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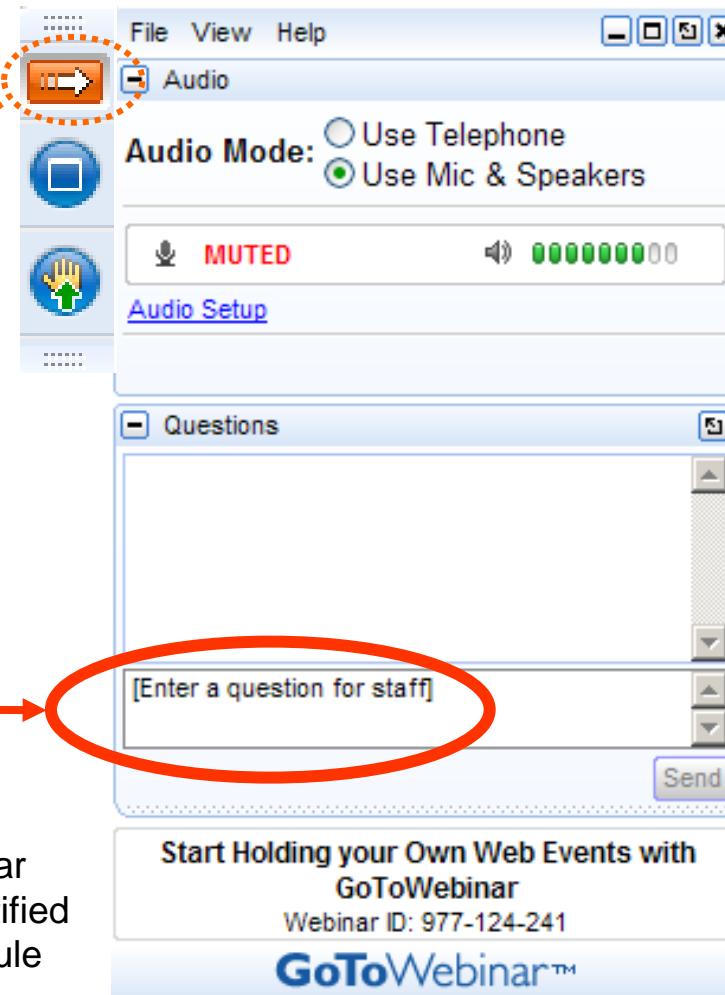
Episode #80

Spectrum Analyzers

Your questions please?

(if you don't see the control panel, click on the orange arrow icon to expand it)

Please enter your questions in the text box of the webinar control panel (remember to press send)



The screenshot shows a GoToWebinar control panel window. At the top, there is a menu bar with 'File', 'View', and 'Help'. Below the menu bar, there is a section for 'Audio' settings. An orange arrow icon is circled in red and has a dotted orange line pointing to it. The audio settings include 'Audio Mode' with two radio buttons: 'Use Telephone' (unselected) and 'Use Mic & Speakers' (selected). Below this, there is a 'MUTED' indicator with a microphone icon and a volume level indicator showing 00. A link for 'Audio Setup' is visible. Below the audio settings, there is a 'Questions' section. A text box with the placeholder text '[Enter a question for staff]' is circled in red, and a red arrow points to it. A 'Send' button is located to the right of the text box. At the bottom of the control panel, there is a promotional banner for GoToWebinar with the text 'Start Holding your Own Web Events with GoToWebinar' and 'Webinar ID: 977-124-241'.



Remember: The completion of a Nautel webinar qualifies for $\frac{1}{2}$ SBE re-certification credit, identified under Category I of the Re-certification Schedule for SBE Certifications.

Advance Questions

Do test instruments have to be professionally calibrated with documentation? Does any specific model have to be FCC approved?

Interested in multi transponder monitoring with integration into our M&C software (Dataminer)

Talk about making harmonic measurements from a directional coupler (gain difference with frequency and how to characterized it).

How do users protect spectrum analyzers from hackers, ransomware and other IT threats?

Tell me you love that Tiny SA - I appreciate mine!

Half of Kalang Advertising Limited FM100 and HOT 97FM in Papua New Guinea deploy Nautel FM 300watt and 1000 watt transmitters. T

Can the TinySA be used for any actual measurements for a radio station? or TV, for that matter? (I'm not expecting much!)

Particularly interested in computer based SDR low budget analyzing !

Will you be covering a specific type of analyzers or just fundamentals?



The Device

Back to results



Portable TinySA Spectrum Analyzer, SEESII Upgraded V0.3.1 Handheld Tiny Frequency Analyzer 100kHz to 960MHz MF/HF/VHF UHF Input, Signal Generator with 2.8 inch Touch Screen with ESD Protect Function

Visit the Seesii Store

★★★★★ 355 ratings | 41 answered questions

\$84⁹⁹

FREE Returns

Join Prime to buy this item at \$76.49

Save more Apply \$15 coupon Terms

Enhance your purchase



Used - Very Good

\$7,500⁰¹



The Terms

Frequency – center of display, could be carrier, maybe not

Span – how much stuff is on the display (looking around carrier, or at harmonics, for example)

RBW – Resolution Bandwidth (nominal 1kHz for FM, 300Hz for AM)

VBW – Video Bandwidth (often tied to RBW, does impact trace speed)

Input Attenuation – let's not overdrive the front end! Note that this is not sufficient on its own to prevent false artifacts.

Reference Attenuation/ – how much external attenuation did we use?
Reference Level Offset



The Math

Remember we're dealing in dB (log scale).

-10dB = 1/10 or 0.1 of the reference

-20dB = 1/100 or 0.01

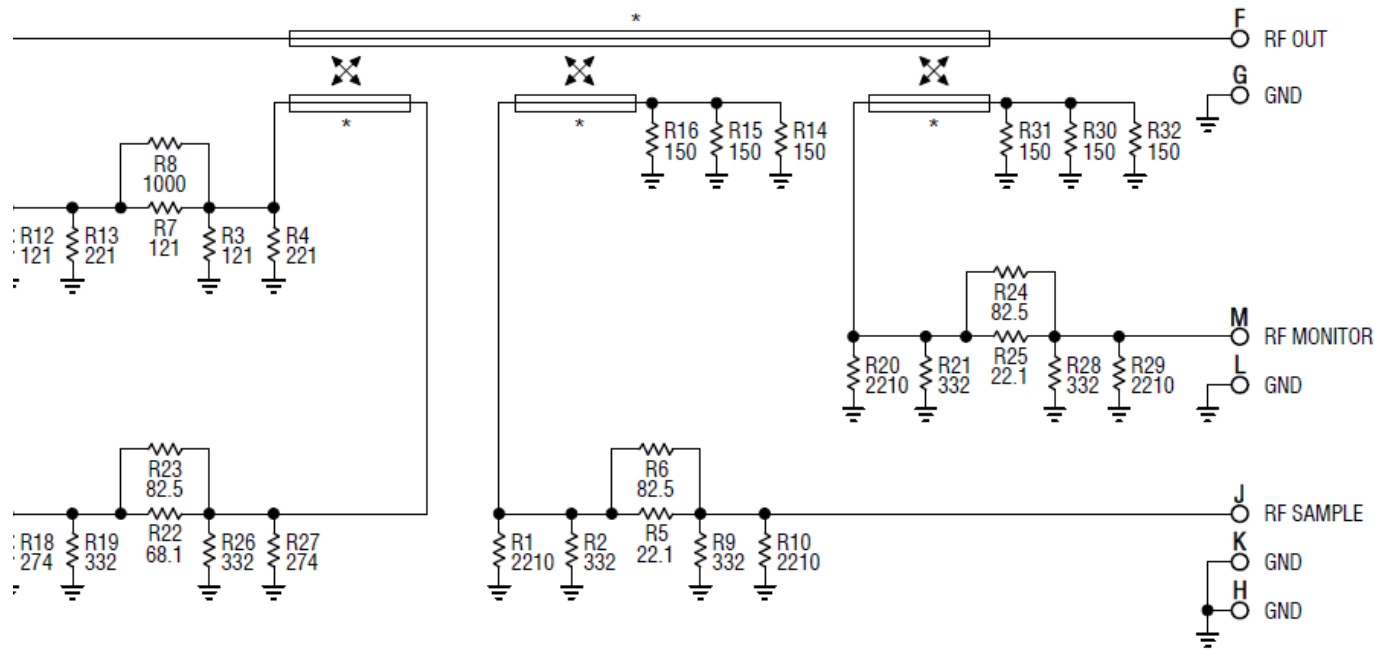
A sample port will frequently be -50dB or more (0.00001)

We're looking for signals 80 dB below that
(0.00000000000001)

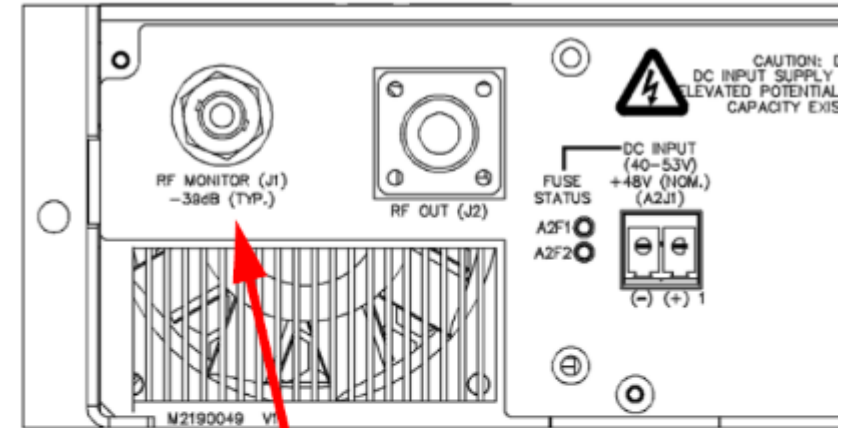
Small errors can make big differences



Where to Measure?



* DENOTES A MICRO-STRIP TRANSMISSION LINE OF SPECIFIC LENGTH AND CHARACTERISTIC IMPEDANCE.



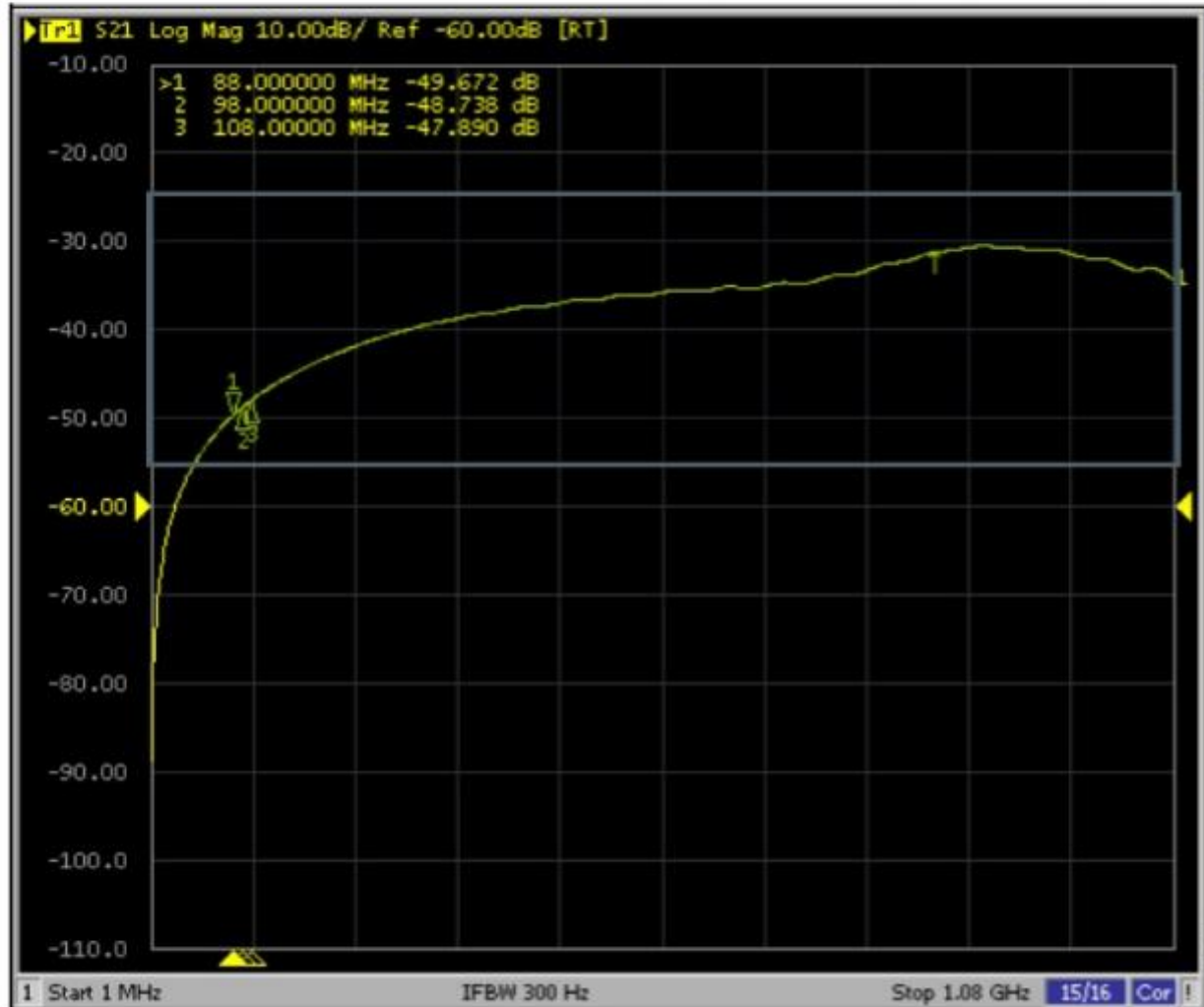
RF DRIVE MONITOR SAMPLE

True RF sample of the exciter's RF drive output (approximately -39 dB), relative to the carrier level. Intended for modulation monitoring. Not intended for harmonic spectral compliance testing.

Where to Measure?

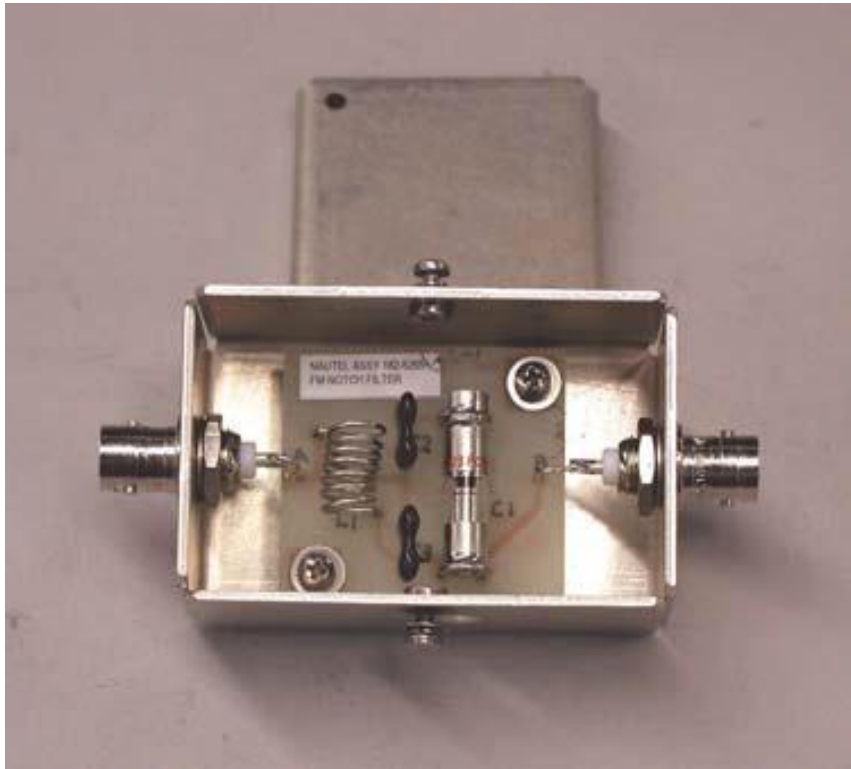
The RF monitor sample is intended for reference use only. Nautek recommends that you use an external, calibrated spectrum analyzer to perform certification tests.

Figure 1.8.4: RF Monitor Sample Frequency Response



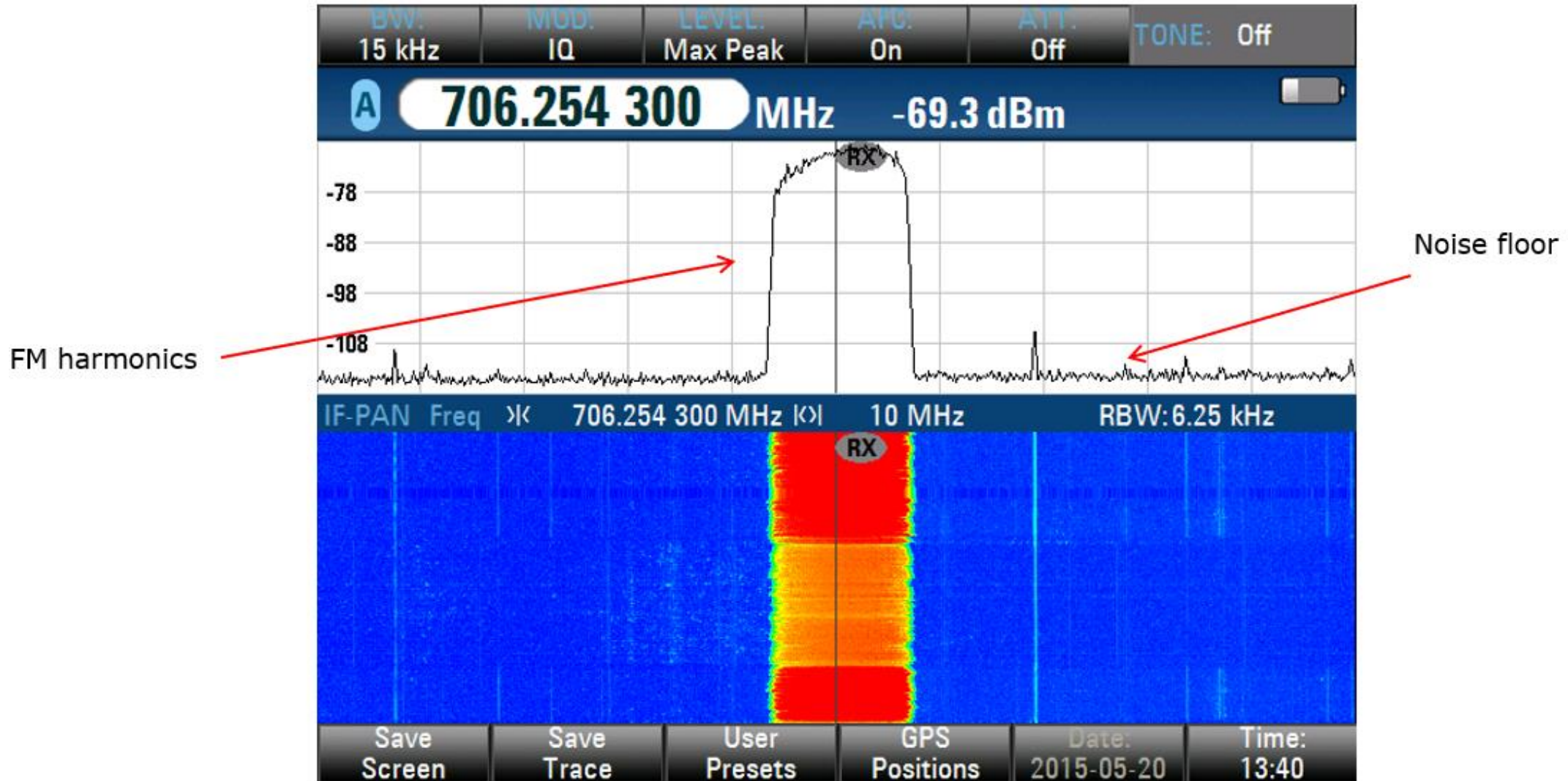
<https://birdrf.com/Products/Test%20and%20Measurement/RF-Power-Meters/Wattmeters-Line-Sections/RF-Line-Sections.aspx>

How to Measure?



Some of the Challenges

FIELD MEASUREMENT



Online Information



Webinars

<https://www.nautel.com/resources/webinars/>



Nautel Waves Newsletter

<https://www.nautel.com/newsletters/>



YouTube

<http://www.youtube.com/user/NautelLtd>



Online Info, such as the Broadcasters' Desktop Resource

<https://www.thebdr.net/>





THANK YOU!

