TRUE FIELD INSTRUMENTS WITH LABORATORY ACCURACY

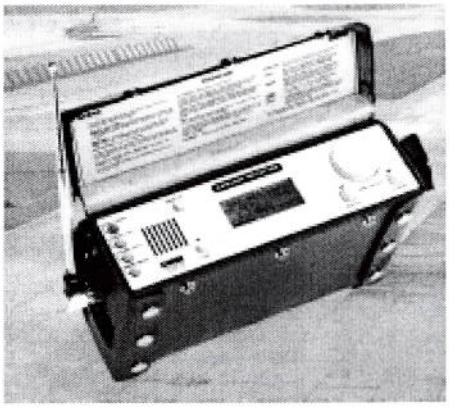
In the increasingly crowded VHF/UHF frequency band the need for spectrum management has never been more important than today. The GPR 4000 series of receivers and associated software will allow sophisticated measurements and spectrum scanning to be conducted with ease and speed with no sacrifice in accuracy. The GPR 4000 series offers a portable solution to many measurement and monitoring problems.

The GPR 4000 series has gained acceptance throughout the world in many applications covering 100kHz-2.5GHz. It is an ideal measuring tool for mobile communications network planning and maintenance. Together with Chase integrated software packages they can form the basis of comprehensive measurement systems for :-

- Signal monitoring
- Signal surveys - Pedestrian and Vehicular
- Broadcast coverage
- Cellular performance
- Personal communications networks

The front panel display allows access to all parameters and features of the unit and it has variable contrast to facilitate use in all lighting conditions. A signal level can be displayed numerically in selected units. For trend indications a bar graph indicates the level over the 84dB dynamic range of the receiver (130dB using internal automatic RF and IF attenuator). All main parameters: tuned frequency, measurement bandwidth, RF detector and time constants are displayed. The squelch threshold is indicated on the bar graph and can be conveniently set from the front panel.

The modulation level of speech transmissions can be measured dynamically under operational conditions. A direct reading of FM deviation or peak AM percentage is displayed.



Direct Field Strength Readings in dBµV/m. Antenna factors are automatically added to the field strength reading when standard antennas are used.

For measurements on the move it is critical to have fast transfer of calibrated signal strength data. The GPR 4000 series can sample at a rate of 200/second allowing signal strengths to be captured accurately. These measurements can be transferred over RS232 allowing measurements to be made at speeds of up to 100km/hour.

In their scanning mode the GPR 4000 receivers can scan sequentially from any selected start frequency to any stop frequency within their range. The scan is automatically stopped on any frequency with a signal level above a specified threshold. Variable "dwell" and "hold" times can also be selected. Up to 100 frequencies can be locked out during scanning.

Priority channels allow any two frequencies to be monitored on a regular basis as a "background" task of the receiver. Each priority channel has a variable sampling time. In priority mode, as soon as a selected signal is present the receiver automatically holds on that frequency and indicates its measurement. This facility is ideal for tracing and monitoring intermittent or illegal signals whilst allowing normal measurement operations.

At the press of a button all receiver settings are captured and transferred immediately to memory for subsequent analysis. Up to 40 frequencies and settings can be stored and edited, each of which is displayed on a "Channel List".

An RS232 interface is provided for the external control of all receiver functions and the transfer of all measurement data.

Two isolated, squelch operated change-over relays are provided to allow for simple remote monitoring, such as tape recorder switching, without the need of a controller.

PC APPLICATION SOFTWARE for use with GPR Series:

- signal monitoring
- field strength surveying
- channel occupancy
- vehicle or pedestrian operation
- channel usage
- monitoring via serial links
- unattended system control

Custom software is also possible

Other propagation products from Chase

Automatic survey systems (Hindsite/ FSS/ PSS)
Field Strength prediction software
Signal monitoring systems (SMS / COS)

Applications

- Transmitter Site Surveys
- Interference Tracing
- Voice Monitoring
- Direction Finding
- Tracing of "Rusty Bolt" effects
- Channel Occupancy
- Band Usage
- Remote Monitoring
- Field Checking of Modulation

Summary of Features

- 100kHz to 1GHz Frequency Range – extendable with 1.7-2.5GHz down converter
- Typical +/- 0.5dB accuracy
- Light and truly portable
- Direct reading of signal strength
- Industry standard performance and market acceptance
- AM/FM Modulation Measurements
- 80dB plus dynamic range
- High sensitivity
- High shielding and blocking performance
- Frequency scanning and memory scanning
- 40 set up memories
- 100 "lock out" frequency memories
- 2 priority channels
- Overload warnings
- Full working day's use on internal batteries
- Full range of accessories
- Application software available with GPS, Back drop maps and route tracing features

For full details of the specifications, please contact Chase Communications at the address below.

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SPECIFICATIONS - ALL MODELS

FREQUENCY

Frequency Range	
4300 Series:	100kHz-26MHz*, 26-230MHz, 400-1000MHz, 1000-1120MHz* (*reduced specification)
4400 Series:	100kHz-26MHz*, 26-1000MHz, 1000-1120MHz* (*reduced specification)
Frequency Accuracy	±2.5kHz
Tuning increments	0.5, 1, 5, 6.25, 10, 12.5, 20, 25, 50kHz steps
Frequency Offsets	5, 6.25,10,12.5, 25 kHz steps
Frequency Scanning	Between user set limits
Lockout Frequencies	Up to 100
Hold Time	Adjustable 0-9.9 seconds
Dwell Time	Adjustable 0-9.9 seconds
Resume Time	Adjustable 0-9.9 seconds and off

AMPLITUDE

Measuring Range 7.5kHz Bandwidth Average Detection	-10dBµV to 60dBµV (without attenuators) Up to +110dBµV (with 50dB attenuation) (Sensitivity typically -20dBµV)
Level Readout Resolution	0.1dB
Displayed Range	84dB baragraph display
Level Accuracy 7.5kHz Bandwidth	±1.5dB max, typically 0.5dB :26-1000MHz ±3dB : 100MHz-26MHz and 1000-1120MHz
Inherent Spurious Reponses	< 0dB µV equivalent input voltage : 26-1000MHz
Level Detection	Average, Peak
Level Detection Constants	Average 5ms, 0.1s, 1s Peak hold time 1s
Measuring Units	dBu , µV, dB relative, dB µV/m, dBm
Relative Level Range	dB V - 00.0 to +99.9 V -0.01 V to 98.86 V dB µV/m -93 to +106.8 dBm -207 to +7
Squelch Threshold	Adjustable over measuring range. Visually indicated
Internal Cal. Ref.	Impulse Generator
Auto Cal.	When frequency or bandwidth changed
Calibration time	Approx. 1s during normal operation

AUDIO

Audio Demodulation Typical Signal to Noise Ratio (S+N/N, audio filter selected):	AM, FM
AM :	Typically 10dB (6dB < 26MHz) for 0dBµV signal, 30% modulation, 1 kHz tone, Audio filter in
FM:	Typically 20dB (14dB < 26MHz) for 0dBµV signal, 1.5kHz peak deviation, 1kHz tone, Audio filter in
Audio Filter	300Hz ± 50Hz - 1dB to 2.4kHz ± 200Hz - 3dB (switchable)
600Ω Line Output	Adjustable from Front Panel Nominally 0dBm (600)
Audio Output	1.0 W to 3.0 W (dependent upon battery use)

MEMORY

Memory	40 memories of receiver status
Memory Scanning	All 40 memories or any selected number
Hold Time	Adjustable 0-9.9 seconds
Dwell Time	Adjustable 0-9.9 seconds
Resume Time	Adjustable 0-9.9 seconds
Memory Backup	10 years

SELECTIVITY

IF Frequencies	301.5MHz, 21.4MHz, 44kHz
Adjacent Channel	>50dB (12.5kHz channel spacing) >55dB (25kHz channel spacing) (Relative response to unmodulated carrier 60dBµV)
Image Rejection	55dB minimum. Typically 70dB (level required to produce an indication of 0dBµV)
IF Rejection	70dB minimum. Typically 80dB (level required to produce an indication of 0dBµV)
Spurious Response	Typically 50dB (level required to produce a Rejection indication of 0dBµV)
Blocking Level	75dBµV minimum. (1dB level change, 0dBµV signal, 2MHz away) signal, 2MHz from tuned signal)
Intemodulation	55dB minimum. (1µV p.d. input , 50kHz separation)

INPUT

RF input Impedance	Nominally Ω
Antenna Input	N type connector
Input VSWR	<2:1 without RF attenuation <1:4 with RF attenuation selected
RF Attenuation	20dB
IF Attenuation	10, 20 or 30dB
Maximum Safe Level	3.5 V rms (250 mW) + 23 dBm at max. sensitivity
Overload Display	Visual and audible

AUXILIARY OUTPUTS

Serial Data	RS 232 control of all functions
Loudspeaker	1.0 W to 3.0 W into 8 Ω (dependent upon battery state)
Low Level Audio	Variable using Front Panel Control, nominally 0dBm (600 Ω)
Signal Level	Full scale on bargraph 6 V
Noise Level	Approx 1 V
Squelch Operated Relay	Maximum 0.5 A, 28 VDC contacts electrically isolated from receiver

GENERAL

Screening	>60dB
Spurious Emissions	<1 nW
Battery State Indicator	Visual display plus audible warning
Battery Life	10 hours, dependent upon volume level
Charging Time	14 hours
Weight	6 kg (nicluding case and batteries)
Dimensions	315x95x230 (including case)
Operating Temperature	0-45°C
Lock	Front Panel control lock

All Receivers are supplied with: Carry Case, Telescopic Monitoring Antenna, Vehicle Charging Lead, Battery Charger