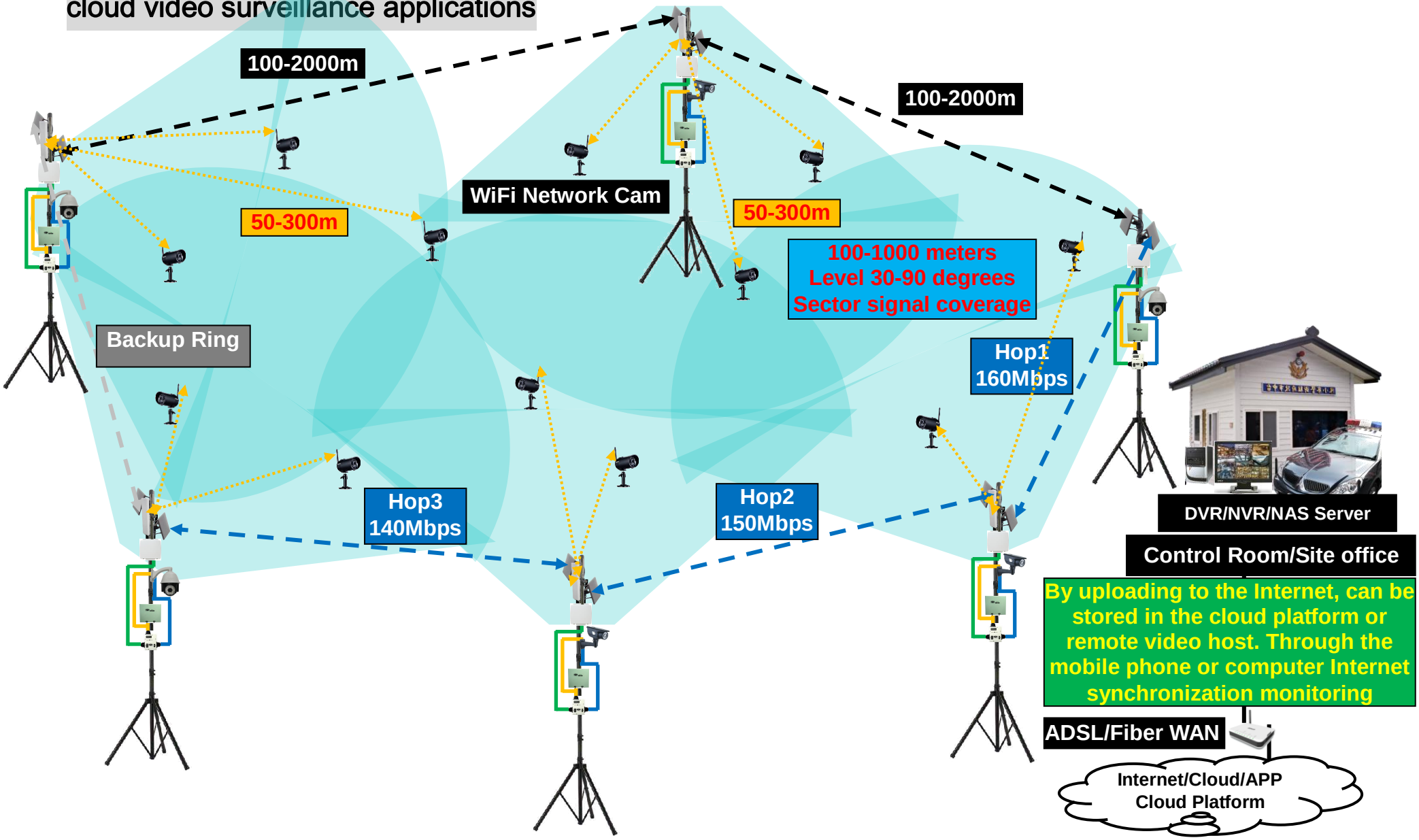
4、 "Mobile PTP MESH wireless surveillance system" with "ADSL / Fiber and other wired network" cloud platform monitoring applications



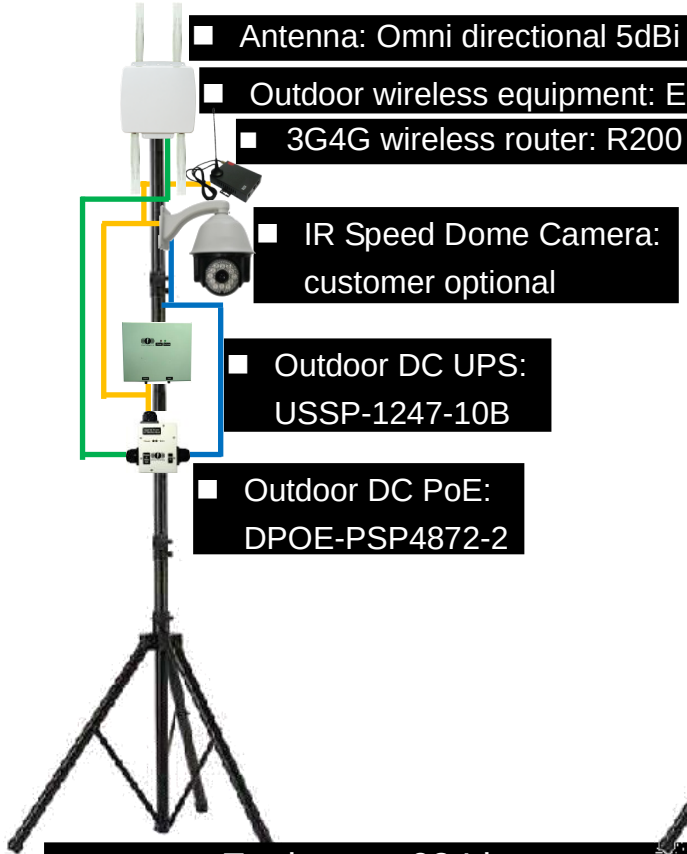
5、『Mobile PTP MESH wireless surveillance system』with『Mobile 3G4G wireless router multi-WAN backup export』application design

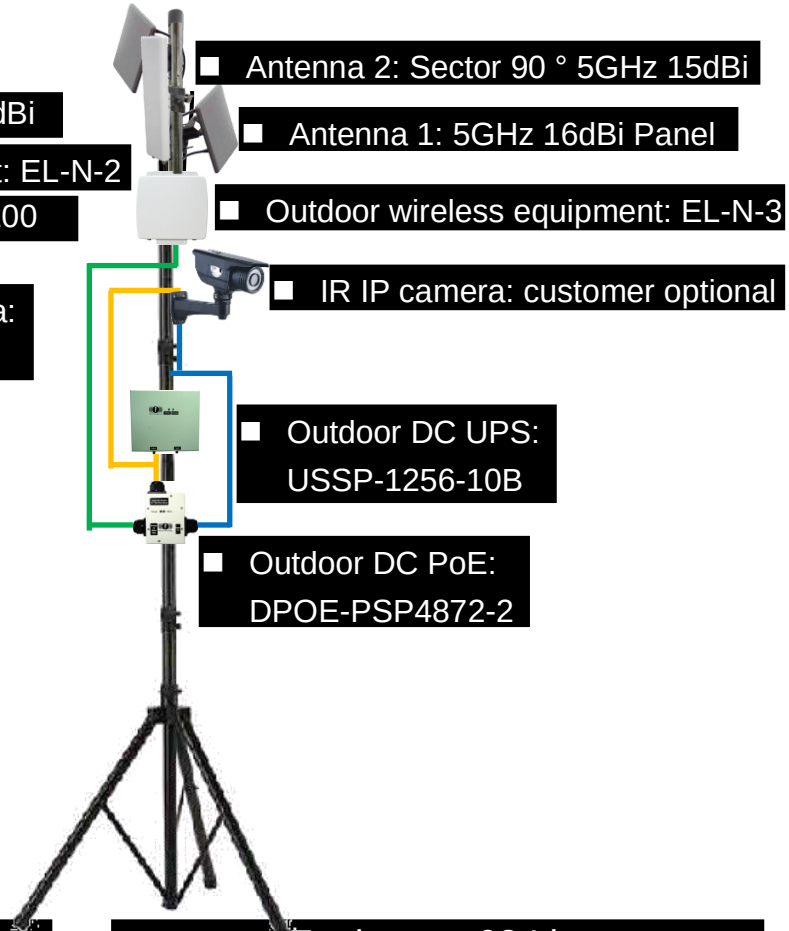


6、『Mobile PTP MESH wireless backbone』with『WiFi wireless camera』into the『ADSL / Fiber network』cloud video surveillance applications



7、 Device diagram and battery capacity estimation instructions





Equipment 01 List

- 3G4G wireless router: R200 series
- 3G4G router dedicated IP67 waterproof box
- VPN cloud IR IP Camera: with the clouds
- Outdoor DC UPS: USSP-1212-07A 148WH
- Can move up and down tripod (can carry 30Kg)

Equipment 02 List

- Antenna: Omni directional 5dBi Omni * 2
- Outdoor wireless equipment: EL-N-2
- 3G4G wireless router: R200 series
- IR Speed Dome Camera: customer optional
- Outdoor DC UPS: USSP-1247-10B 594WH
- Outdoor DC PoE: DPOE-PSP4872-2
- Can move up and down tripod (can carry 30Kg)

Equipment 03 List

- Antenna 1: 5GHz 16dBi Panel * 2
- Antenna 2: Sector 90 ° 5GHz 15dBi
- Outdoor wireless equipment: EL-N-3
- Infrared IP camera: customer optional
- Outdoor DC UPS: USSP-1256-10B 716WH
- Outdoor DC PoE: DPOE-PSP4872-2
- Can move up and down tripod (can carry 30Kg)

8、 Outdoor DC UPS system battery capacity estimation instructions

Calculation of battery capacity for outdoor DC UPS systems

<< Operation definition during daytime operation >>

- Outdoor wireless device EL-N-2 / EL-N-3 Power consumption: 8W / H / 10W / H
- 3G4G wireless router R200 series power consumption: 4W / H
- VPN cloud IR camera power consumption: 3.5~4.5W/H / IR Speed Dome: 12~24W/H / IR camera : 5~8W/H
- Outdoor DC UPS system power consumption: 1W / H
- Outdoor DC PoE DPOE-PSP4872-2 Power consumption: 1W / H

Equipment 01: with "VPN cloud IR camera"

Mobile 3G4G wireless surveillance system power consumption:8.5W/H

➔ Can supply more than 12 hrs**=>> 8.5W/H * 12H * 110% * 115%= 129W**

(110% of the battery using 5-year capacity loss compensation, 115% of the conversion efficiency loss compensation)

Recommend: IOP- USSP-1212-07A 148 WH (11.6Ah @ 12.8V) 888VA

➔ Can supply more than 24 hrs **=>> 8.5W/H * 24H * 110% * 115%= 258W**

Recommend: IOP- USSP-1224-09B 297 WH (23.2Ah @ 12.8V) 1782VA

Equipment 02: with "IR Speed Dome camera"

Mobile 3G4G wireless monitoring system power consumption:26W/H

➔ Can supply more than 12 hrs**=>> 26W/H * 12H * 110% * 115%= 395W**

Recommend: IOP- USSP-1232-10B 412 WH (32.2Ah @ 12.8V) 2472VA

➔ Can supply more than 18 hrs**=>> 26W/H * 18H * 110% * 115%= 592W**

Recommend: IOP- USSP-1247-10B 594 WH (46.4Ah @ 12.8V) 3564VA

Equipment 03: with "IR camera"

Mobile WiFi wireless monitoring system power consumption:17W/H

➔ Can supply more than 14 hrs**=>> 17W/H * 14H * 110% * 115%= 301W**

Recommend: IOP- USSP-1224-09B 297 WH (23.2Ah @ 12.8V) 1782VA

➔ Can supply more than 32 hrs**=>> 17W/H * 32H * 110% * 115%= 688W**

Recommend: IOP- USSP-1256-10B 716 WH (56Ah @ 12.8V) 4296VA

Equipment 02: with "IR Speed Dome camera"

Mobile 3G4G wireless monitoring system power consumption:19W/H

➔ Can supply more than 12 hrs**=>> 19W/H * 12H * 110% * 115%= 288W**

Recommend: IOP- USSP-1224-09B 297 WH (23.2Ah @ 12.8V) 1782VA

➔ Can supply more than 18 hrs**=>> 19W/H * 18H * 110% * 115%= 432W**

Recommend: IOP- USSP-1235-10B 445 WH (34.8Ah @ 12.8V) 2670VA

➔ Can supply more than 24 hrs**=>> 19W/H * 24H * 110% * 115%= 576W**

Recommend: IOP- USSP-1247-10B 594 WH (46.4Ah @ 12.8V) 3564VA

➔ Can supply more than 30 hrs **=>> 19W/H * 30H * 110% * 115%= 721W**

Recommend: IOP- USSP-1256-10B 716 WH (56Ah @ 12.8V) 4296VA

9、 Mobile 3G4G wireless surveillance system VS Mobile WiFi wireless surveillance system 『Use 3 years』 operating cost analysis

Analysis 1: Each WiFi device with 2 cameras

Mobile 3G4G wireless surveillance system (Taiwan program - 3G4G traffic is not limited)

No	Equipment List	Cost (month)	Quantity	Use months	Subtotal	Remark
1	VPN cloud camera		10			
2	3G4G Router		10			
3	SIM card fee		10	36		Use 3 years
4	Outdoor DC UPS -1212-07A		10			
5	Tripod & parts fee		10			
6	Cloud platform		10	36		Use 3 years
7						
8						
9						
TT					25860	

Mobile WiFi + 3G4G wireless surveillance system (International program - 3G4G according to the use of flow pricing)

No	Equipment List	Cost (month)	Quantity	Use months	Subtotal	Remark
1	Camera		10			Compare the cost of the same
2	3G4G Router		2			2 WISP WAN for Backup
3	SIM card fee		2	36		Use 3 years, International by flow
4	Outdoor DC UPS -1218-08A		5			Use WiFi device had add capacity
5	Tripod & parts fee		5			
6	NVR Server		1			Direct recording on NVR hard drive, Need to monitor the image through the 3G4G external network
7	Outdoor Wireless EL-N-2		3			Used for more than 3 years
8	Outdoor Wireless EL-N-1		2			Each wireless device with 2 cameras
9	5GHz 16dBi Panel Antenna		8			
TT						

The above information is for reference only.

Analysis 2: Each WiFi device with 1 cameras

Mobile 3G4G wireless surveillance system
(Taiwan program - 3G4G traffic is not limited)

No	Equipment List	Cost (month)	Quantity	Use months	Subtotal	Remark
1	VPN cloud camera		10			
2	3G4G Router		10			
3	SIM card fee		10	36		Use 3 years
4	Outdoor DC UPS -1212-07A		10			
5	Tripod & parts fee		10			
6	Cloud platform		10	36		Use 3 years
7						
8						
9						
TT					25860	

Mobile WiFi + 3G4G wireless surveillance system
(International program - 3G4G according to the use of flow pricing)

No	Equipment List	Cost (month)	Quantity	Use months	Subtotal	Remark
1	Camera		10			Compare the cost of the same
2	3G4G Router		2			2 WISP WAN for Backup
3	SIM card fee		2	36		Use 3 years, International by flow
4	Outdoor DC UPS -1218-08A		10			Use WiFi device had add capacity
5	Tripod & parts fee		10			
6	NVR Server		1			Direct recording on NVR hard drive, Need to monitor the image through the 3G4G external network
7	Outdoor Wireless EL-N-2		8			Used for more than 3 years
8	Outdoor Wireless EL-N-1		2			Each wireless device with 2 cameras
9	5GHz 16dBi Panel Antenna		18			
TT					22587	

The above information is for reference only.

10、 Set up the number of equipment

Outdoor wireless surveillance transmission system equipment list					
No	Device Name	Model / images	Brief specification	Quantity	Remark
1	VPN cloud camera	Tough Cam 1.0 / 2.0	1.Hardware:1.3MP,1/3" CMOS Sensor 1280×960P, IR light source 2.Power supply 12VDC, max 7W / PoE 802.3af 3.Operating temperature: -30 ° C to 60 ° C (-22 ° F to 140 ° F) 4.Waterproof rating: IP66 5.Image: Compressed format H.264, MJPEG 6.Network features: connect 10/100 Mbps Ethernet 7.Software support: cloud video surveillance playback system		
2	3G4G Router	3G/4G Router -- R200	1. Support multi-band TD-SCDMA / WCDMA / EDVO and 3G,4G LTE networks, backward compatible GPRS / EDGE / CDMA1x 2. Support virtual data and private network (APN / VPDN) 3. Support TCP/IP protocol, support Telnet,HTTP,SNMP, PPP,PPPoE 4. Support VPN Client (PPTP, L2TP), optional support OpenVPN, IPSec, HTTPs, SSH and other VPN functions 5.R200 support 1Port LAN & 1Port WAN		
3	Outdoor DC UPS Power Supply System	IOP-USSP-1212-07A	1.Product type: outdoor UPS power system / IP68 flame resistant wire head / iron housing 2.Supported battery: Explosion-proof Relief-type C-LiFePO4 Lithium Batteries 3.Built in battery power capacity: 148 WH (11.6Ah @12.8V) 4.Load voltage/current: DC 11.7~14.2V+-5% 6A Max 5.Battery charging voltage: 14.4V+-5% 6.Operation Temperature : - 35℃ ~ + 75℃ 7. Charge & Discharge Life Cycle: 2000 times (around 6 years)		

			8. Overcharge, over discharge, overcurrent, polarity reversed, short circuit protection, low voltage protection around 30 security features 9. Accessory line:150cm DC male to male line * 1 + 1 to 2 distribution line * 1 + 20cm DC male to male line * 2		
4	Outdoor DC UPS Power Supply System	IOP-USSP-1218-08A 	1.Product type: outdoor UPS power system / IP67 Industrial grade M12 connector / Aluminum housing 2.Supported battery: Explosion-proof Relief-type C-LiFePO4 Lithium Batteries 3.Built in battery power capacity: 235 WH (18.4Ah @ 12.8V) 4.Load voltage/current: DC 11.7~14.2V+-5% 6A Max 5.Battery charging voltage: 14.4V+-5% 6.Operation Temperature : - 35℃ ~ + 75℃ 7. Charge & Discharge Life Cycle: 2000 times (around 6 years) 8. Overcharge, over discharge, overcurrent, polarity reversed, short circuit protection, low voltage protection around 30 security features 9. Accessory line:150cm DC male to male line * 1 + 1 to 2 distribution line * 1 + 20cm DC male to male line * 2		
5	Mobile lift tripod and fixed waterproof components		1. Mobile lift tripod (including large-scale powerful magnetic disk) 2. Many varieties of specifications strong magnets 3. 3G / 4G R200 router IP67 waterproof box 4. Clouds VPN camera stainless steel holder 5. Other screws, gaskets and accessories		
6	PTP Mesh Ring backup wireless network base station	EL-N-1 (1 RF Module) 	1. 1 WiFi MIMO 2 * 2 4.9 ~ 6.1GHz Wireless Single Frequency RF Module (802.11an) 3. System Support PTP Mesh network wireless transmission 4. RF output power 26dBm (Max) single Band 5. Support PTP & Ethernet Jump Docking Extend Features		

			6. Support 10 hops has low latency in reply under 15ms 7. Support IGMP broadcast packet protocol function 8. Support backhaul bandwidth 200Mbps (40MHz)		
7	PTP Mesh Ring backup wireless network base station	EL-N-2 (2 RF Module) 	1. 2 WiFi MIMO 2 * 2 4.9 ~ 6.1GHz Wireless Single Frequency RF Module (802.11an) 3. System Support PTP Mesh network wireless transmission 4. RF output power 26dBm (Max) single Band 5. Support PTP & Ethernet Jump Docking Extend Features 6. Support 10 hops has low latency in reply under 15ms 7. Support IGMP broadcast packet protocol function 8. Support backhaul bandwidth 300Mbps (40MHz)		
8	PTP Mesh Ring backup wireless network base station	EL-N-3 (3 RF Module) 	1. 3 WiFi MIMO 2 * 2 4.9 ~ 6.1GHz Wireless Single Frequency RF Module (802.11an) 3. System Support PTP Mesh network wireless transmission 4. RF output power 26dBm (Max) single Band 5. Support PTP & Ethernet Jump Docking Extend Features 6. Support 10 hops has low latency in reply under 15ms 7. Support IGMP broadcast packet protocol function 8. Support backhaul bandwidth 300Mbps (40MHz)		
9	5GHz 16dBi Panel Antenna	IOP-PANJO-5M1602422 	1.Frequence:5150 - 5875 MHz 2.Gain: 16dBi 3.Polarization : Dual Linear +- 90° 4.H:15-19° / V:17-21° 5.Connector: N-Jack RG233, 70cm Cable *2 6.Weight: 0.8Kg 7.Dimensions: 210 x 210 x 73 mm 8.IPX5		

			9.Survival wind speed: 216Km/hr		
10	Waterproof Tap	IOP-RMTOC-1738305 10B	1. Length / roll: 305cm ± 2cm 2. Width: 38mm ± 2mm 3. Thickness: 1.35mm ± 0.5mm 4. Elongation: 1000% 5. Adhesion: Detachment < 2cm 6. Breaking Strength: >2kg 7. Water Absorption: <0.2% 8. Insulation Resistance: >1 × 106 MΩ+		