ZYXEL NETWORKS

MagicOffice

Quad-band Digital Repeater

Benefits

Slim design, outstanding signal quality

MagicOffice is a quad-band repeater designed to resolve cellular coverage issues in smaller offices and commercial venues. It excels in this role through its ability to connect up to 4 bands simultaneously and cover up to 900 m^2 of floor space. Supporting donor antennas from up to 15 meters away, the MagicOffice provides one to four 10 dBm quad-band outputs, each servicing a 15 x 15 m^2 area as far as 30 meters away. Be it shops, warehouses, or smaller offices, MagicOffice means great, reliable coverage.

Auto-Adjusts to signal source changes

Traditional repeaters lack the ability to compensate for signal level changes in cellular networks. For example, a new high-rise building may appear (or disappear) between the base station and donor antenna, or a base station may change its antenna directions due to reconfiguration. Such scenarios often lead to significant input signal degradation, and traditional repeaters just cannot adapt.

The result is that either the repeater would fail from suddenly working with far weaker signals (such as when a new high-rise appears) or disrupt base stations with overly strong signals (such as when a new high-rise disappears). The former would turn the coverage area into a no-signal zone, while the latter can lead to much worse: the repeater can become an “illegal installation,” with serious repercussions. Thankfully, Zyxel’s MagicOffice features built-in smart auto leveling that enables proactive adaptation to carrier signal strength variations, providing steady indoor cellular coverage—and worry-free mobility.

Datasheet MagicOffice

- Innovative design guarantees end-to-end performance
- Superb voice and data across 2G ~ 5G FDD
- Self adjusting automatically echo free
- Quad band operation in channelized or full band configurations
- Technology independent
- Easy installation plug & play

Safe with mobile networks

Echoing is another major concern in repeater deployment. Traditional repeaters cannot space their donor and service antennas too closely—nor output signals too strongly—because then their antennas would receive each other's signals, echo them back and forth, and quickly destroy the repeater's operation.

To avoid echoing (and still maximize signal strength/coverage) while staying within the 15 m cable limit from service antenna to repeater, traditional repeater installers perform manual calibrations at each service antenna point—and do it again every time there's a layout change in the building. There is echo cancellation technology, of course, but that only helps to a certain degree.

Zyxel gets to the root of the problem and solves everything completely! Its patented Echo-Avoidance Technology is a huge step up in functionality, as it automatically detects echoes and reduces power output accordingly. Furthermore, MagicOffice repeaters feature real-time isolation detection, downlink sleep, and uplink mute functionalities. Together, these innovations enable MagicOffice to extend mobile network signals perfectly. Interference free.

Tech independent quad band operation

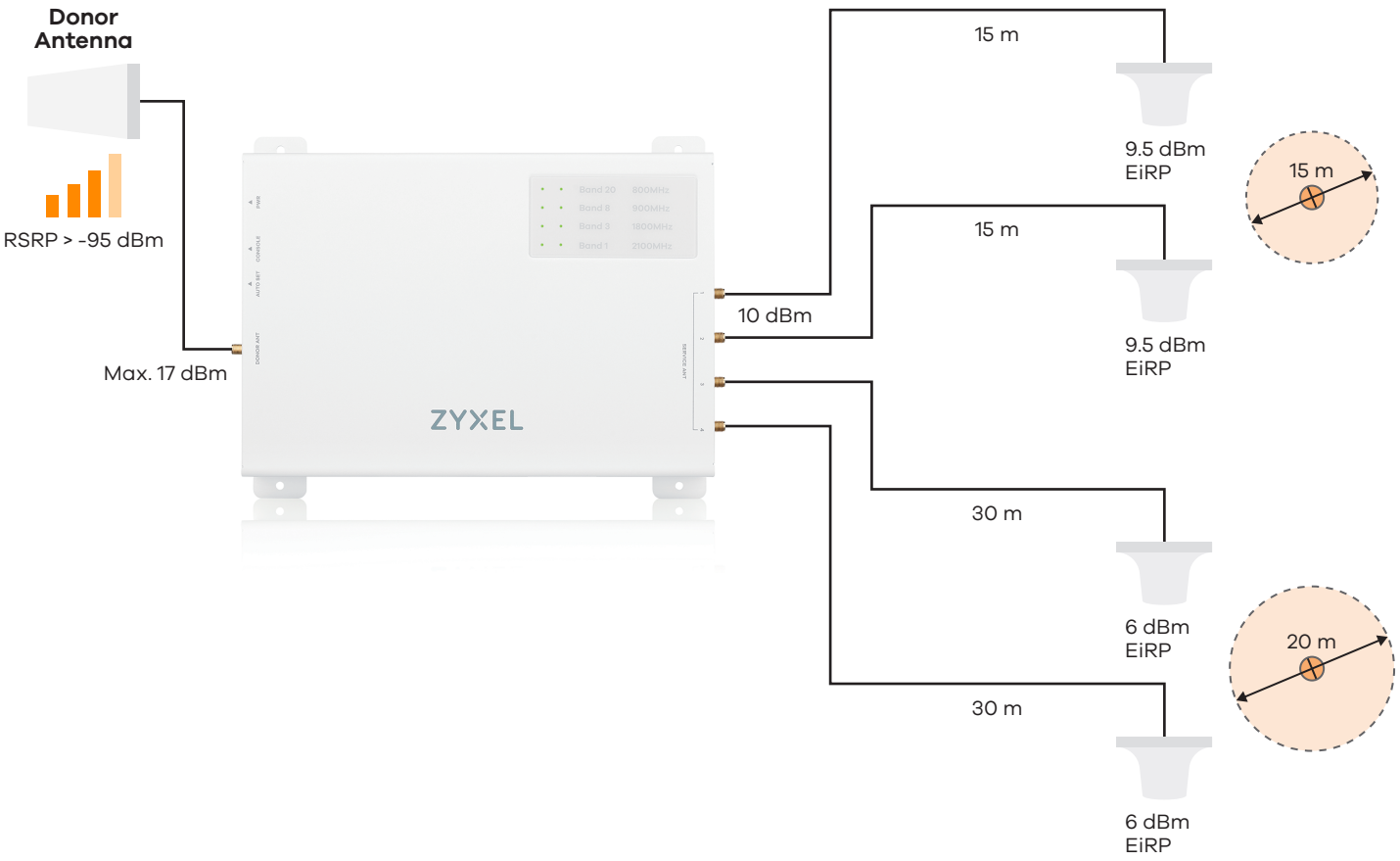
The MagicOffice supports four bands, can be configured as full band or channelized, and each of its four service antenna ports can simultaneously operate all four bands. It's also technology independent, as it is analogue based, and supports everything from 2G to 5G FDD, VoLTE to NB-IoT. Furthermore, it supports "frequency refarming" and allows multiple technologies (2G/3G/4G/5G-NR FDD/NB-IoT) to run in the same range of frequencies concurrently.

Easy installation

Traditional repeater deployments are highly labor- and time-intensive, requiring power gain optimizations and signal isolation measurements, using signal generators and spectrum analyzers, before installation. And this is not one-time-only: everything must be repeated for every coverage antenna and redone with every change in room or antenna positioning!

Zyxel's MagicOffice Repeater deployments on the other hand, are easy and installer-friendly. Great for Extra-Low Voltage (ELV) system integrators. Simply connect power to the MagicOffice Repeater device and set the maximum power output for coverage, and the MagicOffice Repeater will detect the isolation figure, set the optimal gain, and readjust to match changes. Real time.

Application Diagram



Specifications

Repeater System RF Specifications

- Frequency range:
  - Quad-band fixed at B1, B3, B8, B20, or at B1, B3, B8, B28a

Band	Uplink (MHz)	Downlink (MHz)
1	1920 ~ 1980	2110 ~ 2170
3	1710 ~ 1785	1805 ~ 1880
8	880 ~ 915	925 ~ 960
20	832 ~ 862	791 ~ 821
28a	703 ~ 733	758 ~ 788

- Quad-band full bandwidth or channelized configuration
- Supports all cellular network protocols: GSM, WCDMA, UMTS, LTE 64QAM, and 5G-NR FDD 256QAM
- Maximum system gain: 70 dB ± 2 dB
- Input power range: -30 to -65 dBm (auto gain control active within this range)
- ALC protection range: -20 to -30 dBm
- Shutdown protection range: -10 to -20 dBm (with auto recovery at 60 second intervals)
- System damage at: ≥ -10 dBm
- Maximum output power: 17 dBm uplink 10 dBm downlink (from 4 service antenna ports)
- Manual gain configuration: 0 to 35 dB in 1 dB increments
- Voltage Standing Wave Ratio (VSWR): ≤ 1.9
- Group delay (Latency): ≤ 1.3 µs (2G/3G/4G/5G)
- Noise level: ≤ 8 dB
- Impedance: 50 Ω

Hardware Specifications

- 4 x SMA-type connector for service antenna (50-ohm coaxial cables)
- 1 x SMA-type connector for donor antenna
- 12 V 5 A power input
- Wall mounting kit

Physical Specifications

- Item dimensions (WxDxH): 270 x 42 x 204 mm (10.63" x 1.65" x 8.03")
- Item weight: 1,432 g (3.16 lb.)
- Package weight: < 2,000 g (4.42 lb.)

Environmental Specifications

Operating Environment

- Temperatures: 0°C to 40°C
- Humidity: 10% to 90% (Non-condensing)

Storage Environment

- Temperatures: -10°C to 70°C
- Humidity: 10% to 90% (non-condensing)

For more product information, visit us on the web at www.zyxel.com