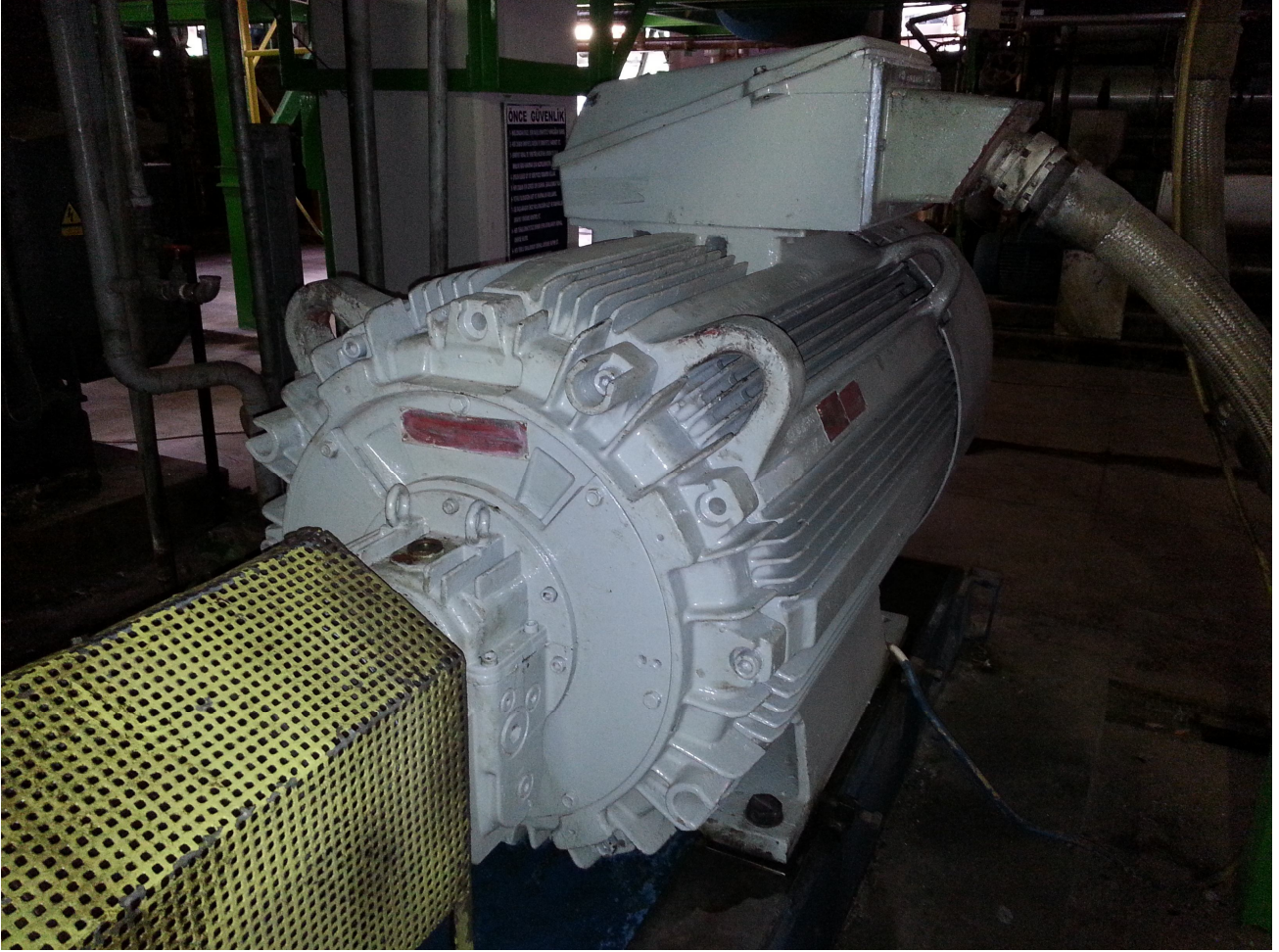




Motor & Generatör

560 kW ,6 kVolt 2987 rpm kondenser pompa motoru saha vibrasyon ölçüm raporu



Caner CANDEMİR

Özgür Bobinaj

Motor&Generatör

10-05-2013

caner.candemir@ozgurbobinaj.com.tr

Santral Tel : 0 216 353 71 81

Cep : 0 532 120 39 28

Fax : 0 216 306 13 42



Motor & Generatör

KONDENSER

Source: MOTOR3000D

10.05.2013 17:16:21

Last Measurement

<u>Machine name</u>	<u>POINT name</u>	<u>Date/Time</u>	<u>Last value</u>	<u>Units</u>	<u>POINT description</u>
MOTOR3000D	HV	10.05.2013 14:08:17	4,048	mm/s	on yatay vibrasyon (mm/sn RMS)
MOTOR3000D	VV	10.05.2013 14:08:53	7,344	mm/s	on dikey vibrasyon (mm/sn RMS)
MOTOR3000D	AV	10.05.2013 14:09:21	4,844	mm/s	on aksiyel vibrasyon (mm/sn RMS)
MOTOR3000D	NHV	10.05.2013 14:09:38	3,879	mm/s	arka yatay vibrasyon (mm/sn RMS)
MOTOR3000D	NVV	10.05.2013 14:10:11	6,721	mm/s	arka dikey vibrasyon (mm/sn RMS)
MOTOR3000D	NAV	10.05.2013 14:10:29	4,775	mm/s	arka aksiyel vibrasyon (mm/sn RMS)
MOTOR3000D	M1HV	10.05.2013 14:10:49	3,430	mm/s	yatak yatay vibrasyon (mm/sn RMS)
MOTOR3000D	M1VV	10.05.2013 14:11:43	2,271	mm/s	yatak dikey vibrasyon (mm/sn RMS)
MOTOR3000D	M1AV	10.05.2013 14:11:56	2,230	mm/s	yatak aksiyel vibrasyon (mm/sn RMS)
MOTOR3000D	M2HV	10.05.2013 14:12:16	6,040	mm/s	yatak yatay vibrasyon (mm/sn RMS)
MOTOR3000D	M2VV	10.05.2013 14:12:55	3,168	mm/s	yatak dikey vibrasyon (mm/sn RMS)
MOTOR3000D	M2AV	10.05.2013 14:13:09	3,212	mm/s	yatak aksiyel vibrasyon (mm/sn RMS)

Yorum: Vibrasyon değerleri ISO 2372/VDI 2056 'ya göre kötü seviyededir.

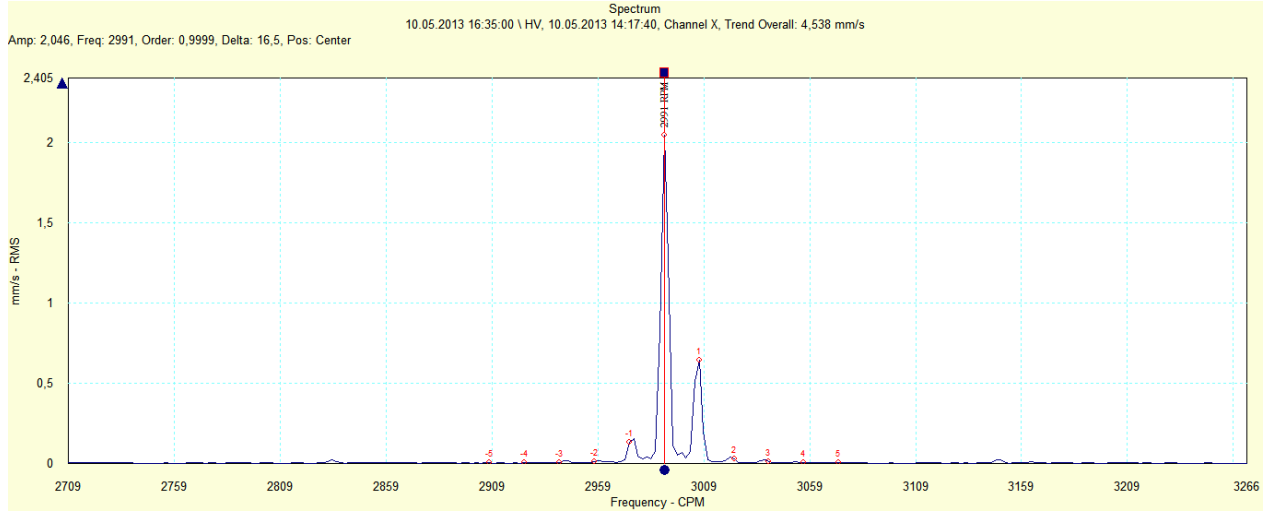
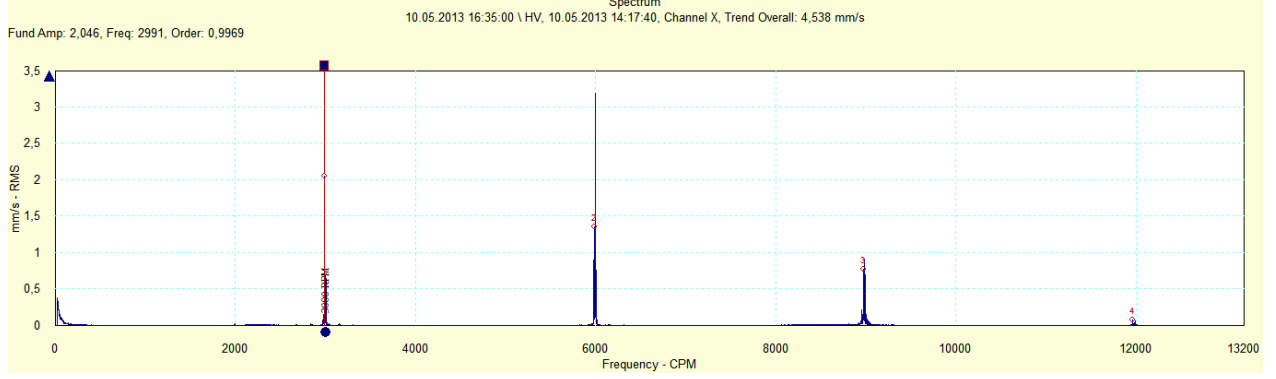
Motorda rotor balanssızlığı görülmektedir. Balansın kaplin ile bütün olarak rotor yapısına uygun devirde alınması gerekmektedir.

Yatak toleransları ölçülerek gerekirse yeniden dökülerek işlenmesi gerekir. (Görülen devir harmonikleri yüksek balanssızlıktan kaynaklanabilir. Yatakların metal yatak ve dış kep ile aralarındaki boşluk demontaj sonrası mikrometre ile ölçülecektir.)

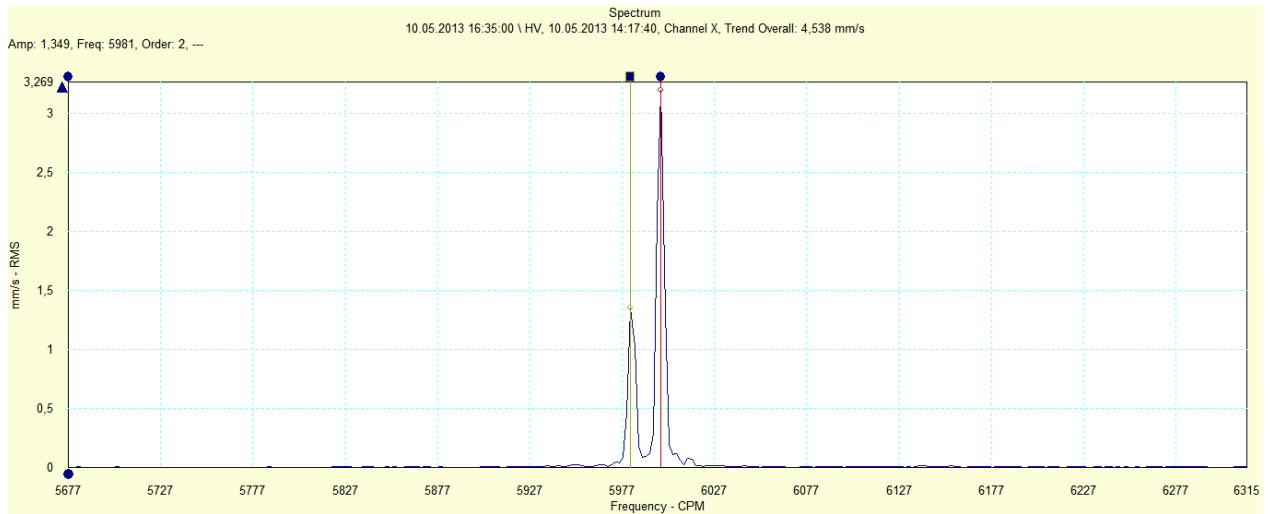
Stator bobinlerinde gevşeklik ve buna bağlı oynama tespit edilmiştir. Demontaj sonrası incelenerek değerlendirilecektir.

6000 rpm deki şebeke frekansı kasıntısı sebebi bobinlerin oynaması olabildiği gibi stator eksentrisini bozan başka sebepler de olabilir. Demontaj sonrası incelenecektir.

Motor ön (Kaplin tarafı) Yatay vibrasyon devir katı ve 1. 2. Harmonikleri ile yan bantları



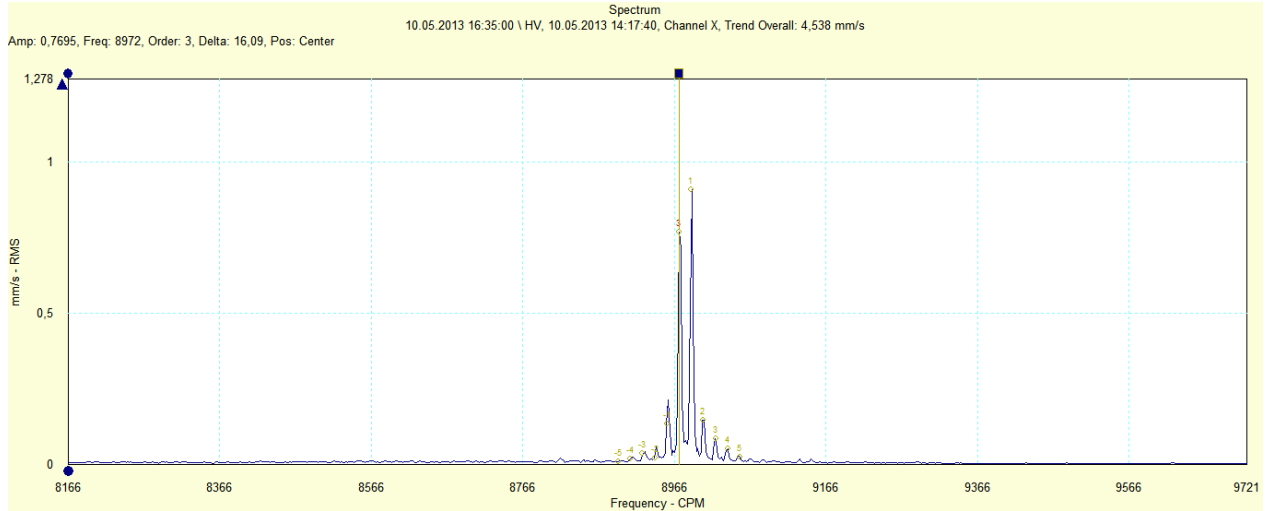
1.kat



2.kat

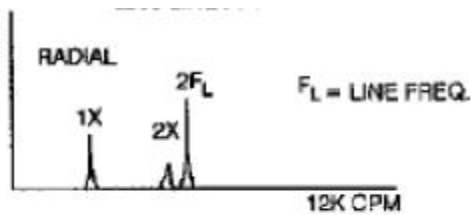


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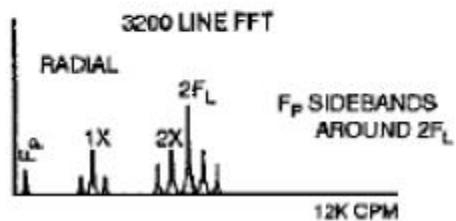
3.kat

A. STATOR ECCENTRICITY, SHORTED LAMINATIONS OR LOOSE IRON



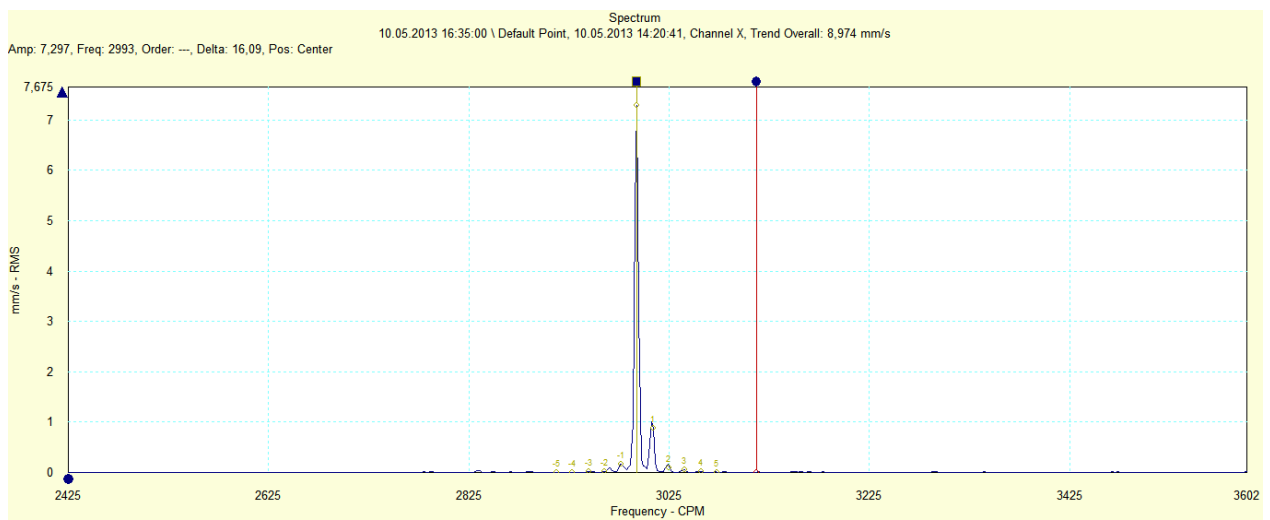
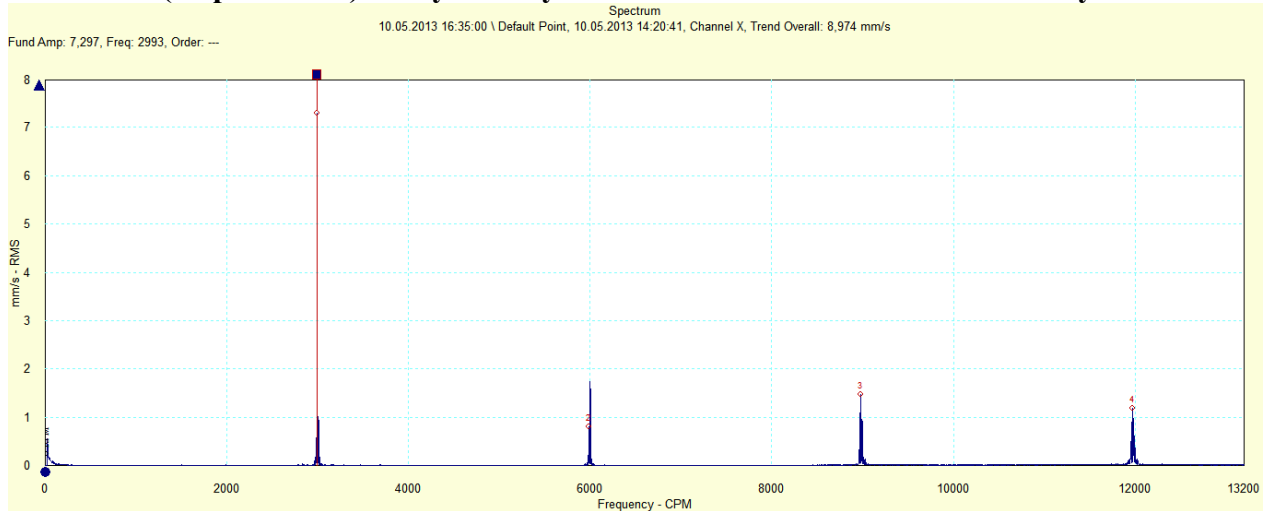
B. ECCENTRIC ROTOR (Variable Air Gap)

F_L = Electrical Line Freq.
 N_s = Synch. Speed = $\frac{120F_L}{P}$
 F_s = Slip Freq. = N_s - RPM
 F_p = Pole Pass Freq. = $F_s \times P$
 P = #Poles



Motor & Generator

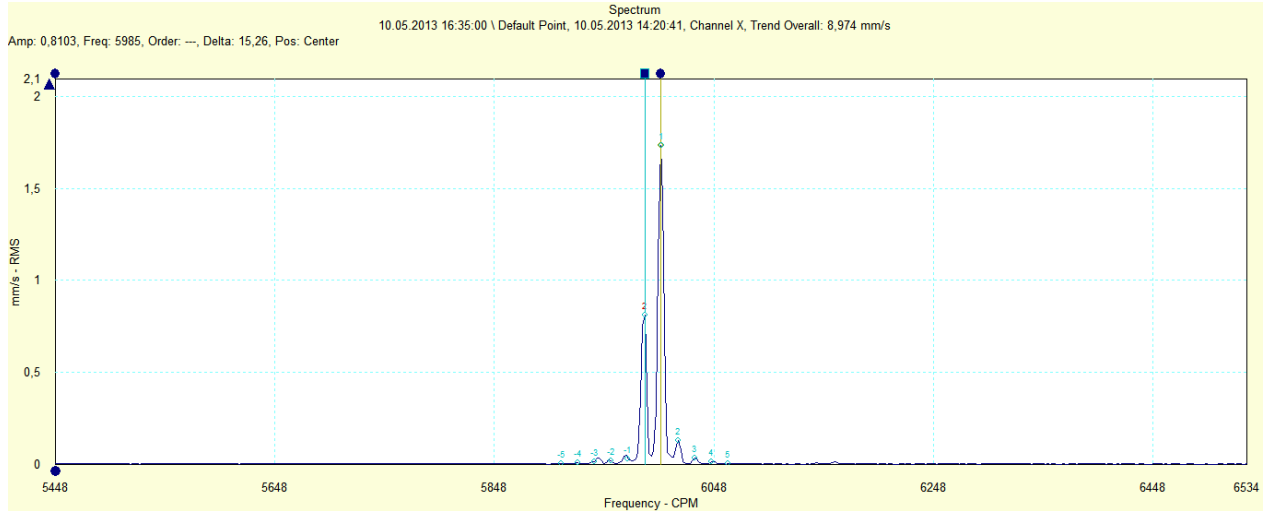
Motor ön (Kaplın tarafı) Dikey vibrasyon devir katı ve 1. 2. Harmonikleri ile yan bantları



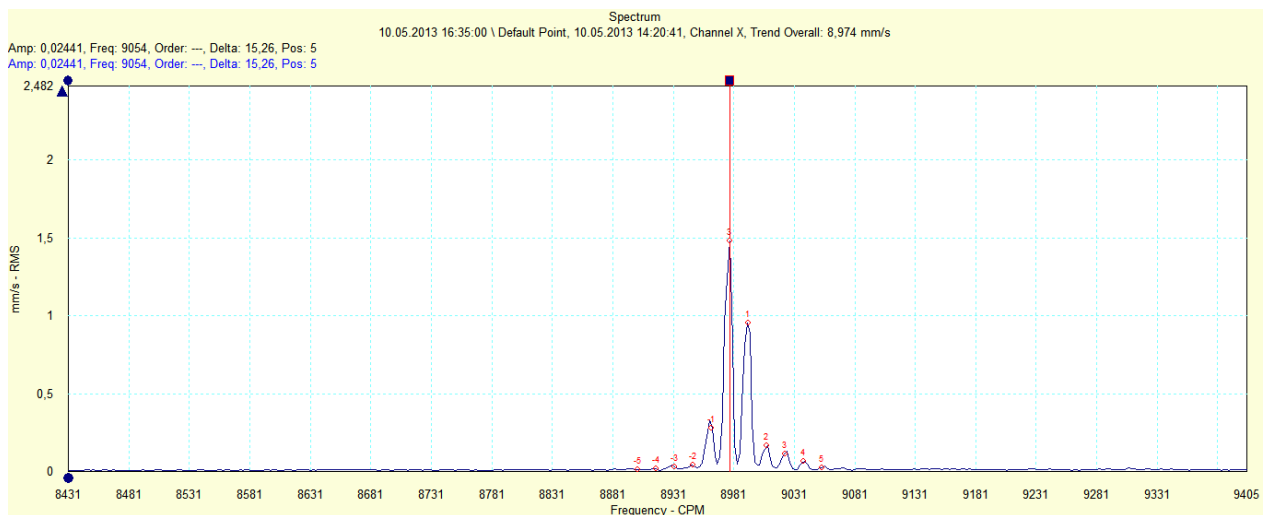
1.kat



Motor & Generatör

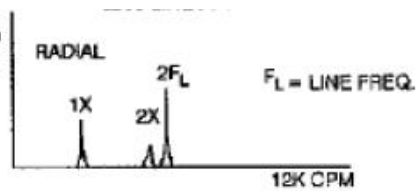


2.kat



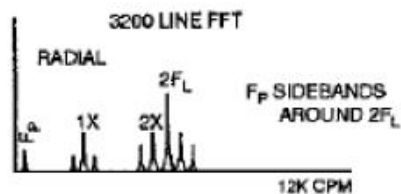
3.kat

A. STATOR ECCENTRICITY, SHORTED LAMINATIONS OR LOOSE IRON



B. ECCENTRIC ROTOR (Variable Air Gap)

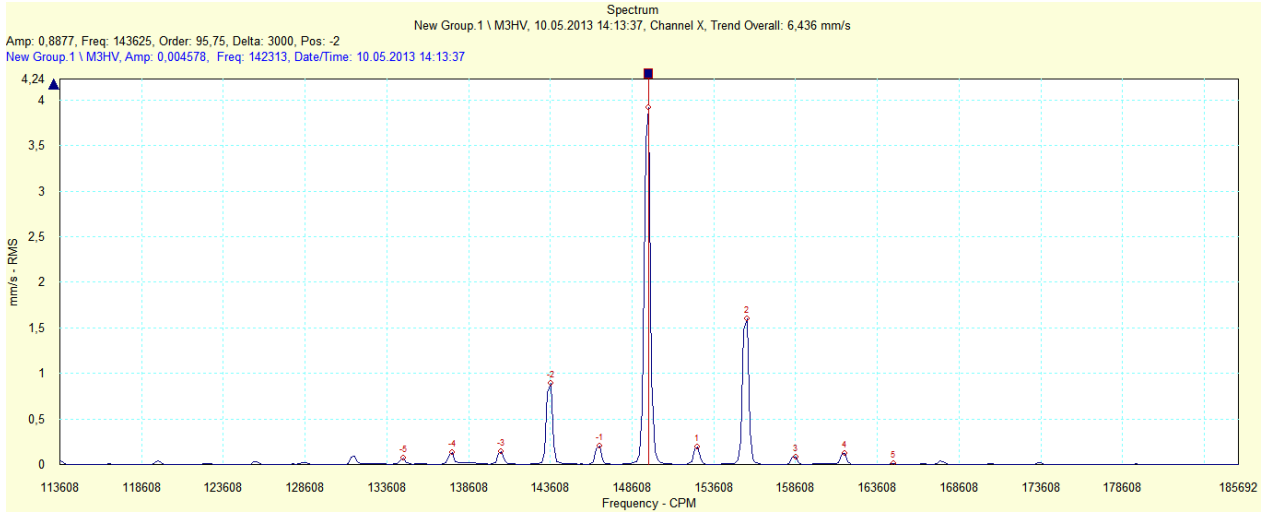
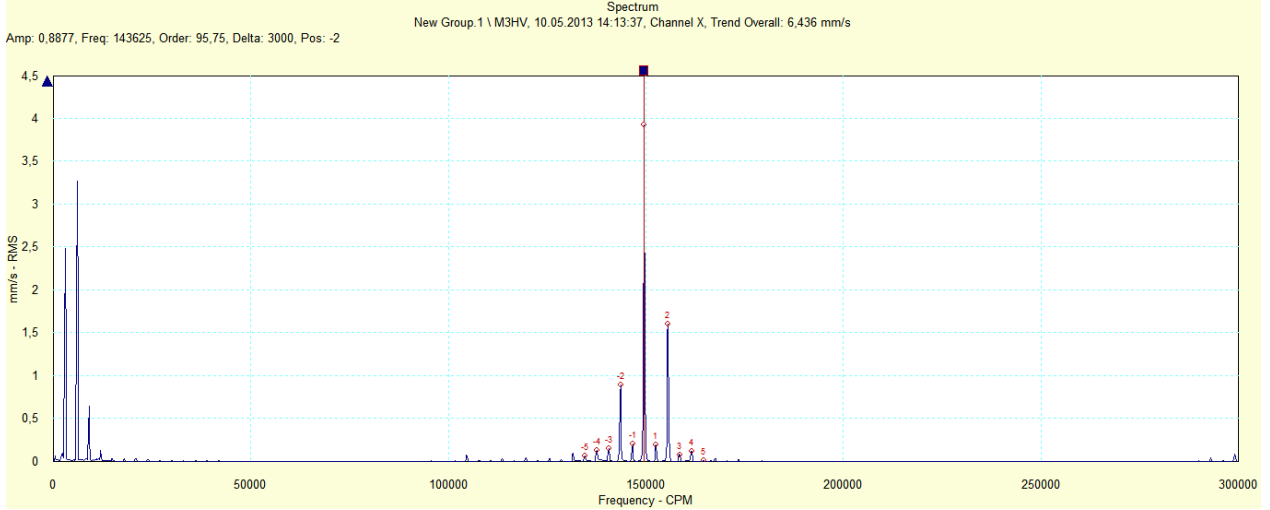
F_L = Electrical Line Freq.
 N_s = Synch. Speed = $\frac{120F_L}{P}$
 F_s = Slip Freq. = N_s - RPM
 F_p = Pole Pass Freq. = $F_s \times P$
 P = #Poles





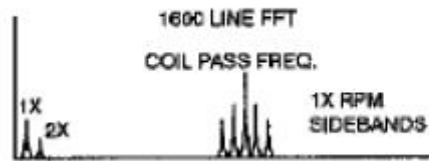
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Stator Bobin Geçiş Frekansı



$$143625 / 2991 = 48 \text{ oluk}$$

**AC SYNCHRONOUS
MOTORS
(Loose Stator Coils)**



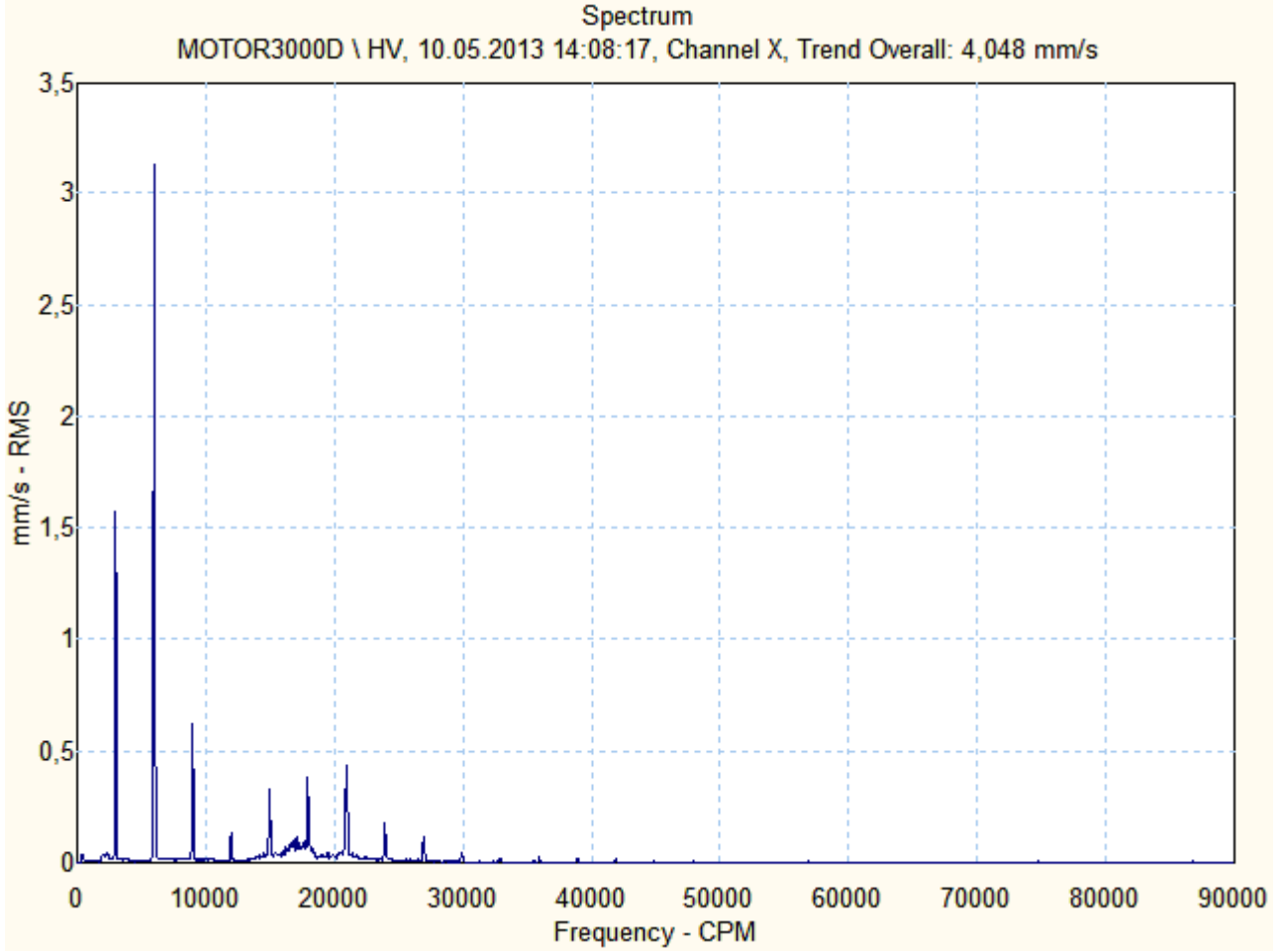
$$\text{CPF coil pass frequency} = \text{bobin sayısı} \times \text{rpm}$$



Motor & Generatör

Motor ve Pompa Yatakları Vibrasyon FFT Grafikleri

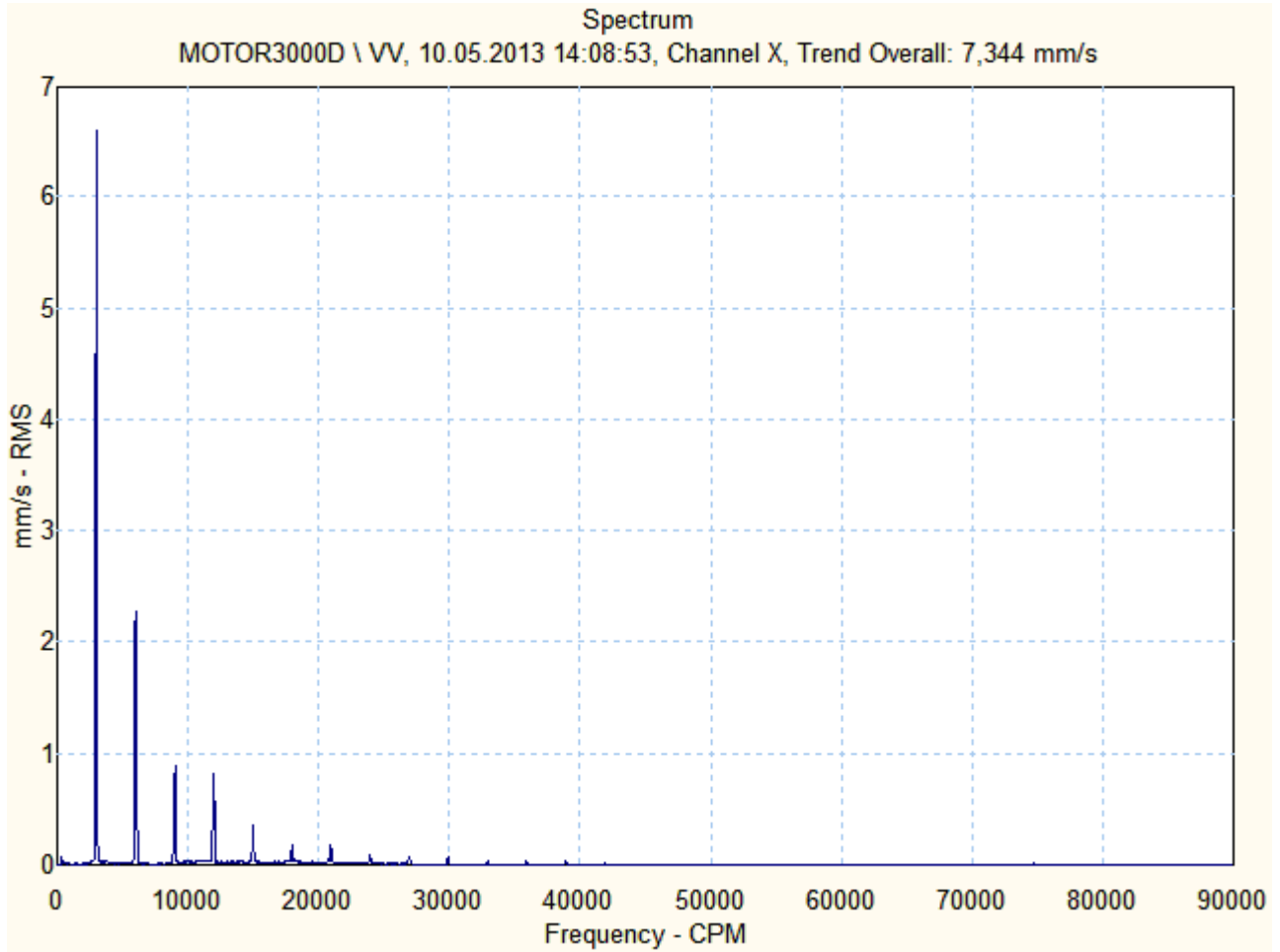
MOTOR3000D \ HV



ÖZGÜR

Motor & Generatör

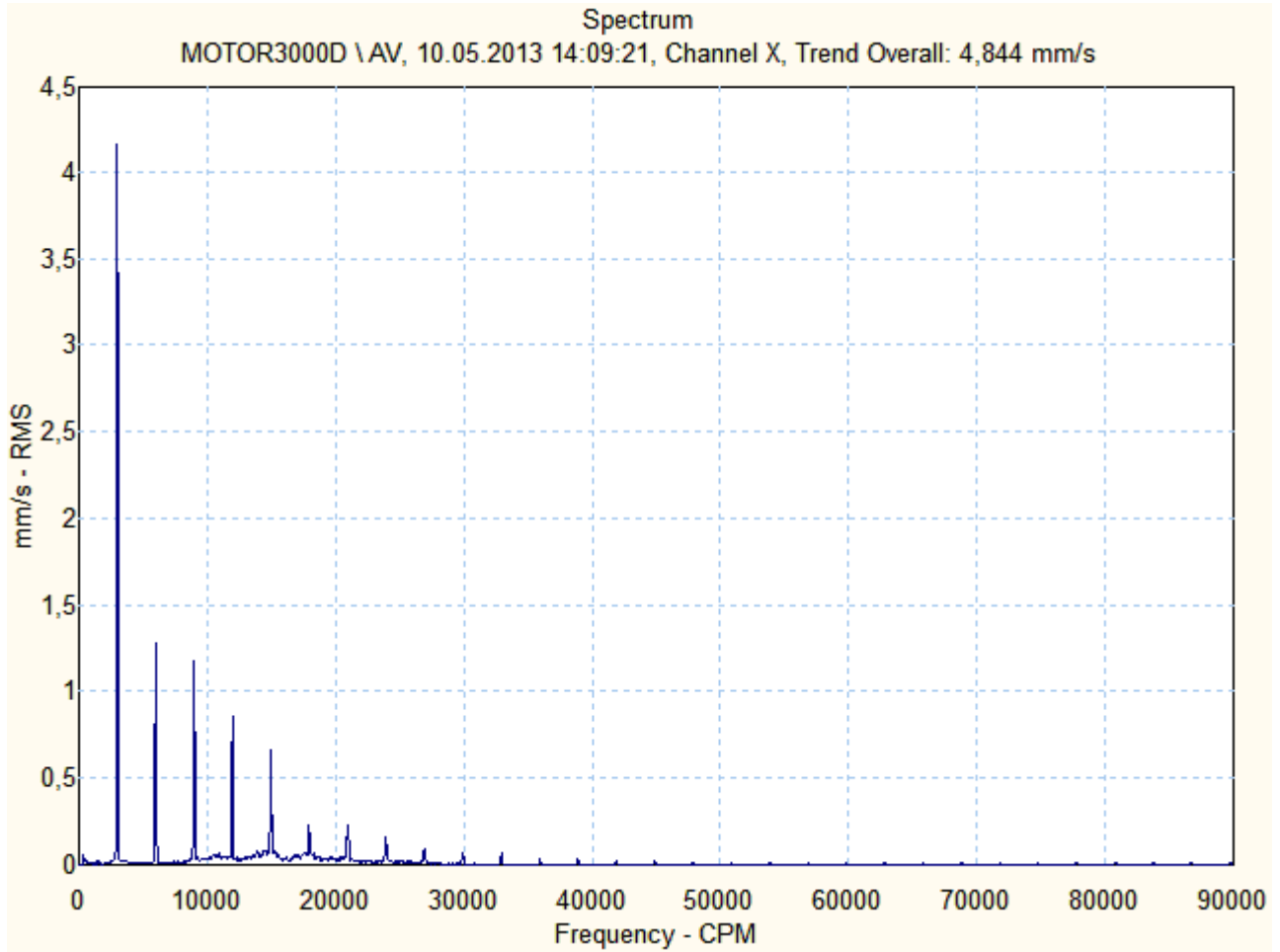
MOTOR3000D \ VV





Motor & Generatör

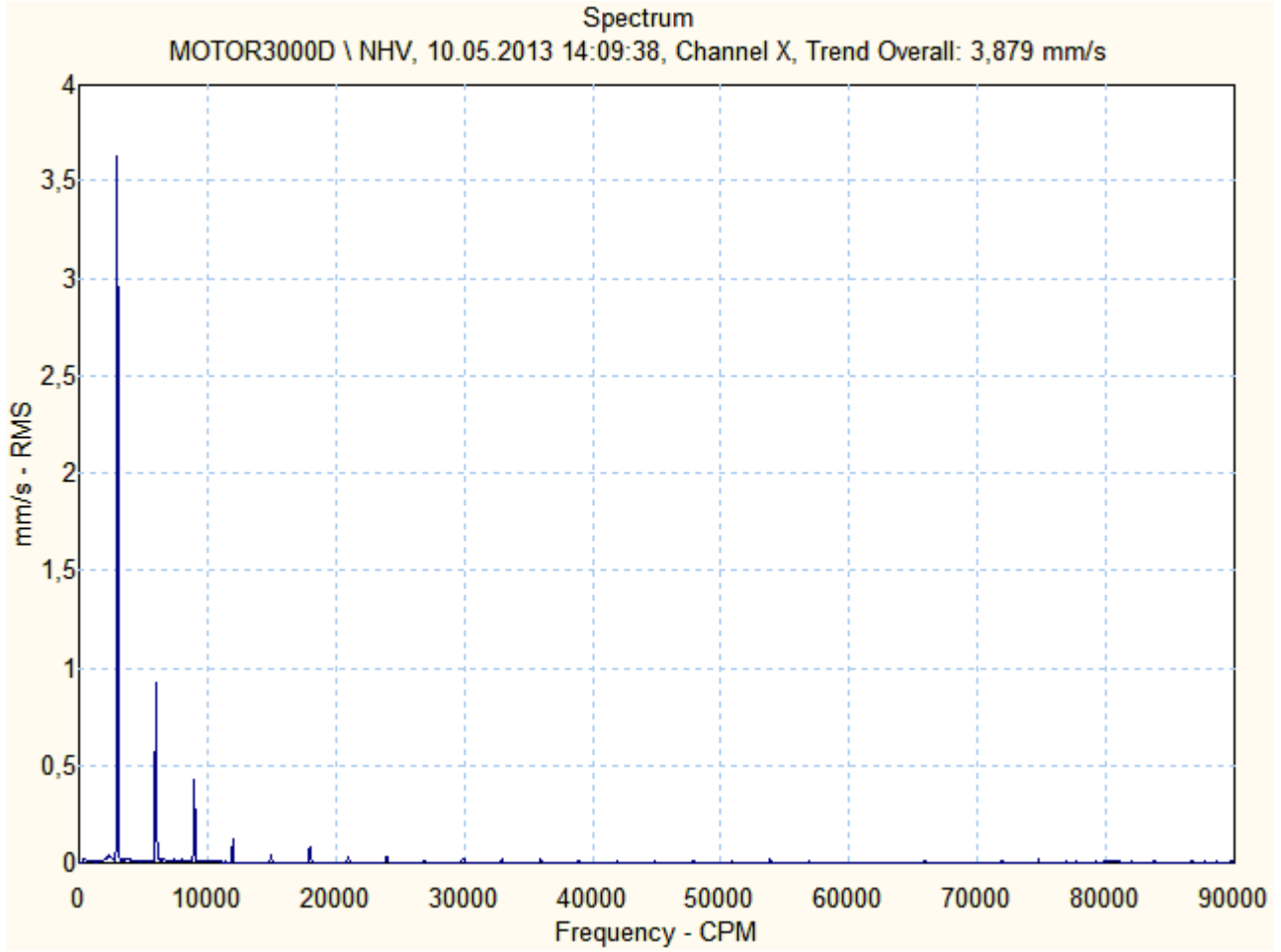
MOTOR3000D \ AV



ÖZGÜR

Motor & Generatör

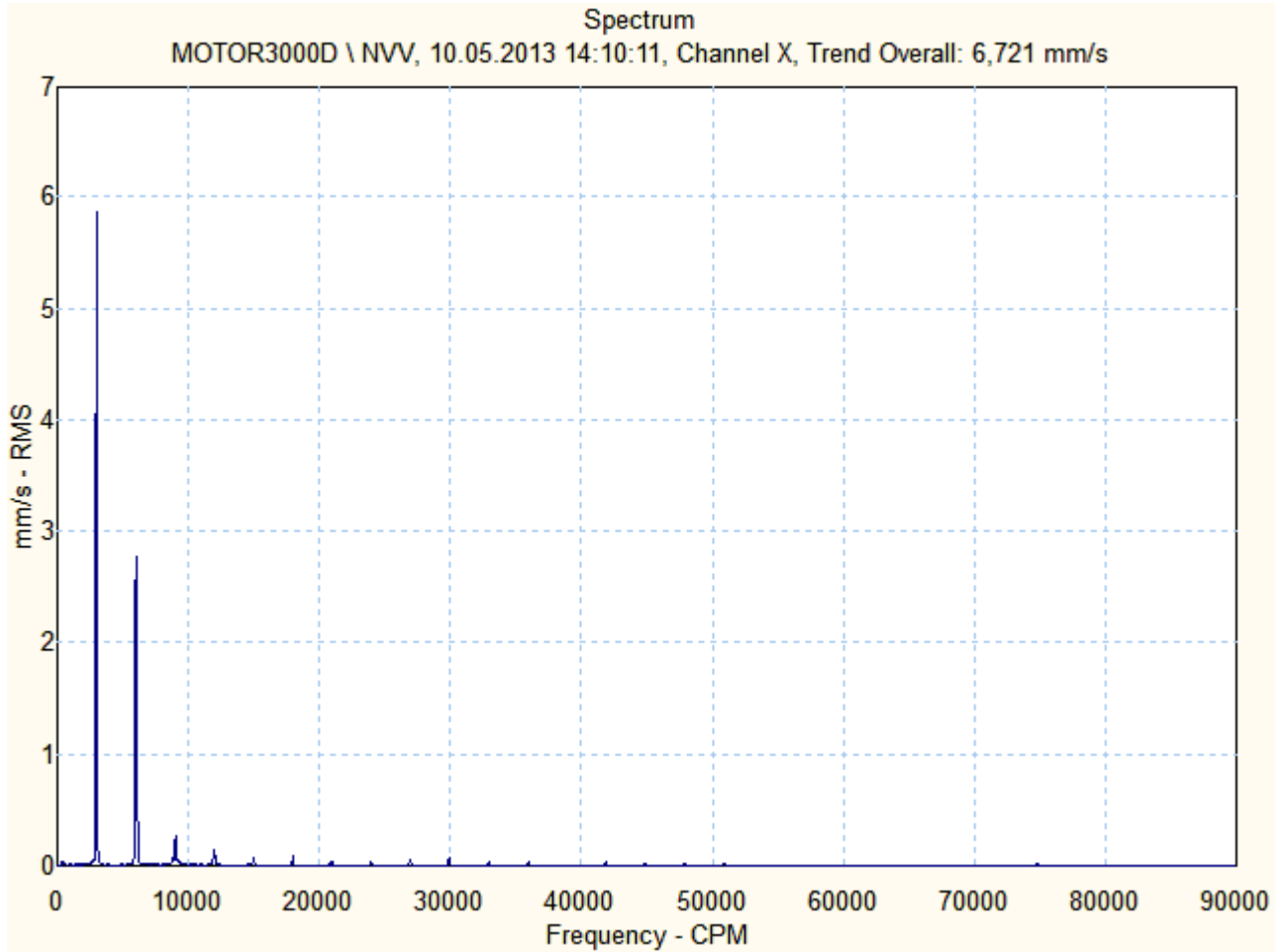
MOTOR3000D \ NHV





Motor & Generatör

MOTOR3000D \ NVV



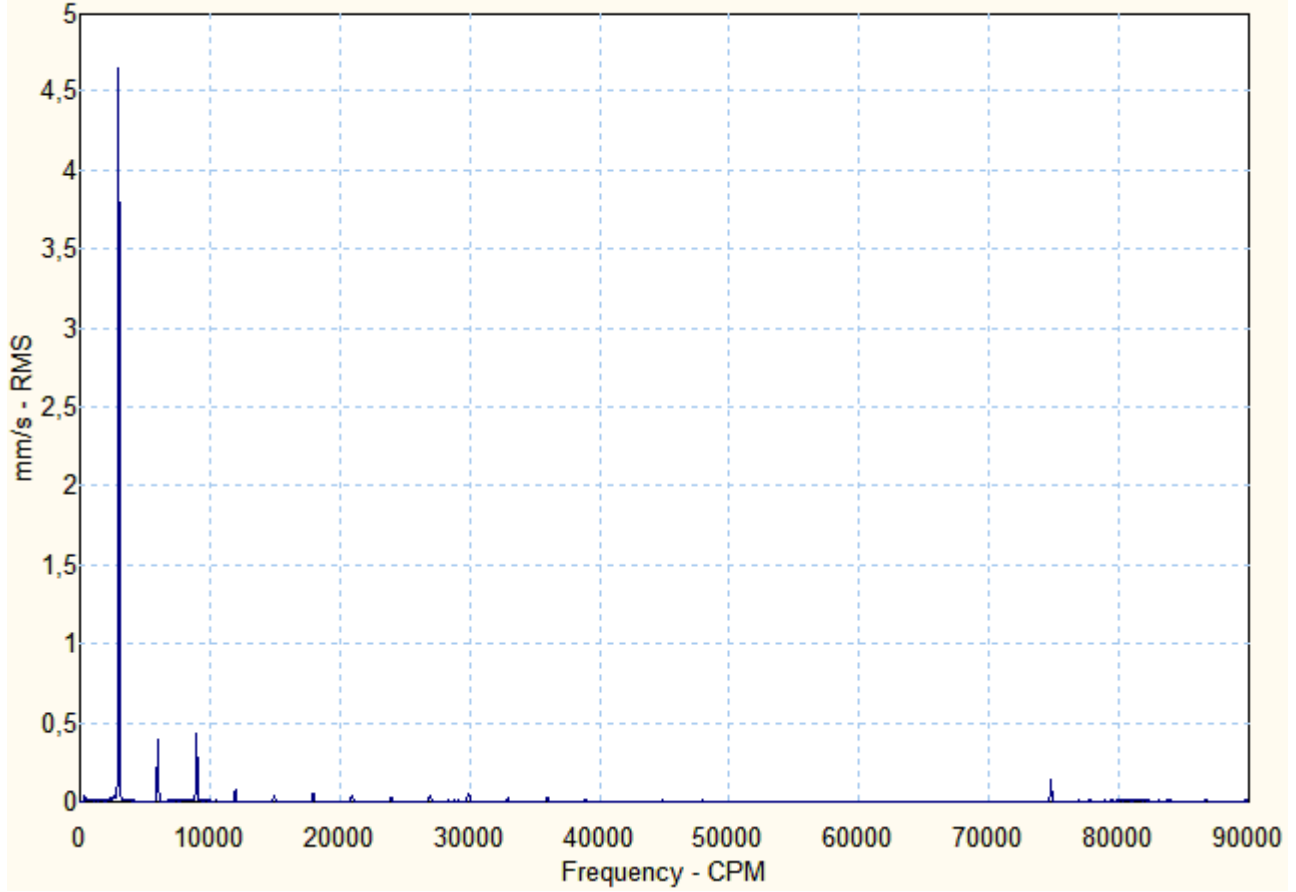


Motor & Generatör

MOTOR3000D \ NAV

Spectrum

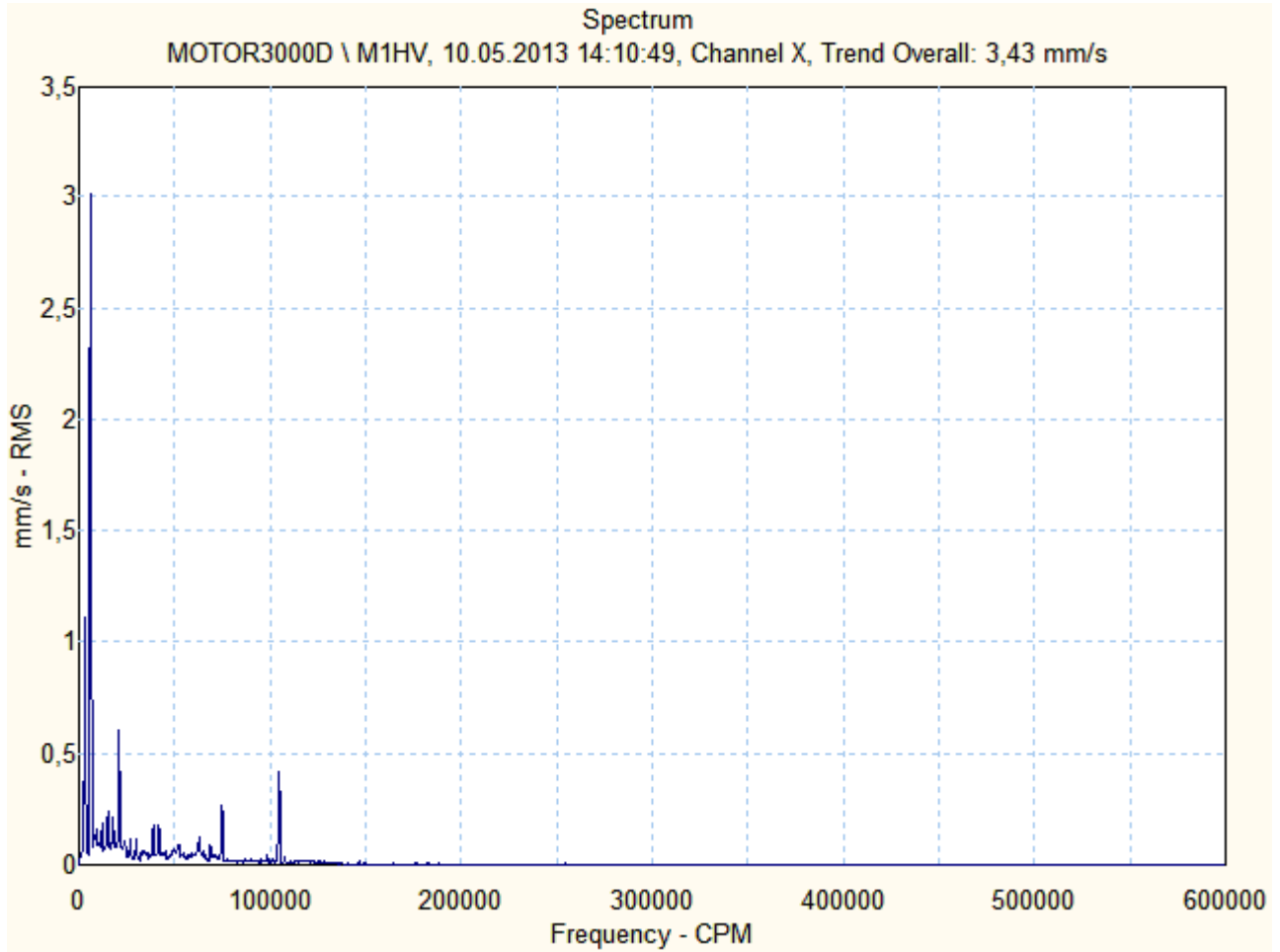
MOTOR3000D \ NAV, 10.05.2013 14:10:29, Channel X, Trend Overall: 4,775 mm/s



ÖZGÜR

Motor & Generatör

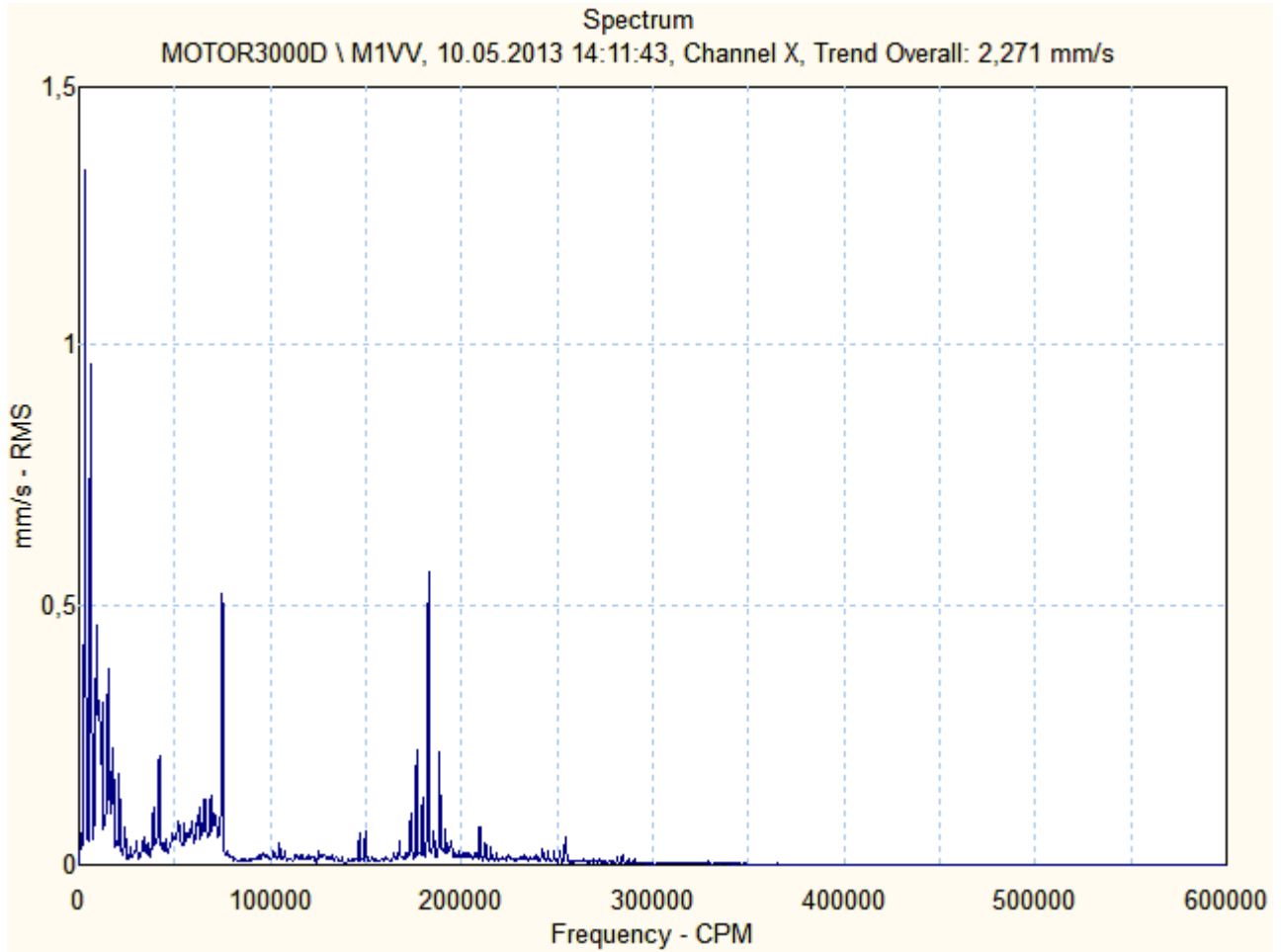
MOTOR3000D \ M1HV



ÖZGÜR

Motor & Generatör

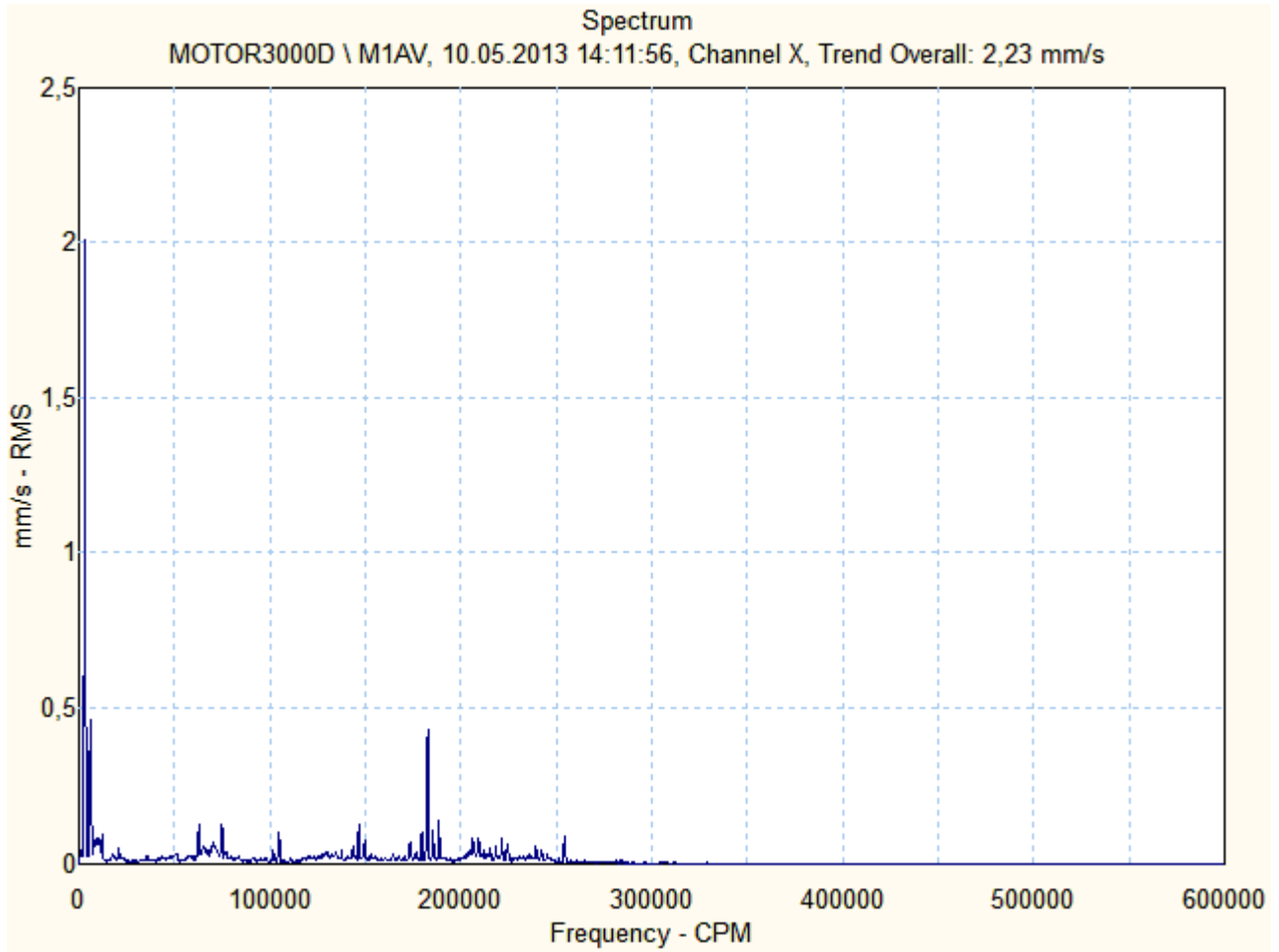
MOTOR3000D \ M1VV



ÖZGÜR

Motor & Generatör

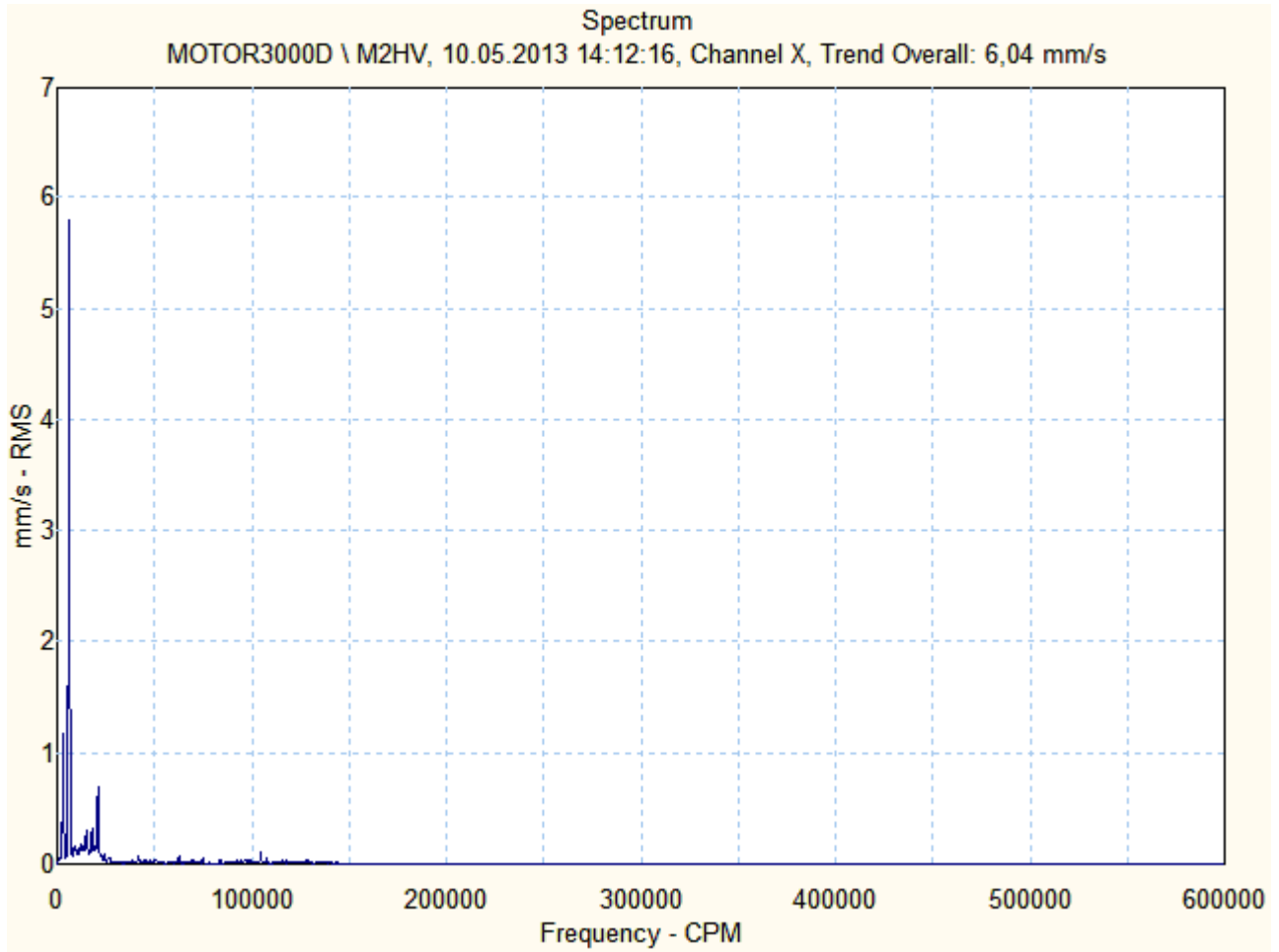
MOTOR3000D \ M1AV



ÖZGÜR

Motor & Generatör

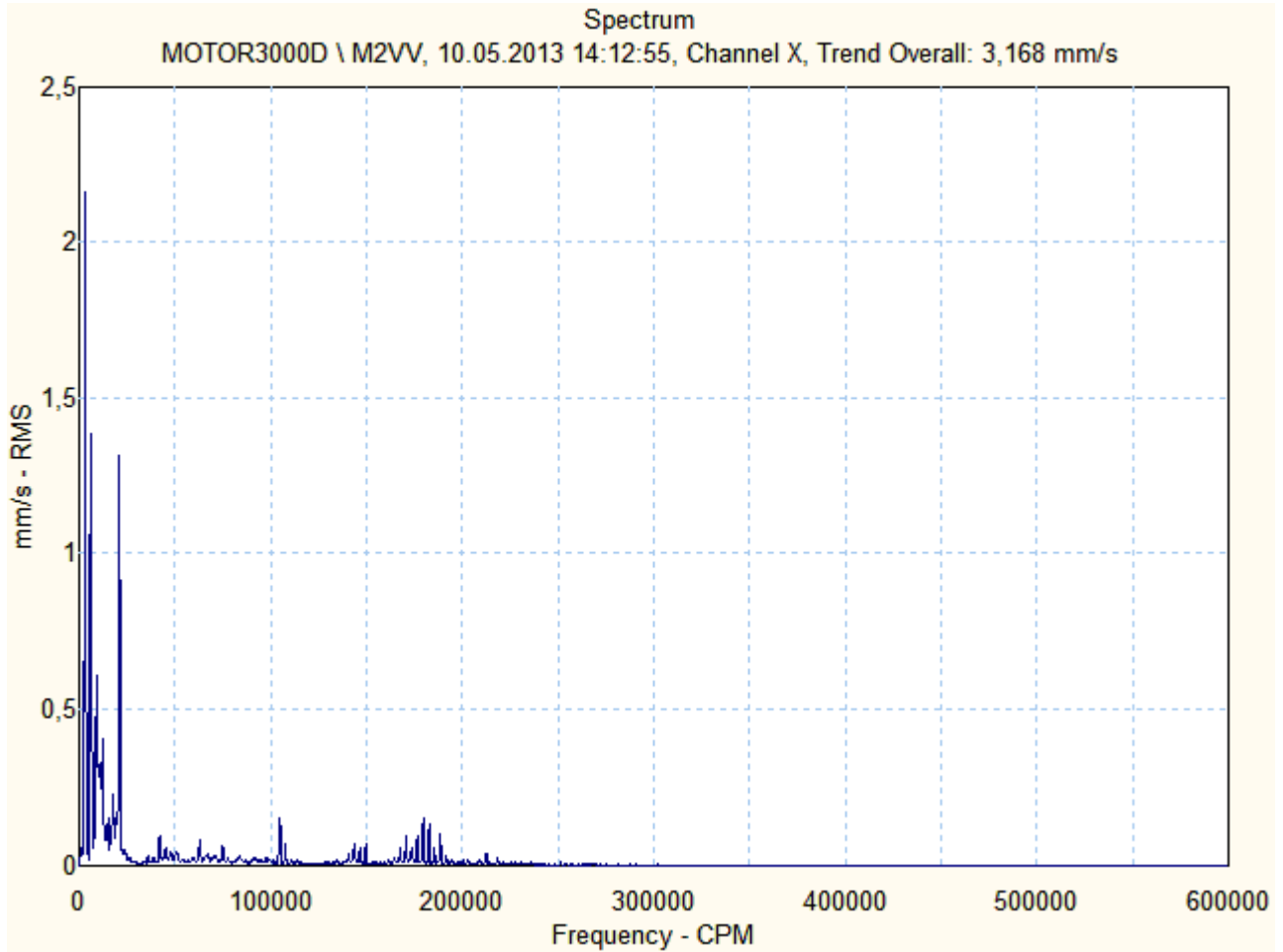
MOTOR3000D \ M2HV



ÖZGÜR

Motor & Generatör

MOTOR3000D \ M2VV



ÖZGÜR

Motor & Generatör

MOTOR3000D \ M2AV

