

# Technical Specifications - PSA1302 & PSA2702

## FREQUENCY MEASUREMENT

### Frequency Span

Frequency Range: 1 MHz to 1300 MHz (PSA1302)  
1 MHz to 2700 MHz (PSA2702)  
Setting Modes: Centre frequency plus Span, or Start plus Stop frequencies  
Maximum Span: 1299 MHz (PSA1302)  
2699 MHz (PSA2702)  
Minimum Span: 270 kHz, or Zero Span with demodulation  
Set. Resolution: 1 kHz at any frequency  
Setting Accuracy: Reference Frequency Accuracy for Start, Stop & Centre (Zero-Span) frequencies

### Reference Frequency Accuracy

Initial Accuracy: Better than  $\pm 10$  ppm at 20 °C  
Stability: Better than  $\pm 10$  ppm over 10 °C to 30 °C  
Ageing: Better than  $\pm 3$  ppm per year

### Phase Noise

Phase Noise: Phase noise at 100kHz offset at 500MHz typically -90dBc/Hz

### Resolution Bandwidth

RBW: Selectable 1 MHz, 280 kHz, or 15 kHz  
Video Filtering: Selectable independently of RBW setting

### Markers

No. of Markers: One, Two (or None)  
Resolution: 0.1 kHz at all frequencies  
Marker Accuracy: 1/270th of Span  $\pm$  0.1kHz plus reference frequency accuracy.  
Readout: The frequencies at the marker points and the frequency difference are displayed

## AMPLITUDE MEASUREMENT

### Amplitude Range

Units: Selectable as dBm or dB $\mu$ V  
Display Range: 85 dB from reference level  
Magnification: x2, x5 or x10  
Reference Level: Selectable as -20 dBm or 0 dBm (87 dB $\mu$ V or 107 dB $\mu$ V)

### Amplitude Accuracy

Calibration Level  
Accuracy: Better than  $\pm 1$  dB at 10dB below ref. level @ 50MHz (20°C  $\pm$  5°C)  
Flatness: Better than  $\pm 1.5$  dB over the range 1 MHz to 1300 MHz (PSA1302)  
1 MHz to 2700 MHz (PSA2702)  
Linearity: Better than  $\pm 1$  dB over 50dB from the reference level  
Noise Floor: Better than -93 dBm average displayed noise floor (typically -96 dBm) (reference level = -20 dBm, RBW = 15 kHz)

### Distortion and Spuri

3rd Order Intermodulation:  
< -60dBc for two signals at 10dB below reference level, (500MHz and 502MHz)

Harmonic:  
< -60dBc at 10dB below reference level (100MHz)

1st & 2nd Image:  
< -55dBc, typically < -60dBc

Residual Spuri:  
better than 3dB above noise floor

### Markers

No. of Markers: One, Two (or None)  
Resolution: 0.1 dB  
Readout: The level at the marker points and difference are displayed.

## SIGNAL INPUT

Input Connector: SMA connector, 50  $\Omega$   
VSWR: 1.5 : 1 typical  
Maximum Level: +20 dBm, (127 dB $\mu$ V); +/-50V DC

## SWEEP

Sweep Method:  
Peak detection for 270 points per sweep. The amplitude and frequency of the peak level found within each sub-span is stored (sub-span = span/270).  
Sweep Time:  
Set automatically by Span and RBW.  
Sweep Modes:  
Repeat (continuous) or Single Shot  
Trace Writing Modes:  
Normal (overwrite), Peak Hold, Average (2 to 48 sweeps).

## DEMODULATION (Zero Span mode)

Demod. Modes: AM or FM  
Display: Carrier amplitude only (horizontal line).  
Audio: Internal loudspeaker.  
Audio Out: 30 mW into 32  $\Omega$  mono or stereo headphones, adjustable volume, 3.5mm jack socket  
Audio Filter: Switchable 3kHz Low Pass Filter.

## DISPLAY

Display Type: 4.3 inch (10.9 cm) backlit TFT LCD, 480 x 272 pixels total, 16 colours, touch screen.  
Trace Area: 232 x 272 pixels.  
Graticule: 8.5 x 10 divisions, light grey graticule.  
Displayed Points: 271 points per sweep (peak detected).  
Live Trace: Dot-joined trace from current sweep.  
View Trace: Buffered "instance" of the live trace.  
Reference Trace: Stored trace recalled from a trace file.

## MEMORY STORAGE

Internal Disk:  
1.8GB of internal memory.  
External Storage:  
USB host interface for removable USB Flash drives.  
Store Trace:  
Up to 999 traces can be stored under either default file names or user entered file names. Traces are stored as tables of amplitude versus frequency and can be imported into other programs, as well as being recalled to the screen.  
Recall Trace:  
Recalls any stored trace to the reference trace of the display.  
Store Set-up:  
Up to 999 instrument set-ups can be stored under either default file names or user entered file names. All settings of the instrument are saved.  
Recall Set-up:  
Recalls any stored set-up, overwriting the existing settings of the instrument.  
Store Screen:  
This function copies the whole screen area to memory as a bit-map. Up to 999 screens can be stored under either default file names or user entered file names.  
Recall Screen:  
Recalls any stored screen as an image.

## CONNECTORS

RF Input: Standard SMA connector.  
DC Power: 1.3 mm power socket for external power supply/charger  
USB Host: Standard USB type A connector for connection of USB Flash drives.  
USB Device: Mini USB connector for connection to a PC.  
Audio Out: 3.5 mm jack socket for demodulated audio out (accepts mono or stereo plugs).  
Trigger In/Out: For use with option U01 only.

## POWER SOURCES

### Battery

Battery Type: Li-ion 3.7V 3000mA-hr  
Battery Life: Typically greater than 8 hours continuous  
Recharge Time: < 3 hours from fully discharged  
Auto Off Mode:  
To conserve battery life, the system can be set to automatically switch off after a defined time from the last key press. This can be set between 5 mins and 60 mins (or never).  
Battery Status: Multi-segment battery status indicator.

## AC Line Operation/Charging

The instruments can be operated continuously from mains power using the AC line adaptor provided. This powers and recharges the instrument simultaneously.  
Voltage Range: 100V to 240V nominal 50Hz/60Hz

## MECHANICAL

Size: 192mm high x 92mm wide x 49mm deep  
Weight: 560 grms.  
Tilt Stand:  
Built-in tilt stand for bench use which angles the unit at approx. 40 degrees to the horizontal.  
Stylus: Casing incorporates plug-in stylus.

## ENVIRONMENTAL AND SAFETY

Operating Range: +5°C to +40°C, 20% to 80% RH.  
Storage Range: -10°C to +50°C  
Environmental: Indoor use at altitudes to 2000m, Pollution Degree 2.  
Electrical Safety: Complies with EN61010-1.  
EMC: Complies with EN61326.

## OPTION U01

Option U01 is a firmware upgrade that provides additional capabilities as follows:

### Limit Lines and Patterns

Limits: Up to two limits can be displayed together. Lines are defined by dB value, Patterns are created as files by PSA-Manager and loaded from memory (999 files maximum).  
Comparator: Comparison of trace or trace segment with limits (above/below/between/outside) can generate trigger signal, pulse, or audio alert.

### Data Logging

Data Types: Peak level, Centre Level, Full Trace or Screen Image.  
Data Entries: Up to 25,000 entries per file (2500 for Images).  
Trigger Source: Entries can be made in response to Manual Trigger key, External Trigger, Internal Timer (2s to 100m per entry) or Limits Comparator.

### Sweep Trigger

Source: External Trigger or Limits Comparator.

### Offsets and Compensation Tables

Fixed Offsets: Compensation for external gain or attenuation from -50.0dB to +50.0dB.  
75 Ohm: Compensation for signals from a 75 $\Omega$  source.  
Tables: Compensation for variations of level with frequency for antennae or transducers. Tables are created as files by PSA-Manager and loaded from memory (999 files maximum).

### Custom Presets

Enables rapid switching between setups for repetitive testing.

### View on PC

Enables the screen of the spectrum analyzer to be sent to a PC via USB and displayed at a user-defined size.

## OPTIONS

### Optional Items

Firmware Upgrade: PSA-U01  
Transit Case: PSA2-SC  
Telescopic antenna: WB-ANT  
Vehicle Charger: PSA-VC

For a full list of optional items available for the PSA Series II, please contact Aim-TTi or visit: [www.aimtti.com/psa](http://www.aimtti.com/psa)

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