AEROFLEX

# 2975

The Aeroflex 2975 (formerly IFR 2975) is a comprehensive Project 25 (P25) Radio Test Set engineered for testing and troubleshooting transmitter spectral performance, antenna/transmission lines, and digital radio systems. Integrating the functionality of over 20 discrete instruments into a single benchtop platform, it features a 2.7 GHz spectrum analyzer with tracking generator, a dual-channel 500 kHz oscilloscope, and exhaustive testing capability for P25 conventional and trunked signaling, CQPSK modulation, and cryptographic encryption keys.

## SPECIFICATIONS

### General

| | |
|---|---|
| Interfaces | GPIB, RS-232, Ethernet (RJ-45), PS/2 Keyboard, PS/2 Mouse, VGA Out |
| Display | 10.4-inch Color TFT Active Matrix LCD (640 × 480) |
| Warm-up Time | 15 minutes |
| Calibration Cycle | 12 months |

### Physical

| | |
|---|---|
| Power Supply | 100 to 240 VAC, 50 to 60 Hz |
| Operating Temperature | 0 to 50 °C °C |
| Dimensions (W×H×D) | 434 × 282 × 470 mm mm |
| Weight | 16.8 kg kg |

### General RF System

| | |
|---|---|
| RF Frequency Range | 400 kHz to 2.7 GHz |
| Frequency Resolution | 1 Hz |
| Internal Reference Frequency | 10 MHz |
| RF Input/Output Ports | T/R (Type N female), ANT (BNC female), GEN OUT (BNC female) |
| Maximum RF Input Power (T/R Port) | 125 W (continuous) |
| Built-in Speaker | Standard with manual volume control |

### RF Signal Generator

| | |
|---|---|
| RF Generator Frequency Range | 400 kHz to 2.7 GHz |
| RF Generator Level Range (T/R Port) | -137 dBm to -40 dBm |
| RF Generator Level Range (GEN OUT Port) | -137 dBm to 0 dBm |
| RF Generator Level Resolution | 0.1 dB |
| Spectral Purity (Harmonics) | < -30 dBc |
| Single-Sideband Phase Noise | < -90 dBc/Hz @ 20 kHz offset |
| Residual FM | < 10 Hz RMS (300 Hz to 3.4 kHz) |
| Residual AM | < 1% RMS (300 Hz to 3.4 kHz) |
| Frequency Modulation (FM) Deviation Range | 0 to 100 kHz |
| Amplitude Modulation (AM) Depth Range | 0% to 90% |
| Digital Modulation Formats | C4FM, CQPSK |

### RF Analyzer

| | |
|---|---|
| RF Analyzer Frequency Range | 400 kHz to 2.7 GHz |
| RF Analyzer Power Measurement Range | 100 mW to 125 W |
| RF Analyzer Power Resolution | 0.1 dB |
| FM Deviation Measurement Range | 0 to 100 kHz |
| AM Depth Measurement Range | 0% to 90% |
| Spectrum Analyzer Frequency Range | 400 kHz to 2.7 GHz |
| Spectrum Analyzer Tracking Generator | Included (400 kHz to 2.7 GHz) |

### Audio & Baseband Generator / Analyzer

| | |
|---|---|
| Dual-Channel Oscilloscope Features | Scope Markers, Front Screen Display Capture |
| Audio Generator Frequency Range | 10 Hz to 20 kHz |
| Audio Distortion (THD) Measurement | Meter included, typically < 0.5% generator distortion |
| SINAD Measurement Range | 3 to 40 dB |
| Audio Generator Selection | Vrms selection for audio function generators |
| Audio Filters | User selectable audio filters |
| Tone Signaling | Tone signaling and Tone Remote functions |

### Protocol & Cellular Signaling

| | |
|---|---|
| P25 Modulation Support | C4FM, CQPSK |
| P25 Signal Measurements | CQPSK EVM and Constellation Display |
| P25 Trunking Mode Emulation | Included as option |
| P25 Message Decoding | Inbound Signaling Packet (ISP) Decode |
| P25 Message Programming | Outbound Signaling Packet (OSP) Message Programmer |
| P25 Test Standards | Full TIA/EIA-102 Test Patterns |
| P25 Encryption Support | AES and DES OFB Type III Encryption |
| Secondary Control Channel | Supported |
| Broadcast Messaging Option | Supported |
| Explicit Messaging Option | Supported (with Unit to Unit and PSTN Interconnect Option) |
| Adjacent Status Broadcast Messaging | Supported |
| Auto-Tune Capabilities | Transceiver Auto-Tune supported |

### Interfaces & Connectivity

| | |
|---|---|
| Audio In/Out Connector Type | BNC female (Front panel) |
| External Reference Input | 10 MHz (BNC connector) |
| External Reference Output | 10 MHz (BNC connector) |
| GPIB Interface | IEEE-488.2 compliant |
| Ethernet Interface | 10/100 Base-T (RJ-45) |
| Display Interface | VGA Out (15-pin D-Sub) |
| Keyboard & Mouse Support | PS-2 Keyboard and Mouse Operation |
| Remote Operation Mode | Internet Remote Operation (IP Addressable) |

### Physical, Environmental & Power

| | |
|---|---|
| Physical Form Factor | Benchtop Instrument |
| Cooling System | Internal forced air cooling |

### Display

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|---|---|
| Display Type | 6.4-inch Active Matrix Color TFT LCD |
| Display Resolution | 640 x 480 pixels |

### Frequency Reference

| | |
|---|---|
| Standard Reference Aging Rate | ±0.5 ppm per year |
| Standard Reference Temperature Stability | ±0.1 ppm |

### P25 Capabilities

| | |
|---|---|
| P25 Vocoder Type | IMBE |

### Interfaces

| | |
|---|---|
| PCMCIA Interface | 2 x Type II or 1 x Type III |

### Environmental

| | |
|---|---|
| Environmental Compliance | MIL-PRF-28800F Class 3 |
| Storage Temperature Range | -40 °C to +71 °C |
| Operating Altitude | Up to 3,048 m (10,000 ft) |

### Power

| | |
|---|---|
| AC Input Voltage | 100 to 240 VAC |
| AC Input Frequency | 50 to 60 Hz |

### RF Features

| | |
|---|---|
| Duplex Mode | Full Duplex |

### Oscilloscope

| | |
|---|---|
| Oscilloscope Vertical Scale Range | 10 mV/div to 10 V/div |

### RF Generator

| | |
|---|---|
| RF Generator Level Accuracy | ±1.5 dB |

### Compliance

| | |
|---|---|
| Military Standards Compliance | MIL-T-28800D Class 5 |

### P25 Measurements

| | |
|---|---|
| P25 Modulation Fidelity Measurement Range | 0% to 20% |
| P25 Modulation Fidelity Resolution | 0.1% |

## TECHNOLOGY

Project 25 (P25) Digital Land Mobile Radio (LMR)

## APPLICATIONS

RF Communications Testing and Troubleshooting

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.