

Chapter 38 of the Society of Broadcast Engineers

SBE

EL PASO - LAS CRUCES - JUÁREZ

**JULY
2014**

PO Box 3561 El Paso, TX 79923-3561 www.kint98.com

NEWS

ROHDE TRANSMITTERS EQUAL EASIER INSTALLATIONS

by Matt Sanderford, Jr.
President
Marsand Inc.

ALVARADO, TEXAS—As an engineering services and consulting company, Marsand has been dedicated to meeting the technical needs of broadcasters for more than 30 years. Our extensive experience in the industry includes the planning, installation and commissioning of television transmitters. Our deep understanding of transmitter technologies and regular conversations with broadcasters give us a unique perspective on what stations need when they're considering a new transmitter. While the necessary capital investment remains a factor in the decision, operational costs—maintenance requirements, and energy—are increasingly important considerations and for full-power operations, can be deciding factors in system selection.

One of the newer transmitters addressing the need for reduced operating expenses is the Rohde & Schwarz THU9.

We've been involved in a number of THU9 installations and know first-hand that the system is well-engineered and suitable

for full-power broadcasters looking to take advantage of all that solid-state technology has to offer, including increased reliability

and simplified and reduced maintenance, while matching the performance and efficiency of an IOT-based transmitter. One of our installations was for a network- owned station in Las Vegas. This particular system was in a two-cabinet configuration and used Doherty technology amplification for high-efficiency performance. This transmitter is easily configurable to a customer's requirements, as it supports up to 12 amplifier modules per cabinet, and when completely populated, produces 13.5 kW ATSC per cabinet in high-efficiency mode.

AN EASY INSTALLATION

This THU9 was being installed to replace an IOT transmitter and we were fortunate that the channel filter from the earlier installation still in place and serviceable, so installing the new RTHU9 was really a snap. After verifying that the filter's performance was still within factory specifications we took measurements on the antenna and transmission line system. Then

it was time to connect up the transmission and power supply and supply input signals. Once this was done we were ready

to power up the new transmitter. We double checked everything and applied power. As expected, the new unit powered up as smooth as silk and we were making RF. To verify the THU9's performance, we connected a Rohde & Schwarz ETL TV analyzer and within a very short time we were able to verify modulation error ratio of 42 dB. The equalization in the ETL was set to off for the duration of our performance measurements. Other than making some precorrection adjustments via the transmitter's LCD touch panel interface, no other adjustments were required during the setup and checkout.

LESS MONEY FOR THE POWER COMPANY too

As a final step, we calculated the unit's efficiency. Measurements were taken across each circuit, which included the cooling system associated with each cabinet. Based on our experience with the R&S THU9 transmitter line, we were not surprised when total system efficiency calculated out to be 42 percent. We've found the THU9 to be a solidly engineered system which provides maximum signal quality and high efficiency. It certainly goes a long way to eliminating maintenance hassles associated with tube units and has the advantage of substantial energy cost reductions provided by Doherty-enabled amplifiers.

Matt Sanderford, Jr., P.E., is the president of Marsand, Inc. He may be contacted at tvcowboy@marsand.com. For additional information, contact Rohde & Schwarz at 888-837-8772 or visit www.rohde-schwarz.us.

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President

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Fax: 505.286.9565
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KEVIN LOVELL
General Manager

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4140 Rio Bravo
El Paso, Texas 79902
Tel. (915) 496-7777
Fax. (915) 532-0070

Website
kvia.com

e-mail
kvia@kvia.com

MARSAND, INC.
Consulting Engineer

AFCCE
SBE-PBE

Matthew A. Sanderford, Jr., P.E.
President

tvcowboy@marsand.com
PO Box 485 • 6100 IH-35W
Alvarado, TX 76009

www.marsand.com
Office: 817-783-5566
FAX: 817-783-5577

Lightning Bolts, Defibril- lators, And Protection Circuitry Save Lives

Jun 23, 2014 **Bill Laumeister** | Electronic De-
sign

Defibrillators deliver a lot of power. But their designs must provide these shocks safely to the patient without damaging other lifesav-
ing equipment that may be connected.

Victims of sudden cardiac arrest (SCA) can be saved with a small, prompt lightning bolt (i.e., a defibril-
lator shock) to the chest. **The shock (3 to 5 kV and 50 A) stops the heart from unproductive fluttering (fibrillating), which fails to pump blood to the brain and other organs. It also allows the heart to restart or-
derly pumping of blood.**

Hospitals often monitor the heart using an electrocardiograph (ECG) with a separate defibrillator. The ECG leads (i.e., electrodes) are on the patient when the defibrillator delivers the shock. With no warning, the ECG must withstand this light-
ning bolt and continue working properly.

According to the American Heart Association (AHA), nearly 383,000 out-of-hospital sudden cardiac ar-
rests occur annually, and 88% of cardiac arrests occur at home. Sadly, less than 8% of people who suffer cardiac arrest outside the hospital survive.¹ In medical terms, a heart attack and an SCA are very different. An SCA has no warning signs. Peo-
ple just collapse. Multiple, generally understood warning signs precede a heart attack.

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SBE CHAPTER 38 OFFICERS

CHAIRMAN Antonio Castro
SBE member # 11456.
KFOX/COX retired Chief Eng.
800 Arredondo dr.
El Paso. TX 79912
915-584-1220 home
915-525-8507 cell
farahjac@sbcglobal.net

VICE CHAIRMAN Carlos Sosa
SBE member # 26533
801 N Oregon St.
El Paso, TX 79902
915-496-4444 Office
csosa@ktsm.com

Treasurer Walter Hanthorn
SBE member # 18307
KSCE TV
4461 Gen. Maloney
El Paso, TX. 79924
915-269-7583 home
915-532-8588 office

Certification Committee: David Halperin.

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Antonio Castro
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EAS Chairman: David Halpering

Executive Committee:
Antonio Castro
Carlos Sosa
Walter Hanthorn

Ho Tah Say, LLC
RF Engineer
WARREN T REEVES

4003 Santa Anita Drive
El Paso, TX 79902

915-351-0591
mobile 915-309-3377
wreeves707@gmail.com

 **ENTRAVISION COMMUNICATIONS CORPORATION**
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EL PASO, TX CHAPTER 38 MEETING MINUTE
DATE 06/10/2014 LOCATION: COMO'S ITALIAN REST.

MEETING CALLED TO ORDER: 12:31 PM, BY ANTONIO CASTRO,
THERE WERE 12 MEMBERS

REPORT OF THE SECRETARY: MINUTES ACCEPTED BY JAIME MARTINEZ, 2nd BY WARREN REEVES.

REPORT OF THE TREASURER: CURRENT BALANCE OF \$ 7,263.78.
THIS INCLUDES THE REBATE CHECK FROM SBE.
ACCEPTED BY OWEN SMITH, 2nd BY OZZIE CARRILLO.

REPORT OF THE CERTIFICATION COMMITTEE: FOUR STUDENTS
FROM MONTWOOD HIGH SCHOOL WERE PROCTORED FOR "CTO".
TESTS SENT TO SBE.

REPORT OF THE MEMBERSHIP COMMITTEE: NO REPORT.

REPORT OF THE FREQUENCY COORDINATOR COMMITTEE: GLENN
LEFLER AND WARREN REEVES INVESTGATING INTERFERENCE ON
944 MHZ. WARREN ANALIZING ANOTHER INTERFERENCE FOR JAIME
MARTINEZ.

REPORT OF THE SCHOLARSHIP COMMITTEE: JAIME M. WILL GIVE
A NAME TO FILL THE APPLICATION.

REPORT OF THE WEBSITE COMMITTEE: 1649 HITS LAST REPORT,
NOW 1692 (43 MORE FROM LAST MONTH).

REPORT OF THE EAS CHAIRMAN: THREE MONTHLY TEST WERE
SENT. ONE OF THEM WAS AT FAULT: SOME DIDN'T RECEIVE IT.

REPORT OF THE PROGRAM COMMITTEE: JOHN BISSET, FROM TE-
LOS-ALLIANCE OFFERED A PRESENTATION FOR JULY.

UNFINISHED BUSINESS: ENNES WORKSHOP GOT 31 ATTENDANTS.
CALLED A SUCCESS.

NEW BUSINESS OR ANY ITEMS FOR THE CHAPTER INTERES:
ANTONIO CASTRO DOCUMENTS SENT TO SBE FOR THE ROBERT.
FLANDERS AWARD 2014 CONTEST . JAIME MARTINEZ ACCEPTED A
POSITION IN FLORIDA. HE LEAVES THE 19TH OF THIS MONTH.

NEXT MEETING DATE AND LOCATION: TUESDAY JULY 15th, 2014,
12:00 PM (NOON) at ARRIEROS MEXICAN BUFFET, 4151 N. MESA

MEETING ADJOURNED: AT 13:32 PM.

Note from the EDITOR: FAREWELL TO OUR FRIEND
JAIME MARTINEZ, HE LEFT JUNE 19 IN DIRECTION TO
FLORIDA, AND DEAL WITH THE HIGH HUMIDITY AND
RAIN.....GOOD FOR HIM !!

ANOTHER GOOD NEWS: GLENN LEFLER WAS RE-
INSTATED BY THE SBE CERTIFICATION COMITEE

JULY PROGRAM

FOR JUNE WE DIDN'T HAVE A PRESENTATION, ONLY OUR REGULAR CHAPTER MEETING.

FOR THIS MONTH, WE ARE GOING TO SAY HELLO AGAIN TO OUR FRIEND JOHN BISSET, FROM TELOS-ALLIANCE. YOU MUST REMEMBER HIM, HE WAS THE FIRST SPEAKER IN THE 2014 ENNES WORKSHOP, BACK IN MAY.

DON'T MISS THIS OPORTUNITY AND FREE LUNCH !!

TUESDAY JULY 15, 2014
@ 12:00 PM

WHERE:
ARRIEROS MEXICAN BUFFET,
4151 N.MESA, AT THE MESA INN
HOTEL



Without our protective skin, the heart is vulnerable to very small currents. In the electrically susceptible patient, moreover, even minute amounts of current (10 μ A) can cause ventricular fibrillation.² Remember that with an ECG and a separate defibrillator, several pieces of equipment can be attached to the patient at the same time. Clearly, the total leakage current must remain below the threshold that can harm a human heart.

Defibrillators And Life-Saving Shocks

Many think that a defibrillator restarts the heart, but actually it stops the heart. There is a random beating in the heart called fibrillation, which means the heart is not coordinated and not pumping blood. The defibrillator shocks the heart into inactivity, allowing the normal sinus rhythm to restart.

A hospital-grade defibrillator produces 3- to 5-kV voltage and 50-A current to penetrate the chest and shock the heart (*Fig. 1*). **High voltage and current are necessary because the human body is ~75% salty water. The body conducts most of the electricity away, bypassing the heart.**



A hospital-style defibrillator uses paddles. Note that there is an external ECG or heart monitor on the patient, as evidenced by the white circles (electrodes) and leads (wires) on the chest.

PLEASE STAY TUNNED FOR THE NEXT NEWSLETTER WHICH WILL HAVE THE CONTINUATION OF THIS ARTICLE, IT GETS VERY ELECTRONICALLY ATTRACTED, YOU WILL BE AMAZED !!