WirEng® SohoBoost™

Fully Customizable, Wide Band Multi-Mode, Multi-Band, Multi-User Industrial Repeater

WARNING. This is NOT a CONSUMER device. It is designed for installation by FCC LICENSEES and QUALIFIED INSTALLERS. You MUST have an FCC LICENSE or express consent of an FCC Licensee to operate this device. Unauthorized use may result in significant forfeiture penalties, including penalties in excess of $100,000 for each continuing violation.

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Patent Pending

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Safety Notice

According to FCC requirements for human exposure to radio frequency fields, this equipment's antennas shall be located in such a way that a minimum separation distance of 8 inches (20cm) is maintained between the antennas and the user and/or general population.

Thank you for purchasing the sohoBoost™ by WirEng®, an advanced, state of the art repeater/booster for cellular and cellular data coverage enhancement!

The installation of the sohoBoost™ is not difficult, but should you need any help, remember that our tech support is always ready to assist you via phone, at 1-800-349-6006 or via email, at support@wireng.com.

The sohoBoost™ can be used to significantly enhance cellular and cellular data coverage in a vast variety of commercial spaces, including offices, retail complexes, warehouses, residential complexes, and the like. The sohoBoost operates with a minimum of two antennas, the Donor antenna, which is usually located outside the structure, and the Coverage/Service antenna, which is located inside the structure that needs signal enhancement. The following table lists the authorized WirEng® accessories to achieve a vast number of system configurations, depending on your needs:

Category	Name	Purpose	P/N
Donor Antenna	CubeAnt™	CubeAnt™ Compact Donor Antenna, 4 dB	CBA-50-OHM
Donor Antenna	SleekAnt™	SleekAnt™ Ultra-Compact Donor Antenna, 4 dB	SLA-50-OHM
Donor Antenna	SportsAnt™	SportsAnt™ Vehicle Donor Antenna, 4 dB	SPA-50-OHM
Donor Antenna	AeriaFlex™	AeriaFlex™ Donor Antenna, 5 dB	AFLX-50-OHM
Donor Antenna	AeriaLight-mini™	AeriaLight-mini™ Donor Antenna, 5 dB	AERM-50-OHM
Donor Antenna	DomeAnt-Plus™	DomeAnt-Plus™ Portable/Vehicle Donor Antenna, 6 dB	DMAP-50-OHM
Donor Antenna	BoatAnt-mini™	BoatAnt-mini™ Marine Donor Antenna, 6 dB	BTM-50-OHM
Donor Antenna	OmniAnt™	OmniAnt™ Portable/Vehicle Donor Antenna, 7 dB	OMNT-50-OHM
Donor Antenna	OmniWide™	OmniWide™ Portable/Vehicle Donor Antenna, 7 dB	OMNW-50-OHM

Donor Antenna	RVAnt™	RVAnt™ RV/Vehicle Donor Antenna, 7 dB	RVA-50-OHM
Donor Antenna	Omnirial™	Omnirial™ Donor Antenna, 8 dB	OMNR-50-OHM
Donor Antenna	DomeAnt-Dir™	DomeAnt-Dir™ Directional Dome Donor Antenna, 9 dB	DMDIR-50-OHM
Donor Antenna	AeriaLog-Lite™	AeriaLog-Lite™ Donor Antenna, 9 dB	ALGL-50-OHM
Donor Antenna	Omnirial-Plus™	Omnirial-Plus™ Donor Antenna, 9 dB	OMNP-50-OHM
Donor Antenna	BoatAnt™	BoatAnt™ Marine Donor Antenna, 9 dB	BTA-50-OHM
Donor Antenna	BusAnt™	BusAnt™ Vehicle Donor Antenna, 9 dB	BSA-50-OHM
Donor Antenna	BusAnt™	BusAnt™ Vehicle Donor Antenna with GPS, 9 dB	BSAG-50-OHM
Donor Antenna	WallAnt™	WallAnt™ On-Wall Donor Antenna, 9 dB	WLA-50-OHM
Donor Antenna	AeriaLight™	AeriaLight™ Donor Antenna, 9 dB	AER-50-OHM
Donor Antenna	AeriaWide™	AeriaWide™ Shielded Donor Antenna, 10 dB	AWD-50-OHM
Donor Antenna	FlexAnt™	FlexAnt™ Donor Antenna, 10 dB	FLX-50-OHM
Donor Antenna	AeriaLog™	AeriaLog™ Shielded Donor Antenna, 11 dB	ALG-50-OHM
Donor Antenna	WinAerial™	WinAerial™ On-Window Donor Antenna, 11 dB	WIN-50-OHM
Donor Antenna	YagiRef-Plus™	YagiRef-Plus™ Shielded Donor Antenna, 11 dB	YRFP-50-OHM
Donor Antenna	WideAnt-X™	WideAnt-X™ Donor Antenna, 12 dB	WDAX-50-OHM
Donor Antenna	UniAnt™	UniAnt™ Shielded Donor Antenna, 12 dB	UNI-50-OHM
Donor Antenna	AeriaLight-Plus™	AeriaLight-Plus™ Donor Antenna, 13 dB	AERP-50-OHM
Donor Antenna	WinAerial-Plus™	WinAerial-Plus™ On-Window High Gain Donor Antenna, 13 dB	WNP-50-OHM
Donor Antenna	WideAnt-Lite™	WideAnt-Lite™ Donor Antenna, 13 dB	WDAL-50-OHM
Donor Antenna	WideAnt™	WideAnt™ Shielded Donor Antenna, 15 dB	WDA-50-OHM
Donor Antenna	YagiRef-Lite™	YagiRef-Lite™ Shielded Donor Antenna, 20 dB	YRL-50-OHM
Donor Antenna	YagiRef-QLP™	YagiRef-QLP™ Highly Directional Shielded Donor Antenna, 24 dB	YQLP-50-OHM
Donor Antenna	GiAnt™	GiAnt™ Ultra-Directional Shielded Donor Antenna, 27 dB	GNT-50-OHM
Service Antenna	CubeAnt™	CubeAnt™ Compact Donor Antenna, 4 dB	CBA-50-OHM
Service Antenna	AeriaFlex™	AeriaFlex™ Coverage Antenna, 5 dB	AFLX-50-OHM
Service Antenna	CeilAnt™	CeilAnt™ Coverage Antenna, 9 dB	CLA-50-OHM
Service Antenna	DeskAnt™	DeskAnt™ Desktop Coverage Antenna, 8 dB	DKA-50-OHM
Service Antenna	DomeAnt™	DomeAnt™ Desktop Coverage Antenna, 8 dB	DMA-50-OHM
Service Antenna	DomeAnt-Alpha™	DomeAnt-Alpha™ Ceiling Coverage Antenna, 5 dB	DMAA-50-OHM
Service Antenna	DomeAnt-Delta™	DomeAnt-Delta™ Ceiling Coverage Antenna, 6 dB	DMAD-50-OHM
Service Antenna	DomeAnt-Gamma™	DomeAnt-Gamma™ Ceiling Coverage Antenna, 6 dB	DMAG-50-OHM
Service Antenna	DomeAnt-Dir™	DomeAnt-Gamma™ Directional Ceiling Coverage Antenna, 8 dB	DMDIR-50-OHM
Service Antenna	EMPatch™	EMPatch™ Patch Coverage Antenna, 3 dB	EMPV-50-OHM
Service Antenna	FlexAnt™	FlexAnt™ Coverage Antenna, 10 dB	FLX-50-OHM
Service Antenna	OmniAnt™	OmniAnt™ Portable/Desktop Coverage Antenna, 7 dB	OMNT-50-OHM
Service Antenna	OmniWide™	OmniWide™ Portable/Desktop Donor Antenna, 7 dB	OMNW-50-OHM
Service Antenna	PanAnt™	PanAnt™ Coverage Antenna, 13 dB	PNA-50-OHM
Service Antenna	SleekAnt™	SleekAnt™ Ultra-Compact Coverage Antenna, 4 dB	SLA-50-OHM
Service Antenna	WallAnt™	WallAnt™ Coverage Antenna, 9 dB	WLA-50-OHM
Service Antenna	DeskAnt-Plus™	DeskAnt-Plus™ Desktop/Portable Coverage Antenna, 7 dB	DAP-50-OHM
Service Antenna	AeriaDesk™	AeriaDesk™ High Gain Desktop Antenna, 11 dB	ADK-50-OHM
Service Antenna	DomeAnt-Plus™	DomeAnt-Plus™ Portable/Desktop Donor Antenna, 6 dB	DMAP-50-OHM
Low Loss Coaxial Cable	WIR200™	Connection between devices/antennas/accessories (15 feet, N-Male to N-Male)	WIR200-NM-NM-15FT
Low Loss Coaxial Cable	WIR200™	Connection between devices/antennas/accessories (15 feet, N-Male to SMA-male)	WIR200-NM-NM-15FT
Ultra Low Loss Coaxial	WIR400™	Connection between devices/antennas/accessories (25 feet)	WIR400-NM-

Cable				NM-25FT
Ultra Low Loss Coaxial Cable	WIR400™	Connection between devices/antennas/accessories (50 feet)		WIR400-NM-NM-50FT
Inline Coupler	Ncoupler™	Allows identical (N-Male) coaxial cables to be connected together		NC-NF-NF
Passthrough Cable	WinCoax™	Very thin coaxial junction to port an external cable through a closed window		WINCX-NM-NF
RF Wall Plate	WallPlate™	Wall plate with N-Female connector for clean and professional installations		WALLPLATE1
Direct-Connect Adapter (for modems, hotspots, m2m, etc.)	ExtAnt™	Allows connection of a specific device, such as a modem, hotspot, router, wireless card, etc. (connects to the sohoBoos™ via DCA™)		EXTANT-BRAND-MODEL
Direct-Connect Adapter (for modems, hotspots, m2m, etc.)	ExtAntPro™	Allows connection of a specific device, such as a modem, hotspot, router, wireless card, etc. (connects to the sohoBoos™ via DCA™) (professional/military version)		EXTANTPRO-BRAND-MODEL
Attenuator for Direct-Connect Adapter	DirConAtt™	Must be inserted between a direct-connect adapter (ExtAnt™ or ExtAntPro™) and the sohoBoost™		DCA-SB1
Microstrip Splitter	EMSPlit™	Distributes signal among antennas (connects directly to the sohoBoos™)		EMS-50-OHM
Microstrip Splitter	EMSPlit3™	Distributes signal among antennas (connects directly to the sohoBoos™)		EMS3-50-OHM
Microstrip Splitter	EMSPlit4™	Distributes signal among antennas (connects directly to the sohoBoos™)		EMS4-50-OHM
Femtocell Adapter	FemtoDir™	Allows connection of a femtocell device with user antenna port (connects directly to the sohoBoos™)		FEMTODIR1
Femtocell Adapter	FemtoPatch™	Allows connection of a femtocell device without user antenna port (connects directly to the sohoBoos™)		FEMTOPATCH1
Signal Attenuator	WBSA-10™	Reduces sohoBoost™ sensitivity to prevent self-amplification in small spaces		SIG-ATT-10DB
Signal Attenuator	WBSA-20™	Reduces sohoBoost™ sensitivity to prevent self-amplification in small spaces		SIG-ATT-20DB
Signal Attenuator	WBSA-30™	Reduces sohoBoost™ sensitivity to prevent self-amplification in small spaces		SIG-ATT-30DB
Lightning Strike Protecor	LightningPro™	Protects persons and equipments from lightning strike discharges (connects directly to the sohoBoost™)		LPRO-50-OHM-NM-NF
Antenna Mount	WallMount™	Allows installation of a donor antenna on a wall instead of a mast/pole		WALLMOUNT1
Antenna Mount	AntMount™	Allows installation of an antenna pole by using a wall		ANTMOUNT1
Antenna Pole, Steel	SteelPole™	Stell antenna pole, stackable, 4 feet long		STLPOL4
Attenuator	ATTCOMB™	Allows direct connection of a cellular device to the sohoBoost™ coverage port (connects directly to the sohoBoost™)		ATTCOMB
Attenuator+Combiner	ATTCOMB2™	Allows direct connection of two cellular devices to the sohoBoost™ coverage port (connects directly to the sohoBoost™)		ATN-CMB-2
Attenuator+Combiner	ATTCOMB4™	Allows direct connection of two cellular devices to the sohoBoost™ coverage port (connects directly to the sohoBoost™)		ATN-CMB-4
Attenuator+Combiner	ATTCOMB8™	Allows direct connection of two cellular devices to the sohoBoost™ coverage port (connects directly to the sohoBoost™)		ATN-CMB-8
Mobile Handset Cradle – Small	sohoCradle1™	Allows direct connection of a mobile handset to the sohoBoost™ coverage port (connects directly to the sohoBoost™ or to a combiner)		SCRDL1
Mobile Handset Cradle – Medium	sohoCradle2™	Allows direct connection of a mobile handset to the sohoBoost™ coverage port (connects directly to the sohoBoost™ or to a combiner)		SCRDL2
Mobile Handset Cradle – Large	sohoCradle3™	Allows direct connection of a mobile handset to the sohoBoost™ coverage port (connects directly to the sohoBoost™ or to a combiner)		SCRDL3
Small Tablet Cradle	TabCradle1™	Allows direct connection of a tablet computer to the sohoBoost™ coverage port (connects directly to the sohoBoost™ or to a combiner)		TABCRDL1
Medium Tablet Cradle	TabCradle2™	Allows direct connection of a tablet computer to the sohoBoost™ coverage port (connects directly to the sohoBoost™ or to a combiner)		TABCRDL2
Large Tablet Cradle	TabCradle3™	Allows direct connection of a tablet computer to the sohoBoost™ coverage port (connects directly to the sohoBoost™ or to a combiner)		TABCRDL3
Modem RF Sleeve	ModSleeve™	Allows direct connection of a hotspot or USB modem (connects directly to the sohoBoost™ or to a combiner)		MODSLV
Wireless-To-Inline Converter	W2I™	Converts the sohoBoost™ from wireless to inline by adjusting all signals on all bands to allowable input and output levels specifications		W2I-SB

To have our engineers recommend the best system configuration for you, simply email us at support@wireng.com with as many details as possible about the structure where you need coverage, and we'll be pleased to assist you.

Installing Your System

The location of the Donor (external) antenna is critical because its path should not encompass the service antenna(s), hence, the Donor antenna optimal location will almost always be on a corner of the roof (or if the outside signal is not too weak, on one of the outside walls). If installation on an external antenna is difficult or undesired, you may use a directional window antenna such as the WinAerial™, but only if there is a window in the structure that is in the direction of the service provider(s) tower(s).

Once the Donor antenna has been installed, simply choose an indoor place for the sohoBoost™ (near a power outlet), run the appropriate coaxial cable to it, and connect it to the Donor Antenna port, either directly or through the LightningPro™ for lightning strikes protection (highly recommended). **DO NOT** POWER ON THE UNIT JUST YET.

The sohoBoost™ comes with the WideAnt-X™ as the Donor antenna, and the DomeAnt-Alpha™ as the Coverage antenna. The two included ultra-low loss coaxial cables lengths are 50 feet (for the Donor antenna) and 25 feet (for the Coverage antenna).

As far as Service/Coverage antennas, it's always recommended to use at least two of them, unless your space is quite small. In general, we recommend one Coverage antenna for each 2,000 square feet of contiguous space. Simply keep in mind that, the more Coverage antennas you have, the better the coverage. Notice that you can connect up to eight Coverage antennas to one sohoBoost™ (via one EMSplit™ and two EMSplit4™), but you can keep adding more and more Coverage antennas by inserting additional sohoBoost™ units with the W2I™ inline converter option without limits on the size of the structure you need to cover.

As far as the coaxial cables for both the Donor antenna and the Coverage antenna(s), it is highly recommended that you use the WIR400™ Ultra-Low Loss coaxial cable type (unless the distance between the antennas is very small, such as 15 feet or so, in which case you may use the WIR195™ or WIR200™ low-loss types).

Once the Coverage antenna(s) is/are installed, simply connect their cables to the sohoBoost™ Coverage port (or to the EMSplit™ in case of multiple antennas) and power on the unit. If the LIMIT red light is lit, you must change the orientation of the antennas or increase the distance between them, as the unit detected intersecting radiation patter between the Donor and Coverage antennas. In such cases where the antennas' orientation cannot be changed (i.e., when using omni directional antennas) or where the space is very small, you must add one or more WBSA™ (Wide Band Signal Attenuator) to either or both sohoBoost™ ports, to limit it's power and range.

If the LIMIT light is off and the POWER light is on, then the sohoBoost™ is operating normally and the EXT3, EXT2, EXT1 lights will give you an idea of how much signal the Donor antenna is capturing, with EXT3 being the strongest signal and EXT1 the weakest. Notice that the sohoBoost™ will also function properly (at its maximum sensitivity) if none of thee EXT lights will be lit, although in such extreme case you may want to upgrade the Donor antenna to the biggest available (the GiAnt™) or stack as many antennas as necessary (vertically, on the same pole) via an EMSplit™, EMSplit3™, or EMSplit4™ (each additional antenna will add 3dB to the overall sensitivity, so three 28 dB antennas, for example, will result in an overall gain of approximately 34 dB).

Special Situations

Notice: In all of the issues described below, we are ruling out the possibility of an equipment malfunction, because each sohoBoost™ is individually tested right after manufacturing and then right before being sold, however, in the very rare even where you suspect a malfunction, please contact us at support@wireng.com for a warranty repair or exchange. We're also ruling out cables/connectors short-circuits or discontinuities, as it is very easy to check for such even using a simple multimeter.

Issue: The structure where you need to enhance coverage is among multiple cellular towers, and you want to capture the signal from/to all towers.

Solution: Simply use the UniAnt™, which is omni-directional, or if that's not possible because the LIMIT light detects feedback, then install one Donor antenna for each tower, individually aiming them at each tower, via an EMSplit, EMSplit3™, or EMSplit4™.

Issue: The LIMIT light is always on, no matter the distance or orientation of the Donor and Coverage antennas.

Solution: For such small/difficult environments we recommend a lower-gain antenna, for example our ultra-compact SleekAnt, or an antenna with a shield (such as our YagiRef series or the UniAnt for omni). If that fails, however, you must add one or more WBSA™ (Wide Band Signal Attenuator) to either or both sohoBoost™ ports, to limit it's power and range. For example, if the EXT3 both the EXT3 and EXT2 lights are on, that means that the outside signal has plenty of strength, and thus adding a WBSA to the Donor port should resolve this issue.

Issue: None of the three EXT lights are on, and there is no coverage enhancement (or the enhancement is barely noticeable) near the Coverage antenna(s).

Solution: The outside signal is too weak, either because the provider(s) tower(s) is too far, or it is blocked by obstacles (trees, building, hills, etc.). Simply upgrade to the most powerful Donor antenna available, called the GiAnt™, or if you already have the GiAnt™ installed, try different orientations (to catch a "bouncing" signal) or add more GiAnt™ stacked vertically and aimed in the same direction (up to four GiAnt™ using the EMSPlit4™).

WIREng®

All WirEng®'s products are individually tested for quality and performance using state of the art RF equipment, meeting or even surpassing their technical specifications. For any questions or concerns, you may contact us at http://wireng.com/support

Thank You for purchasing WirEng® top quality products.

Remember, help is available almost instantaneously at:

wireng.com/support

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