



...umění optické komunikace

PLANAR – Multifunkční měřicí přístroj
a monitoring zpětných směrů

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**PLANAR - měřicí servisní technika
a monitoring zpětných směrů**




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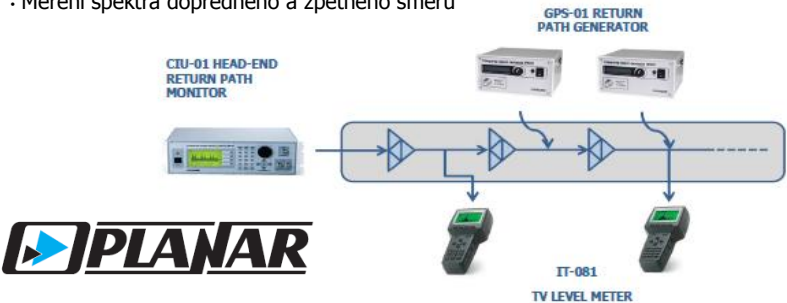
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CATV zpětný směr – dohled a nastavení

Jednoduchý systém pro nastavení a dohled nad zpětným směrem CATV sítě :

- Kontrola frekvenčního spektra a nastavení zpětného směru CATV
- Měření spektra dopředného a zpětného směru



Všechna měření je možno zobrazit na řídicí jednotce CIU-01, která je umístěna na HS. Následnou kontrolu úrovně výstupního signálu generátoru lze provádět analyzárem IT-081 v kterémkoliv bodě sítě.

CIU-01 Head-end Return Path Monitor

SPECIFICATIONS:

Frequency range of the return path measuring, MHz	5-65
Frequency range of the forward path measuring, MHz	46-865
Terminal type	BNC
Input impedance, Ohm	75
Internal attenuator, dB	0, 20, 40 (auto)
Return loss, dB, not less	16
Input measuring range, dBuV	40-126
Resolution, dB	0,1
Accuracy, dB	±2

Transmitter

Frequency range, MHz	400-500
Level range, dBuV	60-120
Terminal type	BNC
Output impedance, Ohm	75

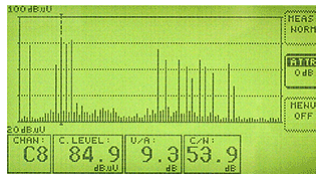
Return path analysis set characteristics

Time of new pilot-signals finding out, sec, less than	60
Spectrum measuring time, sec, less than	15
Quantity of active GPS-01s	up to 8

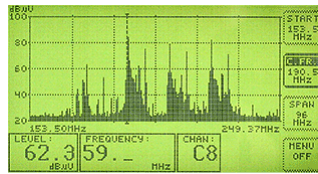


CIU-01 Head-end Return Path Monitor

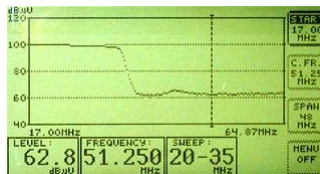
The measuring of carriers in a forward path.



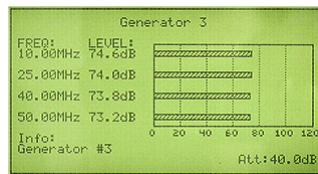
The measuring of spectrum in a forward path.



The measuring of frequency response function of a return path.



The measuring of pilot-signals levels.



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GPS-01 Return Path Pilot Generator

SPECIFICATIONS:

Terminal type	BNC
Input impedance, Ohm	75
Frequency range, MHz	5-65
Frequency resolution, kHz	125
Synthesized frequency accuracy, kHz	±10
Return loss, dB	>18
Level range, dBuV	72-118
Level resolution, dB	0,75
Level setting accuracy, dB	±0,5
Output level stability, dB	±0,25
Non-harmonic level in unmodulated mode, dB	-60
Spurious AM of output signal in frequency steady state, %	<0,6
Warming up time, min, less than	10
Power supply	
Battery	built in rechargeable, SLA, 12V/1,2 Ah
Battery life, hours	>5
Mains	220±22V/50-60Hz



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IT-08 Univerzální měřicí analyzátor

IT-08 je multifunkční kompaktní a lehký přístroj (0,6kg)

- možnost připojení přes RS-232 sériové rozhraní a firmware update.
- napájení ze sítě nebo pomocí standardních AA NiMH akumulátorů

MB-08 základní ovládací jednotka s grafickým LCD displejem, napájení (z baterií nebo síťového adaptéru).

MC-08x zasouvací moduly dle typu měření, volitelně dodávané se základnou.



IT-08x přehled

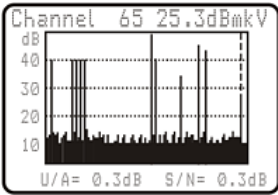
1. IT-081 TV Level Meter
2. IT-082 Digital Satellite Meter
3. IT-084 TDR Cable Reflectometer
4. IT-086 Optical Power Meter
5. IT-087 Digital TV QAM Signal Analyzer
6. IT-088 Digital TV COFDM Signal Analyzer
7. IT-089 Light Source

IT-081 TV Level Meter

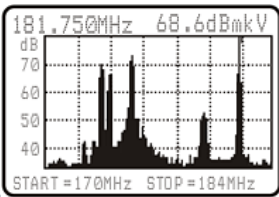
SPECIFICATIONS

tuning range	5 to 900 MHz
resolution	125 kHz
channel plan	B/G General, D/K, M/N AIR, M/N CATV
audio subcarrier, selective	4,5/ 5,5/ 6,0/ 6,5 MHz
attenuator	20, 40 dB (automatic mode)
return loss	>14 dB (att - 0dB) or >18dB (20, 40 dB)
level measurement range	30 – 90 dBuV (input attenuator is off); 50 – 110 dBuV (20 dB input attenuator is on); 50 – 110 dBuV (20 dB input attenuator is on)

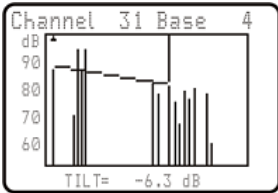
SCAN measuring mode



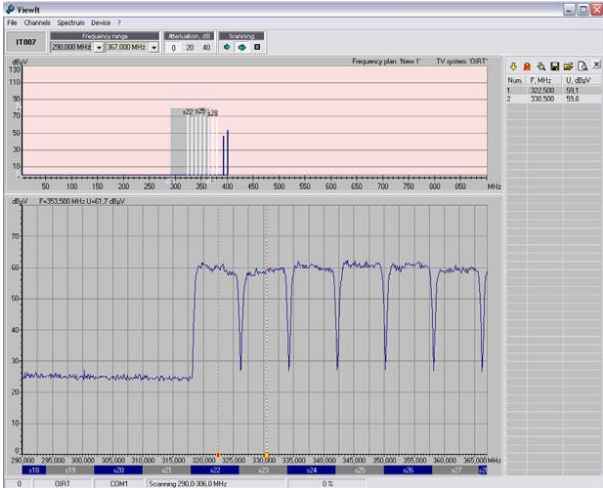
SPECTRUM measuring mode



TILT measuring mode



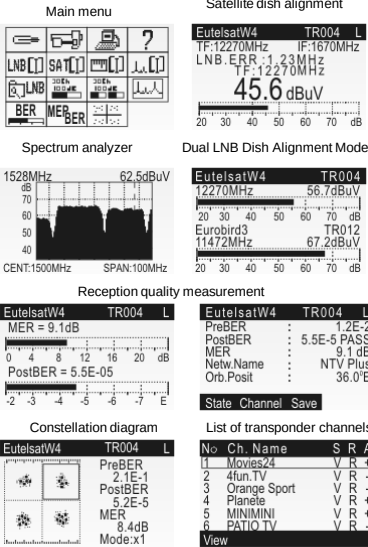
PC Software ViewIt



IT-082 Digital Satellite Meter

tuning range	950 to 2150 MHz
resolution	500 kHz
input impedance within operating frequency range	75Ω
input signal modulation	QPSK
symbol rate	1...45 MSps
FEC	1/2, 2/3, 3/4, 5/6, 7/8
LNB frequency error	±10 MHz
MER measurement range	4...15 dB
BER measurement range prior to Viterbi decoder	1.0E-1...1.0E-7
BER measurement range after Viterbi decoder	1.0E-3...1.0E-8
attenuator	20, 40 dB (automatic mode)
level measurement range	40 – 120 dBuV
accuracy	±2,5 dB

- performing the measurements of level and parameters of a satellite signal
- viewing a spectrum RF at the input meter
- viewing a constellation diagram
- viewing the list of transponder channels
- viewing and changing the satellite directory by the meter

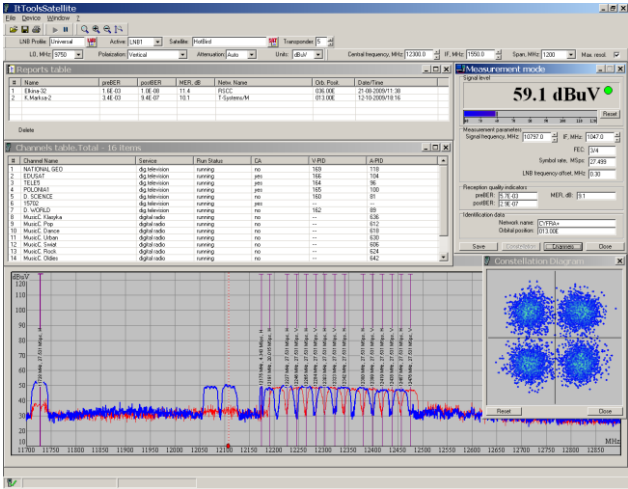


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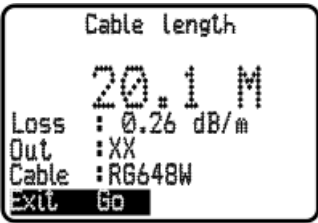


IT-084 TDR Cable Reflectometer

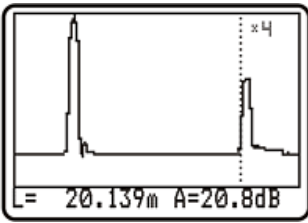
SPECIFICATIONS:

limiting measurement range	1 – 1600 m
horizontal resolution	0,15*PVF m
measurement ranges	12,5/25/50/100/200/400/800/1600 m
input impedance, selective	50/75 Ohm
duration of test pulse, selected from	7/ 25/ 100/ 500 ns
test pulse voltage with no load at input, no less than	3 V(75 Ohm); 2 V(50 Ohm);

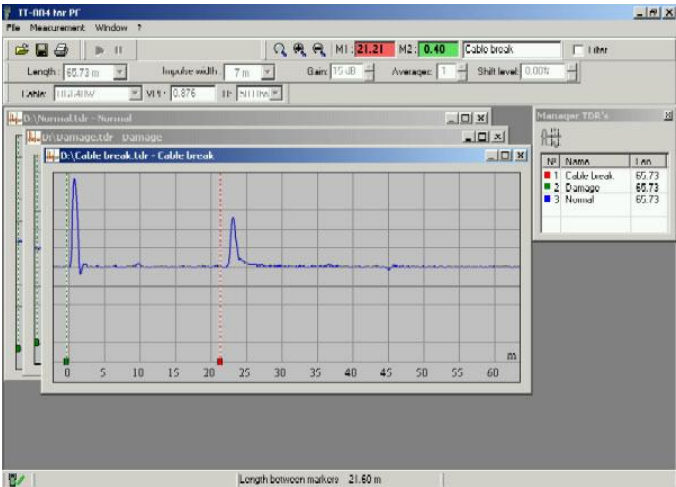
Cable length measurement



Cable probing



PC SOFTWARE It 084

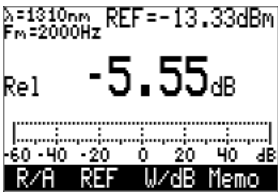


IT-086 Optical Power Meter

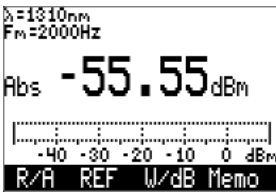
SPECIFICATIONS:

	IT-086.1	IT-086.2
connector type	FC	changeable (FC, SC)
measurement range, dBm	-60...+8	-50...+20
maximum power level, dBm	10	22
resolution, dB	0.01	
calibrated wavelengths, nm	1310, 1550	
accuracy at 0 dBm level, dB	±0.3	
additional uncertainty due to non-linearity within the measurement range, dB	±0.2	

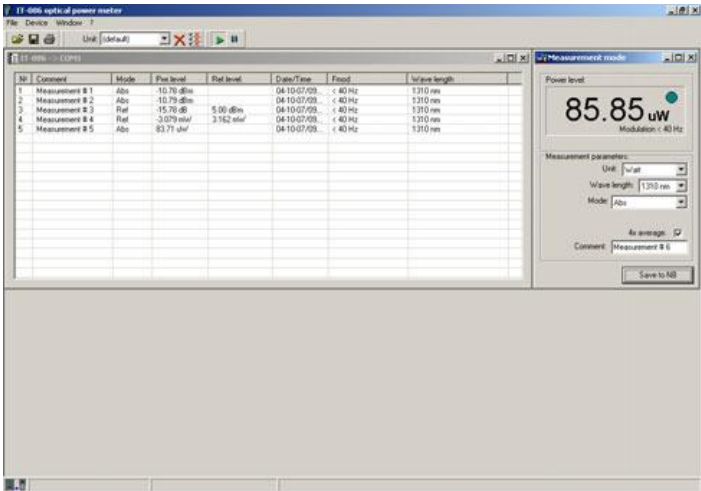
Relative power measurement mode



Absolute power measurement mode



PC SOFTWARE It 086



IT-087 Digital TV QAM Signal Meter

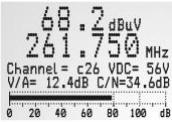
SPECIFICATIONS:

tuning range	5 to 900 MHz
operating range	45 to 865 MHz
resolution	125 kHz
channel plan	Load from PC
attenuator	20, 40 dB (automatic mode)
return loss	>14 dB (att - 0dB) or >18dB (20, 40 dB)
level measurement range	
• input attenuator is off	• 30 – 80 dBuV
• 20 dB input attenuator is on	• 50 – 100 dBuV
• 40 dB input attenuator is on	• 70 – 120 dBuV
IF bandwidth	230 ± 60 kHz
modulation	QAM16, 32, 64, 128, 256
symbol rate	1,00 - 7,00 Mbaud
MER measurement range	21-40 dB (for QAM64)
MER measurement resolution	0,1 dB
BER measurement range	1.0E-2 – 1.0E-8

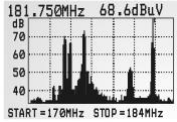
Main menu



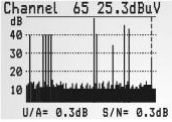
LEVEL measuring mode



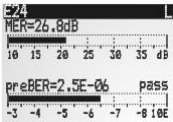
SPECTRUM measuring mode



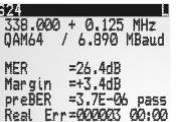
SCAN measuring mode



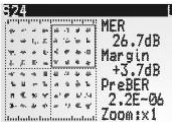
BER/MER measuring mode (bar-graph)



BER/MER measuring mode (text)



Constellation diagram measuring mode



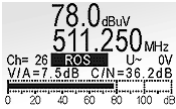
IT-088 Digital TV COFDM Signal Analyzer

SPECIFICATIONS:

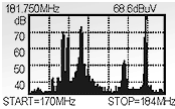
tuning range	5 to 900 MHz
operating range	45 to 865 MHz
resolution	125 kHz
channel plan	Load from PC
attenuator	20, 40 dB (automatic mode)
amplifier (for DVB-T/H measurement only)	11 dB

COFDM demodulator parameters:	
•symbol constellation	•QPSK, QAM16, QAM64
•channel bandwidth, MHz	•6, 7, 8
•number of carriers	•2k, 4k, 8k
•constellation mapping	•non-hierarchical, hierarchical (α=1, 2, 4)
•guard interval	•¼, 1/8, 1/16, 1/32
•code rate	•½, 2/3, ¾, 5/6, 7/8
•MER measurement range	•16 – 35 dB (QAM64, code rate = 2/3)
•MER measurement resolution	•0,1 dB
•CBER measurement range	•1.0E-3 – 1.0E-8
•VBER measurement range	•1.0E-3 – 1.0E-8
•warm up time	•10 min

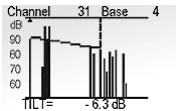
LEVEL measuring mode



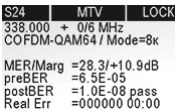
SPECTRUM measuring mode



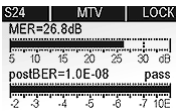
TITLE measuring mode



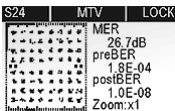
BER/MER measuring mode (text)



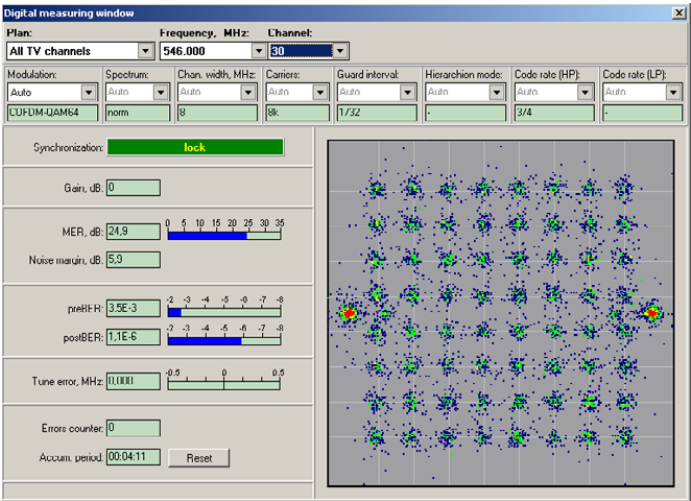
BER/MER measuring mode (bar-graph)



Constellation mapping measuring mode



PC SOFTWARE ViewIt



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IT-089 Light Source

SPECIFICATIONS:

optical element	FP-LD
wavelength	1310 ±20 nm
spectral width (RMS)	≤5 nm
optical output power range (CW)	-7...+3 dBm
optical output power stability (at 0 dBm)	
• time stability (15 min)	• ±0,02
• time stability (8h)	• ±0,1





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