WATERBEACH ELECTRONICS

SA-2705A Handheld Spectrum Analyzer

1.0 Description:

This product is aimed for general radio frequency installation/system work, and for service/repair applications. The product may also be used to help trace and locate the source of interference to radio communication systems. It is designed primarily to perform very basic RF signal level and frequency measurements quickly and easily with its simple easy-to-use interface. Accuracy and performance is adequate for the functional checking of equipment and for locating and characterising RF signals of interest.

2.0 Features and Benefits:

- Robust, compact and lightweight
- Stores up to 100 screen images
- Charges through USB connector or from external +5 V adaptor
- Good sensitivity
- Simple to operate
- Excellent visibility under all lighting conditions from transflective LCD screen with low power back light
- Event triggered frequency and level recording
- Auto resolution bandwidth selection for simple operation
- User resolution bandwidth selection in CW mode
- Level versus time plot in CW mode
- Max hold and normal trace mode
- Full span width mode with 40 MHz resolution bandwidth
- User configurable preset frequency ranges
- Single marker to indicate level and frequency
- Selectable dBm or dBuV units
- Auto power off after 3 minutes, or disable
- Real time clock

3.0 Applications:

- Interference tracing
- Electronic equipment fault locating and service
- Electromagnetic emissions assessment
- Radio system commissioning, site investigations and monitoring
- Electronic circuit and system development
- Antenna testing

4.0 Specification:

- Frequency range: 1.5 – 2700 MHz
- Frequency accuracy: +- 30 ppm
- RBW: 11 kHz to 879 kHz and 40 MHz on Full Span range
- Reference level range: +10 dBm to -40 dBm in 10 dB steps
- Level flatness: +- 3 dB typical
- Level accuracy: +- 1 dB * Note 1
- Level linearity: +- 1 dB
- Display range: > 80 dB
- Minimum noise floor: < -115 dBm
- Residual responses: < -70 dB ref
- 3rd order IMD: < -60 dB * Note 2
- Harmonic distortion: < -60 dB * Note 3
- Other spurious responses: < - 40 dBc typical
- Phase noise: < - 100 dBc/Hz @ 100 kHz offset, 1 GHz
- Sweep time: Approx. 330 ms, Full Span. Approx.1 second, 0 MHz < Span < 200 MHz
- Event Capture: Records frequency, level, date, time and duration of up to 10 intermittent events.
- Battery: Internal 3.7V 1800 mAH 103450 LiPo
- Current consumption: 360 mA nominal
- Operation time after charging: 4 hr nominal
- Charging current: 0.5 A
- Stored screen images: 272 x 144 pixel .bmp
- RF connector: 50 ohm N female
- DC connector: 2.1 mm for 5 V+-0.25 V 1.0 A PSU or adaptor
- Operating temperature range: 0 – 45 degree Celsius
- Dimensions: 155 mm x 96 mm x 30 mm
- Weight: 350 g
- USB 2.0
- Windows 7,8 and 10 compatible
- CE compliant

Note 1: Test condition: Reference level -10 dBm, Input 100 MHz at -10 dBm, Temperature: 22 +- 5 deg C.
Note 2: Test condition: Two tones, 1000 MHz and 1001 MHz, -5 dB below ref.
Note 3: Test condition: Single tone, 100 MHz, -5 dB below ref.

5.0 Operation:

This product is very easy to operate. Equipment settings are configured by navigating a simple menu based user interface, and selecting the desired option. These options include the ability to set start and stop frequencies, span width and center frequency, detector mode, reference levels etc.

Once displaying the frequency spectrum it is possible to position the marker automatically on the signal peak with the up arrow key. The span width can then be widened or narrowed progressively around the frequency of this peak using the up and down arrow keys. First press of the up key sends the marker to the peak, second press widens the span. First press of the down key, centralizes the signal, second press narrows the span. Using only these two keys, the span width can be varied

quickly within the range zero to 200 MHz and the signal centralized. This process quickly becomes very intuitive.

The marker can also be positioned as desired using the left and right arrow keys.

It is often useful to select Full Span initially and then zoom onto the desired signal with the up and down keys.

It is also possible to record the frequency, level, date, time and duration of intermittent signals for up to 10 events. This is useful when attempting to identify and locate interfering signals. To do this, set-up the required frequency range and reference level. After this, select Event Capture from the Utilities menu, and set the signal threshold level. Press the Enter button. Signal excursions over the threshold level are then recorded. To exit this mode, press Enter again and then exit.

6.0 Charging:

Charge by connecting the unit to a PC or other USB charging device.
The unit may also be charged by connecting to a 5 V 1 A Regulated PSU adapter with 2.1 mm plug.

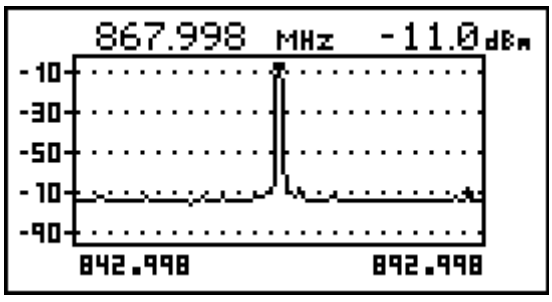
While charging, the charge in progress icon (symbol above the battery status indicator) will appear. It will disappear when the battery is fully charged.

Only charge the battery when the ambient temperature is between 10 and 35 deg C
As with all Lithium Polymer batteries, the product should not be left unattended when charging.

7.0 Up-loading/Deleting Screen Image Files With PC (Personal Computer):

Connect the product via a USB cable to the PC. The product screen will then show USB Connected. (If this is the first time the product is connected to the PC, the PC will automatically search for a driver. It should find one automatically)
Go to the PC and look for external devices. (Start, then My Computer for Windows Systems).
The product will appear as an external device on the PC labelled with the product name e.g. SA-2705A.
Click on the device icon to see files. These may be copied, moved to a folder on the PC or viewed in the usual manner (double click on file).
Please note that files can only be erased from the product (Utilities, then Delete Files, then select Yes or No).

Typical Up-loaded Screen Image:



8.0 Reset:

Holding down the PWR key and the down arrow key together for 3 seconds restores the default settings of the instrument.

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