

# The Spectrum

## Newsletter of the Rocky Mountain Chapter

September 2005

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Rocky Mountain Chapter  
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<http://chapters.scte.org/rockymtn>

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# **About the Symposium**

**Pat Wike**

Years ago the SCTE was an after thought in Colorado when it came to shows. I remember in 1991 the first time I attended in Breckenridge and the event was the CCTA annual conference. The SCTE was supported by the CCTA and we had some technical sessions and the cable games but this was truly a management meeting not a technical event. The SCTE continued this way until the CCTA stopped having their show.

## **A symposium is born**

In 1996 the local board decided that it was time for a truly technical event to be held. Barry Smith took on the task of planning the symposium and created the framework that became the base of all events since. That first show was held in Fort Collins at the Holiday Inn and attendance was strong with TCI having a large presence in the area. The TCI Division office scheduled technical meetings the day before the event so attendance was assured.

The event now began a period of growth. In 1997 the location was Colorado Springs and the symposium was gaining momentum. The next year the board moved the event to Snowmass and it really took off. Everyone loved the resort atmosphere and the operators were able to get the Front Range players into the mountains. The location also worked well with the technicians in the small systems as they had a short drive giving them the chance to be part of a first class event.

## **Dot bomb and Vendors to the rescue**

2002 was a dark time for the show and almost the death of the chapter. With a signed contract at the event location and a guarantee of room reservations the board entered 2002 thinking we were set. The crash came quick and swift. TCI had become AT&T Broadband and early that spring their travel to the show was cancelled. The decision by the board was to cancel hoping another event would take our spot and alleviate the financial obligation, as time wore on it became apparent that we were on the hook for the entire cost. After conferring with many vendors we had no choice but to have the show with limited attendance. It was this support by the vendor community that kept the chapter from potentially going bankrupt.

## **Back to Basics**

With the bad year in 2002 a complete review was conducted by the board to decide if the event should continue and how to properly plan limiting the exposure of the Chapter. The Inverness Hotel was selected due to its location on the Southern side of the Metro making it easy for Adelphia to drive in from Colorado Springs. This site continues to be first class and each year we adjust slightly to meet the needs of our membership. Our symposium in Denver is rated highly in the vendor community as a show floor that has from VP's to technicians looking at the different products on display.

In conclusion it is important to note that everything the Rocky Mountain Chapter does throughout the year is made possible by the support of the vendor community and the attendance of the operators at our annual symposium. New for 2005 we have added a lunch on Tuesday sponsored by Fujitsu for the golfers. We will still have the reception and Cable games sponsored by Harmonic on Tuesday. Wednesday we will have another great lunch technical session sponsored by Motorola and of course a great show floor all day.

Hope to see all of you there  
Pat Wike  
Treasurer Rocky Mountain Chapter

# 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 edition of “The Tech’s Forum”, the calculation and measurement of forward signals was discussed in addition to the importance of keeping cable plants extremely clean and tight with the migration to “256 QAM” technology. Many cable companies have also either migrated or will soon migrate from “QPSK” technology to “16 QAM” technology for use in the return path. It is estimated that 90% or more of reverse problems originate in the drop system which is very similar to the forward path. As is the case with “256 QAM”, cable plants need to be extremely clean and tight for “16 QAM” to work correctly.

Just like with the forward path, the technique of measuring signal levels and comparing them with calculated levels can be used to troubleshoot the return path. If there is a substantial difference between actual signal levels and calculated levels the technician must figure out why.

The same technique used to calculate signals for the forward path is used to calculate return signals.

That process begins by dividing the footage of the affected cable span at a selected frequency by 100.

The next step is to multiply the footage in 100 foot increments by the cable loss ratio for that type of cable (footage x cable loss per 100 foot = total cable loss). The technician should add the total cable loss to the total loss of all the passives of the effected span (total cable loss + total passive loss = total loss).

Once the total loss is known, it should be subtracted from the signal level at the injection point of the affected span to determine the calculated level (measured level – total loss = calculated level).

After the technician has calculated the level of an effected span, the calculation can be compared to the actual or measured signal level at the selected frequency. This is where a major difference between forward and return comes into play. Because signals in the return spectrum are usually transmitted intermittently, a continuous signal must be generated, inserted into the return spectrum and measured. Many signal level meters have this function built into them. A pocket oscillator (signal generator) can also be used.

Here is an example of how the calculation process works for the reverse spectrum.

Estimated footage of drop and outlet = 250 feet

The cable loss ratio is 1.18 dB per 100 feet at 30 MHz

There is one passive in the effected span, a two way splitter (3.5 dB)

The signal level at the injection point of the span (outlet location) is 40 dBmV

$$250 \div 100 = 2.5$$

$$2.5 \times 1.18 = 2.95 \text{ dB}$$

$$2.95 \text{ dB} + 3.5 \text{ dB} = 6.45 \text{ dB}$$

$$40 \text{ dBmV} - 6.45 \text{ dB} = 33.55 \text{ dBmV}$$

Cable loss ratios for different frequencies and types of cable can be obtained from the cable manufacturer and are also available in many reference manuals.

In addition to testing the drop/outlet for excessive signal loss, it is also recommended that the Technician test for ingress and noise in the return spectrum. That will be covered in a future edition of “The Tech’s Forum”. In the next edition we will discuss the relationship between attenuation and frequency and show how a Technician can calculate the loss ratio for a frequency that is not listed in a reference manual.

# ANNOUNCING THE Tenth Annual Rocky Mountain SCTE CABLE-TEC SYMPOSIUM



Includes:  
**VENDOR EXHIBITS** and  
**CABLE-TEC GAMES** with Prizes and Give-a-Ways!  
(Winner gets a fantastic prize)  
*Golf Tournament requires paid registration.*

## WHERE?

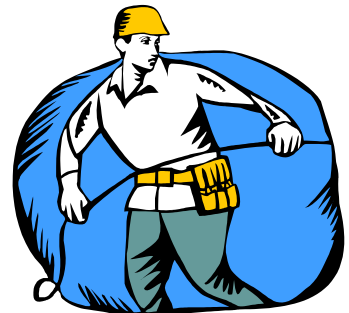
Englewood, CO – Inverness Hotel and Golf Club  
200 Inverness Drive South, Englewood CO 80112  
Tuesday & Wednesday, September 20th & 21st, 2005

*\*\* No testing available at Symposium this year. We're offering testing 4 times per year at locations with appropriate facilities for certification. Regular testing sessions available throughout the year check the website.*

### QUESTIONS?

Pat Wike – Comcast  
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RMC Symposium Director  
(303) 603-5052

<http://chapters.SCTE.org/rockymtn/>

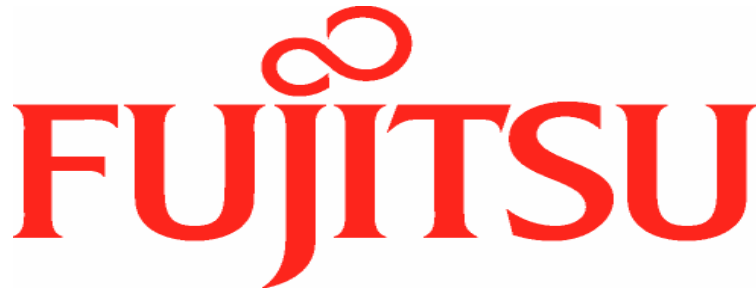


**SCTE ROCKY MOUNTAIN CHAPTER  
Tenth ANNUAL CABLE-TEC SYMPOSIUM  
Englewood, CO – Inverness Hotel**

**AGENDA Day 1**

**Tuesday, September 20<sup>st</sup>**

- 8:00 am**            **Golf Tournament Check in**
- 8:30 am**            **Shotgun Start**
- 1:30 pm**            **Golf Lunch and Awards Hosted by Fujitsu (Golfers only)**



- 3:00-5:30 pm**    **Show floor setup**
- 5:30 pm**            **Welcome Reception Hosted by Harmonic**
- 6:00 pm**            ***Cable Tec Games begin***



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Englewood, CO – Inverness Hotel

**AGENDA Day 2**

Wednesday, September 21<sup>nd</sup>

8:00 am	Continental Breakfast
8:00 am – 11:30 am	Exhibit Floor Open
11:30 am – 1:00 pm	Lunch hosted by Motorola
11:45 am – 1:30 pm	<b>Seamless Mobile Communications, Fixed – Mobile Convergence (FMC)</b>

**Speaker: David Gaetani**

Director of Business Development within Motorola Inc. Connected Home Solutions. David is responsible for marketing and business development within the Voice & Data Solutions Group. David joined Motorola in 1987 and has worked in various Marketing, Product Management, Program Management, Quality Solutions and Pre-Sales Support positions. David's current responsibilities include business development for the Fixed-Mobile Convergence (FMC) application of Seamless Mobility focusing on Cable MSOs and Alternative Service Providers.

Previously, David was a leader in the technical marketing and business development efforts for Motorola's VoIP solution for Cable MSOs, including the BSR 64000 CMTS. David has worked with many of the North American MSOs to get the BSR 64000 qualified for deployment.

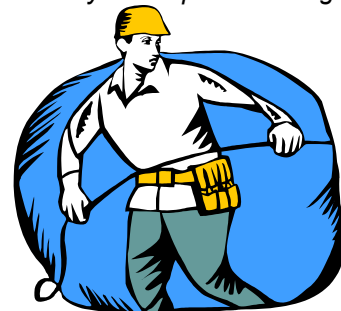


**Seminar Overview**

*Cable operators are now offering landline voice service in addition to video and high-speed data. However, cellular service is quickly becoming another important service for cable operators to offer to ensure that they stay competitive.*

*This presentation provides an overview of seamless mobile communications and its potential use by cable operators. It includes a description of Fixed - Mobile Convergence (FMC) and network approaches for FMC. The presentation includes a discussion of other seamless mobility concepts revolving around the connected home.*

2:00 pm – 5:00 pm	Exhibit Floor Open
5:00 pm	Show ends



**SCTE ROCKY MOUNTAIN CHAPTER**  
**Tenth ANNUAL CABLE-TEC SYMPOSIUM**  
**Englewood, CO – Inverness Hotel**

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**REGISTRATION FORM**

*Complete a separate form for each registrant. Photocopies are accepted. Please type or print clearly.  
Registration includes lunch, technical session, exhibits, and Cable Tec Games festivities*

**NAME** \_\_\_\_\_ **PHONE** \_\_\_\_\_

**TITLE** \_\_\_\_\_ **FAX** \_\_\_\_\_

**COMPANY** \_\_\_\_\_ **SCTE Nat'l #** \_\_\_\_\_

**ADDRESS**  
\_\_\_\_\_

**E-MAIL** \_\_\_\_\_

Will you be attending the seminar lunch \_\_\_\_\_ Yes \_\_\_\_\_ No

I would like to compete in the Cable Tec Games \_\_\_\_\_ Yes \_\_\_\_\_ No

**Additional Attendees**

**NAME** \_\_\_\_\_ seminar lunch \_\_\_\_\_ Yes \_\_\_\_\_ No **Cable Tec Games** \_\_\_\_\_ Yes \_\_\_\_\_ No

**NAME** \_\_\_\_\_ seminar lunch \_\_\_\_\_ Yes \_\_\_\_\_ No **Cable Tec Games** \_\_\_\_\_ Yes \_\_\_\_\_ No

**NAME** \_\_\_\_\_ seminar lunch \_\_\_\_\_ Yes \_\_\_\_\_ No **Cable Tec Games** \_\_\_\_\_ Yes \_\_\_\_\_ No

**NAME** \_\_\_\_\_ seminar lunch \_\_\_\_\_ Yes \_\_\_\_\_ No **Cable Tec Games** \_\_\_\_\_ Yes \_\_\_\_\_ No

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**NAME** \_\_\_\_\_ seminar lunch \_\_\_\_\_ Yes \_\_\_\_\_ No **Cable Tec Games** \_\_\_\_\_ Yes \_\_\_\_\_ No

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**COST:            FREE**

Registration required

*E-Mail registration form to: Pat Wike at Pat\_wike@cable.comcast.com*

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**HOTEL INFORMATION**

*Contact hotel directly for bookings:*

Inverness Hotel & Golf Club  
200 Inverness Drive South  
Englewood, CO 80112  
(303) 397-7000

[www.invernesshotel.com](http://www.invernesshotel.com)

10th Annual  
Rocky Mountain SCTE  
CABLE-TEC SYMPOSIUM & GOLF OUTING

# GOLF ONLY REGISTRATION



*Golf only \$100 per player*

NAME \_\_\_\_\_

PHONE \_\_\_\_\_

TITLE \_\_\_\_\_

FAX \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

E-MAIL \_\_\_\_\_

Total: \$ \_\_\_\_\_

*Golf will be played with shotgun start on Tuesday September 20th, 8:30 am  
at the Inverness Golf Course.*

Include payment with the attached registration form to secure your spot.