Video over Bonded Cellular

Save +$250K/year by eliminating your Satellite, ENG or Mobile Productions Truck

Webinar
May 7, 2015

by
Jim Jachetta
Executive VP & CTO
VidOvation Corporation
Moving Video Forward

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How do we easily broadcast live video from anywhere in the world without a technical crew?

- No Satellite Truck!
- No ENG Van!
- No Mobile Production Truck!

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Live Video via Cellular, WiFi, BGAN & LAN

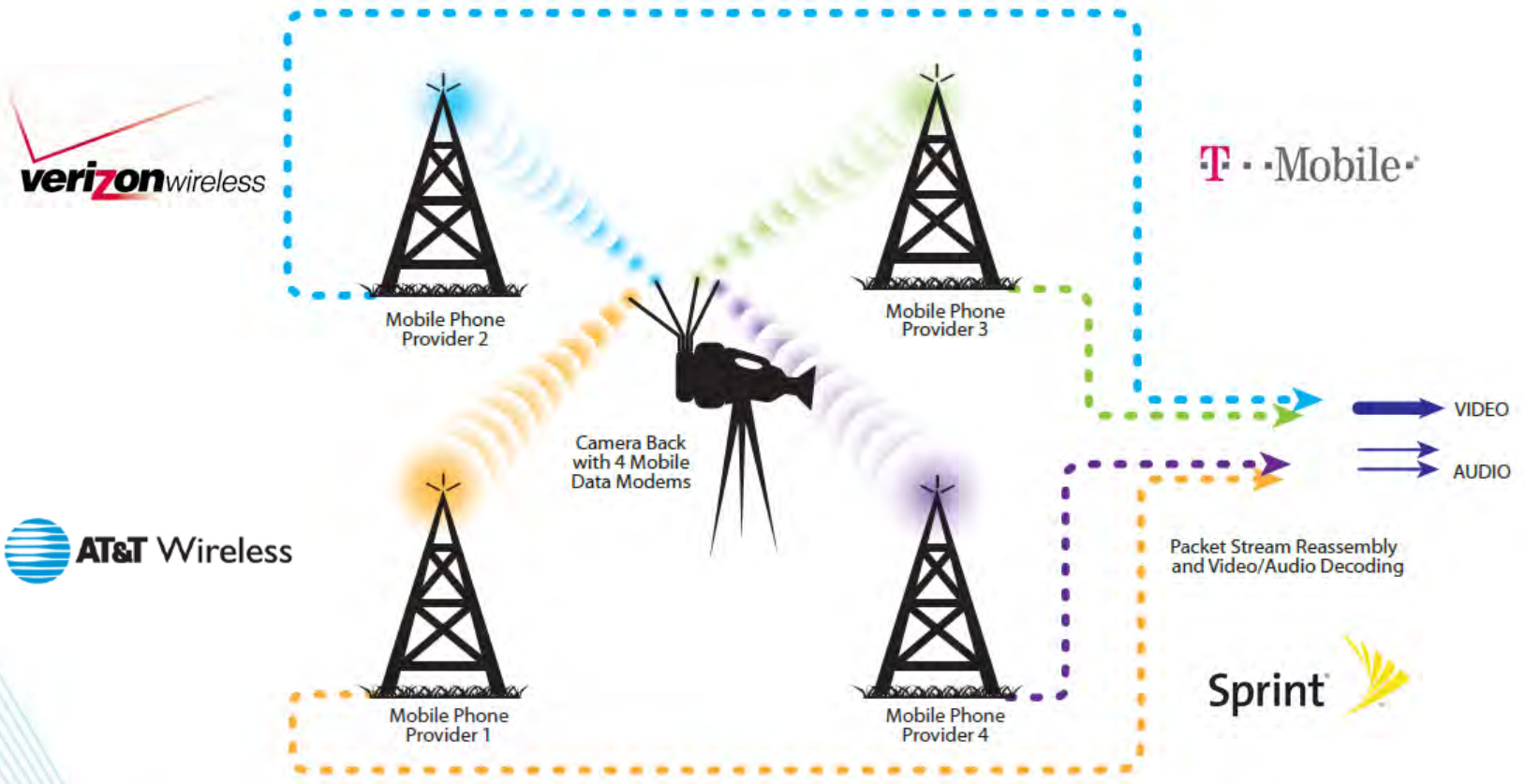

FIGURE 3 Typical Bonded 4G/LTE Cellular System

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Powerful Dedicated Hardware Platforms

- No heavy PC in a backpack,
- Compact and lightweight.
- Hardware platforms
- High reliability & high MTBF
- Low power consumption
- Unparalleled mobility,
- Perfect for breaking news
- Live event coverage & sports

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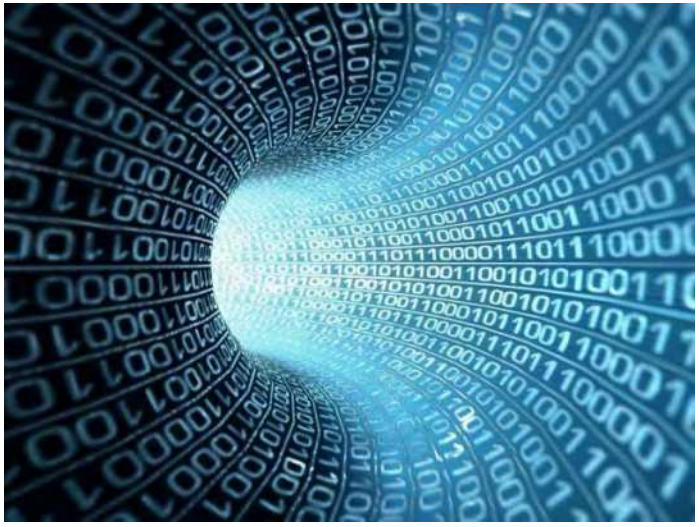
Cutting Edge Video Encoder

- AVIWEST Team is composed of engineers from high-tech companies
- Specialized in video, multimedia, and embedded electronics
- Grass Valley, Ericsson Television, Canon, and Sagem,
- More than 100 years of cumulative experience
- Providing their customers with superior video quality.



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Cutting Edge Video Encoder

- Best viewer Quality of Experience (QoE)
- Best-in-class encoder that compresses video while adjusts to the real-time characteristics of various bonded networks analyzing their bit rates, and delays.
- Video resolutions and frame rates can be automatically setup according to a perceived video quality model.

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High Performance Bonding Algorithm

- Detecting and aggregates multiple IP-based networks such as 3G, 4G, WiMax, Wi-Fi, Ethernet, satellite
- Global expansion of wireless connectivity enables broadcasters to transmit live from anywhere with cellular coverage
- High-performance algorithms automatically senses and bonds together all possible outlets of IP connectivity
- Provides broadcasters with the biggest pipe to transport their video content.

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Radio Frequency Efficiency

- High-quality uplink transmission
- Custom high-gain antennas
- Maximizes energy transmitted by modems based on CDMA and LTE frequencies and bandwidth.
- VSWR (Voltage Standing Wave Ratio) is tuned to obtain best-in-class RF efficiencies
- Compensates for the operation of multiple modems in close proximity

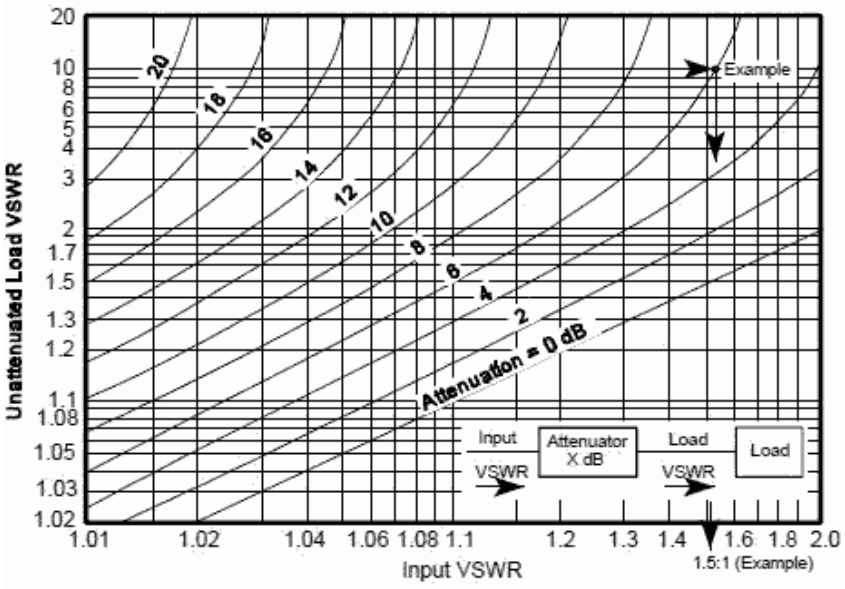

Figure 1. Reduction of VSWR by Attenuation

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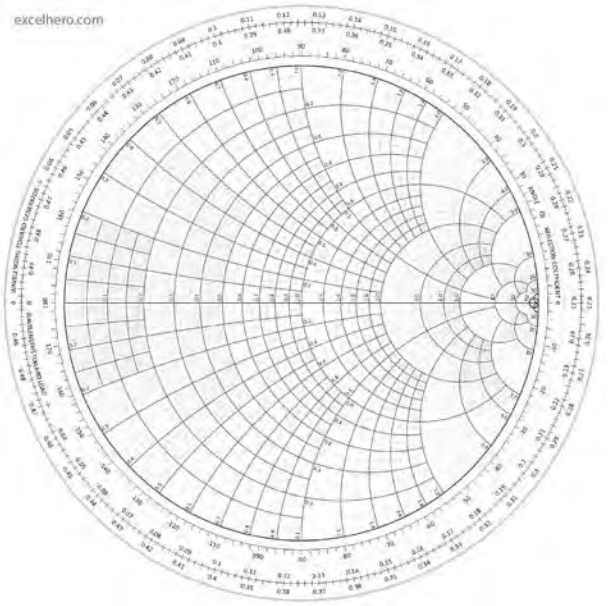
Radio Frequency Efficiency

- Antennas compensate for the coupling effect between antennas by increasing the isolation between elements.
- Optimized using state-of-the-art RF simulation software tools
- Industries best performance using antenna simulation, RF analysis equipment, and periodic measurements in anechoic chambers
- Solutions are guaranteed to operate optimally, in any conditions, at all times.



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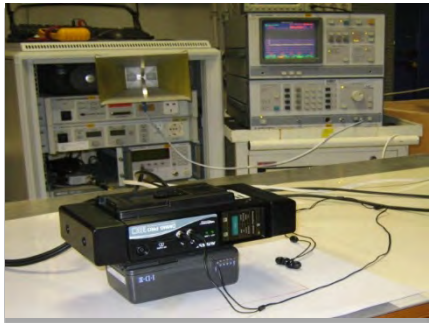
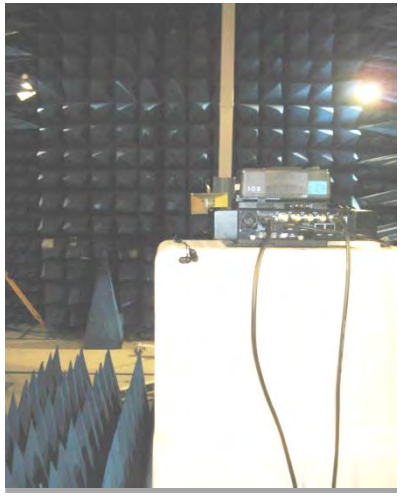
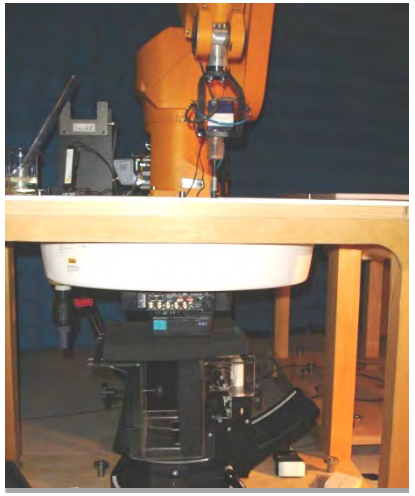
SAR Compliance

- The Specific Absorption Rate (SAR) measures the rate at which energy is absorbed by the body when exposed to a radio frequency (RF) electromagnetic field.
- FCC requires wireless communication devices to have a SAR level at or below 1.6 Watts per Kilogram (W/Kg) taken over a volume containing a mass of 1 Gram of human tissue.
- European Union standards (EN 62209-2-2010) the SAR limit is 2 W/kg averaged over 10 Grams of human tissue.







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SAR Compliance

- AVIWEST is committed to ensuring that its solutions successfully pass the SAR measurements and can be safely used while touching the body.
- All solutions have passed SAR measurements performed by an approved European laboratory.
- Reports are available upon request.

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AVIWEST Solutions

Mobile Video Hybrid Contribution Systems

Transmitters

- Portable Versions:
  DMNG PRO Series
- Rack-mounted Versions:
  DMNG RACK Series
- Smartphone Applications:
  DMNG App

Receivers

- DMNG STUDIO

Network Management System

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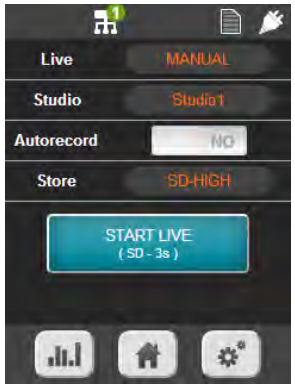
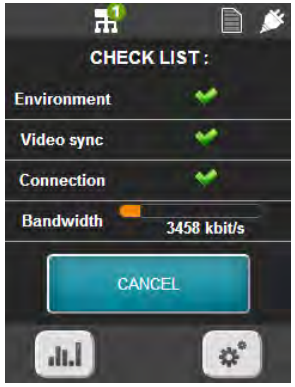
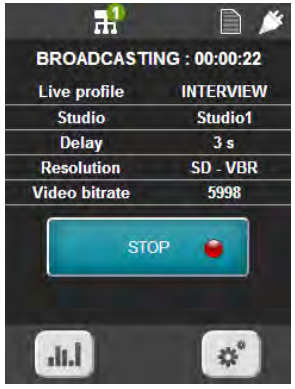
AVIWEST Solutions

The world's most advanced portable bonded 3G/4G, Wi-Fi, Satellite & Ethernet video uplink family designed for news gathering, sports and live television application

- Main Functions
  - Live & Auto-record
  - Store & Forward
  - Progressive Store & Forward
- **Product Line Comprising:**
  - **DMNG PRO180-RA** (8 X Internal 3G/4G Modems)
  - **DMNG PRO140-RA** (4 X Internal 3G/4G Modems
  - **DMNG PRO110** (10 X External 3G/4G Modems
  - **DMNG PRO100** (Portable Encoder)







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DMNG PRO 180RA

The world's most advanced portable bonded 3G/4G, Wi-Fi, Satellite & Ethernet video uplink family designed for news gathering, sports and live television application

Key Features

- 8 internal modems (3G or 3G/4G)
- 8 high efficiency cellular antennas
- 8 MCX connectors for 2 quad external antenna
- 2 USB slots (2 additional modems)
- Internal Wi-Fi modem & antenna
- Video inputs: SDI, composite, HDMI
- Dual video encoders
- Battery plates: V-Mount, Anton Bauer, PAG
- Interfaces for tally & IFB
- SD card slot (record)

Options

- Backpack
- 2 x quad antenna
- DMNG REMOTE app

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DMNG PRO 140RA

The world's most advanced portable bonded 3G/4G, Wi-Fi, Satellite & Ethernet video uplink family designed for news gathering, sports and live television application

Key Features

- 4 internal modems (3G or 3G/4G)
- 4 high efficiency cellular antennas
- 4 MXC connectors for quad external antenna
- 2 USB slots (2 additional modems)
- Internal Wi-Fi modem & antenna
- Video inputs: SDI, composite, HDMI
- dual video encoders
- battery plates: V-Mount, Anton Bauer, PAG
- Interfaces for tally & IFB
- SD card slot (record)

Options

- Backpack
- 1 x quad antenna
- DMNG REMOTE app

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DMNG PRO 140RA

The world's most advanced portable bonded 3G/4G, Wi-Fi, Satellite & Ethernet video uplink family designed for news gathering, sports and live television application

Key Features

- 10 USB slots (10 USB modems)
- Video inputs: SDI, composite, HDMI
- Dual video encoders
- Battery plates: V-mount, Anton Bauer, PAG
- Internal battery
- Interfaces for tally & IFB
- SD card slot (record)

Options

- Backpack
- Optional external Wi-Fi antenna
- DMNG REMOTE app

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DMNG PRO 100

Light Portable Video Encoder

Key Features

- 2 USB slots (2 USB modems)
- Video inputs: SDI, composite, HDMI
- Dual video encoders
- Battery plates: V-Mount, Anton Bauer, PAG
- Interfaces for tally & IFB
- SD card slot (record)

Options

- Backpack
- Optional external Wi-Fi antenna
- DMNG REMOTE app

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DMNG RACK Series

Rack-mounted Advanced Hybrid Contribution Video Encoders for Ka + Cellular Transmissions

Main Functions

- Live & Auto-record
- Store & Forward
- Progressive Store & Forward

Product Line Comprising:

- DMNG RACK180 (8 x internal 3G/4G modems)
- DMNG RACK100 (no modem)

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QUAD Antenna

Quad External Wideband Cellular Antenna

Designed for extra-strong 3G/4G signal resiliency in critical conditions for live video transmission

Applications:

- News, Satellite, ENG & Mobile Production Trucks
- Vehicles or motorcycles
- Remote locations with weak cellular signals
- Areas with high cellular congestions

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DMNG PRO & DMNG RACK Certifications

ESD

- EN 55022
- EN 61000-4-2
- EN 61000-4-3
- EN 61000-4-4
- EN 61000-4-5
- EN 61000-4-6
- EN 61000-4-11

SAFETY

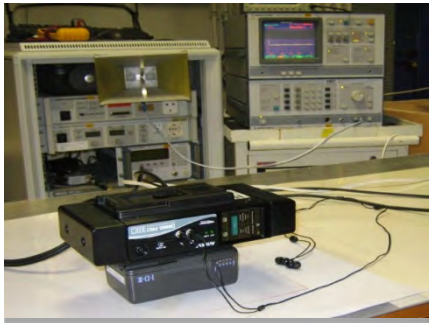
- EN 60950-1

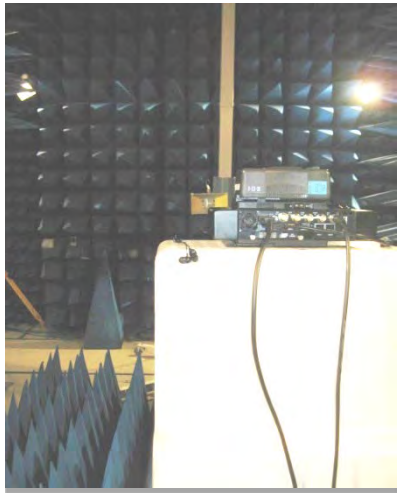
RADIO

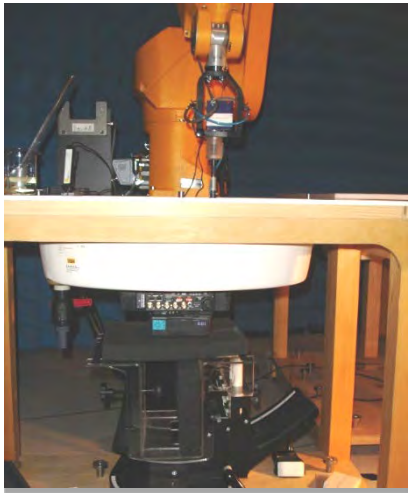
- R&TTE 1999/5/CE (EN 300 328)

SAR (Specific Absorption Ratio)

- EN 62209-2
- 1999/519/EC







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DMNG PRO Certification

SAR (Specific Absorption Ratio)
Measure of the rate at which energy is absorbed by the body when exposed to radio frequency electromagnetic field

DMNG PRO SAR Measurement in 3G/LTE/WIFI	Highest SAR value W/Kg
3G-HSUPA (900 and 2100MHz)	0.795
LTE band 20	0.454
LTE band 7	0.624
LTE band 3	0.373
Wi-Fi (2450 MHz)	0.015
Apple iPhone 5 (for comparison)	0,901

- SAR limits within the EU, following IEC standards is 2 W/kg average over 10g of human tissue (IEC 62209-1)
- The DMNG PRO are certified compliant with the European and North American SAR limits which is mandatory by law.

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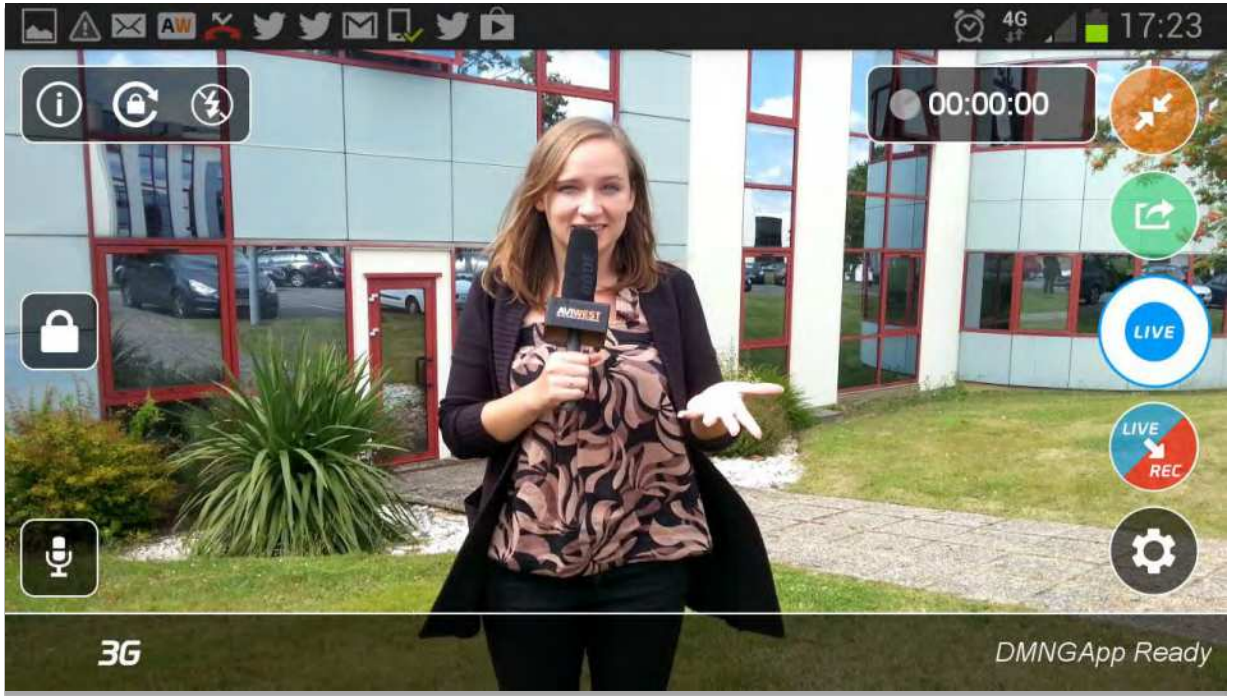
DMNG APP – What's New?

Live, Store & Forward Smartphone Application



- Android 4.0 and Later
- iOS
- Integrated with DMNG Manager & DMNG Studio

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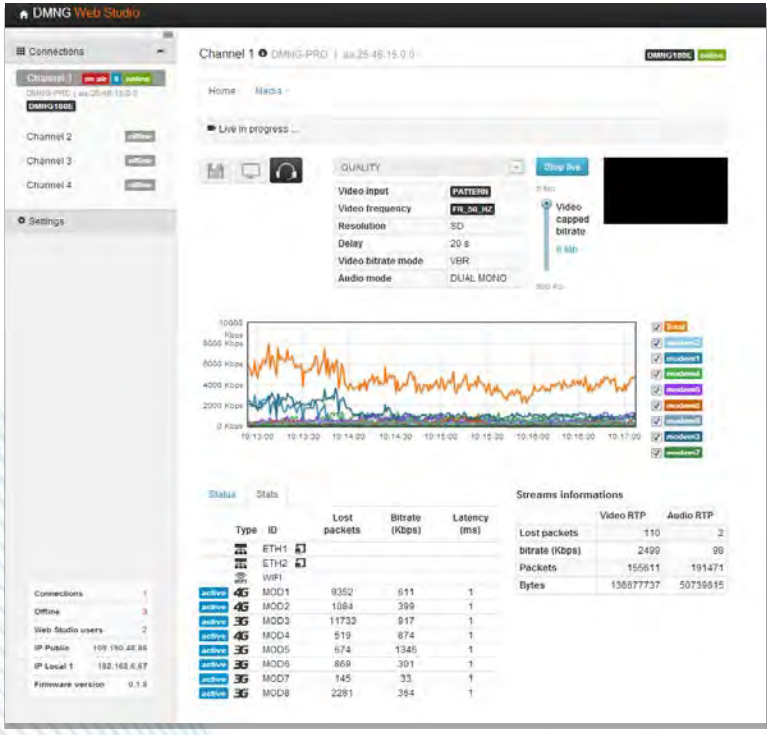
DMNG STUDIO

Receiver for DMNG Units

- Receive and decode up to 4 live streams from 4 units in the field
- Record and play back files
- IFB REMOTE application (4 independent 2-way audio channels)



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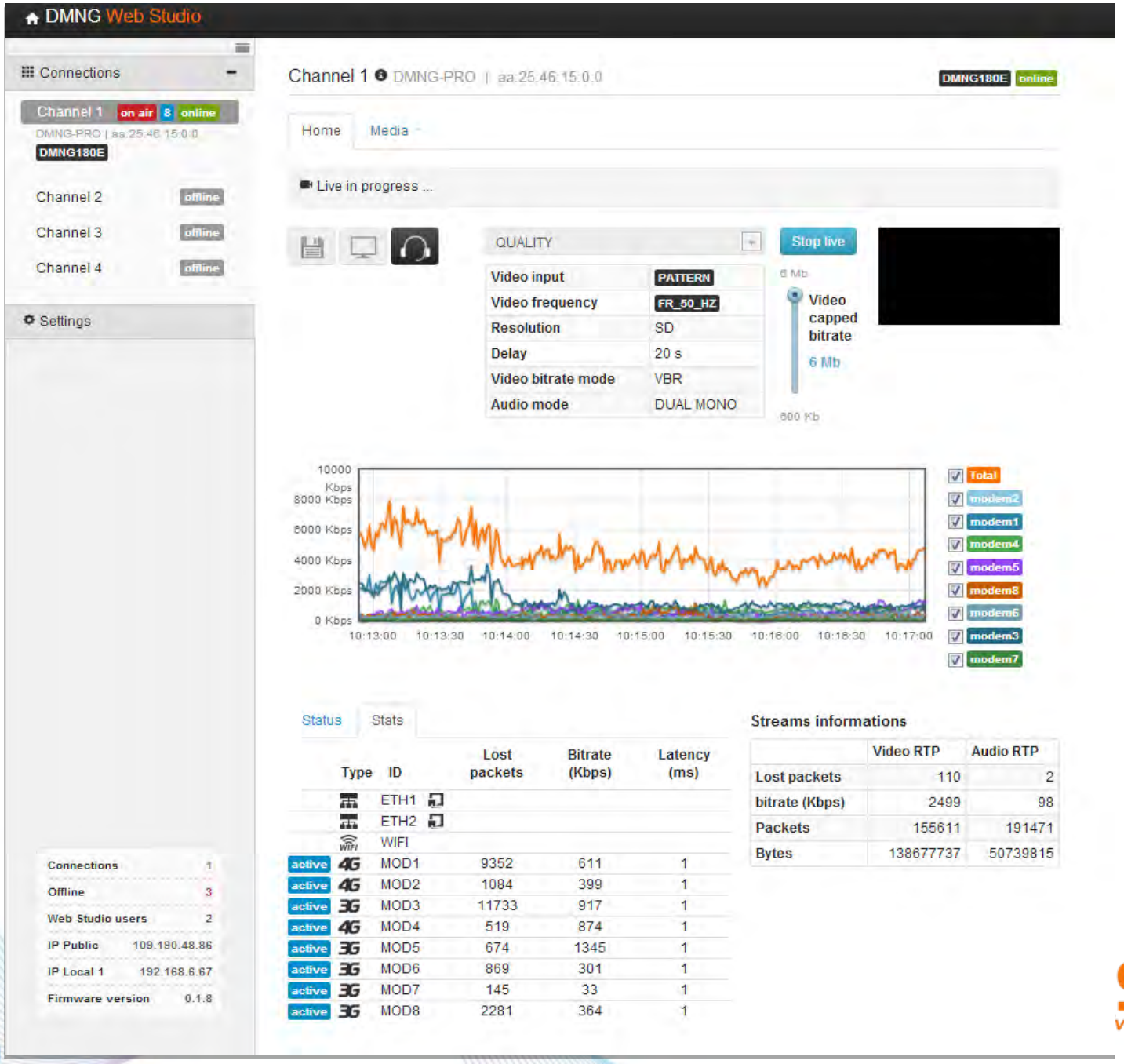

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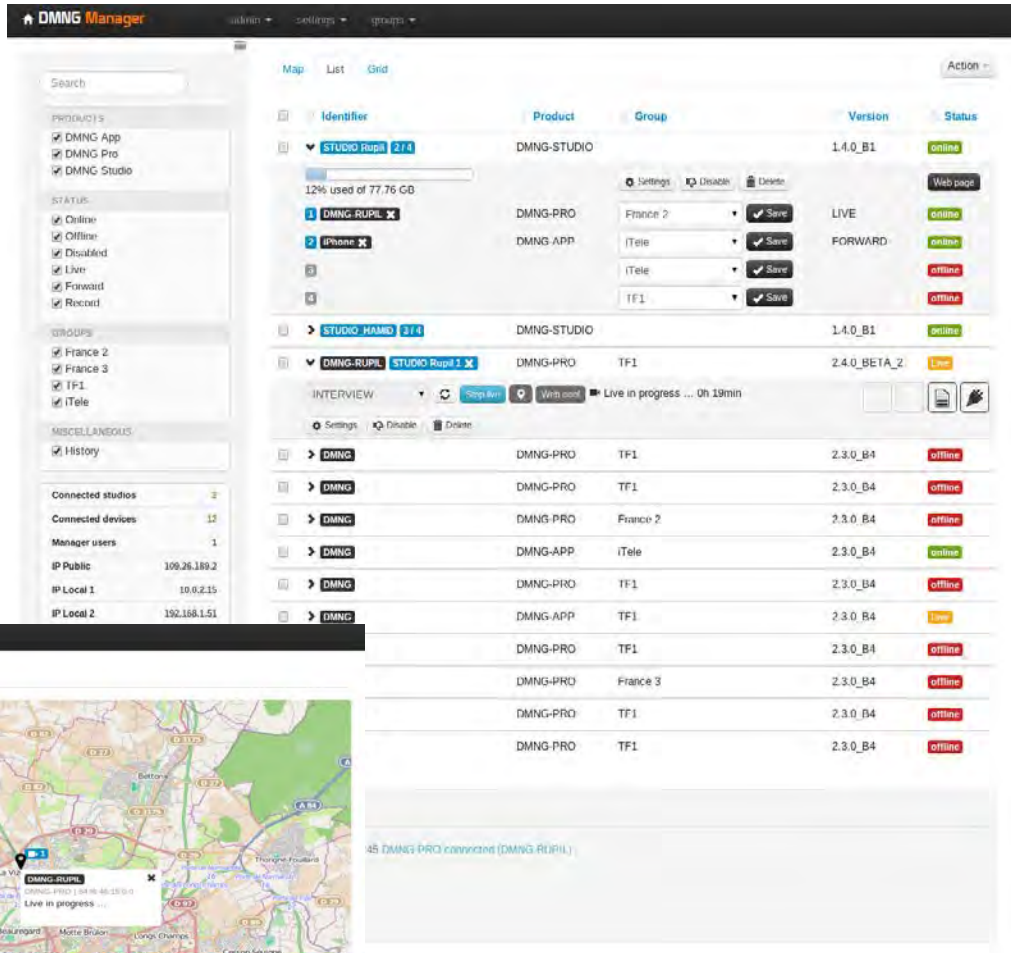
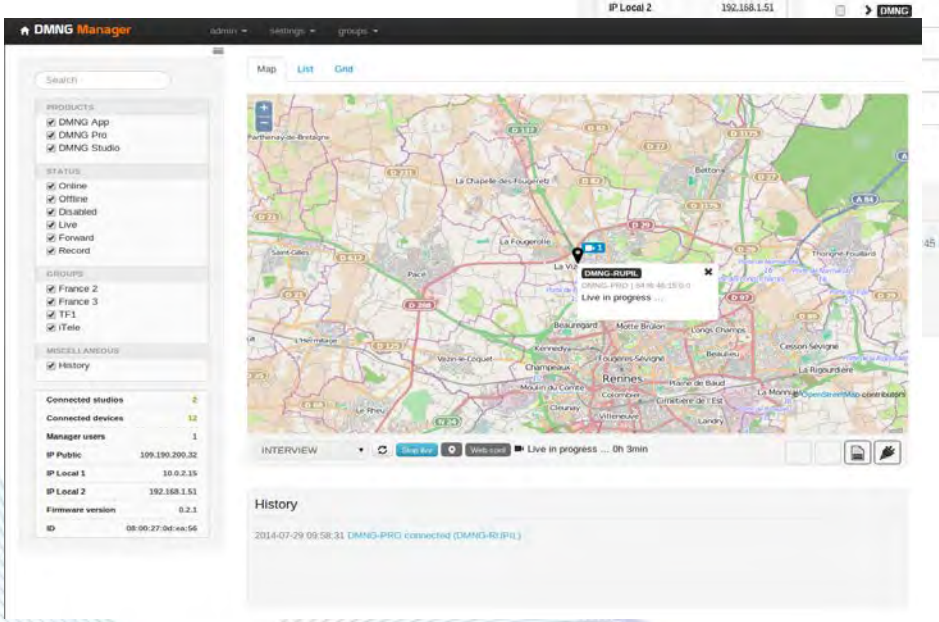
DMNG Manager

Network Management Platform

Main Functions

- Resource allocation
- Geolocation
- System monitoring
- Remote unit configuration
- Firmware upgrades





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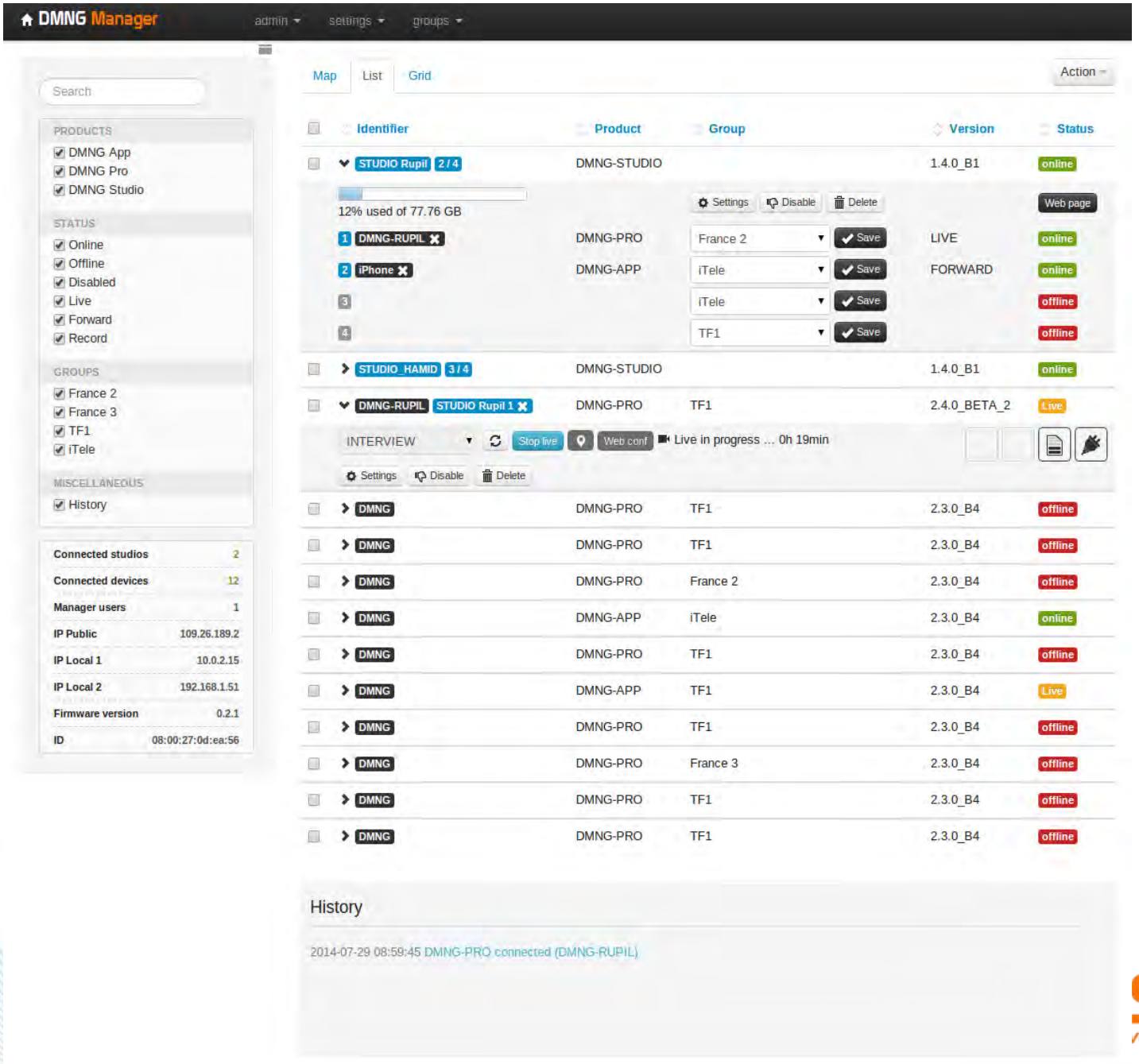

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DMNG Manager admin settings groups

Search

PRODUCTS
- DMNG App
- DMNG Pro
- DMNG Studio

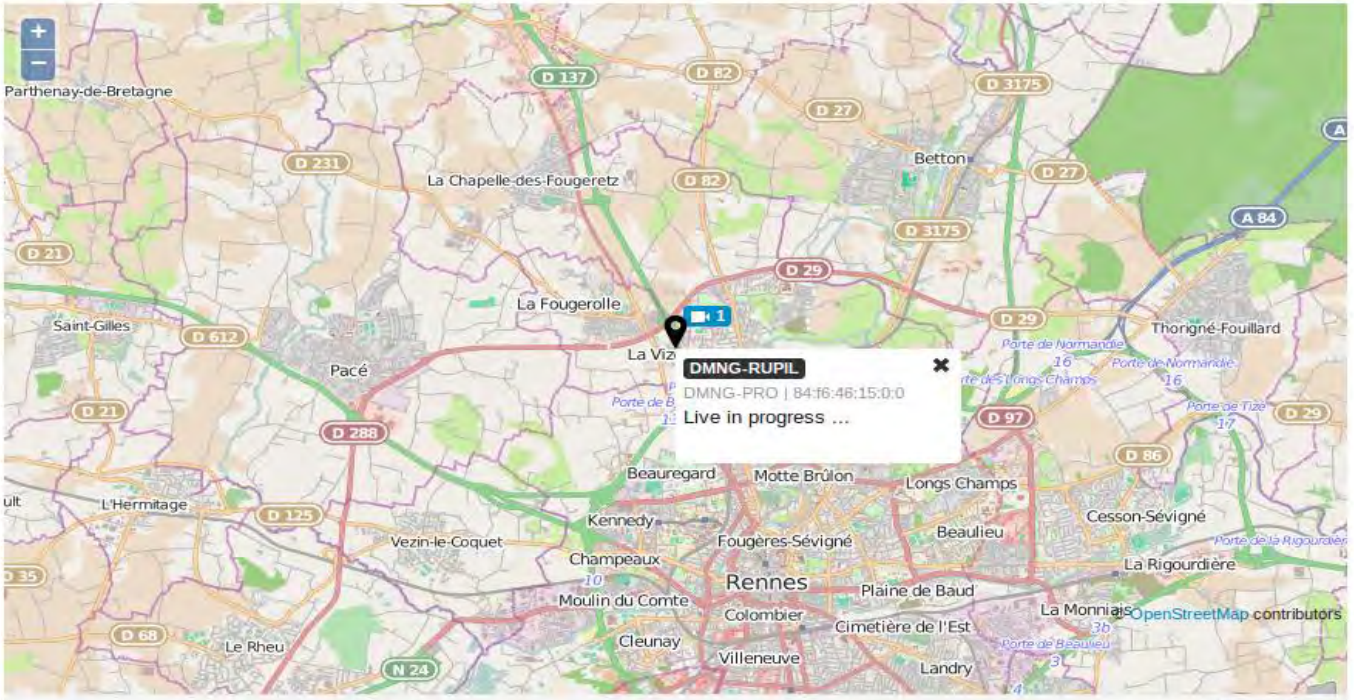
STATUS
- Online
- Offline
- Disabled
- Live
- Forward
- Record

GROUPS
- France 2
- France 3
- TF1
- iTele

MISCELLANEOUS
- History

Connected studios	2
Connected devices	12
Manager users	1
IP Public	109.190.200.32
IP Local 1	10.0.2.15
IP Local 2	192.168.1.51
Firmware version	0.2.1
ID	08:00:27:0d:ea:56

Map List Grid



History

2014-07-29 09:58:31 DMNG-PRO connected (DMNG-RUPIL)

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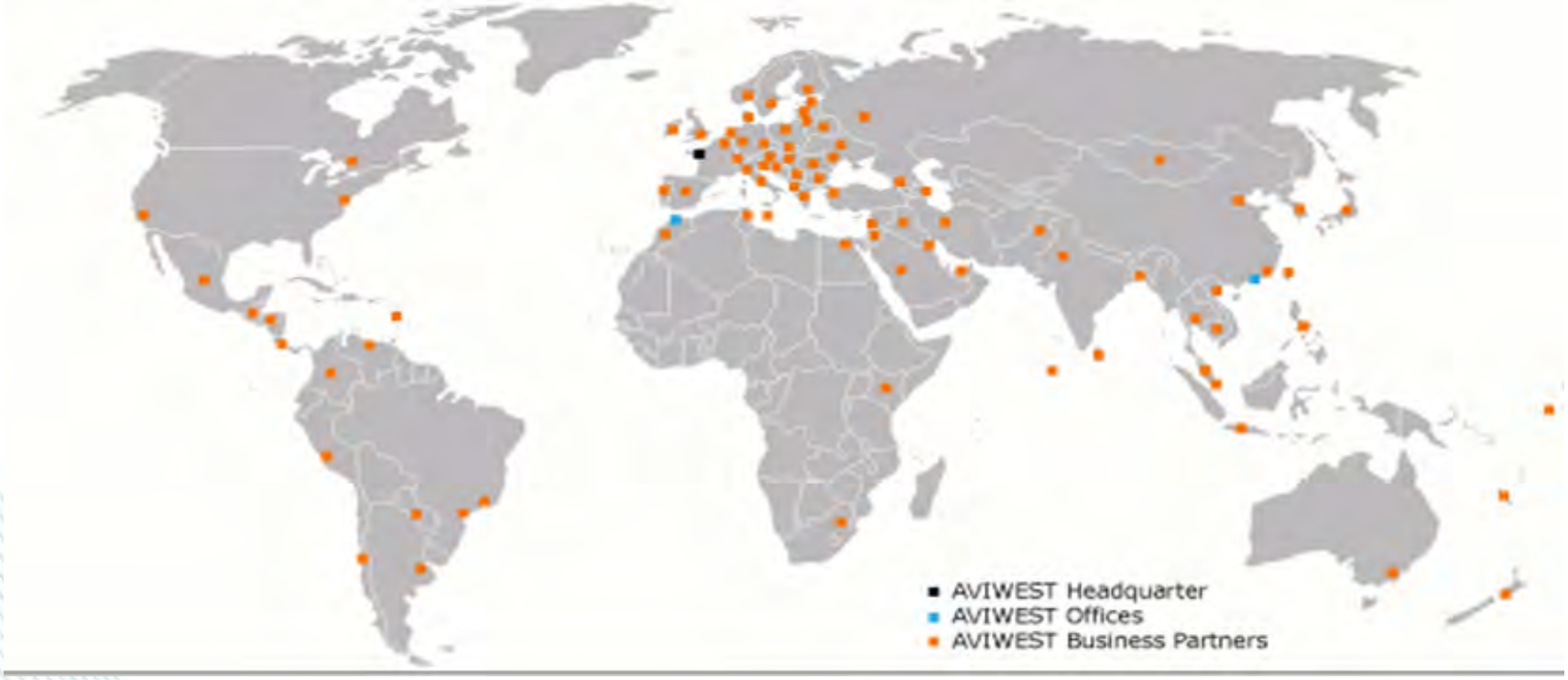
International Services

International Services Based on a Network of more than 120 Partners in over 6 Continents



- **Local rental service**
- **Local support**
- **International roaming SIM rental**

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AVIWEST on Location

BFM TV in Sochi
BFM TV (France). Live form Sochi with DMNG PRO180 - Feb 14

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AVIWEST on Location

TeleMedellin - Colombia - Oct 13
TeleMedellin (Colombia) cover breaking news with a DMNG PRO180

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AVIWEST on Location

Mediatec (Norway) - Oslo Marathon
Mediatec (Norway) covers a Marathon with a DMNG PRO180-RA and a QUAD installed on a Quad

CCTV (China) - MarathonQUAD Installed on a motorbike by CCTV (China) to cover a Marathon

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AVIWEST on Location

CTC - Hong Kong Seven - 3
CTC (Hong Kong) use DMNG PRO180 during Hong Kong Seven rugby tournament

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AVIWEST on Location

Krönotek - Live from helicopter - DMNG PRO - QUAD
Live from an Helicopter - Kronotech (Guadeloupe Island - Caribbean)

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AVIWEST on Location

Jamuna TV (Bangladesh)
JAMUNA TV (Bangladesh) deploys AVIWEST DMNG PRO180-RA and QUAD antenna to cover floods in remote areas

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Major European Customers

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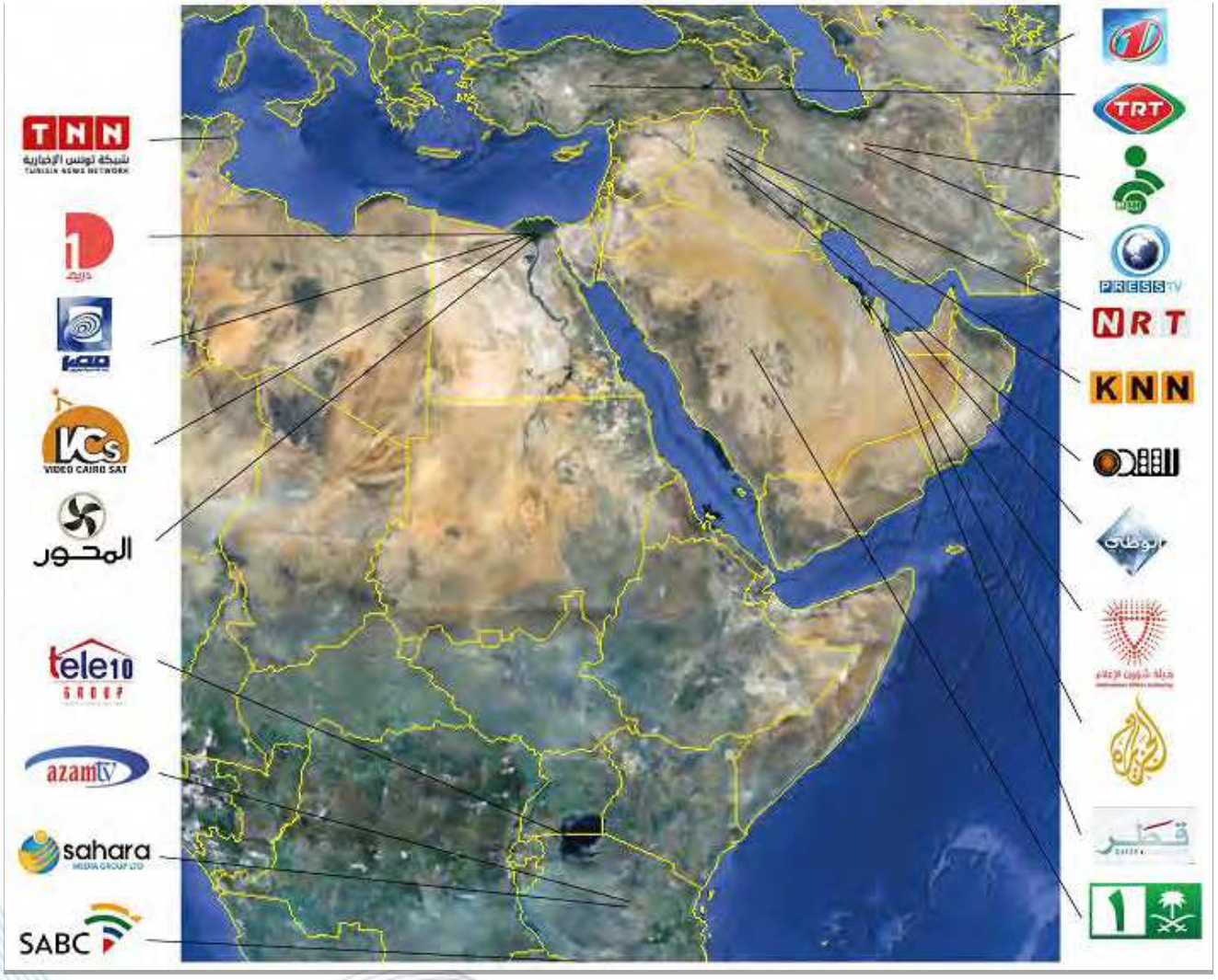
Major Customers Middle East & Africa



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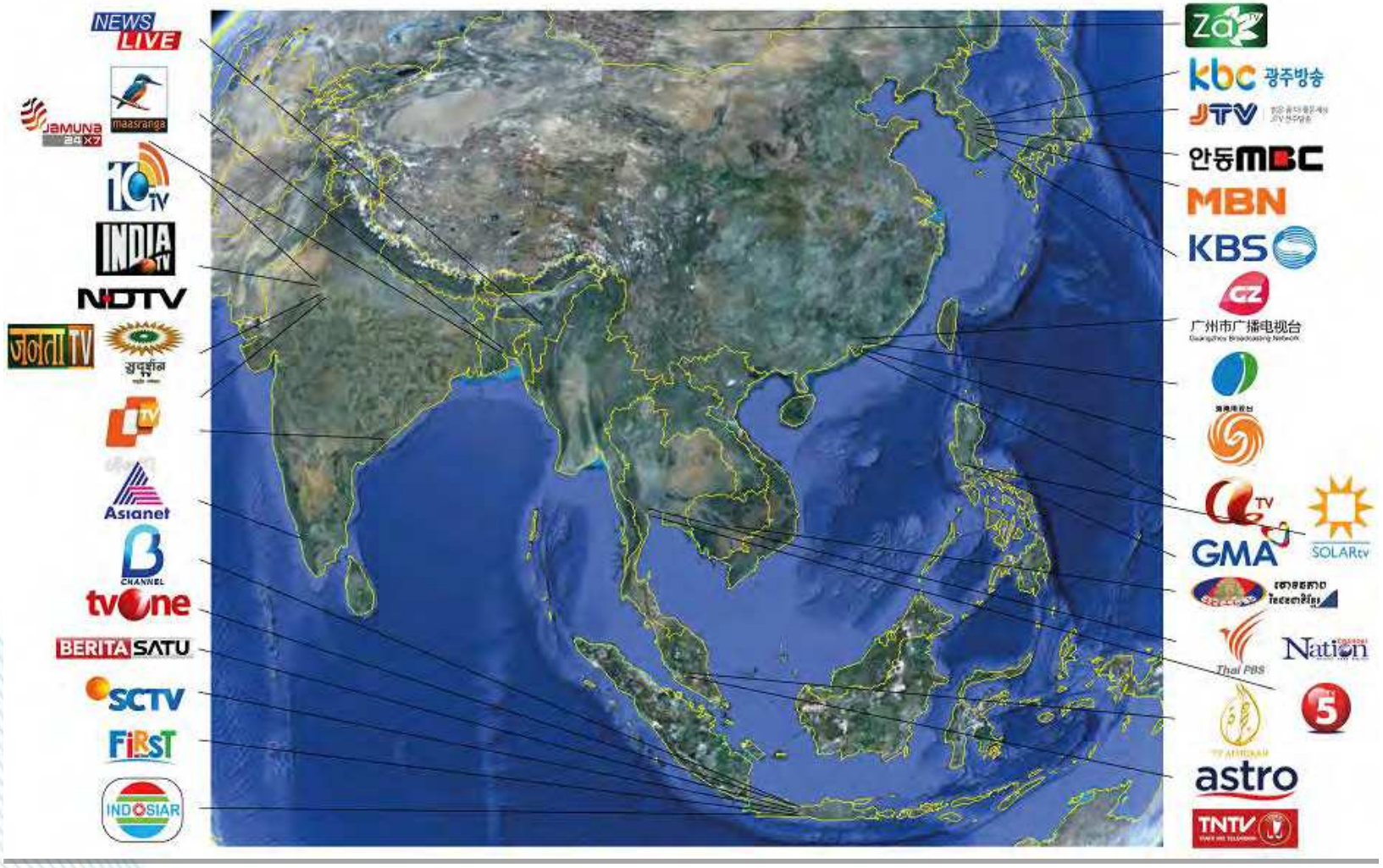
Major Customers Asia



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Major Customers Latin America

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Conclusion

- **Save more than $250K per year**
  - Eliminate the need for expensive transmission equipment
    - No Expensive Telecomm Circuit
    - No Satellite Truck
    - No ENG Van
    - No Mobile Production Truck
    - No Engineer or Camera Operator required
    - Quick and Easy Operation with One Person
      - Talent can operate and shoot with a tripod
- Broadcast Live from virtually any location in the world
- Choose AVIWEST
  - Europe's #1 Bonded Cellular Video Uplink manufacturer
- Choose VidOvation
  - Premier wireless video system manufacturer & provider
  - Manufactured & Support NHL Wireless In-Net Goal Camera

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About AVIWEST

- Established in September 2008 by engineers coming from Thomson, Envivio and Tandberg Television (Ericsson)
- Headquarters in Rennes, France; Office in Hong Kong; VidOvation Master Distributor in USA
- 50 Employees & Consultants
- 25 R&D and Engineering personnel
- Core Business and Technologies
  - Live Video Hybrid Contribution Platforms
  - Bonded 3G/4G, Wi-Fi, Satellite and Ethernet
  - Broadcast & On-line Media Markets:
    - TV Stations and Networks
    - Video Service Operators
    - New Agencies
    - Sports & Live Events
    - Federal and Local Government, Home Land Security, Department of Defense, Military and more…

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About VidOvation

- Who is VidOvation?
  - VidOvation is a Video, Audio & Data commutations manufacturer and provider
  - Customers include Broadcasters, TV Networks, Sports Leagues & Enterprise IT Departments
- We help those who are:
  - **Frustrated** with dropout when using wireless video systems
  - **Confused** about which video transmission technology to use
  - **Struggling** to balance encoder latency and their budget when it comes to video networking and IPTV
  - **Irritated** with interruptions when streaming video over the internet
- Are you or any one you know struggling with any of these issues?

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Partial Client List?

ABC/Disney Network News
Bell Canada
BellSouth/AT&T
Cablevision
CBS Network News
CBS Network Television
CityCenter Las Vegas
CNBC
CNN
Connecticut Department of Transportation
Department of Defense
Department of Justice
Eurovision
FOX Digital
FOX News Channel
Globecomm
GSA – General Services Administration
Hard Rock Hotel & Casino
Intelsat General Corporation
KNBC
KOMO
KRIV
Level 3 Communication (VYVX)
MGM Resorts
Minnesota Department of Transportation
MSG Network
NASA
Naval Air Warfare Center
NBC
News 12 Long Island
NFL – Carolina Panthers
NHL – National Hockey League
Nickelodeon
PanAmSat (Intelsat)
Pentagon Remote Briefing Center
SPAWAR
SPRINT
Storz – Karl Storz Endoscopy
Stryker
TCI Cable
The Department of Transportation
Time Warner Cable
Turner Broadcasting
Tyler Perry Studios
TV Globo
United Space Alliance
United States Air Force
United States Army
United States Capitol Visitors Center
United States Navy
United States Navy Newport News
Universal Studios
VegasHD
Verizon / MCI
Viacom
WABC
WCBS
WGN
WNBC
WNYW

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Question and Answer

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