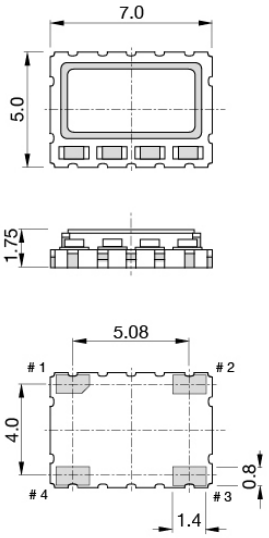
TX7-705M-TQN-HPG

Low G-sensitivity, vibration resistant,
temperature compensated CSW SMD TCXO

Application: Block Up Down converters

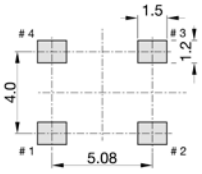
Nominal frequency Fo	**50.0000 MHz**	
Frequency stability:		
vs. temperature reference to (FMAX+FMIN)/2	≤ ±1.0 ppm	over -40 ~ +85 °C
vs. supply voltage changes reference to frequency at nominal supply	≤ ±0.1 ppm	±5 %
vs. load changes reference to frequency at nominal load	≤ ±0.1 ppm	±10 %
vs. aging	≤ ±1.0 ppm	1st year
G-sensitivity	0.2 ppb/g 0.5 ppb/g	Gamma Γ Typ. Gamma Γ Guaranteed
Frequency slope vs. temperature	≤ 0.08 ppm/°C	over operating temperature
Short term stability ADEV	< 1 x 10^{-10}	τ = 1 s
Frequency tolerance ex factory	+0 ~ +1.0 ppm	@+25°C
Supply voltage	+3.3 V	±5 %
Current consumption	< 7 mA	
Output waveform	Clipped sine wave	
Output level	> 0.8 Vp-p	
Output load	10 kΩ // 10 pF	
Rise / Fall time	< 3 ns	
Phase noise @ 50 MHz	< -78 dBc/Hz @ 10 Hz < -102 dBc/Hz @ 100 Hz < -130 dBc/Hz @ 1 kHz < -146 dBc/Hz @ 10 kHz < -152 dBc/Hz @ 100 kHz	
Operating temperature range	-40 ~ +85 °C	
Storage temperature range	-55 ~ +105 °C	
Reflow conditions per JEDEC J-STD-020	260 °C maximum	during 10 sec. Max.
Moisture sensitivity	Level 1 (unlimited)	



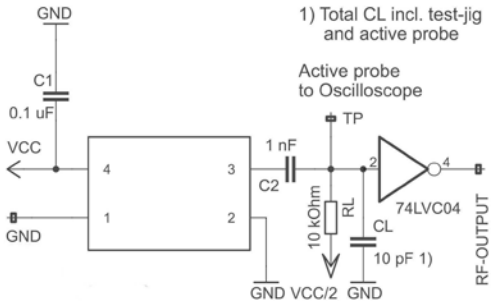
Pin function

# 1	GND
# 2	GND
# 3	Output
# 4	Vcc

Solder pattern



Test circuit



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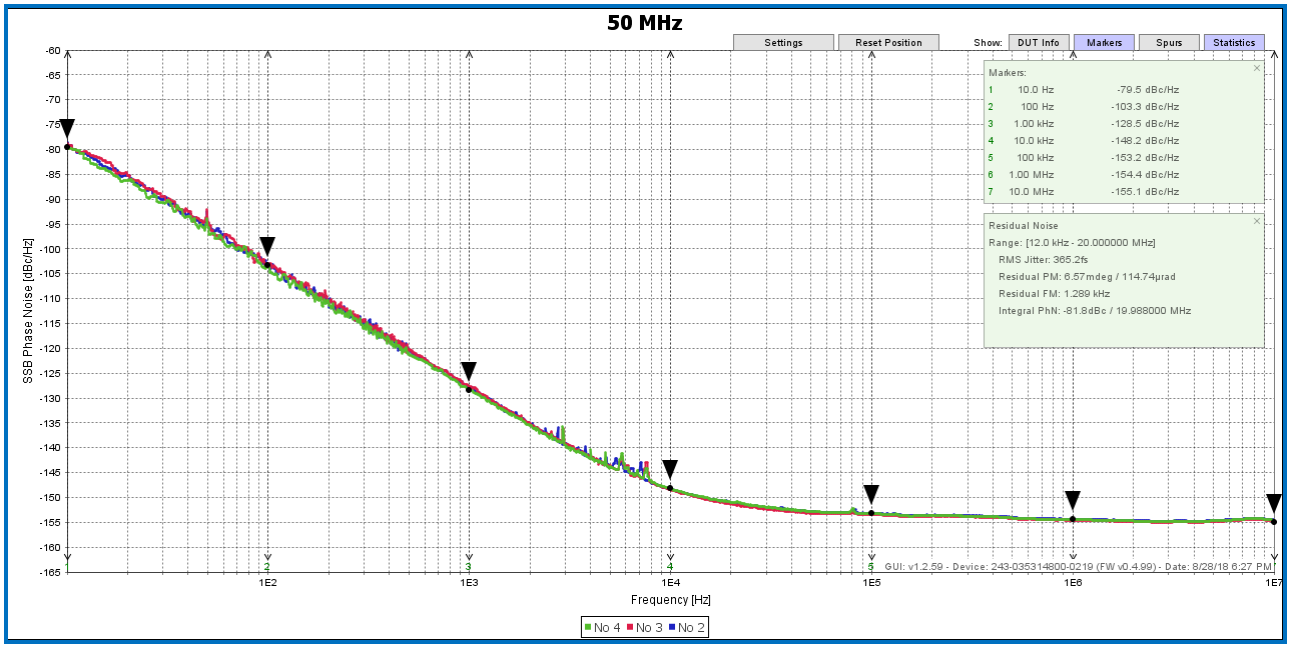
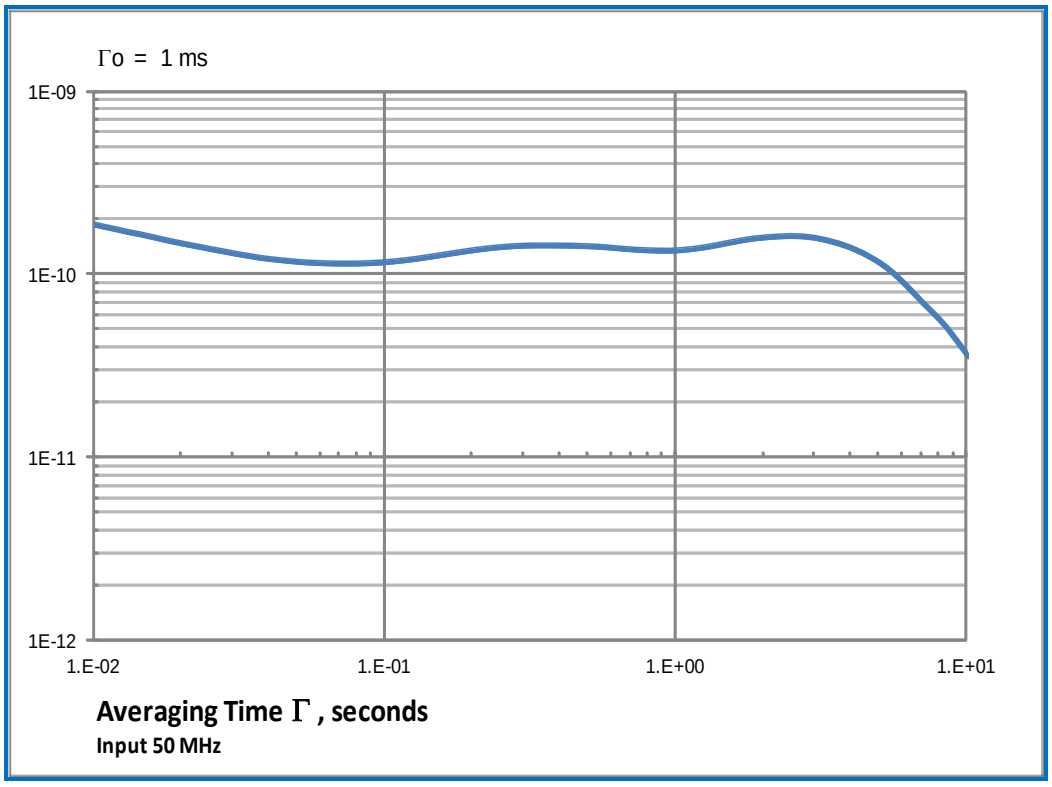
Phase noise



Short term stabilisation, Allan deviation



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Test Report #18091401
Measurement of G-Sensitivity

Specification:	**TCXO 5V im DIL14/4**
Frequency:	50.000 MHz
Comm.-#:	18091401
PO-No.:	2018-10253
Author:	JH
Date:	17.09.2018

1. Scope

Measurement of phase noise under random vibration and calculation of g-sensitivity, i.e. vibration sensitivity.

2. Test conditions and test fixture

2.1 Vibration profile – Random for g-sensitivity determination

Random vibration 20-2000 Hz with PSD = 0.1 g^2/Hz (G_{RMS} = 14.07g).
Definitions of vibration axes see Fig. 2.

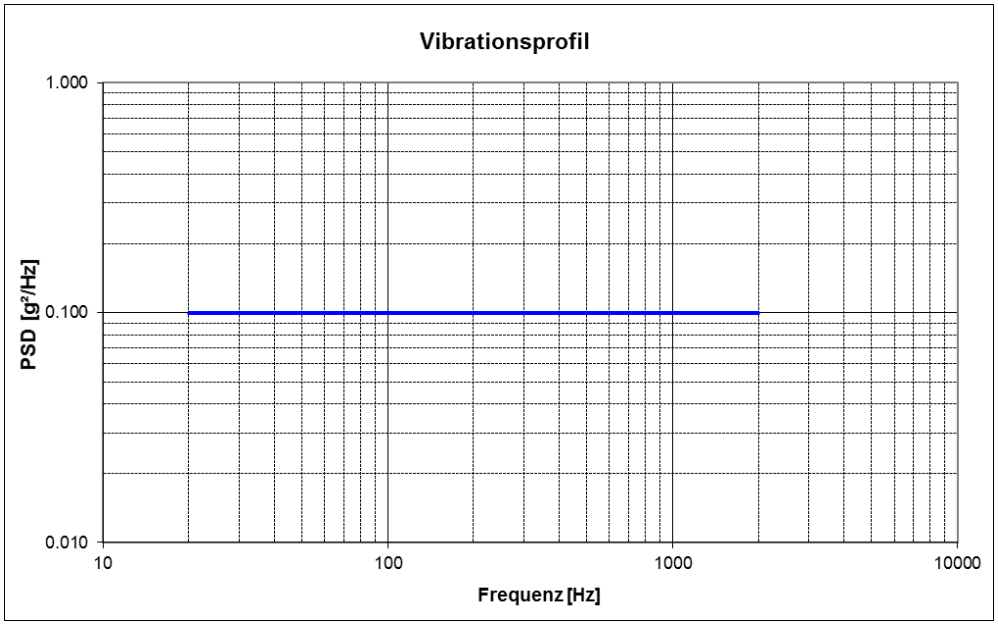

Fig.1 – Vibration profile (Power Spectral Density PSD)

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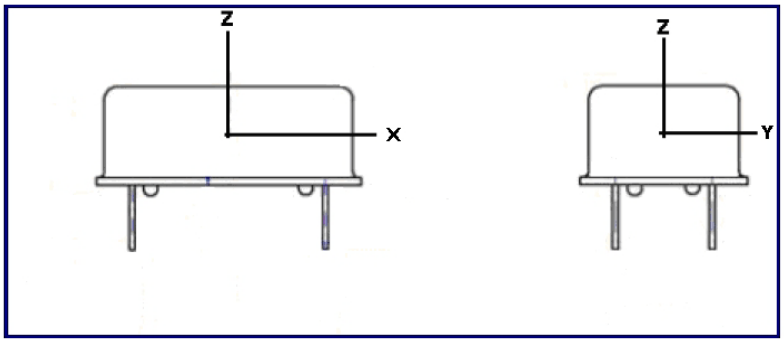

Fig.2 – Definition of vibration axes

2.2 Test equipment

- Agilent Signal Source Analyzer E5052B (Phase noise test)

- Shaker TIRA TV5220-120
- m+p VibPilot VP-HW2 with m+p VibControl Software VC
- Power amplifier TIRA BAA 1000-E
- Vibration sensor crystal PCB-M353B03
- Test fixture for DIL14 package

3. Test results

Para 3.1 shows the averaged values of the G-Sensitivity in the range 20 Hz to 1000 Hz. Above 1000 Hz and at ca. 100 Hz appear resonances, which are caused by the mounting structure on the shaker.

3.1 G-Sensitivity (averaged 20 Hz – 1000 Hz)

Osc-#	X-axis [ppb/g]	Y-axis [ppb/g]	Z-axis [ppb/g]	Gamma Γ [ppb/g]
#1	0.056	0.105	0.159	0.199
#2	0.052	0.137	0.052	0.156
#3	0.051	0.057	0.181	0.197
#4	0.108	0.091	0.170	0.221

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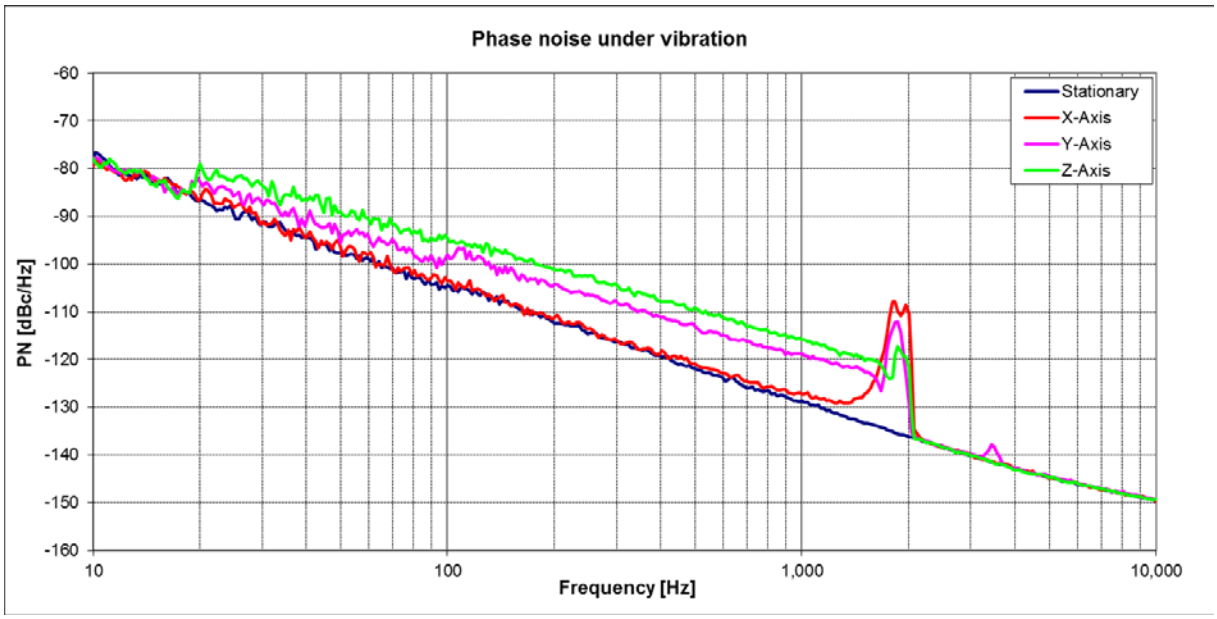
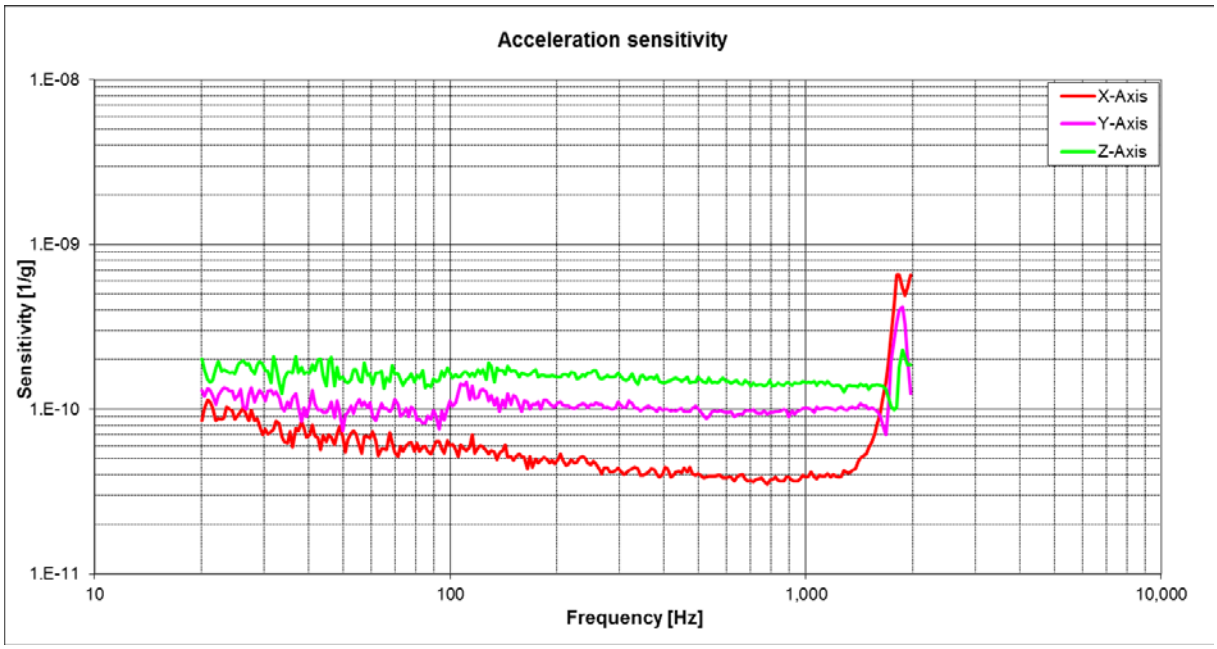
3.2 Phase noise under vibration and g-Sensitivity 20 Hz – 2000 Hz



Osc #1 – Phase noise under vibration



Osc #1 – G-Sensitivity 20 Hz – 2000 Hz

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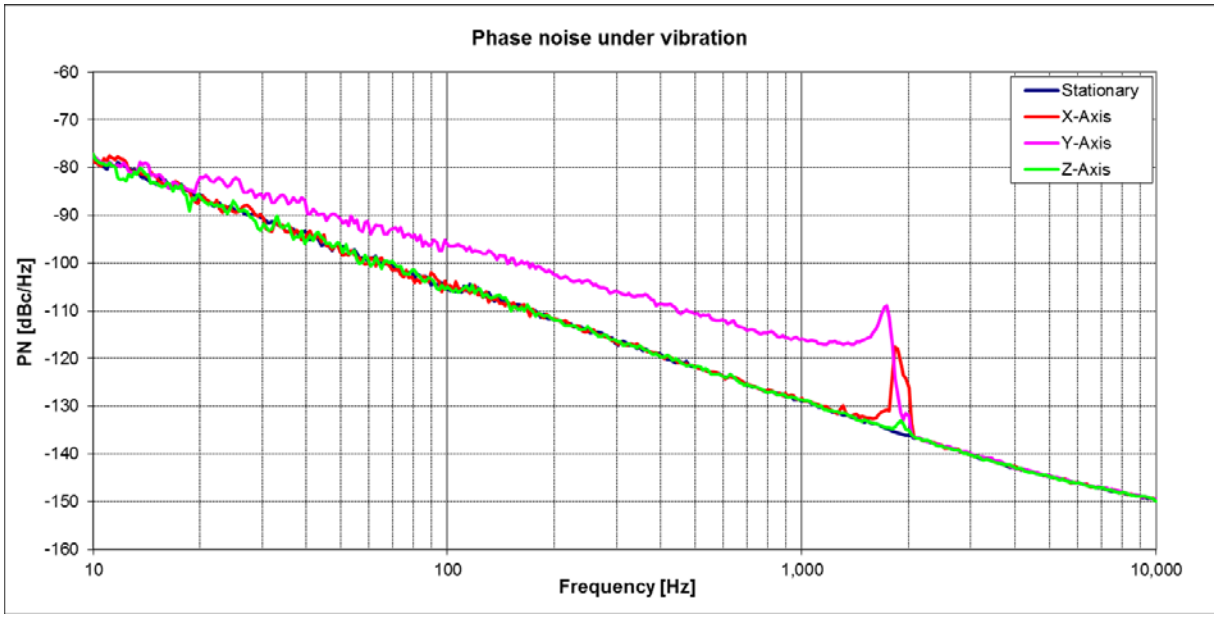
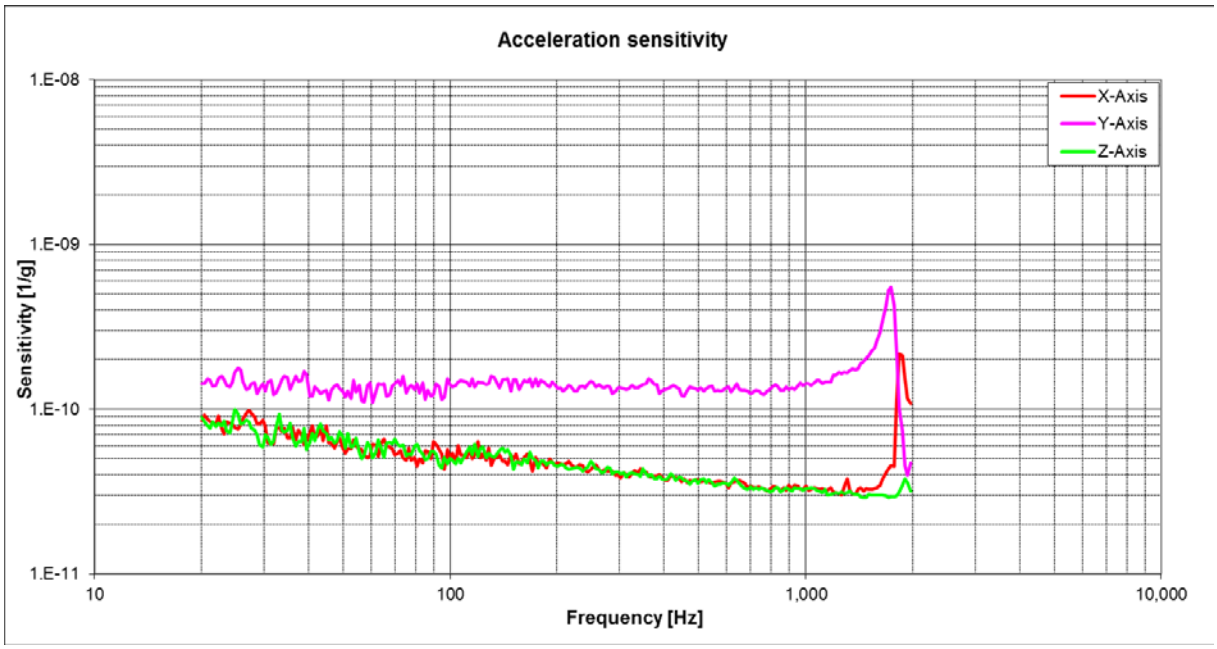


Osc #2 – Phase noise under vibration



Osc #2 – G-Sensitivity 20 Hz – 2000 Hz

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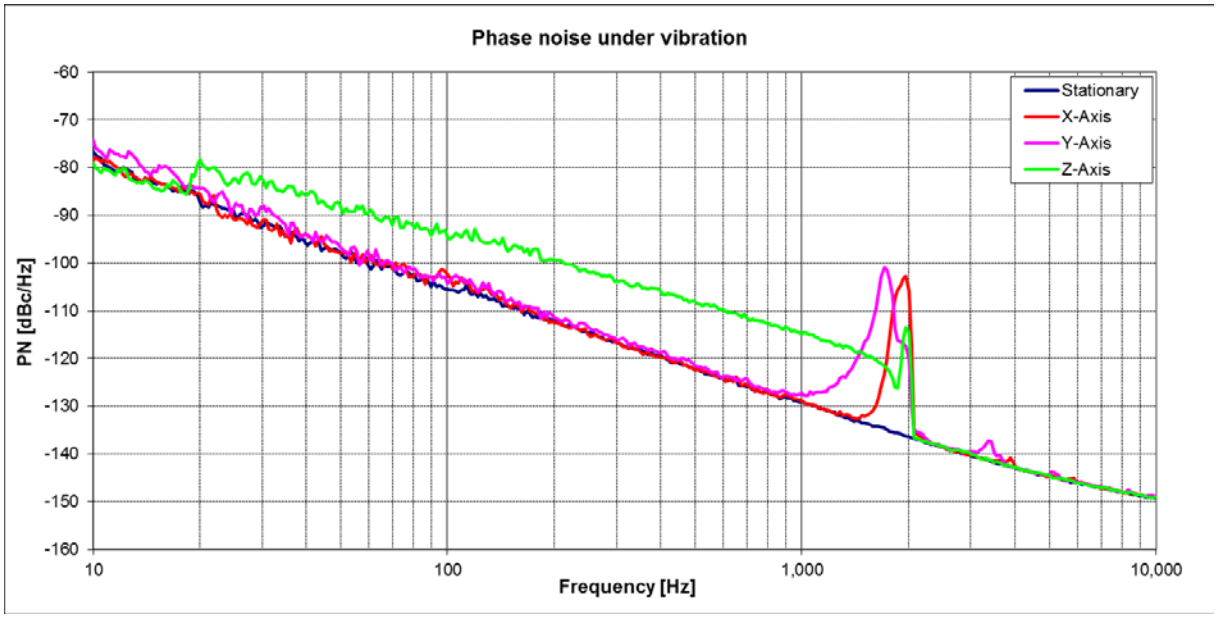
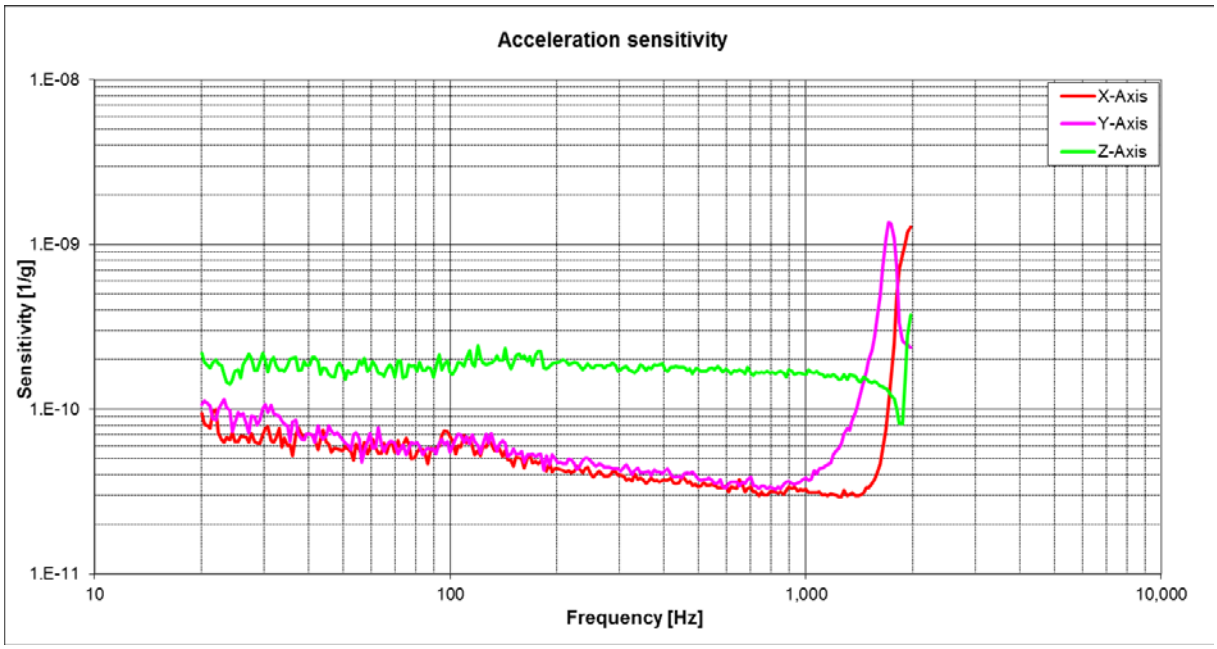


Osc #3 – Phase noise under vibration



Osc #3 – G-Sensitivity 20 Hz – 2000 Hz

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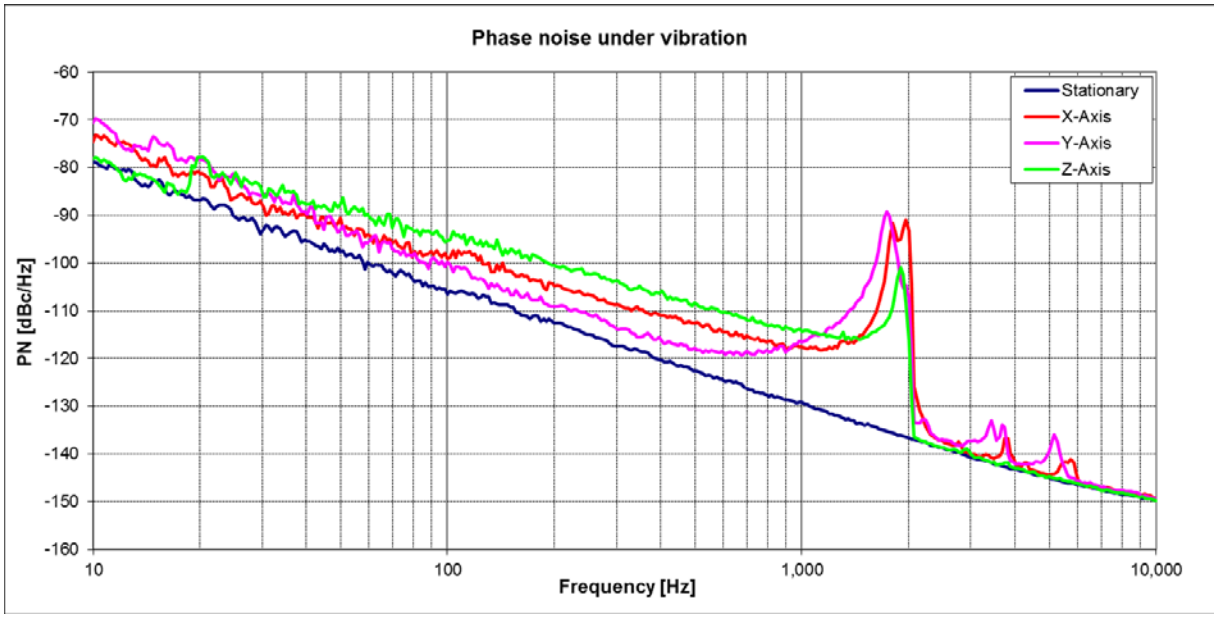
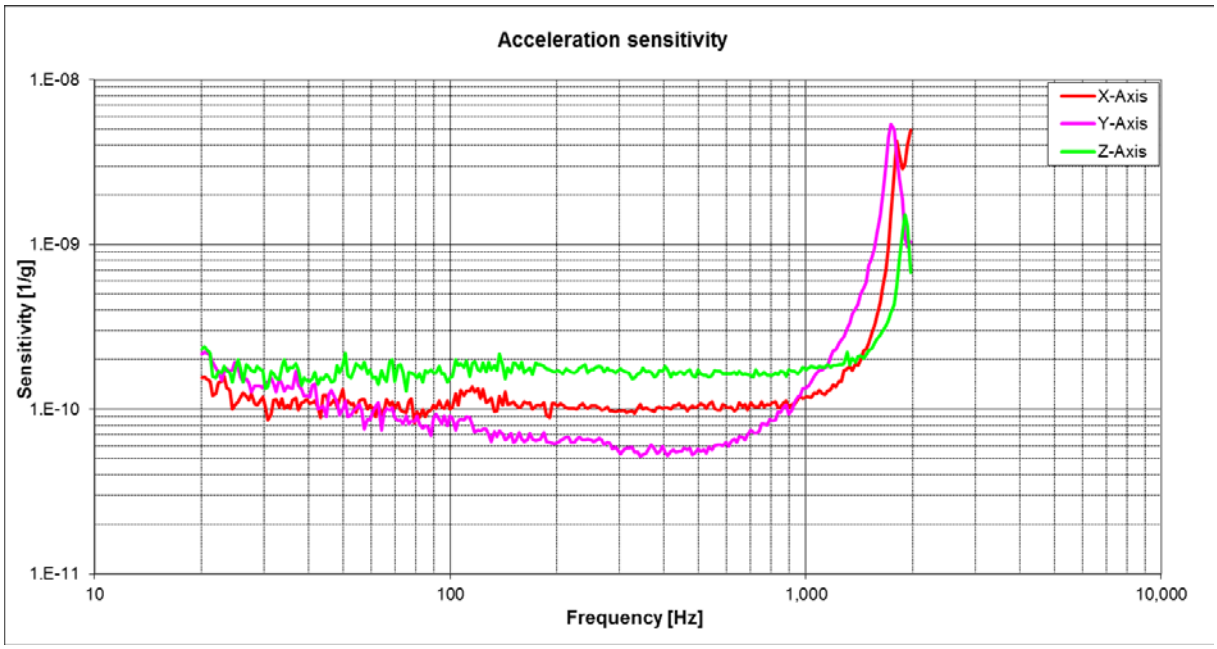


Osc #4 – Phase noise under vibration



Osc #4 – G-Sensitivity 20 Hz – 2000 Hz

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