Rethink Broadcast . . .

MaxRC

MaxRC (Maximal- Ratio Combining), a unique demodulation technique that creates powerful advantages when used with multiple antennas in a diversity configuration for NLOS (Non Line of Sight) conditions. The technique analyzes each antenna input and then corrects any phase relationships due to antenna de-correlation for the multiple inputs. It then combines the proportional amplitudes to aggregate the amount of energy within the link. The amount of energy that is aggregated over single antenna inputs is called the diversity improvement factor. This factor can range from 4 dB for two antenna inputs all the way up to 11 dB for six antenna inputs, dependent on the number of antenna inputs and the multipath channel characteristics of the antenna inputs. MRC has implemented Max RC within its DVB-T, LMS-T and SCM demodulation platforms.

IP over ENG

The term "IP ENG" is currently an evolving market and technology term used to show the dual purpose capability of being able to do a simultaneous file transfer and live video from an ENG van in the field. MRC was the first company to introduce this concept and capability to the US ENG market in 2005.

MRC utilizes a robust technology implementation called MPE – "Multiple Protocol Encapsulation" – to support this connectivity. MPE is a robust asymmetric MPEG based IP carrying scheme that allows for the multiplexing of both technologies simultaneously. A user can seamlessly support opportunistic data applications which can be either live compressed video and/or IP data from a file transfer application. MRC allows the user to allocate a certain percentage of the IP bandwidth that is available and is very close to obtaining 100% IP data utilization over the asymmetric link.

SCM

SCM (Single Carrier Modulation) is a traditional modulation scheme that has been used for many years. It serves as a fundamental baseline for most high level communication systems today. MRC has enhanced and tailored their implementation of the legacy modulation scheme to meet more of the latest product requirements within the broadcast communications application requirements from DENG to high capacity backhauls.

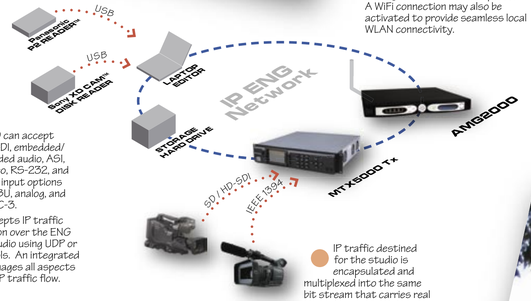
MRC has made significant advances in developing the technology that has resulted in numerous demodulation advantages. Some of these developments include superior adaptive equalizer performance for multi path fading and notching, adaptive auto acquisition for fast re-acquisition from a loss of signal, optimized FEC for enhanced noise performance and phase lock loop compensation to combat performance degradation for Doppler effects in a mobile environment. All of these technology enhancements make SCM the right technology choice for high capacity DENG, outside broadcast (OB) and terrestrial backhaul microwave links.

Go Live

while sending edited stories

MTX5000 can accept SDI, HD-SDI, embedded/de-embedded audio, ASI, composite video, RS-232, and T1 data. Audio input options include AES/EBU, analog, and pre-encoded AC-3.

MTX5000 accepts IP traffic for transmission over the ENG path to the studio using UDP or TCP/IP protocols. An integrated router manages all aspects of IP traffic flow.



MRC's Advanced Mobile Gateway provides IP connectivity over multiple wide area network pathways to support file transfer and remote van management. The Advanced Mobile Gateway has full Ethernet router functionality with VPN tunneling and eight Ethernet switch ports. A WiFi connection may also be activated to provide seamless local WLAN connectivity.

IP traffic destined for the studio is encapsulated and multiplexed into the same bit stream that carries real time ASI from the internal MPEG SD/HD encoder. In addition, using MRC's single carrier QAM modulator, you can achieve throughput rates approaching 60 Mbps in a 12 MHz BAS channel.

Gather News

from multiple sources

At the Central receive site, an MRX4000 Plus receiver demodulates the DVB-T/ COFDM signal to the ASI level, so that the combined video and IP traffic may be passed through to the studio. The MRX4000 Plus also provides a local SDI signal and an available HD-SDI output option.

Expand Coverage

from local to long distances

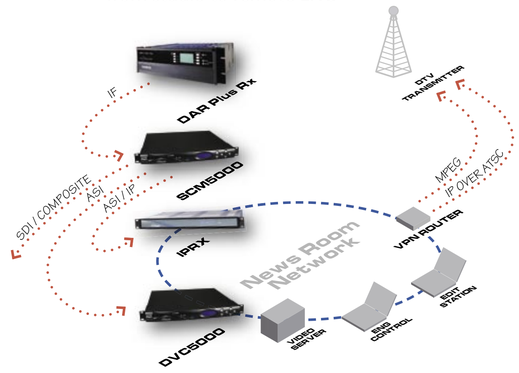
The DRS4000 Diversity Receiver provides enhanced video coverage from airborne, portable, or wireless cameras.

At the studio, several options are available. For HD/SD operation, deploy an SCM5000 demodulator in combination with a DVC5000 SD/HD decoder with integral IP de-encapsulator.

If SD only operation is anticipated, and an SCM5000 demodulator/decoder is already in place, the only addition would be an MRC IPRX de-encapsulator to separate IP traffic from the ASI and make it available through an RJ-45 10/100 interface. The IPRX includes a powerful built-in web browser control system that allows quick and easy set up of all IP parameters.

Manage & Direct

from studio to remote ENG



ENG

ELECTRONIC NEWS GATHERING

MRC
a Vislink company

Broadcast Content Acquisition &Control

HD DEFINED IP

MTX5000
ENG Transmitter
- A completely "software defined" radio lets you manage RF, encoding, and modulation – locally, in the field, or from the studio
- Fully field upgradable
- Extend the news room with "Advanced Mobile Gateway" to preview video content.

AMG2000™
Bi-Directional IP Gateway
- Wireless Extension of Newsroom LAN to ENG vehicles in the field
- Enables file transfer from field to studio with two way data support
- Remote management and diagnostics of MTX5000 ENG Van transmitter from the studio

DRS4000™
Digital Diversity Receiver
- Advanced diversity receiver for digital ENG/OB applications
- Maximal Ratio Combining for ultra high performance in signal capture and sensitivity
- Standards based DVB-T COFDM demodulator auto-senses pedestal at 6, 7, and 8 MHz

MRX4000 Plus ™
Integrated Central Receiver
- Seamlessly integrated Digital and Analog Central Receiver in a 1RU shelf
- Remote control to simplify remote management and troubleshooting
- High dynamic range exceeding demands of digital broadcasting

DAR Plus™
High Capacity Digital Radio
- Analog / Digital transmitter and receiver for fixed link high capacity payloads
- Data Transport at speeds up to 120 Mbps
- Standard & High Power Options
- Full remote control with alarm and status monitoring

SCM5000™
Single Carrier Modem
- High capacity 175 Mbps (200Mbps capable) in a 40MHz channel
- Enhanced equalizer performance
- Optimized FEC support, concatenated R-S and convolutional coding
- Enhanced acquisition sweep capability

DVC5000™
Universal MPEG Decoder
- Next Generation SD & HD Decoder
- Seamless upgrade path to MPEG-4 /H.264
- 4:2:0 & 4:2:2 decoding
- IP De-encapsulator option

IPRX™
IP De-encapsulator
- Extracts encapsulated IP from ASI Stream
- Installs at Studio to complete path from Van
- Network Controlled
- Built-in web browser for set up, monitor, and control

Cellular Diversity

As a leader in wireless camera transmission, LINK Research has taken it one step further by developing "cellular diversity." A normal diversity system uses one receiver with 2 or 4 omni-directional antennas. The receiver/decoder network will use both MaxRC and packet switching methods to build a single robust signal while combining the inputs from all of the antennas.

Link Research first introduced the cellular diversity application within the wireless camera market in 2005. The heart of the cellular diversity application utilizes a QoS (Quality of Service) buffered packet switch with which multiple receivers are seamlessly integrated. This packet switch is at the ASI transport level where multiple ASI streams can be aggregated. The packet switch can select up to four independent receive sites or single antenna receive sites to provide a seamless switch without any user intervention.

The main advantage of a cellular diversity system is its ability to enhance the overall coverage area. MRC has migrated LINK's packet switch technology with its MaxRC technology for central receiver applications, allowing broadcasters to combine their central receiver systems and seamlessly increase their overall DENG coverage capabilities.

LMS-T

LMS-T (Link Modulation System) was developed by Link Research in 2005. It is a COFDM based modulation scheme with major technological advantages over current DVB-T COFDM based implementations. It utilizes fewer COFDM carriers, a larger bandwidth incorporating a more powerful FEC technique, along with a higher depth of inter-leaving with elastic memory.

The utilization of fewer COFDM based carriers allows for a lower peak to average power ratio along with more robust wireless link capability. LMS-T also utilizes a larger bandwidth of 10MHz that alone gives you 25% higher through put than DVB-T pedestals. It also utilizes LDPC (Low Density Parity Codes), a powerful error correction scheme that has real noise advantages over the microwave link. LDPC offers the user a higher C/N improvement over DVB-T by 3 dB. This in itself also gives a 33% higher through put over DVB-T.

MRC also offers LMS-T in a dual pedestal application supporting two 10 MHz pedestals cascaded to further improve the overall bandwidth capability.

All of these technological advantages make LMS-T the superior choice for NLOS (Non Line of Sight) microwave applications.

COFDM

COFDM (Coded Orthogonal Frequency Division Multiplexing) is a communications standard technique that utilizes multiple carriers orthogonally spaced in time, with an MPEG compliant bit stream mapped over the microwave communications link.

MRC has used COFDM for DENG links since 1998 and was the first vendor to introduce it into the US DENG market. It is based upon the ETSI standard, EN300-744v1.5.1, a mature technology that utilizes a 2K FFT and offers bandwidth of 6,7 and 8 MHz. Table assignments within the standard are used to show the different settings for bandwidth, FEC, modulation, and guard intervals as a function of data through put. For an 8 MHz bandwidth, data rates from 5 Mbps to 31 Mbps can be achieved.

Service & Integration

Vislink's Service & Integration teams have many years of experience installing and servicing mission critical communications systems for broadcasters.

- Providing end-to-end solutions from design conception to system commissioning
- Designing, specifying and rolling out turnkey projects on time and on budget
- Leveraging the heritage and extensive industry expertise of MRC, Link Research and Advent Communications

Portable Satellite

mobile and flyaway systems . . .

The FlyDrive from Advent provides a versatile satellite solution for mobile or flyaway applications.

The Advent System 5000 provides a robust encoder with multiple modulation options, an auto tracking/autopointing antenna control unit, and an upconverter unit available in several bands.

Air to Ground Ground to Air

mobile and airborne systems . . .

For years, MRC has been providing airborne video downlinks for broadcast and public safety use. MRC now offers a series of transmitters including STRATA and PTX-PRO, to provide SD or HD transmission in a wide range of frequencies.

On the ground, STRATA and PRX-PRO receivers can be configured for SD or HD. And now MRC offers two digital diversity receivers in the MDR-2 and DRS4000.

The versatility of these was proven by VRT of Belgium to cover cycling races. A STRATA transmitter mounted in three seperate motorcycles transmitted to a STRATA receiver in the over head helicopter. The signal was then relayed to another helicopter in flight, or to a fixed satellite truck. The system made it possible to cover the entire race route providing both ground and aerial coverage.

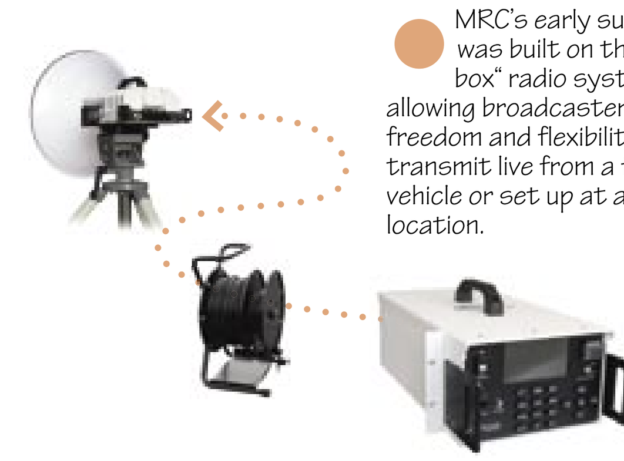
OB
OUTSIDE BROADCAST

Wireless Camera

when you need to move with the action . . .

LINK Research is clearly the world leader in providing wireless video coverage for news or sports. To list only a few, LINK SD and HD systems have been used world wide for major sporting events such as World Cup, NFL Football, Golf, and Major League Baseball.

LINK systems deliver a quality signal under extreme weather conditions. Along with the high quality camera transmitters, LINK receivers and decoders have been field tested for quality and reliability.



Ground Links

portability made easy . . .

MRC's early success was built on their "2 box" radio systems, allowing broadcasters the freedom and flexibility to transmit live from a fixed vehicle or set up at a remote location.

The recent development of the OB5000 Modulator and Demodulator leverages MRC's technology achievements by providing a powerful and sophisticated unit for portable or OB applications. The system employs the STRATA Transmitter and Receiver at each of the link.

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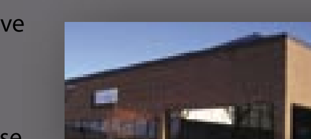
VISLINK

The Vislink Group designs, manufactures and deploys broadcast class video and data solutions worldwide. The Vislink companies – Microwave Radio Communications, Link Research, Advent Communications, Western Technical Services and Hernis Scan Systems – blend a unique understanding of broadcast and communications technologies with the reach and resources of a global organization to create compelling solutions that meet tomorrow's requirements.

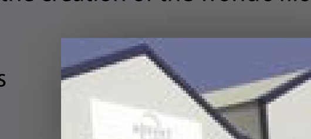
Microwave Radio Communications

MRC has a rich heritage in the broadcast industry, developing industry leading ENG, OB and fixed link microwave solutions for more than 20 years. MRC is the brand of choice for high definition digital microwave and satellite communications. Serving most major television broadcasting networks, MRC has an installed base of over 100,000 devices in more than 60 countries.



Advent Communications

Advent Communications develops and deploys end-to-end satellite communications solutions – from fixed earth stations to up-link trucks, to portable antennas. Advent revolutionized television news with the creation of the world's first "flyaway" satellite antenna. Advent Satcom terminals deliver unrivalled performance in some of the world's harshest environments.



LINK Research Limited

Link Research develops the industry leading communications platforms and wireless camera systems that power tomorrow's high definition television applications. Link's wireless systems are designed for flexibility and portability, and have received worldwide acclaim for video coverage of major sporting events.

Western Technical Services

Western Technical Services has over 17 years experience designing, integrating and maintaining microwave, satellite and wireless communications systems. WTS specializes in solutions for broadcasters, public safety agencies and service providers, offering its services in North America and most international markets.

MRC a Vislink company

www.mrcbroadcast.com

Rethink Broadcast™

Content acquisition is no longer just about connectivity, bandwidth and image quality. Today broadcasters demand rich HD content, full workflow control, ubiquitous coverage and rapid deployment – in short "contribution without boundaries." As the market leader in microwave solutions MRC has the expertise, products and services to help you . . .

Rethink Broadcast™

IP Over ENG HD Workflow Diversity Receive Monitor & Control Seamless SNG Wireless Mobility Service & Integration IP Over ENG HD Workflow Diversity Receive Monitor & Control Seamless SNG Wireless Mobility Service & Integration IP Over ENG HD Workflow Diversity Receive Monitor & Control Seamless SNG

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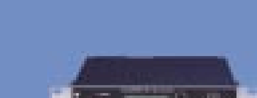
FlyDrive
Mobile Satellite Antenna
- 1.2 or 1.5 Meter Antenna for vehicle or portable flyaway or mobile applications
- X, Ku, DBS and Ka bands
- 3 Axis Control with manual backup
- Optional Auto Acquisition

System 5000
Portable Satellite Terminal
- For contribution flyaway and DSNG vehicle applications where space and weight are critical
- Includes HD & SD L-Band Digital Exciter, IP Modem, BUC, Antenna Drive & Control Units
- Field upgradeable with web browser for Remote, Monitor, and & Control applications

LINK L1500
Wireless Camera Transmitter
- HD/SD Portable Transmitter
- Low 60ms Delay Mode
- COFDM / MPEG
- Remote Camera Control
- Ideal for stadium, studio, or event coverage

LINK QuikShot
Portable Tx and Power Amp
- Power Amp Case for LINK XP and LINK 1500 HD and SD Transmitters
- External Connections with side mount "N" antenna connector
- Optional attachable remote
- Sturdy weatherproof case

LINK L2124
Low Delay Decoder
- 4 ASI Inputs for output to single ASI stream
- Ideal for combining diversity receivers for cellular coverage



LINK L2100
Digital Diversity Receiver
- HD/SD Receiver
- 40ms delay mode
- RF and ASI inputs
- Receivers linkable to form cellular coverage area
- Wide range of antennas

OB5000
Portable Modulation/Encoding
- High Capacity Integrated unit for transmit and receive ends for portable links
- Designed for OB high capacity data through put for portable two box application
- Supports combined data rates up to 175 Mbps through multiple interfaces

STRATA Transmitter
Analog-Digital Transmitter
- Portable transmitter for ENG, OB, airborne, or mobile applications
- Versatile one, two, or "split box" configurations
- Analog, Digital, or Analog/Digital configurations

STRATA Receiver
Analog-Digital Receiver
- Portable receiver for ENG, OB, airborne, or mobile applications
- Versatile one, two, or "split box" configurations
- Analog, Digital, or Analog/Digital configurations

PRX–PRO
Analog-Digital Receiver
- HD / SD Receiver with integrated demodulator and decoder or ENG, OB, airborne, or mobile applications
- Single or dual band models
- Built in AC/DC Power Supply

PTX–PRO
Analog-Digital Transmitter
- HD / SD Transmitter with integrated modulator and encoder for ENG, OB, airborne or mobile applications
- Single, dual band, and high power models

MDR-2
Diversity Receiver
- Portable diversity solution for extending receive range for ENG, OB, airborne, or mobile applications
- Optimizes signal strength using "MaxRC" maximal ratio combining
- Dual antenna input

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Rethink Broadcast™

HD DEFINED IP