

Audio Analyzer R&S®UPV

Advancing from an audio analyzer to a program-controlled measuring instrument

The new optional Universal Sequence

Controller R&S®UPV-K1 provides the

Audio Analyzer R&S®UPV not only

with a tool for controlling sequences

but also with an entire programming

development environment that makes

the analyzer a versatile measuring

instrument.

Multitalented analyzer

Like its predecessor, the Audio Analyzer R&S®UPL, the R&S®UPV [*] allows you to program complex measurement procedures and sequences. In contrast to remote control via the IEC/IEEE bus or a LAN from a remote PC, the controlling program here runs in the background of the measuring instrument. The R&S®UPV, which is based on the Windows® XP Embedded operating system, uses the latest version of Visual Basic.net. The R&S®UPV-K1 option is not only a tool for controlling sequences but also an entire programming development environment including the Microsoft Developer Network (MSDN) help file. A special driver module that is activated during the installation of the option establishes the communication between Visual Basic and the measurement functions of the audio analyzer (1).

The programming commands use SCPI syntax and are identical to commands for all other remote-control interfaces of the R&S®UPV. A Visual Basic program

can thus run internally on the R&S®UPV as well as on an external PC – after exchanging the programming line that activates the driver – and control the audio analyzer via one of its remote-control interfaces such as RS-232-C, GPIB or LAN (2).

Visual Basic provides all modules necessary for convenient programming and result display. The field of application ranges from small automation aids up to complex system controls with user interface and graphical display of the measurement results.

The analyzer's standard function for recording commands makes it considerably easier to create measurement programs. On request, each R&S®UPV manual setting is recorded in the SCPI recording window as a command (3). By using the copy and paste functions, you can directly transfer the command list to the program, thus eliminating syntax errors.

The main applications are automating continuously recurring measurement tasks and implementing complex measurement procedures that are not available on the audio analyzer as independent measurement functions, e. g. acoustic measurements on mobile phones with a sequence of measurements, complex calculations in accordance with the mobile radio standards and result display with PASS/FAIL information.

Even if you have no experience in programming, you will soon be able to easily create executable programs. Measurement examples and extensive help functions are provided, helping you to



44 176/4

get a quick start. In addition to the internal driver, used for communication with the R&S®UPV, no further calls or modules are required. Programs originally written for external remote control can therefore be easily integrated into the analyzer.

Since the SCPI commands of the R&S®UPV are largely identical or compatible to the commands of its predecessor, the R&S®UPL, programs written for the R&S®UPL in Visual Basic can, after minimal modifications, also be run internally on the R&S®UPV.

The Universal Sequence Controller R&S®UPV-K1 turns the Audio Analyzer R&S®UPV into a versatile measuring instrument that can do a lot more than just measure audio parameters. At a keystroke, the R&S®UPV not only controls all measurement sequences, calculates the results and displays them in any desired form (4), but also generates an entire measurement report, if necessary.

Tilman Betz

1

```

Private Sub Form1_Load(ByVal eventSender As System.Object, ByVal eventArgs As System.EventArgs) Handles MyBase.Load
    Dim UPV As New UPx.Application ' include UPV driver
    UPV.InitTCP("localhost") ' connect UPV

    ' initialize sweep values
    Fstart.Text = "100"
    Fstop.Text = "10000"
    Steps.Text = "30"
    Level.Text = "0.1"
    Upper.Text = "10"
  
```

2

```

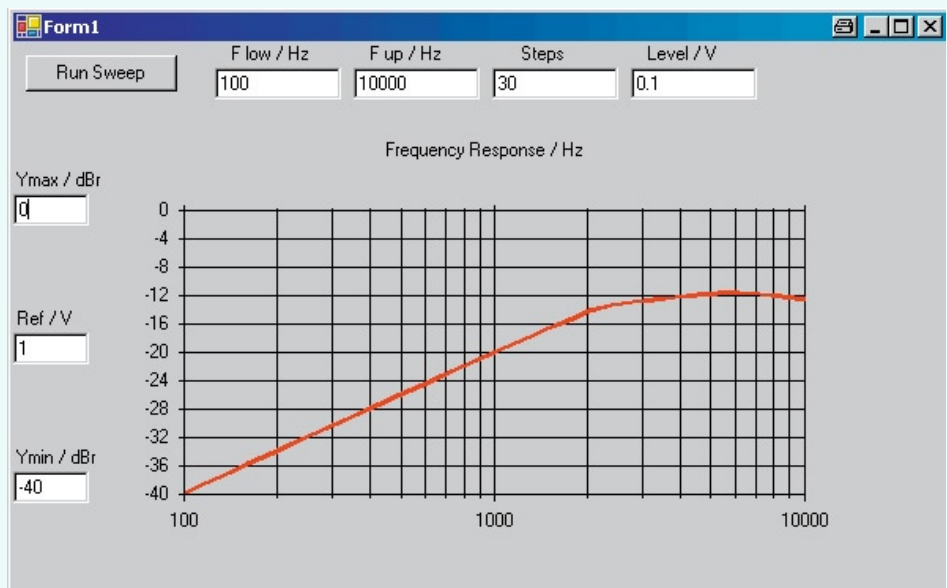
UPV.Write("*rst;*wai") ' preset UPV
UPV.Write("OUTP:CHAN CH1") 'set generator channel 1
UPV.Write("INP:CHAN CH1") ' set analyzer channel 1
UPV.Write("SOUR:SWE:CONT ASW")
UPV.Write("SENS:FUNC:APER:MODE GENT") ' set meas time GENTRACK
UPV.Write("SENS2:FUNC OFF") ' switch input disp off
UPV.Write("SENS3:FUNC OFF") ' switch frequency off
  
```

3

```

SOURce:FUNCTION SIN
SOURce:FREQUENCY 1000 HZ
INSTrument2 ANLG
INPut:CHANnel CH2I
INPut:BANDwidth:Mode B80
INPut:TYPE GEN1
INPut:FILTer AWE
SENSe:FUNCTION RMS
SENSe:FUNCTION:FFT:STATe ON
SENSe:FUNCTION:FFT:SIZE S32K
SENSe:FUNCTION:APERture:MODE AUTO
  
```

4



More information and data sheet at
www.rohde-schwarz.com
 (search term: UPV)



REFERENCES

[*] Audio Analyzer R&S®UPV: The benchmark in audio analysis. News from Rohde & Schwarz (2004) No. 183, pp 16–20