

Go 100Mbps Full Duplex Licence Free! →

SAF FreeMile™



SAF FreeMile all outdoor system is a new generation Licence Free **17GHz and 24GHz ISM band radio** for Ethernet packet data and E1/T1 voice transmission. The new radio system combines excellent features like interference-free operation, high availability, Carrier grade 100Mbps Full Duplex Fast Ethernet capacity with no cost of licensing and quick installation, traditionally associated with ISM radios. SAF FreeMile radio also provides user-friendly Web browser based management interface and straightforward installation process to ensure trouble-free experience for any user.

GENERAL

| | |
|-------------------------------|------------------------------|
| Frequency range (GHz) | 24.05 – 24.25 / 17.1 – 17.3 |
| Duplex (Tx, Rx) offset | 100 MHz, cross-polar |
| Channel bandwidth | 10 / 30 MHz |
| Modulation | QPSK / 16QAM / 32QAM / 64QAM |
| Capacity range | 100 Mbps Eth / 2 x E1/T1 |
| Max. permitted radiated power | +20dBm (100mW) e.i.r.p.* |

PORTS

| | |
|---------------------------------|--|
| Antenna flange | Circular, 10.3mm/13.8mm |
| Ethernet with power over | RJ-45 (data traffic, management port, power) |
| Balanced 2xE1/T1, analogue RSSI | 1xRJ-45 |

ETHERNET

| | |
|------------------------|--|
| Switch Type | Managed Fast Ethernet Layer 2 |
| Max frame size | 1916 bytes |
| MAC table | 1K entries; automatic learning and aging |
| Packet buffer | 32KB; non-blocking store&forward |
| Flow Control | 802.3x |
| VLAN support | 802.1Q (up to 15 concurrent traffic VLANs) |
| QoS | 64 level DiffServ (DSCP) or 8 level 802.1P mapped in 4 prioritization queues with VLAN support |
| Spanning Tree Protocol | 802.1D-2004 RSTP |

CHANNEL PLAN 24 / 17 GHz

| 10MHz channel | | 30MHz channel | |
|---------------|--------------|---------------|--------------|
| Tx,Rx (MHz) | Rx, Tx (MHz) | Tx, Rx (MHz) | Rx, Tx (MHz) |
| 24055/17105 | 24155/17205 | | |
| 24065/17115 | 24165/17215 | 24065/17115 | 24165/17215 |
| 24075/17125 | 24175/17225 | | |
| 24085/17135 | 24185/17235 | | |
| 24095/17145 | 24195/17245 | 24095/17145 | 24195/17245 |
| 24105/17155 | 24205/17255 | | |
| 24115/17165 | 24215/17265 | | |
| 24125 /17175 | 24225/17275 | 24125/17175 | 24225/17275 |
| 24135/17185 | 24235/17285 | | |
| 24145/17195 | 24245/17295 | | |

PERFORMANCE

| | |
|---------------------------------------|--|
| Configuration | 1+0 |
| Traffic Interfaces | 100Mbps FE (RJ-45) + 2xE1/T1 (RJ-45) |
| Tx Power (dBm) | -25 to -15 (24GHz); -25 to -12 (17GHz) |
| RSL Threshold at BER 10 ⁻⁶ | -77 (dBm) (30MHz, 32QAM, 100Mbps) |
| ACM (Adaptive Coding & Modulation) | Hitless |

MANAGEMENT FEATURES

| | |
|-----------------|--|
| Management Port | RJ-45 (in-band, optional VLAN tag.) |
| RSSI | LED on FODU, WEB management, analogue |
| TCP/IP | WEB, SNMP, Telnet - local & remote monitoring via Telnet, WEB GUI, SAF NMS, SNMP Manager |
| Loopbacks | Yes, E1, modem, RF loopback |

MECHANICAL & TECHNICAL

| | |
|------------------------|---|
| Stationary use | Ref. ETSI EN 300 019-2-4, class 4.1E, non weather-protected locations |
| Temperature range | -33°C to +55°C |
| Dimensions: | |
| HxWxD, mm / weight, kg | 230 x 230 x 85 / 2 |
| Input DC voltage | 48 V DC ±10% |
| Max. power consumption | <15W |

CAPACITY MODES

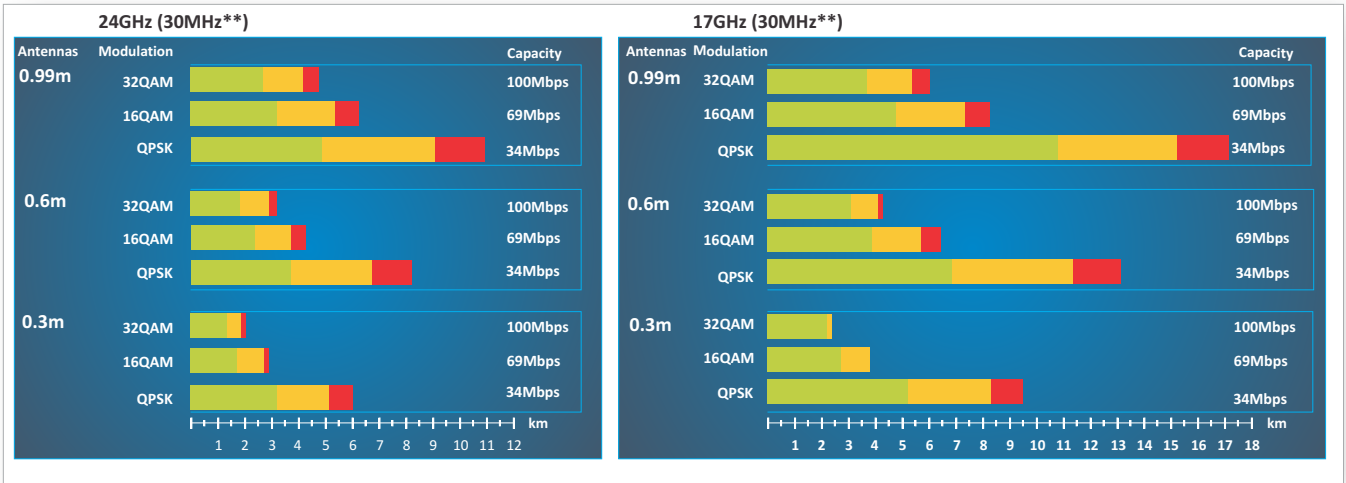
| Modulation | 10MHz | 30MHz |
|----------------|---------------------|----------------------|
| QPSK** | 12Mbps Ethernet | 40Mbps Ethernet |
| | 8Mbps Ethernet+2E1 | 38Mbps Ethernet+2E1 |
| | 9Mbps Ethernet+2T1 | 39Mbps Ethernet+2T1 |
| 16QAM** | 25Mbps Ethernet | 81Mbps Ethernet |
| | 21Mbps Ethernet+2E | 80Mbps Ethernet+2E1 |
| | 21Mbps Ethernet+2T | 81Mbps Ethernet+2T1 |
| 32QAM | 31Mbps Ethernet | 100Mbps Ethernet |
| | 27Mbps Ethernet+2E1 | 100Mbps Ethernet+2E1 |
| | 28Mbps Ethernet+2T1 | 100Mbps Ethernet+2T1 |
| 64QAM | 41Mbps Ethernet | - |
| | 37Mbps Ethernet+2E1 | - |
| | 38Mbps Ethernet+2T1 | - |

* complies with SRD standard (Short Range Device)
 ** ACM mode only

PRODUCT HIGHLIGHTS

- Full duplex capacity 100Mbps + 2E1/T1
- Low interference comparing to links in 2.4GHz and 5.8GHz
- Hitless modulation switching (ACM) feature ensures high availability even at bad weather conditions
- Easy configuration from Web interface and up-to-date network management over SNMP protocol
- Radio polarization sensor for easier installations
- RF Spectrum analyzer

DISTANCES*



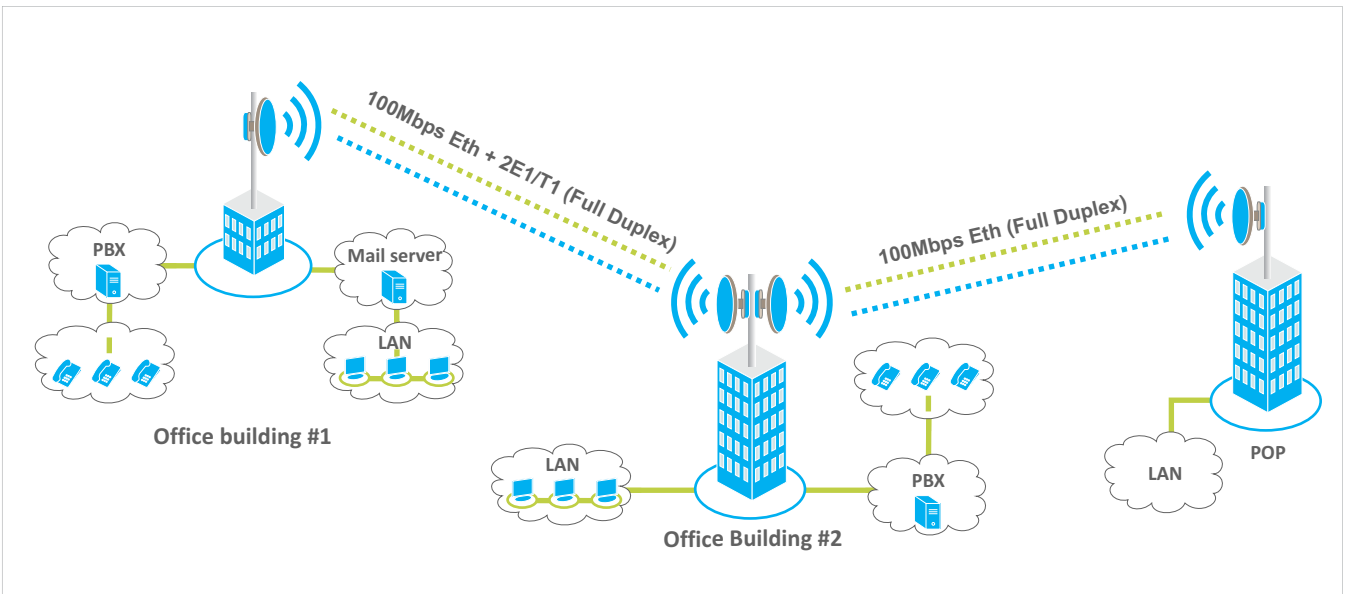
Availability per year, %

- Hi (99.99)
- Mid (99.99 - 99.94)
- Lo (99.94 - 99.88)

* Results are obtained using ITU Rain zone G=30mm/h. The errorless ACM feature will automatically switch to lower modulation during strong rain fading moments.

** At 10MHz channel bandwidth with QPSK modulation the distance is about 1km longer. For detailed link planning please download SAF path calculator at www.saf-freemile.com

CORPORATE WIRELESS NETWORK



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Go FreeMile™

ISO 9001
BUREAU VERITAS
Certification



Produced in Europe