RADITEK INC.

RoHS COMPLIANT

MOST ADVANCED IP Based Satellite Network Solution

Network Control display showing total network and status by color.
GUI Network display example shows an Internet hub in London, remotes all over Africa etc.
Allows Interactive Internet access To 8Mbps with low cost remote and hub.
Minimal overhead SCPC/DAMA with:

- True Switched Satellite DAMA Network
- DAMA (Demand Assigned Multiple Access)
- BOD (Bandwidth on Demand)
- AUPC (Automatic Uplink Power Control)
- >30% more efficient than TDMA
- Most advanced Turbo Product Code
- To 3dB lower Eb/No than many others.
- Means lower cost BUCs or smaller antennas.
- Ideal for Internet on the MOVE Disaster Recovery applications etc
- Ideal for lowest cost SCADA
- DVB-S2 with SCPC/DAMA/BOD return option
- To ~10µs (10E-8) network timing accuracy

HUB

RISN-99VRT advanced remote SAT terminal with Internet router 8Mbps up and downlink

Remote 20

Remote 10

RISN-88VRT lowest cost Satcom Terminal with built-in Internet router To 2Mbps uplink, 8Mbps downlink from Hub

- **Designed for IP packet routing within any frequency satellite network that connects to Ethernet networks at every site, including gateways, hubs and remotes.**
- **Provides Direct, Seamless IP (Internet Protocol) connectivity for computer LANS, voice and video to and from any remote.**
- **Can be configured as a Point to Point (MESH) or Multipoint (STAR) in separate or same network.**
- **Can also be a stand alone modem, for Point to Point full time SCPC with 70MHz or L band IF.**
- **Raditek's full line of C, X, Ku and Ka band low cost BUCs and phase locked LNBs.**
- **Transmit only as needed, and select Band width on Demand (BOD)- (to 8Mbps rate)**
- **Provides optimum satellite efficiency at all times. NO Carrier in Carrier offered! Ask us for the facts!**

- **RJ45 internet access and an internet router included in every remote modem**
- **Usually TDMA is bad choice for <10Mbps (as used in DVB-S/S2/RCS) timing issues or excessive ~>30% overhead. RCS especially is poor efficiency!**
- **Use one or more gateway hubs to one or multiple satellites.**
- **To be up to half the cost of the "others" with no limit to number of users, as long as satellite BW is there.**
- **To have super efficient Turbo codes to be able to halve the necessary BUC transmit power, compared to less efficient RS/Viterbi convolutional and concatenated codes etc.**
- **We also offer DVB-S/S2 with SCPC/DAMA/BOD return for higher rates (inefficient RCS is not even an option)**
- **Automatic Uplink power control to optimally load the satellite at all times/all fade conditions.**

WORLD HQ: 1702L Meridian Ave. Suite 127, San Jose, Ca 95125, U.S.A.
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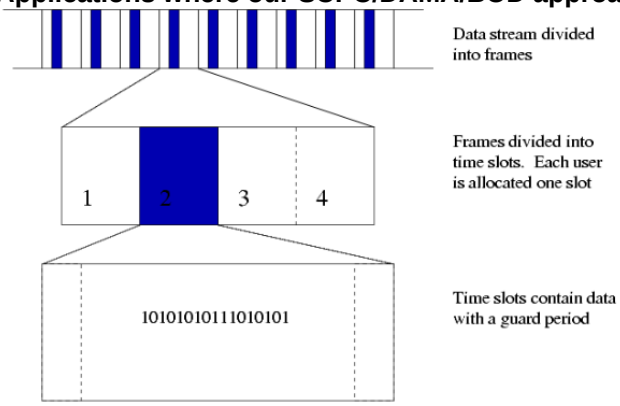
Applications where our SCPC/DAMA/BOD approach is the best solution by far, compared to TDM/TDMA products!



SCADA: TDM outbound via a DVB-S2 is efficient for higher data rates and can have low cost demods (DVB-S is very basic and does not even have Turbo coding), although the hub is expensive.
TDMA/RCS return is very inefficient on the satellite, requiring excessive overhead due to guard band and expensive hub (TDMA demodulator is very expensive at the HUB).
High network synchronization is also needed, using GPS or OCXO
There is a **TDMA low end data rate of 256Kbps**, whereas ***RADSAT*** can **support 16Kbps** channels for ***SCADA***, for example. Using ***RADSAT***'s transmit only remotes and low cost hub (Receive only), extremely low cost solutions are possible, and each remote can reuse a very small satellite bandwidth for lowest possible usage cost.

We offer DVB-S2 for higher data rates and offer SCPC/DAMA return (instead of costly and inefficient TDMA/RCS).

INTERNET NETWORK: One installation in Africa, for example, has a problem of accessing a reliable Internet POP.
The DVB/TDMA solution would have the HUB, placed somewhere in Africa bit also need some kind of expensive broadband link to the internet access point in UK..-adds a lot of cost and network vulnerability. ***RADSAT***'s approach would be to still have the service provider's hub with the NMCS in Africa, but using a ***RADSAT dual star*** configuration, the POP in UK or wherever, would operate as a ***gateway HUB***, controlled from the Africa HUB's NMCS. Internet traffic would be to and from the UK based gateway hub directly, without the need to go through the Africa hub at all, saving a double satellite hop with the associated 2 x satellite cost, with **no need for a high speed link between UK and Africa**! So ***RADSAT*** again is the obvious choice.

On the move, Mobile Internet and Disaster recovery applications: Whether for ***DISASTER RECOVER*** or Military ***mobile application***, combining the ***RADSAT*** approach with our very advanced low profile, Motion Stabilized **Phased array antenna POD (containing 20 or 40W Ku band BUC and LNB)**, mounted on the roof of a HUMMER etc, or boat!-easy to install for I**nternet on the Move applications.** **No big antenna radome sticking up, and TDMA cannot be used for this application PERIOD!**

Some customer questions:
Do you support IEEE1588 network synchronizing algorithm for Backhaul applications? Ans: **YES!** We would add an additional 1588 server at the HUB for the whole network. The customer would provide the 1588 compliant BTS. The 1588 implementation is transparent on our network!

Do you offer any kind of Carrier in Carrier for even better network efficiency? Ans: **YES it is possible**, if really needed, but please read the following carefully:
Whereas the RADSAT is very appropriate for **Carrier in Carrier-like** applications, we have found it may be only vaguely practical in very large networks. The Hub cost would be greatly increased, the outbound TDM frame can coexist in the same satellite bandwidth as the **incoming SCPC/DAMA/BOD incoming channels**. We have experience using this and although it is possible, there is usually up to 3 dB increase in power necessary (on the satellite) so although the operating bandwidth can be reduced by up to 50% (typically it is much lower than that), the bandwidth reduction cost savings on the satellite results in a **3dB power increase**, meaning a **net zero cost reduction**. So although we can support this, we feel it is deceiving the customer to suggest any serious cost savings, and it does require a sizable increase in upfront modem cost. So we advise you to consider this very carefully. **NOTE: This is a general answer, applicable to anyone else's CIC or similar product, not just ours'. It is a concept that sounds good at first, but later becomes less attractive as well as more expensive with very doubtful advantage!**

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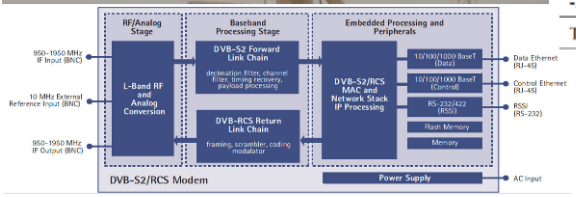
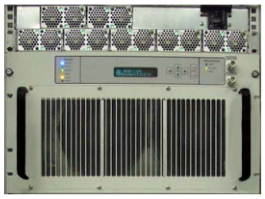
Diameter	4.5M			
Operating Frequency, GHz	C-Band		Ku-Band	
	Receive	Transmit	Receive	Transmit
	3.4～4.2	5.85～6.725	10.95～12.75	13.75～14.5
Gain, Mid-band, dBi	43.39	47.43	52.94	54.25
Polarization	Linear/ Circular		Linear	
Cross Polarization Isolation(on Axis), dB	35	35	35	35
Axial Ratio (For Circular Pol.)	1.5dB	1.0dB		
VSWR	1.25:1			
Antenna Noise Temperature, 2-port feed				
10° Elevation	36°K		45°K	
20° Elevation	29°K		40°K	
40° Elevation	24°K		36°K	
-3dB Beam Width	1.08°	0.72°	0.37°	0.31°
Tx. Power Capability, KW		5		1

9M Earth Station Antenna

- C/ku-Band 2/4-port, Circular/Linear Polarized motorized Feed, TX/RX
- Kingpost Pedestal
- Jackscrews in Azimuth and Elevation
- Reflector - white diffusive painted Aluminum panels
- Foundation hardware kit
- Easy to install and cost-effective



DVB-S2 solutions for high data rate/video

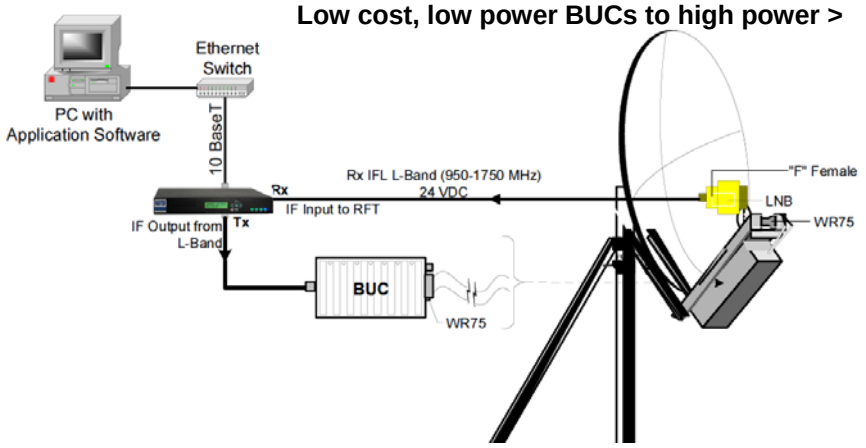


- Full range of output power from 16W to 1000W
- High linearity
- Redundant ready with no external controller
- Full M&C capability via RS485 or Ethernet port
- Forward and Reflected power monitoring
- Output Sample Port
- Redundant Systems shipped fully tested
- Infinite VSWR protection with automatic high reflected power shutdown
- Built-in Harmonic Filter
- Power factor correction
- CE marking

RoHS COMPLIANT

Low Noise Block-Converter
Multli-band (MB) Ku to L Band,
Phase Locked-LO Stability-S9

Low cost, low power BUCs to high power >



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