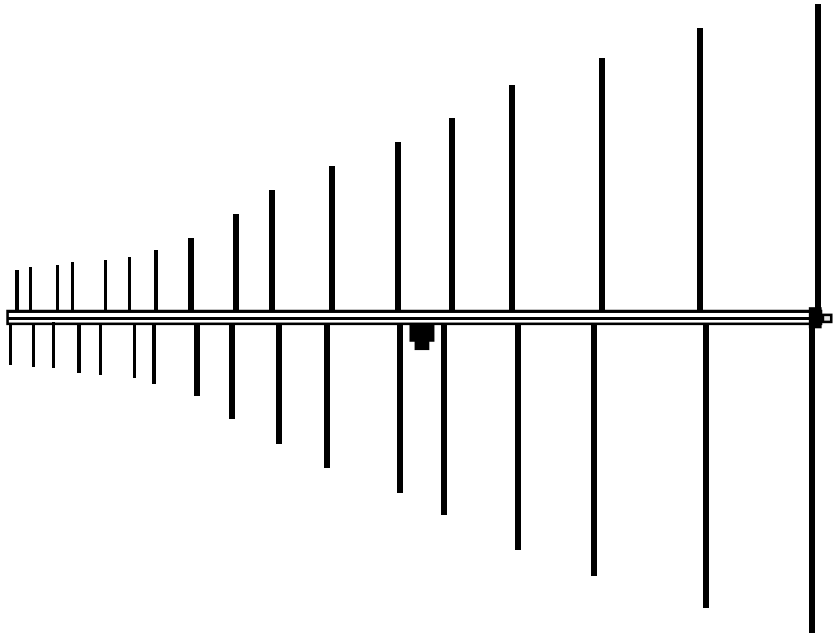
PSA-65C ACCESSORIES

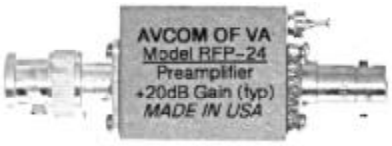


A. LPA-1000 LOG PERIODIC ANTENNA

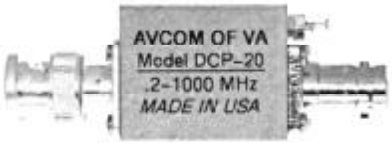
AVCOM's LPA-1000 is a high performance precision-machined log periodic antenna for the PSA-65C, as well as for use with other equipment. The LPA-1000 covers a frequency range from 140 MHz through 1200 MHz. The LPA-1000 is only 49 inches (125 cm) in length and weighs 4 lbs. (1.8 kg). A BNC connector is standard.

Technical specifications for the LPA-1000 include an approximate gain of 6.55 dB and a typical front to back ratio of 15 dB.

AVCOM's LPA-1000A is constructed of solid aluminum and consists of 2 horizontal bars .5"x.375"x49", held together by 2 circular spacers and a pole mounting assembly. A piece of semi-rigid coax runs the length of one of the bars and is mounted by 5 brackets and is attached to a BNC connector on one end and conductive feed through on the other. The BNC connector is mounted on a machined aluminum block to support the connector coax interface. The individual dipoles are inserted into drilled holes in the horizontal bars and held in place by set screws.



RFP-24 Preamplifier



DCP-20 DC Block/Inserter

B. RFP-24 RF PREAMPLIFIER

AVCOM's high performance RF preamplifier, the RFP-24, was designed to enhance the performance of the LPA-1000 log periodic antenna, and for other applications where low noise signal amplification is required. The RFP-24 dramatically improves the sensitivity of any spectrum analyzer or frequency extender to frequencies in excess of 2GHz. Used with AVCOM's PSA-65C portable spectrum analyzer, signals weaker than one microvolt can be detected.

Technical specifications for model RFP-24 include 22 dB gain through 2 GHz, noise figure of 2.2 dB at 1.2 GHz, a VSWR of 2.5:1, and 50 ohms input and output impedance. Power may be supplied by the PSA-65C front panel AUX jack or any source of 12 VDC.

The RFP-24 preamplifier is packaged in a machined aluminum block with dimensions of 1.25"x1.00"x.75". Customer may specify input and output connectors to be SMA, BNC, N, or F of any gender.

See page 1-3 for usage drawings of the RFP-24 and DCP-20.

C. DCP-20 DC POWER INSERTER

AVCOM introduces an addition to their line of DC power inserters, the model DCP-20. The versatile DCP-20 can be used as a DC block or as a means of inserting power into a coaxial transmission line.

One important application is to remotely power AVCOM's RFP series of preamplifiers through the feedline so the amplifiers may be located at the antenna to eliminate coax losses.

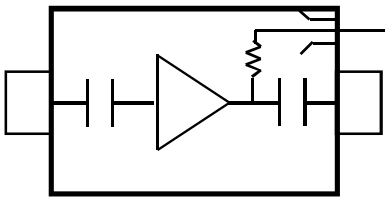
Users of expensive test equipment, such as signal generators and spectrum analyzers, can prevent costly attenuator and mixer burnout (from misconnected power supply leads, shorted DC blocking capacitors or carelessness) by use of the DCP-20 on RF ports.

Insertion loss of the DCP-20 is less than .3 dB through 2 GHz with an impedance of 50 ohms. Other impedances may be specified by the customer. The DCP-20 may be ordered with any mix or gender of SMA, BNC, N and F type connectors.

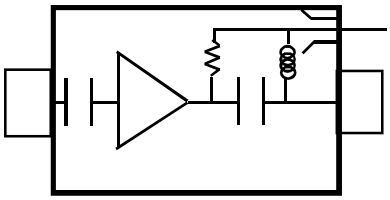
The DCP-20 is packaged in a machined aluminum block with dimensions of 1.25"x1.00"x.75".

See page 1-3 for usage drawings of the DCP-20 and RFP-24.

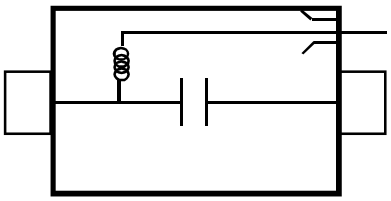
Block Diagrams Demonstrating the use of AVCOM's DCP-20 and RFP-24



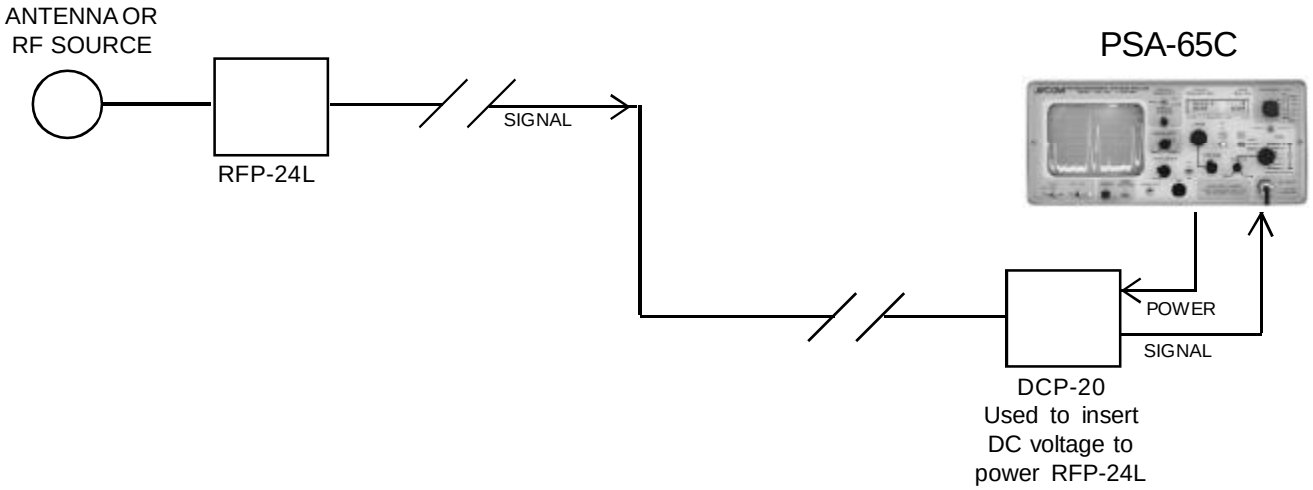
RFP-24
Line Amplifier



RFP-24L
(In line or externally powered)



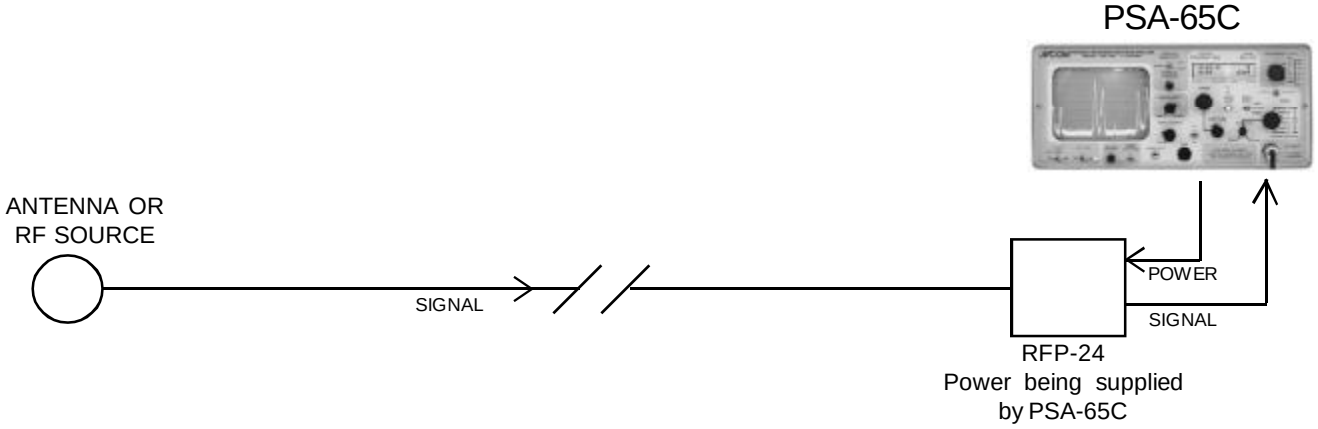
DCP-20
DC Block



Technical specifications for the RFP-24 preamplifier include 22dB gain through 2GHz, noise figure of 2.2dB at 1.2GHz and 50 ohm input and output impedance.

**** NOTE** A complete choice of connectors is available on these products including type N, BNC, SMA, F - both male and female.

WARNING Applying external power to the RFP-24L will place DC voltage on the coax which may cause damage to test equipment if it is not properly DC blocked.



MFC-1250 (1250 to 2500 MHz frequency extender) and
MFC-2500 (2500 to 3750 MHz frequency extender) in one package

D. FREQUENCY EXTENDERS

AVCOM developed Frequency Extenders to allow the PSA-65C to have greater versatility by increasing the frequency coverage. Standard Frequency Extenders include 1.25-2.50 GHz, 2.50-3.75 GHz, 950-1450 MHz, 3.7-4.2 GHz and 5.9-6.4 GHz. Other frequency bands may be customer specified.

Frequency Extenders consist of a mixer and oscillator tuned to down convert a signal so that the output falls between 1 and 1250 MHz which is the input range of the PSA-65C.

The Frequency Extenders are powered by the PSA-65C through the AUX jack and the center frequency counter is designed to display the correct frequency. For instance, 1500 MHz would be displayed as 1500 MHz when using the 1.25-2.50 GHz Frequency Extender.

Frequency Extenders are particularly useful for cable operators who need the capability to align satellite antennas, check signals on cables and monitor off air signals. They are also necessary for the official who employs the PSA-65C to locate RF transmitters (bugs) which operate higher than 1250 MHz. AVCOM has manufactured the 1.25-2.50 GHz and 2.50-3.75 GHz Frequency Extenders in one package for this application.

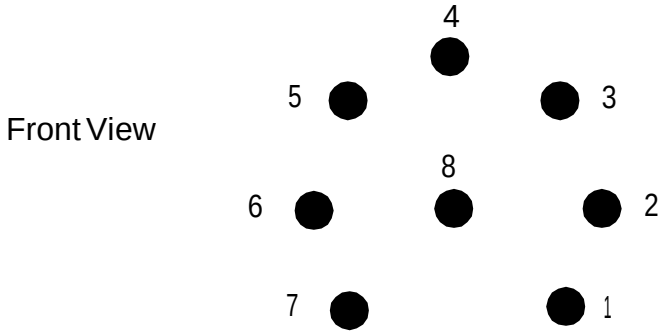
Operating Procedures for PSA-65C Frequency Extenders

1. Plug DIN connector into AUX. jack on the front panel of the PSA-65C. This will provide power to the Frequency Extender and make the Frequency Counter of the PSA-65C read correctly.

2. Connect a cable from the 0-1250 MHz (Output) connector on the Frequency Extender to the RF INPUT connector on the PSA-65C.

3. Connect your input signal to the N connector (marked Input below the N connector and the ordered frequency range above the connector) and take readings and measurements off of the PSA-65C.

E. PSA-65C AUX JACK PIN IDENTIFICATION



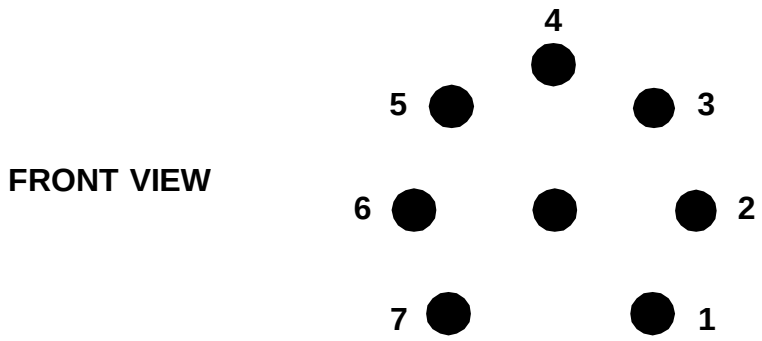
Pin 1 connected to pin 8 sets the frequency counter to 1250 to 2500 MHz.
Pin 1 connected to pins 2 & 8 sets the frequency counter to 2500 to 3750 MHz.
Pin 1 connected to pins 3 & 8 sets the frequency counter to 950 to 1950 MHz.
Pin 1 connected to pins 3, 4 & 8 sets the frequency counter to 3430 to 4430 MHz.
Pin 1 connected to pins 4 & 8 sets the frequency counter to 1500 to 2500 MHz.
Pin 6 is unregulated 12 VDC power.
Pin 8 is ground.
Pin 7 open for future accessories.
Pin 5 to 8 sets frequency counter to 5700 to 6950.

F. AVSAC (Carrying Case)

The AVCOM **AVSAC** carrying case is an attractive and practical accessory for either your Portable Spectrum Analyzer (PSA) or Portable Test Receiver (PTR). The AVSAC is made of durable padded black Cordura Nylon with a protective foam backing. The full length zipper opening on the front of the case allows you easy access to all PSA or PTR operating controls. There is a large zippered and gussetted pocket on the top of the case for storage of accessories, cables, connectors, etc... The edge zipper opening on the case bottom provides access to the PSA or PTR line cord. There is a handy pouch pocket located inside the opening for line cord storage. This pocket is to assure that the cord is not in advertently damaged by the PSA/PTR's feet inside the case. Strong poly-pro webbing reinforces the case and provides secure mounting for a sturdy adjustable/detachable shoulder strap with comfortable shoulder pad.

Also included with your AVSAC is a sturdy impact resistant Kydex cover for the front panel of your PSA or PTR. This cover was designed to protect the knobs and switches located on the front panel from accidental damage during transporting and also provides an excellent support for the PSA data inserts. The cover fits snugly inside the zipper lid of the AVCOM AVSAC and snaps off and on when you open or close the AVSAC.

E. PSA-65C AUX JACK PIN IDENTIFICATION
SIGN-ON IS VER 2.7



Pin 1 connected to pin 8 sets the frequency counter to 1250 to 2500 MHz.
Pin 1 connected to pins 2 & 8 sets the frequency counter to 2500 to 3750 MHz.
Pin 1 connected to pins 3 & 8 sets the frequency counter to 1900 to 3150 MHz.
Pin 1 connected to pins 3, 4 & 8 sets the frequency counter to 3750 to 5000 MHz.
Pin 1 connected to pins 4 & 8 sets the frequency counter to 4900 to 6150 MHz.
Pin 6 is unregulated 12 VDC power.
Pin 8 is ground.
Pin 7 smart extender serial connection.
Pin 5 to 8 sets frequency counter to 5900 to 7150.

F. AVSAC (Carrying Case)

The AVCOM **AVSAC** carrying case is an attractive and practical accessory for either your Portable Spectrum Analyzer (PSA) or Portable Test Receiver (PTR). The AVSAC is made of durable padded black Cordura Nylon with a protective foam backing. The full length zipper opening on the front of the case allows you easy access to all PSA or PTR operating controls. There is a large zippered and gussetted pocket on the top of the case for storage of accessories, cables, connectors, etc... The edge zipper opening on the case bottom provides access to the PSA or PTR line cord. There is a handy pouch pocket located inside the opening for line cord storage. This pocket is to assure that the cord is not in advertently damaged by the PSA/PTR's feet inside the case. Strong poly-pro webbing reinforces the case and provides secure mounting for a sturdy adjustable/detachable shoulder strap with comfortable shoulder pad.

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G. OVERLAYS

The AVCOM **OVERLAYS** are handy die cut plastic sheets designed to fit over the CRT display of AVCOM's Portable Spectrum Analyzers. The OVERLAYS can be used to document installations for future reference. Documentation is accomplished by tracing the display on the OVERLAY. The OVERLAY should be written on with an indelible felt tip pen to provide a permanent record.

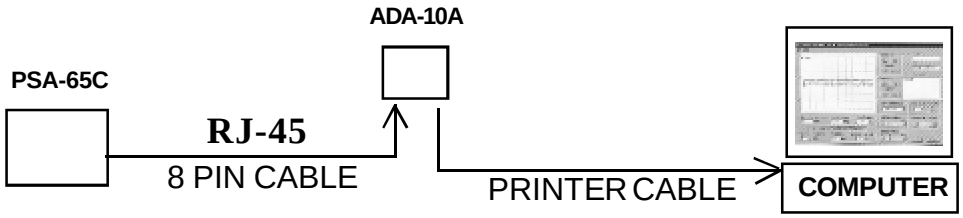
Each OVERLAY packet includes 3 OVERLAYS, an envelope with a depicted graticule and PSA front panel references to note such things as Sweep, Span, Band Select, and Reference Level. Customer name, date, system type, and technician/installer name spaces are also provided for your convenience.

H. ADA-10A Analyzer Display Adapter

The Analyzer Display Adapter model ADA-10A accessory enables the PSA-65C operator to save on an IBM compatible PC the trace and settings as displayed on the PSA-65C during use and to later recall a trace to compare it to a new trace. The trace is transmitted from the PSA-65C to the PC via the Adapter which converts the trace from analog to digital. Settings are entered via the computer keyboard to be saved with the trace.

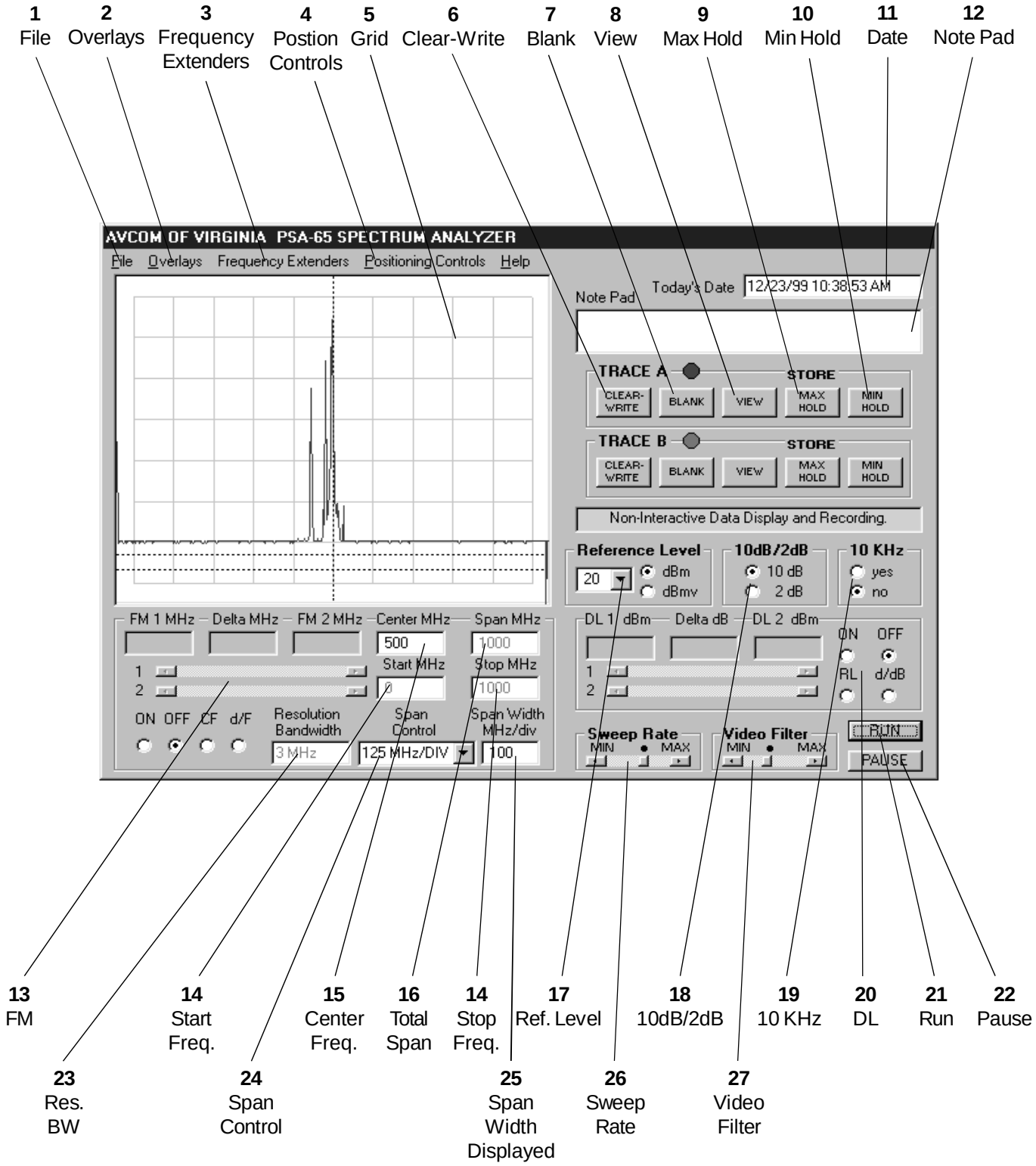
ADA-10A Analyzer Display Adapter Instructions

1. Installation.
   a. Software. Put disk #1 in computer's 3.5" drive. From Windows Desktop click on My Computer, then 3.5" Drive. Then click on Setup. Follow instructions as they appear on the screen.
   b. Hardware. WARNING: TURN OFF ALL POWER BEFORE CONNECTING INTERFACE UNIT BETWEEN ANALYZER AND COMPUTER. Connect one end of the flat cable assembly to recepticle in back panel of PSA-65C and other end into the ADA-10A. Connect one end of standard printer cable to ADA-10A and other end to PC printer port.



2. Use.
   a. Turn on and operate PSA-65C in the normal manner. NOTE: the PSA-65C and ADA-10A do not need to be connected to look at files saved previously on your PC.
   b. Turn on computer and start program running on PC by clicking on Start, then pointing at Programs and PSA-65C on the list of programs. Click on the icon which appears when you point at the program. A window will appear with the name of the program and a picture of a PSA-65C. Click on Run Program. A window like that shown on the following page will appear.
   c. Click on Run to create a new trace. Or use drop down menu from File command to open a file previously saved. Or use drop down menu from Overlays command to open a previously created overlay.
   d. Use Positioning Controls to position trace as needed.
   e. Select trace color, enter settings as on PSA-65C, enter notes and adjust Video Filter as desired.
   f. Use drop down menu from File command to Save files or Print screen and Exit program.

ADA-10A COMPUTER DISPLAY



LOCATION OF SOFTWARE FUNCTIONS AND FEATURES

1. File: pull down menu includes Configuration command for selecting color of trace as well as commands to Save and Open files and Print screen.

2. Overlays: pull down menu includes save and recall overlays.

3. Frequency Extenders: pull down menu to select type frequency extender if used.

4. Position Controls: open window with slide bars to adjust vertical and horizontal position and gain of trace to match position on CRT of PSA-65C.

5. Grid: same pattern as graticule on CRT of PSA-65C.

6. Clear-Write: clears old trace and begins writing new trace as seen on PSA-65C.

7. Blank: hides trace.

8. View: freezes trace or displays hidden trace.

9. Max Hold: peak detection, displays maximum amplitude received at each frequency.

10. Min Hold: low peak detection, displays minimum amplitude received at each frequency.

11. Date: displays date & time when file was saved.

12. Note Pad: space for operator to enter information as needed for future reference such as source of signal or location where trace was recorded.

13. FM: Frequency Markers. Select mode: on (turns on freq. marker #1 at left), off, CF (moves marker #1 to center frequency) or d/F (turns on freq. marker #2. Delta frequency automatically calculated). Use slide bars to position.

14. Start & Stop Frequency: calculated.

15. Center Frequency: enter to show LCD reading on PSA-65C.

16. Total Span: calculated.

17. Reference Level: select reference level to reflect reference level on PSA-65C.

18. 10dB/2dB: changes dB/DIV scale of display as shown on PC.

19. 10KHz: indicate if PSA-65C has 10KHz filter. Changes Res. BW indicated when appropriate.

20. DL: dB Level markers. Select mode: on (turns on marker at top or where last used), off, RL (resets Reference Level to top and turns off marker #2.) or d/dB (turns on marker #2. Delta dB calculated automatically). Use slide bars to position.

21. Run: restarts program after pausing program or printing out screen to a printer.

22. Pause: interrupts program.

23. Resolution Bandwidth: calculated by Span Control.

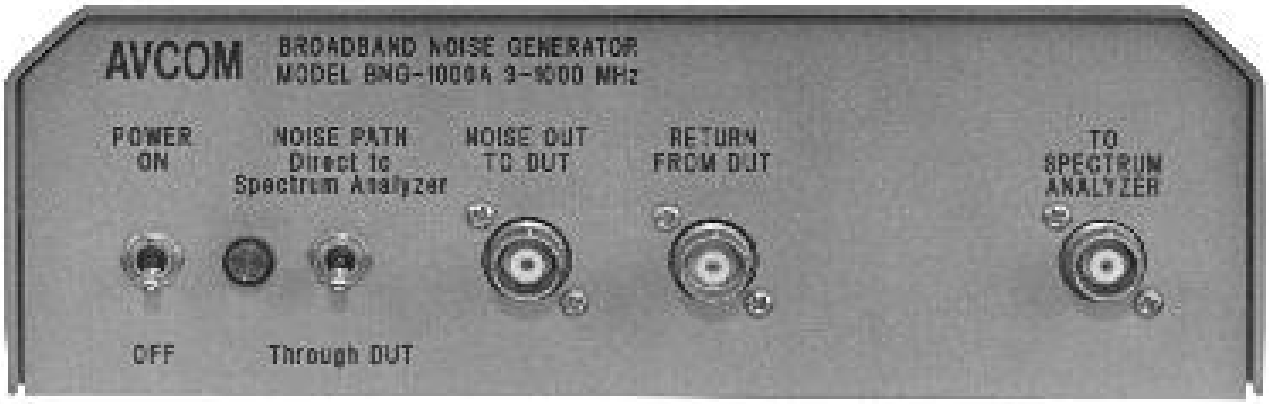
24. Span Control: select span to reflect setting on PSA-65C.

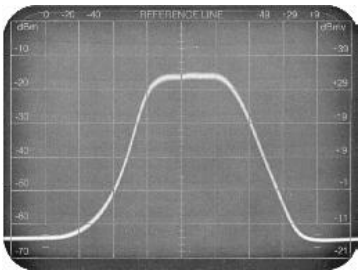
25. Span Width Displayed: enter to reflect span setting (may differ from Span Control if Variable Span is not at Full).

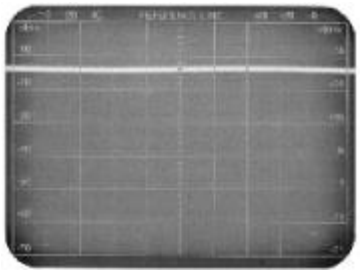
26. Sweep Rate: set to reflect setting on PSA-65C.

27. Video Filter: controls RF noise in base line as seen on PC.

I. BNG-1000A BROADBAND NOISE GENERATOR







Left photo depicts a 70 MHz BP filter displayed on an AVCOM PSA-65C Portable Spectrum Analyzer with the BNG-1000A NOISE PATH in the Through DUT position. The right photo is the same set up with the BNG-1000A Direct To Spectrum Analyzer for quick insertion loss measurement.

The BNG-1000A Broadband Noise Generator adds to the capability of spectrum analyzers such as AVCOM's PSA-65C by allowing them to perform frequency response measurements similar to the use of a tracking generator. The BNG-1000A noise source is useful for sweeping coaxial cables, tuning filters and characterizing amplifiers. Integral RF switching allows the noise reference level to be displayed on the spectrum analyzer, and by a front panel switch, the device under test (DUT) is placed into the network and its response immediately observed. Insertion loss can be measured with the flip of a switch.

BNG-1000A SPECIFICATIONS

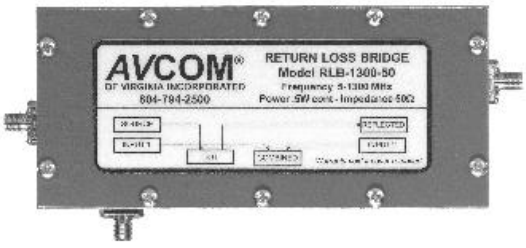
Frequency Range
3-1000 MHz
Output Level
Using AVCOM's PSA-65C Portable Spectrum Analyzer -30 dBm with span set 125 MHz/Div and 3 MHz Res. B.W.
Flatness
± 3 dB typical
Power Requirements
+12 to +24 VDC @ 200mA
115 VAC to +12 VDC adapter provided
Powered by the AUX jack on the PSA-65C
Powered by the LNA/BDC power switch on the PSA-35A and PSA-37D (optional)
Dimensions
6.5"W x 2.25"H x 7.25"D
16.5cmW x 5.7cmH x 18.4cmD
Weight
2lbs./.9kg

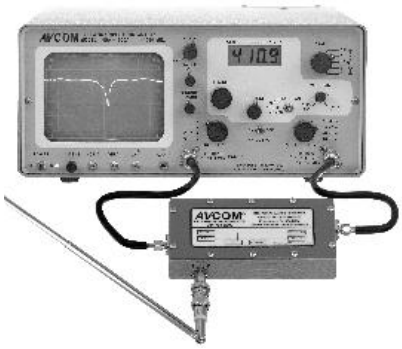
J. MTG-1000A Microwave Tracking Generator

The MTG-1000A used with a PSA-65C or MSA-90A allows the operator to make signal measurements of filters, duplexers and amplifiers from 1 to 1000 MHz with a dynamic range of >90dB. Stimulus-response measurements of other RF networks can be made. The LFP-500A Low Pass Filter is an option for the MTG-1000A. The LPF-500A can be used for tuning duplexers in the 460 MHz range.

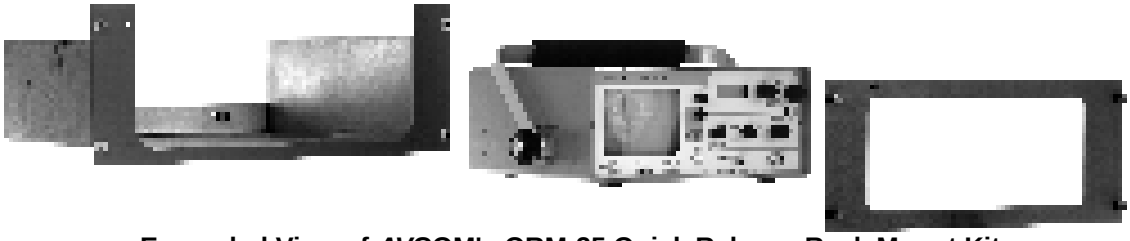
K.50W AND 75W RETURN LOSS BRIDGES RLB-1000-50, RLB-1300-50 & RLB-1000-75

AVCOM introduces three new Return Loss Bridges, models RLB-1000-50, RLB-1300-50 and RLB-1000-75. The RLB-1000-50 and RLB-1300-50 are 50W bridges with a broad frequency coverage of 5 to 1000 MHz and 5 to 1300 MHz respectively and excellent directivity of >45dB. The RLB-1000-75 has an impedance of 75W with a directivity of >45dB in the 5 to 600 MHz band and slightly less in the 600 to 1000 MHz band. All return loss bridges from AVCOM are rugged and constructed in machined aluminum housings, with a SMA connector. Matched test cables are available and are provided at no charge when either bridge is purchased with an AVCOM NSA-1000A Network and Spectrum Analyzer or PSA-65C Portable Spectrum Analyzer. When AVCOM's return loss bridges are used with AVCOM's NSA-1000A Network Analyzer, service monitor or spectrum analyzer with a tracking generator/broadband noise generator, return loss or VSWR measurements of antennas, amplifiers or filters can be easily and quickly accomplished. Engineers and technicians in the broadcast (TV and radio), CATV, 2 way, cellular and paging industries will find the RLB-1000-50, RLB-1300-50 and RLB-1000-75 Return Loss Bridges to be indispensable tools. Size- 5.00" x 2.25" x 1.00". Weight 1 lb.





AVCOM's NSA-1000A with RLB-1000-50 showing the return loss of a whip antenna at its resonate frequency. The same measurement can be made using AVCOM's PSA-65C with BNG-1000A and RLB-1000-50.



Expanded View of *AV*COM's QRM-35 Quick Release Rack Mount Kit

L. QUICK RELEASE RACK MOUNT KIT, MODEL QRM-35

The QRM-35 allows AVCOM PSAs, Portable Spectrum Analyzers and PTRs, Portable Test Receivers to be installed into a standard 19" equipment rack. The faceplate of the QRM-35 has 4 spring loaded thumb screws so that the PTR or PSA can be rapidly removed for field applications and then easily reinserted into the rack.

WCA-11
Waveguide to Coax Adapter

WCA-4A
Waveguide to Coax Adapter

CKA-12
Ku to C-Band Flange Adapter

M. WCA-11 WAVEGUIDE TO COAX ADAPTER

The WCA-11 Waveguide to Coax Adapter transforms signals in waveguide transmission line to coaxial line and vice versa. The adapter functions for signals in the 11.25-12.75 GHz range in either direction, waveguide to coax or coax to waveguide.

The WCA-11 is a one piece aluminum casting and comes with all necessary hardware for attachment to an LNB.

N. WCA-4A WAVEGUIDE TO COAX ADAPTER

The WCA-4A Waveguide to Coax Adapter transforms signals in waveguide transmission line to coaxial line and vice versa. The adapter functions for signals in the 3.7 to 4.2 GHz range in either direction, waveguide to coax or coax to waveguide.

The WCA-4A is a one piece aluminum casting and comes with all necessary hardware for attachment to an LNA, feed horn, or other accessories. It also has a tapped 1/4-20 bracket which enables mounting on most tripods.

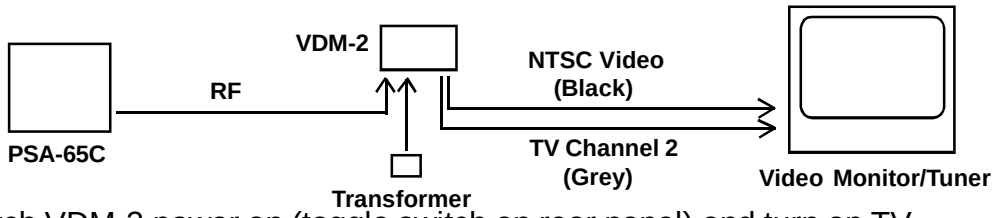
O. CKA-12 C BAND TO Ku BAND MICROWAVE FLANGE ADAPTER

The CKA-12 Microwave Flange Adapter for C to Ku band waveguide allows the use of larger C band waveguide components such as feed horns, transitions, etc.... with Ku band LNB's and LNC's. A unique feature of the CKA-12 is the combination of tapped and clearance holes which greatly simplify attachment of the CKA-12 to 12 GHz LNC's, feed horns or accessories, a 1/4-20 tapped hole is provided so the assembly can be mounted on a standard tripod.

P. VDM-2 FM Video Demodulator/AM Video Converter

The FM Video Demodulator/AM Video Converter model VDM-2 when connected to the PSA-65C and a video monitor/tuner, enables the user to demodulate and see the video of narrow band FM and AM video transmitters received over the frequency range of the spectrum analyzer and any frequency extenders used with it. Combining an AVCOM Spectrum Analyzer with the VDM-2 Video Demodulator creates a powerful instrument that can detect hidden video transmitters.

1. Setup and Use.
   a. Operate PSA-65C in the normal manner.
   b. Connect RF Output on the rear panel of the analyzer to the RF In on the rear panel of the VDM-2 (BNC connectors).
   c. Connect the TV Channel 2 Output on the rear panel of the VDM-2 to the antenna input on a TV (video monitor/tuner).
   d. Connect the NTSC Video Output on the rear panel of the VDM-2 to the video input of a video monitor.
   e. Connect transformer to power source and to Power In jack on rear of the VDM-2.



   f. Switch VDM-2 power on (toggle switch on rear panel) and turn on TV.
   g. With DEEMPHasis switched to IN position and Demod selector in FM normal, tune PSA-65C to center of (suspected) video signal, switch Zero Span to Audio and then tune to peak signal on meter on VDM-2.
   i.. Select FM Video Demod or AM Video Demod and normal or invert until best combination is found.
   j. For FM, select video on monitor/tuner. For AM, select tuner (TV) on monitor/tuner and tune to channel 2.
   k. For FM switch DEEMPHasis on VDM-2 from IN position to OUT and adjust GAIN as needed to improve picture.

PSA-65C OPTIONS

A. 10 KHz RESOLUTION BANDWIDTH FILTER

The installation of the 10 KHz Resolution Bandwidth Filter not only gives the PSA-65C a 10 KHz resolution B.W., it also increases the frequency coverage from 1 MHz - 1250 MHz to 200 KHz - 1250 MHz.

The 10 KHz Res. B.W. Filter option is activated automatically when the .2 MHz/DIV SPAN control is selected. If this option is not installed the .2MHz/Div position B.W. is 75KHz.

B. OSA-20A OSCILLOSCOPE INTERFACE

The Oscilloscope Interface option was designed to give the operator the ability to output the CRT display of the PSA-65C to an oscilloscope. The real advantage of this capability is realized when the PSA-65C is interfaced with a digital oscilloscope. The information of the PSA-65C can be digitized and stored to be recalled at a later date or output to a computer via the RS-232, HP-IB or other computer interface port of the digital oscilloscope.

I. OSA-20A Connection

1. BNC cable from OSA-20A to scope.

2. RJ-45 cable from OSA-20A to spectrum analyzer.

II. Oscilloscope Front Panel Set-Up

1. Time Base = 5mS/Division

2. Vertical = 1V/Division

Sync pulse is combined onto signal.