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Test report JAWSxxxx

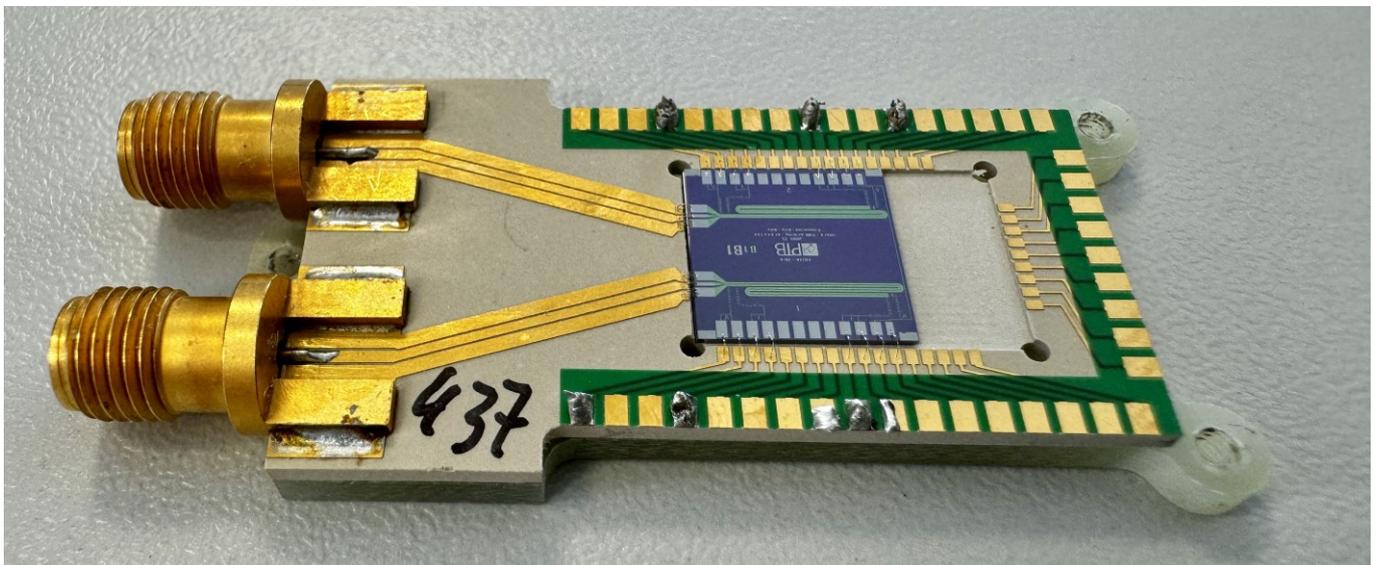|	
Object:	Josephson Arbitrary waveform synthesizer (JAWS) chip with two arrays
Serial number:	Ser. No.: JAWSxxxx
Date:	

Recommended accessories:

1. Pulse pattern generator: ……….. SYMPULS, BPG 30G-TER
2. Pulse amplifier: …………………. OPTILAB, MD-50-X2-R
3. Sampler: …………………….… NI, PXI5922

Classification of the JAWS chip

JAWS chip specifications

	Array-no1	Array-no2
Array name of JAWS chip	JAWSxx_xx_xx#1	JAWSxx_xx_xx#2
Number of junctions	9000 … 15000	9000 … 15000
Critical current	3 … 8 mA	3 … 8 mA
Pulse clock frequency (RTZ)	14 … 20 GHz	14 … 20 GHz
Output voltage	$\leq$100 mV rms	$\leq$100 mV rms
Operating margins (@1kHz)	$\geq$1 mA	$\geq$1 mA
Spectral purity (@1kHz)	$\leq$100 dBc*	$\leq$100 dBc*

*limited by nonlinearities of the sampler NI5922

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Example measurement from JAWS chip

JAWS23_52_A3 @Supracon Carrier :

#1 : 12000 junctions
I_c = 6.6 mA
R_n = 3.4 mΩ
V_c = 22.1 µV

#2 : 11992 junctions
I_c = 6.6 mA
R_n = 3.4 mΩ
V_c = 22.3 µV
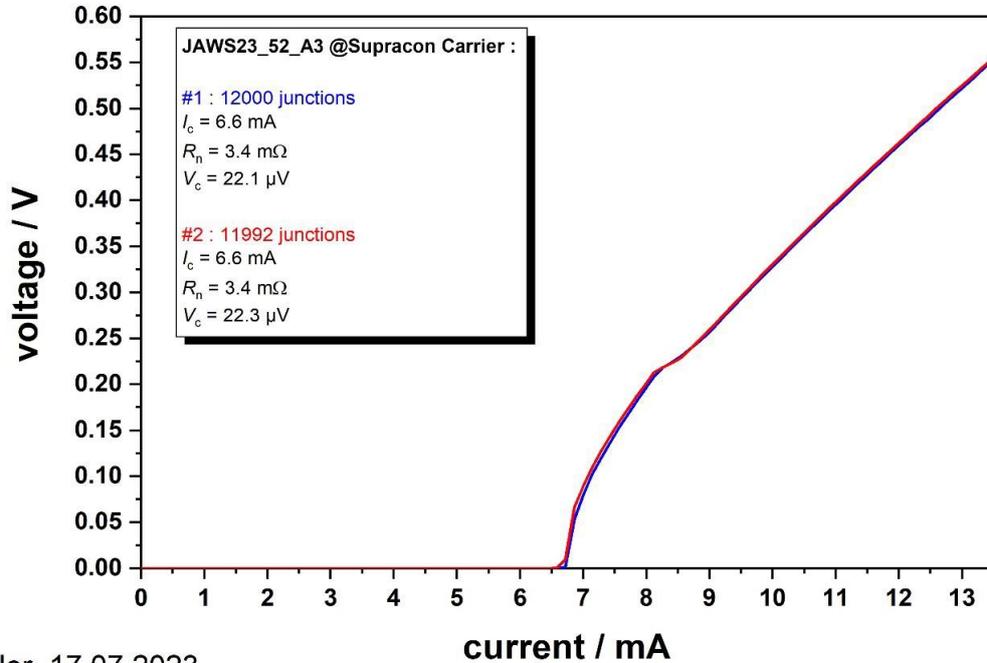
Kieler, 17.07.2023

Figure 1: Current-Voltage characteristics without pulse stream

1000 Hz, 100 mV$_{rms}$

JAWS23_52_A3#2 : 11 992 junctions
clock frequency : 14 GHz
operation margins : 2.0 mA

115 dBc

283 mV$_{PP}$
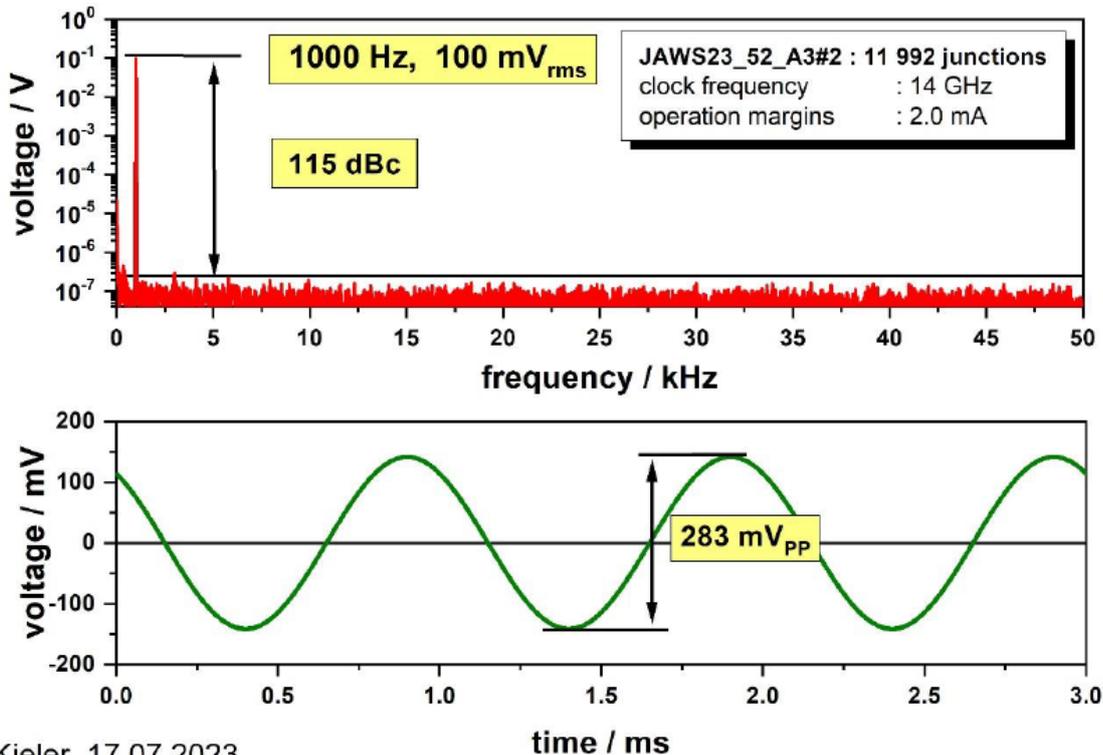
Kieler, 17.07.2023

Figure 2: Frequency spectra of sinusoidal waveforms