



ROHDE & SCHWARZ

SERVICE INSTRUCTIONS

2nd AF Synthesizer Option CMT-B7

803.2618.02

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Component lists
Circuit diagrams
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5.1 Function Description

This option is largely identical with the AF synthesizer on the 1st modulation generator module (802.5713.02).

A signal with 32 times the frequency of the required signal is applied to input PILCP (X1.B22). The level can be adjusted in 256 steps using the D/A converter N8 up to a maximum of 1.77 V_{rms}. The two outputs PILOT (X1.B24) and PILINT (X1.A27) provide signals for the two function units on the 1st modulation generator module: PILOT for the modulation control, PILINT for the AF synthesizer for two-tone generation.

The option also generates an interrupt signal either at phase positions 90° and 270° of the stepped sinewave.

5.2 Testing and Adjustment

The module need not be adjusted.

5.2.1 Testing the Input Stage

X1.B22 (PILCP): $f = 32 \times f_{PIL}$, i.e. $640 \text{ Hz} \leq f \leq 300 \text{ kHz}$, squarewave voltage ($V_{Low} = 0 \text{ V}$, $V_{High} = 100 \text{ mV}$) but distorted above $f > 100 \text{ kHz}$ by series-connected lowpass; V_{max} . remains at 100 mV .

P1: TTL signal with $f = 32 \times f_{PIL}$

5.2.2 Adjusting the Sinewave Generator

D1/3: TTL signal with $f = f_{PIL}$

P4: Stepped sinewave (32 steps/period) with $f = f_{PIL}$,
Using R31, adjust peak amplitude to $2.5 \text{ V} \pm 10 \text{ mV}$.

5.2.3 Testing the Reference Voltage

P3: DC voltage $V = +5 \text{ V} \pm 0.3\%$.

5.2.4 Testing the Filter

P5: Sinewave signal with $f = f_{PIL}$ and $V_{rms} = 1.768 \text{ V} \pm 1\%$

5.2.5 Testing the Level Attenuator

Instrument setting:

Modulation depth from 0 to 100%

The voltage V_{rms} at X1.B24 must change from 0 to 1.76 V without jumps.

5.2.6 Testing the PILINT Output
 (Internal Pilot Tone Output)

Instrument setting:

Two-tone modulation

X1.A27: Sinewave signal with $V_{rms} = 1.768 \text{ V} \pm 3\%$
 $f = f_{INT2}$

