



PCE 600

RETURN LINK & FORWARD LINK PROPAGATION CHANNEL EMULATOR

- 600MHZ WIDE BAND
- CHANNEL AND PAYLOAD TESTING
- STATION RF IMPAIRMENTS EMULATION
- IMUX, OMUX AND AMPLIFIER EMULATION
- INDEPENDENT UPLINK AND DOWNLINK EMULATION
- INTERFERERS AND JAMMERS EMULATION



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RETURN LINK & FORWARD LINK PROPAGATION CHANNEL EMULATOR

FUNCTIONS

- Doppler effect
- Propagation delay
- Fading and scintillation
- Additive Gaussian White Noise
- Additive colored noise (RLE & FLE)
- Additive wide band QPSK jammers
- Phase noise (ground & payload)
- RF filters (sat. payload IMUX & OMUX)
- Amplifier Nonlinearity (sat. payload)
- Automatic Level Control (sat. payload)
- Multipath (RF conducted interference)
- Antenna effects

IF SIGNALS

I/O center freq.: L band (1-1.6GHz)

- Input level: -10 to -38dBm
- AGC mode: Auto/Manual
- Input AGC: attenuator range (30dB)
- Output level: -5 to -80dBm
- VSW: $R \leq 1.4$
- Bandwidth: 600 MHz
- Amplitude flatness 0.5dBpp
- Group delay variation:
 - <1ns up to 550 Mhz
 - <3ns up to 600 Mhz
- Spect. purity: 45dBcmin, 52dBc typ
- Res. ADC: 10bits DAC & ADC
- Res. DAC: 12bits DAC & ADC
- Phase noise:
 - 10 Hz < -45dBc/Hz
 - 100 Hz < -70dBc/Hz
 - 1 kHz < -100dBc/Hz
 - 10 kHz < -100dBc/Hz
 - 100 kHz -115dBc/Hz
 - ≥1 MHz-125dBc/Hz

PROPAGATION EMULATOR

- Level fading
 - +5 to -40dB
 - (0.1dB step)
- Scintillation fading
 - 0 to -15dB for each downlink & uplink
- Propagation Delay
 - 20µs to 295ms (1ns step) continuously variable
- Delay slope
 - up to ± 50 000m/s (0.001m/s step), guaranteed phase continuity
- Freq. Doppler shift
 - up to ±2MHz (1mHz step)

RF AND PAYLOAD EMULATOR

ALC mode: 1st order loop/off

Non linearity: AM/M and AM/PM

over more than 80dB dynamic

Multipath: 5echoes (9us)

Phase noise: custom 3 areas

Independant IMUX & OMUX filter emulation

INTERFERERS AND JAMMERS EMULATOR

- AWGN generator: Chaotic uniform generator with Gaussian transform (up to 5Ω)
- AWGN bandwidth: more than 600MHz
- AWGN flatness: <0.2dB
- Modulated carrier type: QPSK (56 / 112 / 225 Msps)
- Modulated carrier number: 4
- Colored noise freq. resolution: 7MHz (RLE & FLE)

REMOTE CONTROL

- Interface: Ethernet
- Protocol: TCP/IP
- Mnemonics: SCPI format
- Real-time data playback rate: 100Hz
- Data interpolation rate: 10kHz

ENVIRONMENTAL CONDITIONS OPERATING

- Temperature: 10°C to 40°C
- Humidity: Up to 95% at 30°C

NON OPERATING

- Temperature: -20°C to 55°C
- Humidity: Up to 95% at 30°C

POWER SUPPLY

- Voltage: 230V ±10% / 47 to 63Hz
- Power: ≤600VA

PHYSICAL CHARACTERISTICS

- Drawer: 19inches x 4U x 460mm
- Weight: ≤25kg

MODELS

- SLE Single Link 1 to 1
- DLE Double Link 2 to 2
- RLE Return Link 4 to 1
- FLE Forward Link 1 to 4



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