

NEWS

BESSEL NULL FM
DEVIATION MEASUREMENT

The BESSEL NULL FM deviation measurement is an extremely accurate way to obtain a precise deviation setting on any FM modulator operating at any RF frequency. This test requires a Spectrum Analyzer, Sine-Wave Generator, Audio Frequency Counter, and an accurate dBm meter to verify audio levels. At zero audio input, the Spectrum Analyzer (S.A.) shows only the Carrier Frequency. As the selected audio frequency is slowly increased in amplitude, the original carrier will be seen to decrease in amplitude at the same time that a whole forest of Bessel Function side-bands arise. OBSERVE ONLY THE CARRIER FREQUENCY AMPLITUDE. As the audio frequency amplitude increases, the Carrier Amplitude will go through one null after another. Exactly at the desired Carrier Null Number, the carrier will be deviating at the desired deviation. Note that the sine-wave audio frequency will be deviating at Average Program Level (APL) and will indicate Zero VU while a complex audio waveform such as Program Audio, while also registering Zero VU on the meter, will actually deviate the modulator at a Peak Program Level (PPL).

The PPL can be considered to be 10 dB greater than the APL level. As an example, a low frequency sine-wave at APL would deviate at ± 75 KHz, the same level of program audio would cause a deviation of ± 237 KHz, even though the VU meter reading was the same. ($20 \log 237/75 = 10$ dB). Use the table below to set the deviation of any modulator. You must disconnect any Pre-emphasis in the modulator to prevent errors in the setting of the deviation. The input response must be flat for accurate results. Choose the carrier null and audio frequency for the deviation you want that will easily pass through the input audio stage of your modulator.

CARRIER NULL TABLE: ± 25 KHz
 PPL ± 75 KHz PPL ± 237 KHz
 PPL Carrier Null DEV Ratio ± 7.9
 KHz APL AUDIO FREQ ± 23.7 KHz APL
 AUDIO FREQ ± 75 KHz APL AUDIO
 FREQ 1: 2.40466 3.28766 KHz
 9.86297 KHz 31.1894 KHz
 2: 5.51998 1.43220 KHz 4.29659 KHz
 13.5870 KHz 3: 8.65489 .913437 KHz
 2.74031 KHz 8.66562 KHz 4:
 11.791 .670485 KHz 2.01146 KHz
 6.36078 KHz 5 14.931 .529482 KHz
 1.58845 KHz 5.02311 KHz

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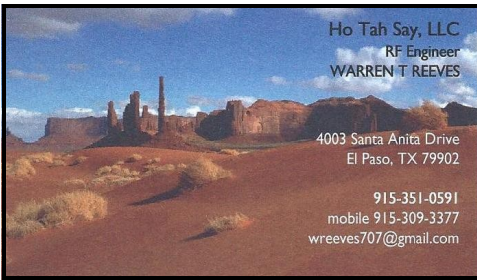
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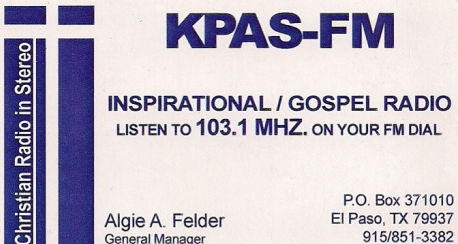
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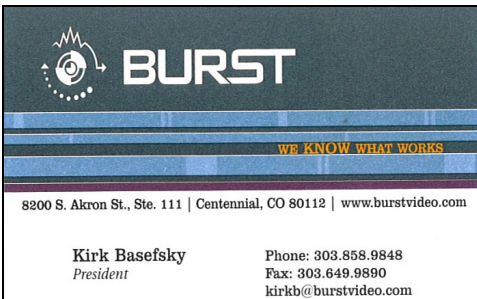


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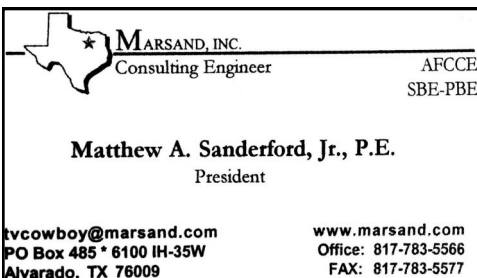
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FROM SBE NATIONAL

The fourth module of the SBE ATSC 3.0 webinar series has been set for Wednesday, January 30 at 2 pm EST. MPEG Media Transport (MMT) will be the topic. Register at the SBE website. SBE MemberPlus members register for free.

Have you made a career move, promotion, new job, or maybe received an award or been recognized by your employer? Share the news with your fellow SBE members. Send your news to Chriss Scherer, SBE Member Communications Director, and he'll publish it in the *Members on the Move* feature of The SBE Signal. You can reach Chriss at cscherer@sbe.org.

The Board and staff of the SBE wish a Happy Holiday Season to all SBE members and their families!

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EL PASO, TX SBE CHAPTER 38 MEETING MINUTE

DATE 11/13/2018 LOCATION: COMO'S ITALIAN

MEETING CALLED TO ORDER: 12:13 PM, BY ANTONIO CASTRO.
THERE WERE 9 ATTENDANTS.

REPORT OF THE SECRETARY: MINUTES IN THE NOVEMBER NEWS-LETTER. ACCEPTED BY WARREN REEVES, SECONDED BY DAVID GRICE.

REPORT OF THE TREASURER: \$ 4,081.90 IN THE BANK. ACCEPTED BY NORBERT MILES, SECONDED BY GLENN LEFFLER.

REPORT OF THE CERTIFICATION COMMITTEE: NO REPORT.

REPORT OF THE MEMBERSHIP COMMITTEE: SENT INVITATION TO JORGE CASTAÑEDA. (dbeus) AT SAN ANTONIO.

REPORT OF THE FREQUENCY COORDINATOR COMMITTEE: WARREN REPORTS THAT FORT BLISS REQUESTED FREQUENCY COORDINATION FOR A MILITAR EVENT.

REPORT OF THE SCHOLARSHIP COMMITTEE: NO REPORT.

REPORT OF THE WEBSITE COMMITTEE: NORBERT TO INCLUDE THE "HIT COUNTER" AGAIN.

REPORT OF THE EAS CHAIRMAN: CITY ALERT RECEIVED, MONTHLY TEST NM AND TX WERE FINE,

REPORT OF THE PROGRAM COMMITTEE. ORBAN TO SPONSOR LUNCH AND DO WEBCONFERENCE ON DEC.11, 2018 AT THE KFOX STUDIOS..

UNFINISHED BUSINESS: WYLER TRAM IS DECLARED CLOSED TO HUMANS DUE TO AGED. .

NEW BUSINESS OR ANY ITEMS FOR THE CHAPTER INTEREST: INVITATION TO CHAPTER CHRISTMAS PARTY AT WARREN REEVES PLACE AND TO BE SPONSORED BY DAVID GRICE. WILL REQUEST R.S.V.P. CHAPTER VOTED "YES" TO THE 2019 ENNES WORKSHOP.

NEXT MEETING DATE AND LOCATION: DECEMBER 11, 2018. AT NOON AT KFOX-CBS STUDIO FOR A WEB CONFERENCE FROM ORBAN AND A PRESENTATION OF COMTERRA

**HAPPY HOLIDAYS
TO YOU
AND YOUR LOVED ONES
AND THE BEST OF 2019 !!!**

DECEMBER PROGRAM

IN NOVEMBER WE HAD OUR REGULAR CHAPTER MEETING AT THE COMO'S ITALIAN RESTAURANT. IT WAS A PRODUCTIVE ONE.

FOR THE MONTH OF DECEMBER, WE ARE GOING TO HAVE A DOBLE EVENT.

ORBAN IS CONDUCTING A TELE-CONFERENCE PRESENTING THEIR PRODUCTS, WITH Q&A. AT THE KFOX CONFERENCE ROOM WITH DOUBLE SCREEN.

AFTER SIGNING OFF, WE WILL HAVE THE GROUP "COMTERRA" INTRODUCING THEIR BUSSINESS.

CATERING AND DRINKS WILL BE PROVIDED.

WHEN:
TUESDAY DECEMBER 11, 2018

PLACE:
KFOX STUDIOS IN ALTO MESA

TIME: 12:00 PM
NOON

