



# The Society of Broadcast Engineers

**Fox Valley Wisconsin SBE Chapter 80**  
**PO Box 1519**  
**Appleton, WI 54912-1519**

**November 2010**

The next meeting of SBE Chapter 80 will be at the Out O' Town Club in Kaukauna, at noon on Tuesday, November 16. Our program will be "Audio over IP for Radio and ENG." by Dan Loeffler from MAYEH Communications

Greetings!

Our November meeting of Chapter 80 will be on Tuesday, November 16, at the Out O' Town Club in Kaukauna, with a luncheon at noon. Our guest speaker will be Dan Loeffler from MAYEH Communications speaking about "Audio over IP for Radio and ENG."



Dan Loeffler has been involved in the digital video and audio compression market since 1993. Since 2008 he has been involved in Business development and marketing for MAYAH Communications within the North American Market. The focus of the meeting is primarily targeted on the emerging audio over IP issues for audio codecs. Unlike ISDN, which was very simple and reliable, IP however, raises new issues to provide the quality of service needed for reliable and quality audio over IP transmission for radio and ENG. (ISDN is fading from the market gradually due to costs and availability). Factors that influence effective Audio over IP that will be discussed as follows:

CODEC and compression algorithms; Latency, Quality and bit rates; N/ACIP and SIP protocol for connectivity to all codecs; Audio-via-IP Experts Group; Session Initiation Protocol (SIP), RTP and Voice-over-IP; ADSL vs. SDSL QOS (Quality of Service) for internet transmission; Remote audio over IP: 3G, WLAN, BGAN; MAYAH's approach to ISDN and IP codecs.

Our October meeting of Chapter 80 was at the SBE/WBA Broadcasters Clinic at the Madison Marriott West, in Madison, on Tuesday evening, October 26, at 7:30 p.m., with the Nuts & Bolts Session, "War Stories and Your Stories." It was a fun event, and included beer & brats for the attendees, sponsored by Rich Wood. The SBE Annual Membership Meeting was held on Wednesday, October 27, followed by the Awards banquet. Last year's Engineering Clinic received the award for best regional conference. Leonard Charles reminded the gathering that the event is put on by all 4 of the Wisconsin Chapters.

This year's Clinic broke records as the largest attendance so far, and the largest number of exhibitors. The sessions were all very good, and the high winds only caused one presenter to cancel. We look forward to next June's one-day Engineering clinic, and next October in Middleton.

Upcoming events:

Tuesday, December 21, 2010 – SBE Chapter 80 Holiday party

Tuesday, January 18, 2011 – SBE Chapter 80 – TBA

Tuesday, February 15, 2011 – SBE Chapter 80 -- TBA

I look forward to seeing you Tuesday, November 16 at the Out O' Town Club in Kaukauna. Bring a friend or two and join us!


Regards, Tim Laes



**Mark Bartolotta**  
Regional Sales Manager

**Heartland Video Systems, Inc.**  
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**SBE Files to Extend 180 Day Clock** The Society of Broadcast Engineers participated in a coalition of major broadcast industry groups that filed comments on October 21 with the FCC to EB Docket 04-296, petitioning for an extension to the 180-day clock to become compliant with the recently announced changes to the EAS. The filing requested a six month extension to the 180 day clock.

The SBE, NAB, MSTV, PBS, NPR, 46 state broadcaster associations and other major broadcast organizations were all co-signers to the filing. The group stated that the extension is necessary so that:

- a) equipment certification related to CAP can be accomplished
  - b) allow time for a rule-making to modify FCC Part 11 rules that incorporate the use of CAP
- Without an extension, the 180 day clock is set to expire March 29, 2011. At that time, stations would need to have purchased and installed CAP-compliant equipment, capable of receiving CAP messages. A copy of [http://sbe.org/gov\\_fcc.php](http://sbe.org/gov_fcc.php) the is available on the SBE website. SBE also has a [http://sbe.org/gov\\_eas.php](http://sbe.org/gov_eas.php) on the SBE website. (sbe.org)

**FREEZE ON THE FILING OF APPLICATIONS FOR NEW DIGITAL LOW POWER TELEVISION AND TV TRANSLATOR STATIONS** Effective immediately, the Media Bureau announces a freeze on the filing of applications for new digital low power television (LPTV) and TV translator stations and major changes to existing analog and digital LPTV and TV translator facilities in so-called "rural areas." On August 25, 2009, the Media Bureau began accepting applications on a first-come, first-served basis for new digital LPTV and TV translator stations and for major changes to existing analog and digital LPTV and TV translator facilities in

so-called "rural areas." Applications have been accepted since that date. Subsequent to the Media Bureau beginning to accept LPTV and TV translator applications in rural areas, the National Broadband Plan was released. The Broadband Plan announced an effort to identify 500 megahertz of spectrum that can be reallocated from existing uses to enable the expansion of new mobile broadband service. To aid in this endeavor, the Broadband Plan recommended, among other things, that the Commission initiate a rulemaking proceeding to reallocate 120 MHz from the broadcast television bands, and also to consider methodologies for repacking full-power television channels to increase the efficiency of channel use. (fcc.gov)

I'm sad to report that one of Oregon's more dynamic SBE members, **Larry Bloomfield KA6UTC of Florence passed away** yesterday in Eugene. Sunday Night, Larry had a massive heart attack from which he never recovered. He was 72. He is survived by his wife Carollee, and his two sons Larry and Tom. A former radio and TV engineer, and educator, Larry put on the annual "Taste of NAB Roadshow" which toured the whole country from SBE chapter to SBE chapter. **including Chapter 80 this summer.** He also taught amateur radio classes. You can see his web site at [tech-notes.tv](http://tech-notes.tv). Thanks to Clay Freinwald, Ev Helm, and Rem Roberti for some of the words and information above. Obit with picture at [Bloomfield.pdf](http://Bloomfield.pdf)

Kent Randles  
Secretary  
SBE Chapter 124  
Portland/Salem/Vancouver



**Rick Thompson**  
Central Regional Manager

1770 Birchwood Avenue  
Des Plaines, IL 60018-3006  
Office: 847-795-9555 ext.21  
Mobile: 847-942-7990  
Fax: 847-795-8770  
E-mail: rick.thompson@gepco.com  
www.gepco.com



**B. Benjamin Evans, P.E.**  
Partner

ben@evansassoc.com  
www.evansassoc.com

210 South Main Street, Thiensville, WI 53092-1905  
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**CHAPTER 80 ELECTED AND APPOINTED OFFICERS 2010-2011**

Chairman	Tim Laes	WGEE WIXX WNCY WROE	920-435-3771	tlaes@new.rr.com
Vice Chairman	Steve Konopka	WPNE TV/FM	920-336-3541	skonopka@ecb.org
Treasurer	Steve Brown	WHBY WAPL WKSZ WZOR	920-733-6639	sbrown@wcinet.com
Secretary	Keith Kintner	UWO	920-424-7357	kintner@uwosh.edu
Program Chairman	John Pfankuch	Heartland Video Systems	920-893-0204	jpgankuch@hvs-inc.com
Program Chairman	Bill Hubbard	UW Green Bay	920-465-2510	hubbardw@uwgb.edu
Membership Chairman	Al Kilgore	WRVM	920-842-2839	akilgore@wrvm.org
Sustaining Memberships	Greg Tadyshak	WBAY-TV	920-438-3258	gtadyshak@wbay.com
Frequency Coord. < 1 GHz	Tim Laes	WGEE WIXX WNCY WROE	920-435-3771	tlaes@new.rr.com
Frequency Coord. > 1 GHz	Joe Kamenick	KAMENTECH, LLC	715-359-7088	jkamenick@peoplepc.com
Newsletter Editor	Bill Tessman	Heartland Video Systems	920-893-4204	btessman@hvs-inc.com
Newsletter Editor	Dave Driessen	WGBA WACY	920-494-2626	ddriessen@nbc26.com
Certification Chairman	Jim Sams	UWGB	920-465-2572	samsj@uwgb.edu
Chapter 80 Webmaster	Jim Jensen	Retired	920-850-2633	jim@bjensen.net
EAS Coordinator	Steve Konopka	WPNE TV/FM	920-336-3541	skonopka@ecb.org
Past Chairman	Keith Kintner	UWO	920-424-7357	kintner@uwosh.edu
Board of Dirs/SBE Liaison	Keith Kintner	UWO	920-424-7357	kintner@uwosh.edu

**SBE will focus on EAS education for its members**

The SBE has reconfirmed its role with the Emergency Alert System will be to educate and inform its members, and serve as a technical resource to the broadcast industry. The national Board, which met last week in Madison, Wisconsin during the SBE National Meeting, unanimously passed a motion to create the, "EAS Education Committee." SBE President, Vinny Lopez, CEV CBNT, appointed Ralph Beaver, CBT, to chair this



committee. Beaver's involvement with EAS began with his work in broadcast emergency alerting in the state of Florida in 1973 and includes his recent leadership of the SBE's former EAS Committee.

"EAS is about to undergo significant changes with the adoption of the Common Alerting Protocol (CAP) and SBE members seek information about how to implement these changes and remain compliant with FCC rules," said President Lopez. "The SBE is in a unique position to gather and deliver this information through the work of this new committee. The SBE continues to serve as technical resource to the broadcast industry."

The SBE discussion e-mail list, called the EAS Exchange, continues to be an active resource of EAS information for SBE members and non-members alike. (SBE News)

The SBE Chapter 80 Newsletter is published monthly. Members are welcome to contribute articles or ideas. Please have your submissions in by the 4<sup>th</sup> of the month to Dave Driessen or Bill Tessman

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Fax: 920.617.7021  
1046 Gray Ct.  
Green Bay, WI 54303

www.stpaultower.com





# WISCONSIN 2010 EAS SCHEDULE

**DAY/DATE    TIME    COMMENT.....**

W 3 Nov 0850    Routine Monthly Test initiated by NOAA  
 R 11 Nov 1059  
 M 15 Nov 1259  
 T 23 Nov 1459

W 1 Dec 2350    Routine Monthly Test initiated by WEM  
 R 9 Dec 1459  
 M 13 Dec 1259  
 T 21 Dec 1059  
 W 29 Dec 1459

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-----
Alert Received
at 11/03/10
14:26:54 on
monitor #2
This alert is
>24 hours
ahead, ignored
A Broadcast
station or
cable system
has issued a
Required Weekly
Test for
Athens, OH
beginning at
2:57 PM Wed Aug
17 and ending
at 3:12 PM Wed
Aug 17 (EAS9.4)
ZCZC
-EAS
-RWT
-039009+0015
-2291957-EAS9.4
  
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Alert Received
at 11/03/10
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ZCZC
-EAS
-RWT
-039009+0015
-2291957-EAS9.4
  
```

with the ISCII code UPSU3132H. Midway through the spot you can clearly hear EAS alert tones repeated 6 times. The tones are not only real EAS tones, they seem to be a replay of a Pennsylvania statewide Required Monthly Test. This is the decoded data from the commercial:  
 ZCZC-CIV-RMT-042000+0400-0181405- 0000000-b\_\_\_\_@  
 ZCZC-CIT\_RMT\_4"000\*0000-0181405- 00 0 00-\_\_9  
 ZCZC-CIV-RMT-04\_000+0400-0181405\_ 0000000-\_\_  
 ZCZC-CIV)RMT-042000+0400-0181405- 0000000-\_\_c\_\_  
 ZCZC-CIV-RMT-042000+0400-0181405- 0000000-&\_\_Q\_c=w\_  
 ZCZC-CIV-RMT-042000+0400-0181405- 0000 00-\_\_H\_

This is what an RMT for the state of PA should look like.  
 ZCZC-CIV-RMT-042000+0400-0181405- 0000000-\_\_\_\_\_

There are no EOM's. If this was decoded and forwarded automatically a station could be left open for 2 minutes with the contributing station's audio.

A video excerpt of the commercial :  
[SKYLINE30.wmv](#) We've also extracted and EQ'd the audio of the EAS tones.  
[SKYLINE30 nwrsame.mp3](#)  
 In an odd coincidence, the tones in this commercial contain the exact RMT message that was in this 2007 YouTube video  
<http://www.youtube.com/watch?v=HgAkxVxo9MU>

According to Tom, WNBC pulled the spot last night and was reaching out to the network.

It is illegal to transmit false EAS tones (SBE.ORG)

Stations in Wisconsin are reporting that **Fox Sports Radio audio carried two RWTs 11/03 at 14:26 and 14:27 CT.? The RWT was for Athens, OH** (FIPS 039009), was for August 17 at 2:57PM, and STN-ID was "EAS9.4".

If stations in your state are reporting receipt of such a test, that is the source.

Gary Timm, Broadcast Chair  
 Wisconsin EAS Committee

**EAS tones found in TV commercial**  
 Tom Ray of SBE Chapter 15, NYC identified another commercial that uses EAS tones. This time it's a TV commercial for the movie Skyline

## NRSC Digital power Calculations

The NRSC now offers [NRSC-G202 -FM IBOC Total Digital Sideband Power for Various Configurations](#) a guideline for configuring digital transmitters. A companion calculator [http://www.nrscstandards.org/nrsc\\_iboc\\_power.asp](http://www.nrscstandards.org/nrsc_iboc_power.asp) is also available at the nrsc site.

# NRSC FM IBOC Total Power Calculator

### STEP 1 - select service mode

- MP 1
- MP 2
- MP 3
- MP 11

### STEP 2 - select individual sideband operating points

#### Nominal Digital/Analog Power

Upper Sideband Power

Lower Sideband Power

\*Note: the numbers above in parentheses are the corresponding total sideband power in the symmetrical case

Calculate

**Total Digital Sideband Power = -11.0 dBc or 7.94 % of Analog**

## Solar Shield--Protecting the North American Power Grid

Every hundred years or so, a solar storm comes along so potent it fills the skies of Earth with blood-red auroras, makes compass needles point in the wrong direction, and sends electric currents coursing through the planet's topsoil. The most famous such storm, the Carrington Event of 1859, actually shocked telegraph operators and set some of their offices on fire. A 2008 report by the National Academy of Sciences warns that if such a storm occurred today, we could experience widespread power blackouts with permanent damage to many key transformers.

What's a utility operator to do?



*The sun rises behind high-voltage power lines in North America.*

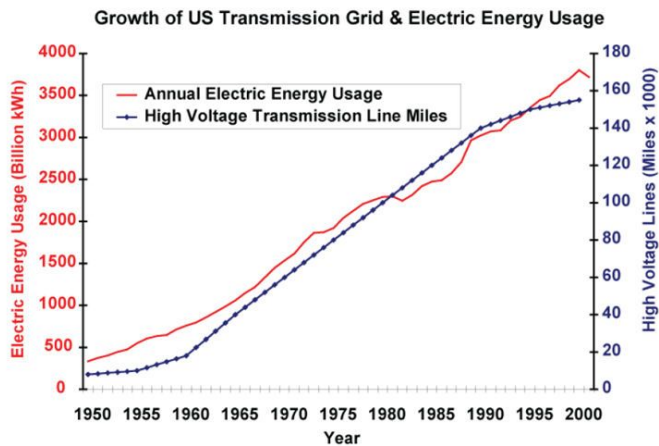
A new NASA project called "Solar Shield" could help keep the lights on.

"Solar Shield is a new and experimental forecasting system for the North American power grid," explains project leader Antti Pulkkinen, a Catholic University of America research associate working at NASA's Goddard Space Flight Center. "We believe we can zero in on specific transformers and predict which of them are going to be hit hardest by a space weather event."

The troublemaker for power grids is the "GIC" – short for geomagnetically induced current. When a coronal mass ejection (a billion-ton solar storm cloud) hits Earth's magnetic field, the impact causes the field to shake and quiver. These magnetic vibrations induce currents almost everywhere, from Earth's upper atmosphere to the ground beneath our feet. Powerful GICs can overload circuits, trip breakers, and in extreme cases melt the windings of heavy-duty transformers.

This actually happened in Quebec on March 13, 1989, when a geomagnetic storm much less severe than the Carrington Event knocked out power across the entire province for more than nine hours. The storm damaged transformers in Quebec, New Jersey, and Great Britain, and caused more than 200 power anomalies across the USA from the eastern seaboard to the Pacific Northwest. A similar series of "Halloween storms" in October 2003 triggered a regional blackout in southern Sweden and may have damaged transformers in South Africa.

While many utilities have taken steps to fortify their grids, the overall situation has only gotten worse. A 2009 report by the North American Electric Reliability Corporation (NERC) and the US Department of Energy concluded that modern power systems have a "significantly enhance[d] vulnerability and exposure to effects of a severe geomagnetic storm." The underlying reason may be seen at a glance in this plot:



[http://science.nasa.gov/science-news/science-at-nasa/2010/26oct\\_solarshield/](http://science.nasa.gov/science-news/science-at-nasa/2010/26oct_solarshield/)  
(nasa.gov)

### Galaxy 15 continues to menace communications satellites

Galaxy 15 completed the Anik F2 satellite fly-by on 24 October. Intelsat continues to offer its assistance, sharing technical and operational information to neighboring satellite operators, in an effort to help avoid any interference from upcoming fly-bys of Galaxy 15. On 12 November, Galaxy 15 is expected to fly-by Anik F1R.

### Galaxy 15 Satellite - Frequently Asked Questions

#### Why has Intelsat revised the off-point timeline for Galaxy 15?

- The original analytical models constructed by the satellite manufacturer Orbital Sciences Corp. to calculate the off-point date assumed that the lack of Radio Frequency (RF) drive energy from the payload would have minimal impact on the spacecraft's momentum buildup. This model indicated an off-point date of late August.
- Subsequent analysis of the historical telemetry data, revised to reflect the empty Galaxy 15 payload, indicated that the lack of RF drive energy resulted in much slower momentum buildup than originally simulated. As a result, we have extended the estimated off-point date.

### What technical factors influence the rate of the momentum wheels saturation?

- Many factors affect the rate of speed of the momentum wheels, one being the strength of the RF signals reaching the satellite.
- When all RF traffic was transferred from Galaxy 15, the absence of traffic significantly slowed down the build-up of momentum on the spacecraft.
- Because Galaxy 15 does not send telemetry data, it is difficult to calculate, with certainty, the magnitude of the momentum build-up on Galaxy 15.
- Once the momentum wheels saturate and the satellite off points, the spacecraft control system will gradually power down as the batteries will not be able to recharge and support the spacecraft load, which, in turn will lead the spacecraft to lose power and shut down.

### Could this satellite drift to Earth or collide with another satellite?

- It is highly unlikely Galaxy 15 will collide with another satellite – and the possibility is even more remote that it would come crashing to Earth.
- Satellites over North America are spaced two degrees apart while orbiting the Earth. Spacing of two degrees means they are 1472 km or 914.6 miles apart.
- A typical station-keeping box size for an operational satellite in the geosynchronous orbit, where Galaxy 15 is located, is +/- 37km or 23 miles.
- Because we can predict Galaxy 15's path, other satellites can be maneuvered out of the way, if needed, as Galaxy 15 approaches. However, it is unlikely that such maneuvers will be necessary.
- We continue to work very closely with other operators to protect the integrity of the services that we each provide to our customers.

<http://www.intelsat.com/resources/galaxy-15/FAQs.asp>

(intelsat.com)

## From Broadcasters' Desktop Resource

SBE CHAPTER MEMBERS! Here is an idea: invite your friends to subscribe to this newsletter - and have them list your Chapter as the referrer. That makes your Chapter eligible for one of our \$100 cash drawings.

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*A young engineer was leaving the office at 3.45 p.m. when he found the Acting CEO standing in front of a shredder with a piece of paper in his hand.*

*"Listen," said the Acting CEO, "this is a very sensitive and important document, and my secretary is not here. Can you make this thing work?"*

*"Certainly," said the young engineer. He turned the machine on, inserted the paper, and pressed the start button.*

*"Excellent!" said the Acting CEO as his paper disappeared inside the machine, "I just need one copy." (Clay;s Corner at sbe16.com)*