

# The Spectrum

## Newsletter of the Rocky Mountain Chapter

May 2007

Letter from the President

Rocky Mountain Colleagues,

It is hard to believe that we are 40% of the way through the year. So far we have had great participation at our Digital Testing, In Home wiring, and our National sponsored Troubleshooting VoIP seminar. There is also a great event coming up titled, "SDV/ IP Video" which will be held at the CableLabs facility on May 24<sup>th</sup>. (Read more on it below). Additionally, our ever popular Digital signal measurements/VoIP troubleshooting seminar will be held on July 12<sup>th</sup>; this includes a hands-on Lab exercise.

**(Please visit our Website for full Details and locations <http://chapters.scte.org/rockymtn/>)**

It is my pleasure to inform you that the Rocky Mountain Chapter recently received several certificates of recognition from our SCTE National leaders covering three award categories including *Professional Development, Striving for Excellence* and *Compliance*.

The National SCTE Cable-Tec EXPO is right around the corner; Jason Graff will represent our Rocky Mountain Chapter as he was the overall winner of last years Cable-Tech games – Sept. 2006. Jason is currently a Technician with Comcast in Lakewood and has been working in our industry for over 12 years. Good Luck Jason!!! As a reminder, our Rocky Mountain show Symposium will be held September 11th and 12th 2007 at the Inverness Hotel. We would like to see all MSO in Colorado represented at the Cable Tech Games, please let us know how we can help.

We hope to see you at the upcoming events. Thanks again for all your support,  
Dave Krook

## 2007 Chapter Events and TESTING OPPORTUNITIES!

*Pre-seminar openers (10 to 15 minutes) are planned before each event and subjects will include: SCHOLARSHIP OPPORTUNITIES, PROFESSIONAL DEVELOPMENT WITH ALAN BABCOCK -BENEFITS OF CERTIFICATION, and TELECOM INDUSTRY SAFETY-WITH-SNIDER.*

DATE	LOCATION	SUBJECT	SPEAKER
May 24th	CableLabs – Louisville, CO	Switched Digital Video & IP Video	Pragash Pillai, Bresnan and Glen Hardin, Time Warner
July 12	Comcast Mineral in Littleton	Digital Signals/VoIP Troubleshooting	TBD
August 9th	Grand Junction or Glenwood Springs (Brenan territory)	TBD	TBD
Sept 11 <sup>th</sup> and 12 <sup>th</sup>	Inverness Hotel and Golf resort	Golf Tournament and Cable Games, Tech sessions to include Tools for Troubleshooting, Portability Wi/Fi	TBD
October 18 <sup>th</sup>	Jones/NCTI	Home Theaters, Networking, CableCARDS	TBD
November 15 <sup>th</sup>	Pueblo or Colorado Springs	Return Path, GIS Troubleshooting Leveraging CPE	TBD
January 8 <sup>th</sup> , 2008	Comcast Iliff or CableLabs	DOCSIS 3.0	TBD

### May 24<sup>th</sup>, 2007 Meeting Notice

# Switched Digital Video

- What?** A comprehensive look into the core mechanisms of SDV including:
- **Bandwidth Management & Digital Simulcast**
  - **Switched / bandwidth savings**
  - **Front end digital video process**
  - **CPE – set top box options**
  - **Switched video planning & narrowcast requirements**
  - **Touch on upcoming GSRM technology**

**Who?** **Pragash Pillai**, *Vice President Strategic Engineering*, Bresnan Comm.  
**Glen Hardin**, *Director of Digital Video Services*, Time Warner

## MORNING

**When?** 8:30 AM to 9:00 AM Morning Registration  
9:00 AM to 12:00 PM Morning Seminar  
12:00 PM to 1:00 PM Lunch (provided)

## AFTERNOON

**What?** Repeat of Morning Session  
**Who?** Same speaker  
**When?** 12:00 PM to 1:00 PM Lunch (provided) & registration  
1:05 PM to 4:05 PM Afternoon Seminar

**Where?** CableLabs  
858 Coal Creek Circle  
Louisville, CO 80027-9750 (303.661.9100)  
[http://www.cablelabs.com/downloads/CL\\_Map.gif](http://www.cablelabs.com/downloads/CL_Map.gif)

**How Much?** Free for current Local Chapter Participants and for current Nat'l SCTE Members  
(National membership card verification required).  
\$10 for Non-Local Chapter Participants; this includes 1-year access to all Chapter training seminars and events. Lunch is provided.

Please RSVP with Sherisse Hawkins or Nick Segura. Contact us with any questions.

Sherisse Hawkins (720) 279-2810 [Sherisse.Hawkins@twcable.com](mailto:Sherisse.Hawkins@twcable.com)

Nick Segura (303) 323-1425 [Nick.Segura@chartercom.com](mailto:Nick.Segura@chartercom.com)

---

By agreeing to serve, the Board pledges to support the telecommunications industry and the participants of the Rocky Mountain Chapter of the SCTE.

## 2007 Elected Board of Directors

<u>Name</u>		<u>Company</u>	<u>Phone Number</u>	<u>Position</u>
Dave Krook	<a href="mailto:David_Krook@cable.comcast.com">David_Krook@cable.comcast.com</a>	Comcast	303-603-2095	President
Joe Thomas	<a href="mailto:JoeThomas002003@yahoo.com">JoeThomas002003@yahoo.com</a>	Transport Solutions	720.560.0893	Vice President
Steve Murphy	<a href="mailto:Steve_Murphy@cable.comcast.com">Steve_Murphy@cable.comcast.com</a>	Comcast	720-267-3038	Treasurer
Nick Segura	<a href="mailto:Nick.Segura@chartercom.com">Nick.Segura@chartercom.com</a>	Charter Comm.	303-669-3705	Secretary
Lauri Smith	<a href="mailto:Lauri_Smith@cable.comcast.com">Lauri_Smith@cable.comcast.com</a>	Comcast	720-267-7563	Board
Pat Wike	<a href="mailto:Pat_Wike@cable.comcast.com">Pat_Wike@cable.comcast.com</a>	Comcast	303-603-5052	Board
Rex Kohart	<a href="mailto:Rex_Kohart@cable.comcast.com">Rex_Kohart@cable.comcast.com</a>	Comcast	303-603-5053	Board
Alan Babcock	<a href="mailto:ABabcock@jonesncti.com">ABabcock@jonesncti.com</a>	Jones / NCTI	303-797-9393	Board
Sherisse Hawkins	<a href="mailto:Sherisse.Hawkins@twcable.com">Sherisse.Hawkins@twcable.com</a>	Time Warner	720-279-2810	Board

## 'Friends' of the Board

<u>Name</u>	<u>Company</u>	<u>Phone Number</u>	<u>Position</u>
Frank Eichenlaub	Scientific Atlanta Division of Cisco	303-790-6659	Website Region 2 Director Board Friend
Dave Robinson	EquiVision	303-722-8920	FOB & Newsletter
Randy Bailey	Comcast	719-457-4690	FOB
Jim Garcia	Comcast	719-457-4517	FOB
Robert Kostelny	DTI	303-995-6689	FOB
Richard Covell	T*TSI	303-646-5050	FOB & Speaker
Hugh Long	Comcast	720-267-3026	FOB
Mark Thompson	CommScope	303-773-3003	FOB
Jim Feola	James Associates	303 841-3391	FOB
Steve Snider	Comcast	303-603-2167	FOB & Speaker
Jim Stewart	Comcast	303-603-5687	FOB & Tech Writer

---

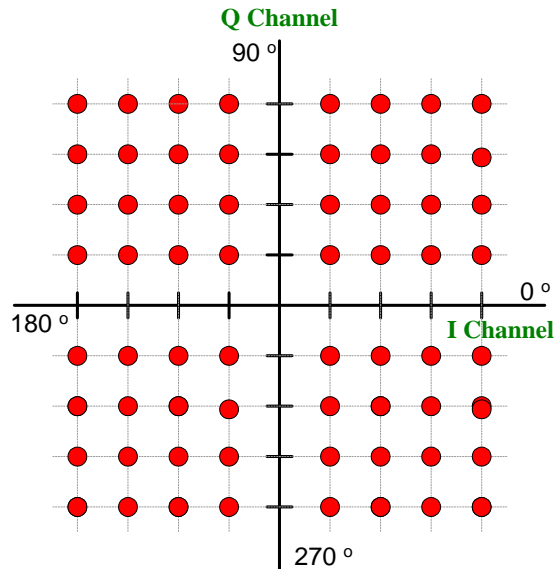
## Tech Forum

Jim Stewart

Welcome back to “The Tech’s Forum”. This section of the SCTE newsletter features articles and tips for technical personnel of the CATV Industry. Ideas and articles for “The Tech’s Forum” are always welcome. If you would like to contribute please contact me at [jim\\_stewart2@cable.comcast.com](mailto:jim_stewart2@cable.comcast.com).

In the last several editions of “The Tech’s Forum”, the testing and analysis of digital signals using a constellation display has been discussed. In this edition we will discuss a few other methods used to test and analyze digital signals.

As previously explained, Quadrature Amplitude Modulation uses combinations of phase shifts and amplitude shifts to represent information and the constellation display is a graphical representation of those amplitude and phase combinations as shown in Figure 1.



**Figure 1: 64 QAM Constellation Display**

These amplitude and phase combinations are referred to as vector points on a constellation display. Deviation from the ideal vector point in a constellation is expressed as an error vector. If we were to take the root mean square magnitude of the ideal vector points divided by the root mean square magnitude of the error vectors the result would be the Modulation Error Ratio (MER). In simpler terms, MER measures the ratio of average power in an ideal QAM signal to error power. MER is expressed in dB and can be thought of as the baseband measurement equivalent to Carrier to Noise. When using the MER function, a larger number is better.

If the amplitude and phase shift is so inaccurate that the vector point is misrepresented, the result is known as a defective bit or bit error. The Bit Error Ratio is determined by dividing the number of bit errors by the number of bits transmitted. The reciprocal of the Bit Error Ratio is known as the Bit Error Rate and can be used to determine the quality of a digital signal. BER is usually expressed as a power of ten. An example of this would be a BER of 10 to the negative ninth power would indicate one error in one billion. A lower BER means better performance when compared to a higher BER.

In the next edition of the “Tech’s Forum” we will continue to discuss other methods of determining the quality of digital signals.