GHIELMETTI

ATC Radio Channel Analyzer
GFPE 2020

- Radio channel testing and maintaining
- Analog, E1 and VoIP
- Analog/digital display
- SW/FW update via USB
- TFT user interface

Description

ATC Radio Channel Analyzer
GFPE 2020
Art. Nr. 678.110.069.70

The Air Traffic Control (ATC) & Radio Channel Analyzer GFPE 2020 has been designed and developed to test and maintain existing and new communication networks for air traffic control. FO, radio-relay analog and digital (E1, VoIP) voice communication channels.

Functionality

Maintenance, Debugging
- Analog level measurement
  Simultaneous measurements of inband levels
- Simultaneous display of voice and inband levels
- Looping of analog signals
- Filtering of the specified frequencies of the voice band.
- Display of mixed signals
- Inband signal level display with frequency indication

Monitoring, Testing
- Test and parameterisation of Multiplexer
- Test of all connections from the
  2 Mbit MUX over various line paths
- Connecting and patching up to the user terminal
- Testing of the signal lines from receiver up to the specific TS of the 2 Mbit access point.
- Testing of all analog in- and outputs of the MUX
- Examination of signal levels

Transit time measurement
- Measuring of signal propagation delays in analog and digital networks
- Automatic reading and recording of signal propagation time over MUX connected in series.
- Automatic reading and recording of signal propagation time over various transmitter and receivers with different signal processing time.

Technical Implementation

The GFPE 2020 has been designed following international standards for high reliability according VDE, CCIR, DIN, CE, ETSI and EUROCAE.

GHIELMETTI

Analog

Physical Interface:	2-Draht twisted pair
Input level:	-50 dBm to +15 dBm
Frequency range:	300 Hz to 3400 Hz (-3 dB)
Input impedance:	high resistance or 600 Ω
Output level:	-50 dBm to +15 dBm (level adjustment at 0 dB)
Output impedance:	600 Ω
Channel amplification:	0 dB ± 0.1 dB
Input to output:	0 dB or -20 dB bei Pegelanpassung

E1

Physical Interface:	4-wire twisted pair with 120 Ω termination according to ITU-T G.703
Data structure:	non structured or structured according to ITU-T G.704
Line code:	HDB3
Input Level:	max. 5.5 V
Data rate:	2048 kbit/s ± 50 ppm
Line code:	HDB3
Output level:	3 V
Tolerance:	50 ppm
Frame frequency:	8000 frames/s
Bits per time interval:	8 bits
Provided PRBS:	26-1, 29-1, 211-1, 215-1, simply 1's, simply 0's, alternate 1010…, self-configured sequence up to 32 bit.
Measurement of bit error rates:	1 to 10^{-10}
Statistic of bit error rates:	total measurement time, number of bit-errors (ER), Bit error rate (BER), number of disturbed seconds
	absolute and percental (Error Seconds ES, %ES), highly disturbed seconds with BER ≥ 10^{-3} absolute and
	percental (Severely Error Seconds SES, %SES)
Alarm statistic:	Signal Loss, Frame Loss, and AIS

VoIP

Physical Interface:	Ethernet interface with twisted pair according to IEEE-802.3
Data rate:	10BASE-T, 100BASE-TX, 1000BASE-T
Standards:	Static IPv4 address, RTP (RFC 3550), SIP (RFC 3261) over UDP, ED-137/1B with G.711 A-Law and G.711 μ-Law

Filters

Broad band:	Bandpass with limits at 300 Hz and 3400 Hz
Low frequency filter:	Band-stop at 2040 Hz, low pass at 3160 Hz and high pass at 300 Hz
2040 Hz:	Bandpass at 2040 Hz
EK:	Highpass at 3140 Hz

Signal Generators

Signal shape:	Sinus
Signal level:	-50 dBm to +10 dBm in 0.1 dB steps
Signal generators intern:	1000 Hz, Tone code 2040 Hz, Radio reception criteria: 3180 Hz, 3210 Hz, 3300 Hz, 3390 Hz, variable from 300 Hz to 3400 Hz (1 Hz steps)
Signal generators extern:	1000 Hz, Tone code 2040 Hz,
Radio reception criteria:	3180 Hz, 3210 Hz, 3300 Hz, 3390 Hz, variable from 300 Hz to 3400 Hz (1 Hz steps)
Signal output EXT1, EXT2:	symmetrical, output impedance 600 Ω each

Environment

Operating temperature:	0 °C to +55 °C
Air humidity:	30 % to 60 % at 20 °C
Storage temperature:	-20 °C to +70 °C

Power Supply

Power supply:	100 V_{AC} … 260 V_{AC}
Switch-on current:	< 3 … 4 x $I_{nominal}$
Power factor:	> 0,9 inductive resp. > 0,9 capacitive
Leakage current (against PE):	< 1 mA @ 1 A nominal
MTBF:	> 20'000 h
Isolation input to output:	> 3 kV_{eff}

Security

	EN 60950, VDE 0805, VDE 0100
Power fail bridging time:	> 20 ms at 100 % load and U_e = 187 V
Stability:	EN 50082-2:1992

Standards

	EN 55011, EN 55022 EN 61000-4-2/3/4/5, Schärfegrad 4, EN 61000-4-11, EN 50081-1:1992

Mechanical Construction

Housing:	19" rack with handles
Size:	4 U
Depth:	340 mm
Weight:	approx. 10 kg

GHIELMETTI

SWITZERLAND

GHIELMETTI AG
Head Office Switzerland
+41 32 671 13 13 (Phone)
+41 32 671 13 14 (Fax)
info@ghielmetti.ch
www.ghielmetti.ch

GERMANY

GHIELMETTI AG
Office Germany
+49 3371 402 754 (Phone)
+49 3371 610 548 (Fax)
deutschland@ghielmetti.ch
www.ghielmetti.ch

GHIELMETTI offices