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Product Note No 5

V Band Programmable Tuner Model 7550

The millimeter wave programmable tuner, model 7550 operates from 50 to 75 GHz.

It is based on the robust and proven chassis of the 1816 tuners (figure 1), but uses smaller steps and a teflon stabilized vertical axis for higher phase resolution and stability.

The transmission media is precisely slotted WR-15 (V) waveguide with a gold plated not contacting probe moving in, out and along the waveguide slot to generate controllable Γ and phase. The probe's horizontal play during vertical movement is less than $\pm 1\mu\text{m}$ in total.

The 7550 tuners are fully compatible with the IBM-PC based CCMT control and measurement software for Calibration, Noise and Load Pull measurements. Obtainable VSWR exceeds 10:1, and reaches up to 19:1 in most parts of the band (figures 2,3).

7550 Tuner Characteristics

Frequency Range	50 - 75 GHz
VSWR min	1.2:1
VSWR max	10:1 (19:1)
Insertion Loss	1 dB max @ VSWR min
RF resetability	45 dB min
Calibration	181 or 361 impedances per frequency using Wiltron 360 or HP 8510 (figure 2).
Tuning Resolution	0.32°/step @ 60 GHz
Max Tunable points	700,000 @ 60 GHz
Mechanical - Accuracy	± 1 step
Step Size	Vertical 1.5 μm , Horizontal 2.95 μm
RF Connectors	WR-15
Overall Size	7.8 x 6 x 5 inches
Weight	4.3 kg
Power Handling	200 W CW
Operation	Automatic - Manual - Mouse Tuning for Test Fixture or 'on wafer' setups.