COMMSCOPE®

Node X RF enhancer

Large area coverage, capacity, and high-speed data for GSM, CDMA, and UMTS networks

Node X—an excellent choice for any area

The Node is designed to be part of the primary infrastructure, but also is ideal for any subsequent phase where cost, coverage and quality need to be optimized.

Although the Andrew Node's primary function is to increase signal strength between a mobile phone and a base station in areas where high-quality voice or high-speed data service is not available, it also enhances air-interface capacity and increases the data rate in code division multiple access (CDMA), universal mobile telecommunications systems (UMTS) and GSM networks. This may include extending coverage areas in small towns, shaped coverage around man-made or natural obstacles, or extending a network beyond its primary target areas.

The Node may be set up locally or remotely. A circuit switch or packet data modem can be connected to an integrated, sophisticated controller, providing the network management system with on-demand, alarm-generated, or heartbeat monitoring via the always-connected packet features. Using a web-based browser, the RF enhancer has features and functions that may be monitored and changed remotely or locally using Andrew Signaling Network Management Protocol (SNMP) based Operation and Maintenance Center (OMC) software platform. The graphical interface provides an intuitive setup menu, including a wizard that allows users, regardless of skill level, to correctly set up the enhancer. It automatically sets its gain to maximize system performance. While measuring BCCH or pilot power the controller monitors the long-term evolution of the RF environment and dynamically adapts to changing conditions. Furthermore, the integrated interference cancellation equipment (ICE) decreases the antenna isolation requirements and enables maximum output power even at low input signals.

The Andrew Node is self-diagnosing, self-adaptive, and virtually maintenance free. It is designed to provide more than 10 years of service under virtually any condition.

Frequency range	Gain, dB	Bandwidth	Gain adjust range, dB	UL noise figure, dB	UL Pout 2 carriers, dBm/c	UL Pout 4 carriers, dBm/c	UL Pout 6 carriers, dBm/c	UL Pout 8 carriers, dBm/c	DL Pout 2 carriers, dBm/c	DL Pout 4 carriers, dBm/c	DL Pout 6 carriers, dBm/c	DL Pout 8 carriers, dBm/c	Repeater
GSM800	100	2 to 6 200 kHz channels	60 to 100	5.0	27.5	27.5	27.5	–	40.0	37.0	35.0	–	Node G 840
GSM900	95	2 to 8 200 kHz channels	55 to 95	5.0	31.0	31.0	27.5	27.5	35.0	35.0	31.5	31.5	Node G 935
GSM900	98	2 to 4 200 kHz channels	58 to 98	5.0	31.0	31.0	–	–	38.0	38.0	–	–	Node G 938
GSM900	101	2 200 kHz channels	61 to 101	5.0	31.0	–	–	–	41.0	–	–	–	Node G 941
GSM-R900	98	2 to 4 200 kHz channels	58 to 98	5.0	31.0	31.0	–	–	38.0	38.0	–	–	Node G 938R
GSM-R900	101	2 200 KHz channels	61 to 101	5.0	31.0	–	–	–	41.0	–	–	–	Node G 941R
GSM1800	95	2 to 8 200 kHz channels	55 to 95	5.0	31.0	31.0	27.5	27.5	35.0	35.0	31.5	31.5	Node G 1835
GSM1800	98	2 to 4 200 kHz channels	58 to 98	5.0	31.0	31.0	–	–	38.0	38.0	–	–	Node G 1838
GSM1800	101	2 200 kHz channels	61 to 101	5.0	31.0	–	–	–	41.0	–	–	–	Node G 1841
GSM1900	100	2 to 6 200 kHz channels	60 to 100	5.0	27.5	27.5	27.5	–	40.0	37.0	35.0	–	Node G 1940

Main features

Features

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Items measured (GSM only):	Measurement of broadcast channel (BCCH), bit error rate (BER), channel power, voltage standing wave ratio (VSWR), received signal strength indication (RSSI), system identification.
Items measured (CDMA/UMTS only):	Measurement of pilot power, synch power, Ec/Io, VSWR, RSSI, multipath signals, system identification, error vector magnitude (EVM) and channel usage.
Hopping ability (GSM only):	Follows the hopping sequence for complete network transparency (baseband and synthesized hopping).
UL muting (GSM only):	Gain reduction of unused timeslots in order to avoid UL desensitization of the BTS.
Interference cancellation equipment (ICE):	Electronic improvement of antenna isolation. Capable of greater than 35 dB of enhancement.
Auto configuration:	Setup based on downlink power requirements, not gain. Uplink gain is automatically set up based on the downlink settings.
Access:	Web browser based on local access and remote access. Packet data and circuit switched data options. OMC connectivity via SNMP.
Mounting:	Wall or pole mounting kit.

| Frequency range	Gain, dB	Bandwidth	Gain adjust range, dB	UL noise figure, dB	UL Pout composite, dBm	DL Pout 1 carrier, dBm/c	DL Pout 2 carriers, dBm/c	DL Pout 4 carriers, dBm/c	Repeater
CDMA450	97	1–4 adjacent 1.25 MHz	47 to 97	4.0	23	37	34	31	Node C 437
CDMA800	103	1–16 adjacent 1.25 MHz	53 to 103	3.5	23	43	40	37	Node C 843
UMTS800	103	1–4 adjacent 5 MHz	53 to 103	3.5	23	43	40	37	Node M 843
UMTS900	103	1–4 adjacent 5 MHz	53 to 103	3.5	23	43	40	37	Node M 943
CDMA1700	103	1–16 adjacent 1.25 MHz	53 to 103	3.5	23	43	40	37	Node C 1743
UMTS1700	103	1–4 adjacent 5 MHz	53 to 103	3.5	23	43	40	37	Node M 1743
CDMA1900	103	1–16 adjacent 1.25 MHz	53 to 103	3.5	23	43	40	37	Node C 1943
UMTS1900	103	1–4 adjacent 5 MHz	53 to 103	3.5	23	43	40	37	Node M 1943
UMTS2100	103	1–4 adjacent 5 MHz	53 to 103	3.5	23	43	40	37	Node M 2143

Advantages

- Automatic feedback interference cancellation

- GSM, CDMA or UMTS quality diagnostics

- One-man lift form factor

- Digital filtering

- Virtual test instruments

- SNMP and web-based GUI

- Auto wizard setup for easy installation

- Decreased antenna isolation requirements
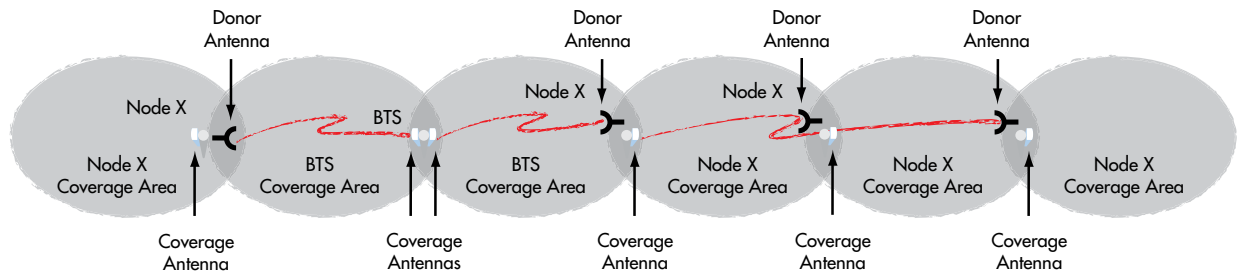
- Uniform phase and magnitude amplification

Application examples
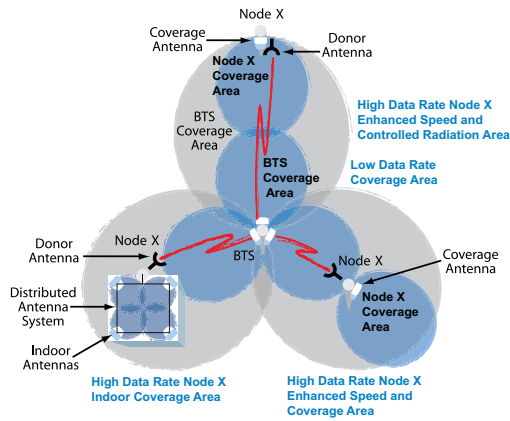
A) Urban hole filling and speed enhancement
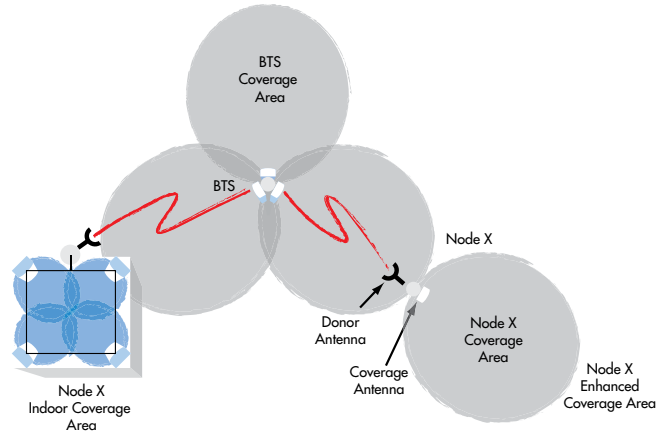
B) Extending coverage for buildings and towns

C) Rural highway coverage (UMTS/CDMA)

Everyone communicates. It's the essence of the human experience. *How* we communicate is evolving. Technology is reshaping the way we live, learn and thrive. The epicenter of this transformation is the network—our passion. Our experts are rethinking the purpose, role and usage of networks to help our customers increase bandwidth, expand capacity, enhance efficiency, speed deployment and simplify migration. From remote cell sites to massive sports arenas, from busy airports to state-of-the-art data centers—we provide the essential expertise and vital infrastructure your business needs to succeed. The world's most advanced networks rely on CommScope connectivity.

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