

LO

Filter Bank

Source Leveling

Coupling

PLL w/ VCO
MAX2871
23.5-6000 MHz
-4 to +5dBm

SP4T Switch
SKY13380-350LF
IL = 0.4dB
P0.1dB = +33dBm

125 MHz LPF

250 MHz LPF

500 MHz LPF

1000 MHz LPF

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SKY13380-350LF
IL = 0.4dB
P0.1dB = +33dBm

Variable Attenuator
PE43711
(0.25dB to 31.75dB)
IL = 1.3dB

Amplifier
HMC313
G = 17dB
P1dB = +14dBm

Resistive Split
IL = TBD

Directional Coupler
ADC-15-4+
F = 5 to 1000 HMz
IL = 0.6dB
15dB Coupling
>24dB Directivity

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The diagram shows the signal path from the LO to the DUT. The LO section contains a PLL w/ VCO (MAX2871) with a frequency range of 23.5-6000 MHz and a power range of -4 to +5dBm. The signal then passes through an SP4T Switch (SKY13380-350LF) with an insertion loss (IL) of 0.4dB and a power handling of P0.1dB = +33dBm. This is followed by a Filter Bank consisting of four parallel paths with low-pass filters (LPFs) at 125 MHz, 250 MHz, 500 MHz, and 1000 MHz. Another SP4T Switch (SKY13380-350LF) with the same specifications follows the filter bank. The signal then enters the Source Leveling section, which includes a Variable Attenuator (PE43711) with a range of 0.25dB to 31.75dB and an IL of 1.3dB, and an Amplifier (HMC313) with a gain (G) of 17dB and a P1dB of +14dBm. A Level Control block is connected to the attenuator and a Log Power Detector (AD8319) with a frequency range of 1 MHz to 10 GHz and a power range of -50 to 0 dBm. The signal then passes through a Resistive Split (IL = TBD) and two Directional Couplers (ADC-15-4+) with a frequency range of 5 to 1000 MHz, an IL of 0.6dB, 15dB coupling, and >24dB directivity. The final output is connected to the DUT.

MCU

Gain/Phase Detector

The diagram shows the signal path from the Gain/Phase Detector to the MCU and the Return/Through Signal paths. The Gain/Phase Detector section contains an AD8302 Gain / Phase Detector with a power range of 0 to 60dBm, a frequency range of 0 to 2700MHz, and a voltage range of 0 to 1.8V. The detector has two inputs: RF A (REF) and RF B (DUT). The output of RF A (REF) is connected to the Reference input of the Directional Coupler in the Coupling section. The output of RF B (DUT) is connected to the Return Signal input of the SPDT Switch in the Return/Through Signal section. The Return Signal section contains an SPDT Switch (PE4257) with an IL of 0.75dB and an isolation (ISO) of > 60dB. The output of the SPDT Switch is connected to the Through Signal input of the Directional Coupler in the Coupling section. The output of the Through Signal is connected to the DUT. The MCU section contains an ADC block with two inputs: V MAG and V PHASE. The output of the Gain/Phase Detector is connected to the ADC block.