DTV Pilot Carrier Frequency Measurement With the RIGOL DSA 815

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Solution: Here is a user submitted application note on measuring Digital TV Pilot Carrier frequency.

Thanks to Frank Hertel Newman-Kees RF Measurements & Engineering.

1. Under Control -- “BW / Det” -- “Det Type”, select ***POS PEAK*** Detector.
2. Under Control -- “Trace / P/F” -- “Trace Type", select ***CLEAR / WRITE.***
3. Under Marker -- “Marker”, select ***NORMAL.***
4. Under Marker -- “Marker Fctn”, select “Frequency Count”
5. Under “State” Select ***ON*** -- Then Select “Resolution” and set it to ***1 HZ / MANUAL***
6. Under Control -- “TG” Assure that “TG” is ***OFF***
7. Under Control -- “Sweep / Trig” Select “Time / Manual”
8. Set the “Sweep/Time” between ***0.16 seconds and .60 seconds*** . Other SWEEP times can be used for desired and best results.
9. Under Control -- “BW / Det” Set ***RBW*** to ***Manual*** & ***100 Hz***
10. Under Control -- Set ***VBW*** to **Manual** & ***1 KHz***
11. Under Span -- Set ***SPAN*** to ***3 Khz***So you will be able to see the “Pilot Carrier”, in case the station is “Off Frequency / Out of limits”)

12. Under Freq -- Enter the TV Channel's Pilot ***FREQUENCY*** **I.E. xxx**,**309,441 Hz**
13. Once you can see the "Pilot Carrier", centered in the display, you can then narrow the "Span" to between ***1,000 Hz*** and ***500 Hz*** and set "VBW" to ***10 HZ***

14. Under Marker -- "Peak", set "Cont Peak" to "***ON"***

15. Read the Channel's "Pilot Carrier" ***FREQUENCY*** (with 1 HZ Resolution) as displayed in the upper Right area of the screen

16. For a more Precise Frequency Measurement, you will need to connect a "Precision" 10 Mhz Reference Signal to the rear "***10 Mhz In*** ", BNC connector

    NOTE: For Antenna / Distant Measurements:

    Set Reference level (Ampt - "Ref Level" at –20 to –30 DBM)
    Set "Input Atten" at 10 DB / MANUAL
    Set "Pre-Amp" ON
    Set "Input" 75 Ω

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