

TEST REPORT
of the accredited test laboratory

TÜV Nr.:M/EMV-02/277

about
the following EMC - test/- research

Division Medical
Technology/
Communication
Technology/ EMC

Testing Body for
Communication
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Accredited Testing
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Notified Body 0408

Applicant: Corinex Global Corp.
Ruzova dolina 19
821 08 Bratislava 2
Slovak Republic

Product: Corinex Intelligent PowerNet Ethernet Adapter

Serial Number: ---

Standard: EN 55022:1998+A1:2000; CISPR 22:1997;
EN 55024:1998+A1:2001

Supervisor of EMC laboratory


Ing. Wilhelm Seier

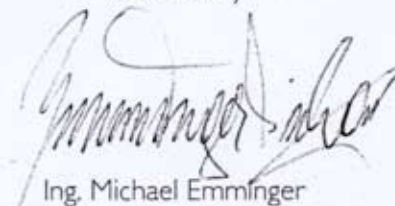
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Test laboratory for EMC



14.11.2002

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Ing. Michael Emminger

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The results of this test report only refer to the provided equipment.

DVR 0047 333
UID ATU 37086005

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1. Applicant

Company Corinex Global Corp.

Department

Address Ruzova dolina 19
821 08 Bratislava 2
Slovak Republic

Contact person Mr. Pavel Simon

EUT received on 13.11.2002

Tests were performed on 13. + 14.11.2002

2. Description of EUT

EUT	Corinex Intelligent PowerNet Ethernet Adapter FCC-ID: QIU POWERNET-ETH
Serial Number	---
Manufacturer	Corinex Global Corp. Ruzova dolina 19 821 08 Bratislava 2 Slovak Republic
Description	Corinex Global Corp. provided the following configuration for the measurements: Ethernet-Powernetadapter Connected via LAN cable to a notebook computer working as data server and through the powerline to a second notebook computer where data were sent to.
Operating mode	The measurements were carried out at the following running states: transmit/receive data

3. Standards / Final result

Name	Title	Deviation	Result
EN 55022:1998 +A1:2000	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	Only the radiated emission was executed.	PASS
CISPR 22:1997	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	Only the radiated emission was executed.	PASS
EN 55024:1998 +A1:2001	Information technology equipment - Immunity characteristics - Limits and methods of measurement	Only the measurement according to EN 61000-4-2 was executed.	PASS
PASS EUT passed FAIL EUT failed			

4. Test results

4.1. Radiated emission

Limits :

Frequency range	Limit (quasi peak)
30 - 230 MHz	39,6 dB μ V/m
230 - 1000 MHz	46,6 dB μ V/m

Measuring apparatus parameters:

Parameter	Preview measurement	Final measurement	Parameter	Preview measurement	Final measurement
Start frequency	30 MHz	30 MHz	Detector	Max Peak	Quasi Peak
Stop frequency	1000 MHz	1000 MHz	Measuring time	10 ms	1 s
Stepsize	50 kHz	50 kHz	RF-attenuation	0dB	0dB
IF- Bandwidth	120 kHz	120 kHz	Preamplifier	20 dB	20 dB

Operating mode	Measuring result
transmit/receive data	Measurement diagram 1, 2

Test result:

4. 1.1.) Measurement with QP-Detector (30 MHz - 200 MHz)

Frequency MHz	Level dB μ V/m	Limit dB μ V/m	Margin dB	Exceed- Mark	Height cm	Azimuth deg	Polarization
33,2	38,6	39,6	1,0		103	148	vertical
35,05	36,6	39,6	3,0		103	30	vertical
100	35,8	39,6	3,8		384	269	horizontal
113,5	13,8	39,6	25,8		189	209	vertical
113,75	11,2	39,6	28,4		195	221	vertical
114,05	11,6	39,6	28,0		175	256	vertical

4. 1.2.) Measurement with QP-Detector (200 MHz - 1000 MHz)

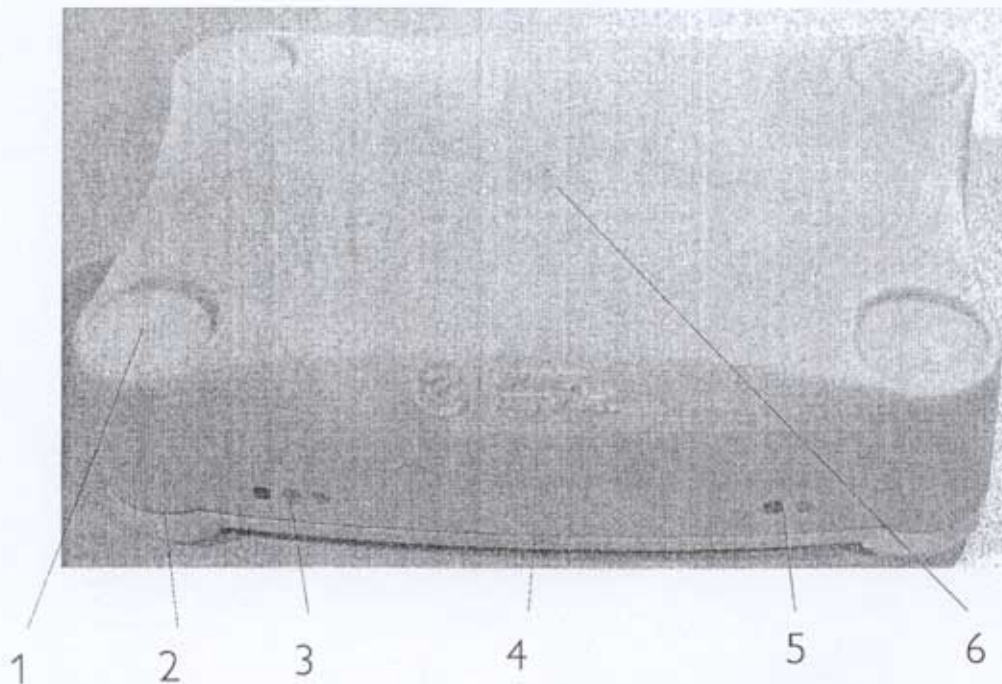
Frequency MHz	Level dB μ V/m	Limit dB μ V/m	Margin dB	Exceed- Mark	Height cm	Azimuth deg	Polarization
222,05	11,5	39,6	28,1		131	30	vertical
223,8	11,5	39,6	28,1		109	343	vertical
225,3	11,5	39,6	28,1		158	23	vertical
500	43,7	46,6	2,9		211	64	horizontal
600	35,9	46,6	10,7		136	187	vertical
1000	35,0	46,6	11,6		109	88	horizontal

4. 2. Electrostatic discharge requirements (ESD)

Type of test	charging voltage	Basic standard	Test set-up	Comment	Performance criteria
Electrostatic discharge Air discharge	8 kV charging voltage	EN 61000-4-2:1995	EN 61000-4-2:1995		B
Electrostatic discharge Contact discharge	4 kV charging voltage	EN 61000-4-2:1995	EN 61000-4-2:1995		B

Operating mode	Test positions	Criteria of compliance
transmit/receive data	The 14 test positions are shown in the following graphic	During the test the communications link shall be maintained. However short interruptions are allowed. After the test the equipment shall operate normally without user-interaction.

Test positions for ESD



Test result:

Test position	Charging voltage	Type of discharge	Positive discharge	Negative discharge
1	8 kV	Air	PASS	PASS
2	8 kV	Air	PASS	PASS
3	8 kV	Air	PASS	PASS
4	8 kV	Air	PASS	PASS
5	8 kV	Air	PASS	PASS
6	8 kV	Air	PASS	PASS
7	8 kV	Air	PASS	PASS
8	8 kV	Air	PASS	PASS
9	8 kV	Air	PASS	PASS
10	8 kV	Air	PASS	PASS
11	8 kV	Air	PASS	PASS
12	4 kV	Contact	PASS	PASS
13	8 kV	Air	PASS	PASS
14	8 kV	Air	PASS	PASS
PASS FAIL	EUT passed EUT failed			

Appendix 1

Test equipment used

☒	Anechoic Chamber with 3m measurement distance	NT-100	☐	ESPC - Test receiver 9 kHz - 2,5 GHz	NT-203
☒	MA 240 - Antenna mast 1 - 4 m height	NT-110	☒	ESI26 - Test receiver 20 Hz - 26,5 GHz	NT-207
☒	DS 412 - Turntable 0 - 400 ° Azimuth	NT-111	☐	Digital Radio Tester CTS55	NT-208
☒	HD 100 Controller Mast+Turntable	NT-112	☐	Noise-gen., ITU-R 559-2 20 Hz - 20 kHz	NT-209
☐	HUF-Z2 - Bicon. Antennna 20 - 300 MHz	NT-120	☐	CMTA - Radiocommunication analyzer ; 0,1 - 1000 MHz	NT-210
☐	HUF-Z3 - Log. Per. Antenna 200 - 1000 MHz	NT-121	☐	3271 - Spectrum analyzer 100 Hz - 26,5 GHz	NT-211
☐	HFH-Z2 - Loop Antenna. 9 kHz - 30 MHz	NT-122	☐	Radiocommunicationanalyzer Marconi 2945A	NT-212
☐	HFH-Z6 - Rod Antenna 9 kHz - 30 MHz	NT-123	☐	2855S - Communication analyzer	NT-213
☐	3121C - Dipole Antenna 28 - 1000 MHz	NT-124	☐	Mixer M28HW 26,5 GHz - 40 GHz	NT-214
☐	3115 - Horn Antenna 1 - 18 GHz	NT-125	☐	Diode Detector 0,01 GHz - 26,5 GHz	NT-215
☐	3116 - Horn Antenna 18 - 40 GHz	NT-126	☐	3160-10 Horn Antenna 26,5 GHz - 40 GHz	NT-216
☐	SAS-200/543 - Bicon. Ant. 20 MHz - 300 MHz	NT-127	☐	Radiocommunicationanalyzer SWR 1180 MD	NT-217
☐	AT-1080 - Log. Per. Ant. 80 - 1000 MHz	NT-128	☐	Mixer M19HWD 40 GHz - 60 GHz	NT-218
☒	HK-116 - bicon. Ant. 20 MHz - 300 MHz	NT-129	☐	Mixer M12HWD 60 GHz - 90 GHz	NT-219
☐	HK-116 - bicon. Ant. 20 MHz - 300 MHz	NT-130	☐	TDS - 540 DSO Digital scope	NT-220
☒	3146 - Log. Per. Ant. 200 - 1000MHz	NT-131	☐	PM97 Scopemeter	NT-221
☐	Loop Antenna H-Field	NT-132	☐	B9-DSP-IS Digital Analyzer for voltage fluctuations	NT-230
☐	Horn Antenna 500 MHz - 2900 MHz	NT-133	☐	DFT 555 - Power and harmonics analyzer	NT-231
☐	Log. per. Antenna 800 MHz - 2500 MHz	NT-134	☐	EFA-3 H-field- / E-field probe	NT-243
☐	Log. per. Antenna 800 MHz - 2500 MHz	NT-135	☐	E-field measuring instrument EMR-200; 100 kHz - 3 GHz	NT-244
☐	BiConiLog Antenna 26 MHz - 2000 MHz	NT-137	☐	E-field probe 100 kHz - 3 GHz	NT-245
☐	Conical Dipol Antenna PCD8250	NT-138	☐	Magneticfield-Sensor 300 kHz - 30 MHz	NT-246
☐	HZ-1 Antenna tripod	NT-150	☐	E-field probe 10 MHz - 18 GHz	NT-247
☐	BN 1500 Antenna tripod	NT-151	☐	H-field probe 10 MHz - 1 GHz	NT-248
☐	ESVP - Test receiver 20 - 1000 MHz	NT-201	☐	MDS 21 - Absorbing clamp 30 - 1000 MHz	NT-250
☐	Switchbox	NT-202	☐	FCC-203I EM Injection clamp	NT-251

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Test equipment used

☐ FCC-203I-DCN Ferrite decoupling network	NT-252	☐ 500W1000M7 - RF-Amplifier 80 - 1000 MHz / 500 W	NT-332
☐ PR50 Current Probe	NT-253	☐ AS0102-65R - RF-Amplifier 1 GHz - 2 GHz	NT-333
☐ Model 2000 Digital Multimeter	NT-261	☐ APA01 - RF-Amplifier 0,5 GHz - 2,5 GHz	NT-334
☐ Fluke 97 Digital Multimeter	NT-262	☐ Preamplifier 1 GHz - 4 GHz	NT-335
☐ Fluke 97 Digital Multimeter	NT-263	☐ 2-97201 Electronic load	NT-341
☐ ESH2-Z5 Artificial mains network 4x25A	NT-300	☐ TSX3510P - Power supply 0-30 V / 0 - 10 A	NT-344
☐ ESH3-Z5 Artificial mains network 2x10A	NT-301	☐ TSX3510P - Power supply 0-30 V / 0 - 10 A	NT-345
☐ ESH3-Z6 Artificial mains network 1x100A	NT-302	☐ VDS 200 Mobil-impuls-generator	NT-350
☐ ESH3-Z4 T-Artificial network	NT-303	☐ LD 200 Mobil-impuls-generator	NT-351
☐ PHE 4500/B Power amplifier	NT-304	☐ MPG 200 Mobil-Impuls-Generators	NT-352
☐ EZ10 T-Artificial network	NT-305	☐ EFT 200 Mobil-impuls-generator	NT-353
☐ MidiStar Telephone exchange	NT-306	☐ FP 16/3-1 3 ph. Coupling filter (Burst)	NT-400
☐ SMG - Signal generator 0,1 - 1000 MHz	NT-310	☐ PHE 4500 - Mains impedance network	NT-401
☐ PM 5518 TXVPS Video generator	NT-311	☐ FP-SURGE 32,1 3 ph. Coupling filter (Surge)	NT-402
☐ RefRad Reference generator	NT-312	☐ IP 6.2 Coupling filter for data lines (Surge)	NT-403
☐ SMP 02 Signal generator 10 MHz - 20 GHz	NT-313	☐ ESH2-Z3 - Probe 9 kHz - 30 MHz	NT-410
☐ 40 MHz Arbitrary Generator T1241	NT-315	☐ IP 4 - Capacitive clamp (Burst)	NT-411
☐ PEFT - Burst generator up to 4 kV	NT-320	☐ HV-Attenuator 54,5 dB (Burst)	NT-420
☒ PSD - ESD generator up to 25 kV	NT-321	☐ RF-Attenuator 20 dB 0,1 - 1000 MHz / 25 W	NT-421
☒ ESD-Pistol	NT-322	☐ RF-Attenuator 10 dB 0,1 - 1000 MHz / 20 W	NT-422
☒ Vacuum-Relais up to 8 kV	NT-323	☐ RF-Attenuator 30 dB 0,1 - 1000 MHz / 1 W	NT-423
☐ PSURGE 4,1 Surge generator	NT-324	☐ RF-Attenuator 30 dB	NT-424
☐ TRANSIENT 1000 Immunity test system	NT-325	☐ RF-Attenuator 6 dB 0,1 - 1000 MHz / 1 W	NT-425
☐ VCS 500-M6 Surge-Generator	NT-326	☐ RF-Attenuator 6 dB 0,1 - 1000 MHz / 1 W	NT-426
☐ BTA-250 - RF-Amplifier 9 kHz - 220 MHz / 250 W	NT-330	☐ Voltage-divider 1:100	NT-427

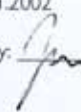
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Appendix 1 (continued)

Test equipment used

☐	RF-Attenuator 6 dB	NT-428	☐	BSR-V1 - Video transmission system (optical fiber link)	NT-512
☐	RF-Attenuator 0 dB - 81 dB	NT-429	☐	ES-K1 Test software	NT-520
☐	WRU 27 - Band blocking 27 MHz	NT-430	☐	ESPC-K1 Test software	NT-521
☐	WHJ450C9 AA - High pass 450 MHz	NT-431	☐	SPS_PHE - Test software voltage fluctuations/harmonics	NT-525
☐	WHJ250C9 AA - High pass 250 MHz	NT-432	☐	SPS_EM - Test software for PHE 4500/B	NT-527
☐	RF-Load 150 W	NT-433	☐	Noise power test apparatus according to EN 55014	NT-530
☐	Impedance transducer 50 Ohm - 800 Ohm	NT-435	☐	Vertical coupling plane (ESD)	NT-531
☐	I+P 7780 Directional coupler 100 - 2000 MHz	NT-440	☐	Equipment for ESD-pulse verification.	NT-532
☐	ESH3-Z2 - Pulse limiter 9 kHz - 30 MHz	NT-441	☐	TEM-Zelle	NT-533
☐	Power Divider 6 dB/1 W/50 Ohm	NT-443	☐	ESV-24 Plotter adapter	NT-540
☐	Directional coupler 0,1 MHz - 70 MHz	NT-444	☒	Test cables	NT-550
☐	Directional coupler 0,1 MHz - 70 MHz	NT-445	☐	Test cable #4 for EN 61000-4-6	NT-553
☐	Tube imitations according to EN 55015	NT-450	☐	Test cable #3 for conducted emission	NT-554
☐	FCC-801-M5-25 Coupling decoupling network	NT-460	☐	Test cable #5 ESD-cable (2x470k)	NT-555
☐	FCC-801-AF10 Coupling decoupling network	NT-461	☐	Test cable #6 ESD-cable (2x470k)	NT-556
☐	FCC-801-S25 Coupling decoupling network	NT-462	☐	Serial data - fiber optic link	NT-557
☐	FCC-801-T4 Coupling decoupling network	NT-463	☐	Test cable #8 Sucoflex 104EA	NT-559
☐	FCC-801-C1 Coupling decoupling network	NT-464	☐	Test cable #9 (for outdoor measurements)	NT-580
☐	F-16A - Current probe 1kHz - 70MHz	NT-465	☐	Test cable #10 (for outdoor measurements)	NT-581
☒	PC P450 - Test computer	NT-500	☐	Test cable #13 PBA-33PBC-10	NT-584
☐	SE 284 GPIB - Plotter	NT 502	☐	Shield chamber	NT-600
☐	PC P133 Test computer #2	NT-504	☐	Climatic chamber -55°C to +180°C	M-512
☐	PC P200 MMX Notebook	NT-505	☐	Control and simulation equipment for EUT	---
☐	PC PIII 933 MHz Notebook	NT-506			
☐	7110 - Controlling device for E-Field probe	NT-510			
☐	Monitoring camera with Monitor	NT-511			

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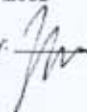
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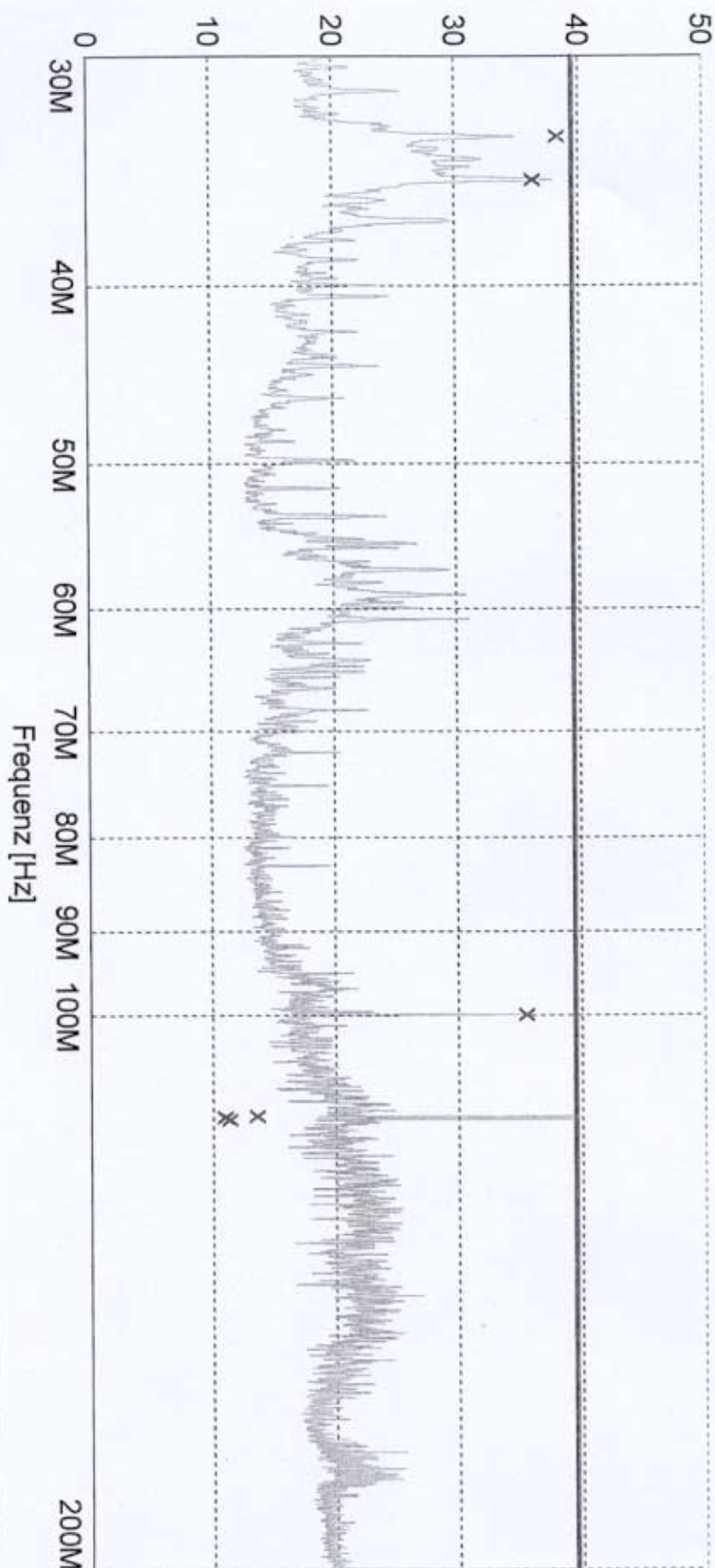
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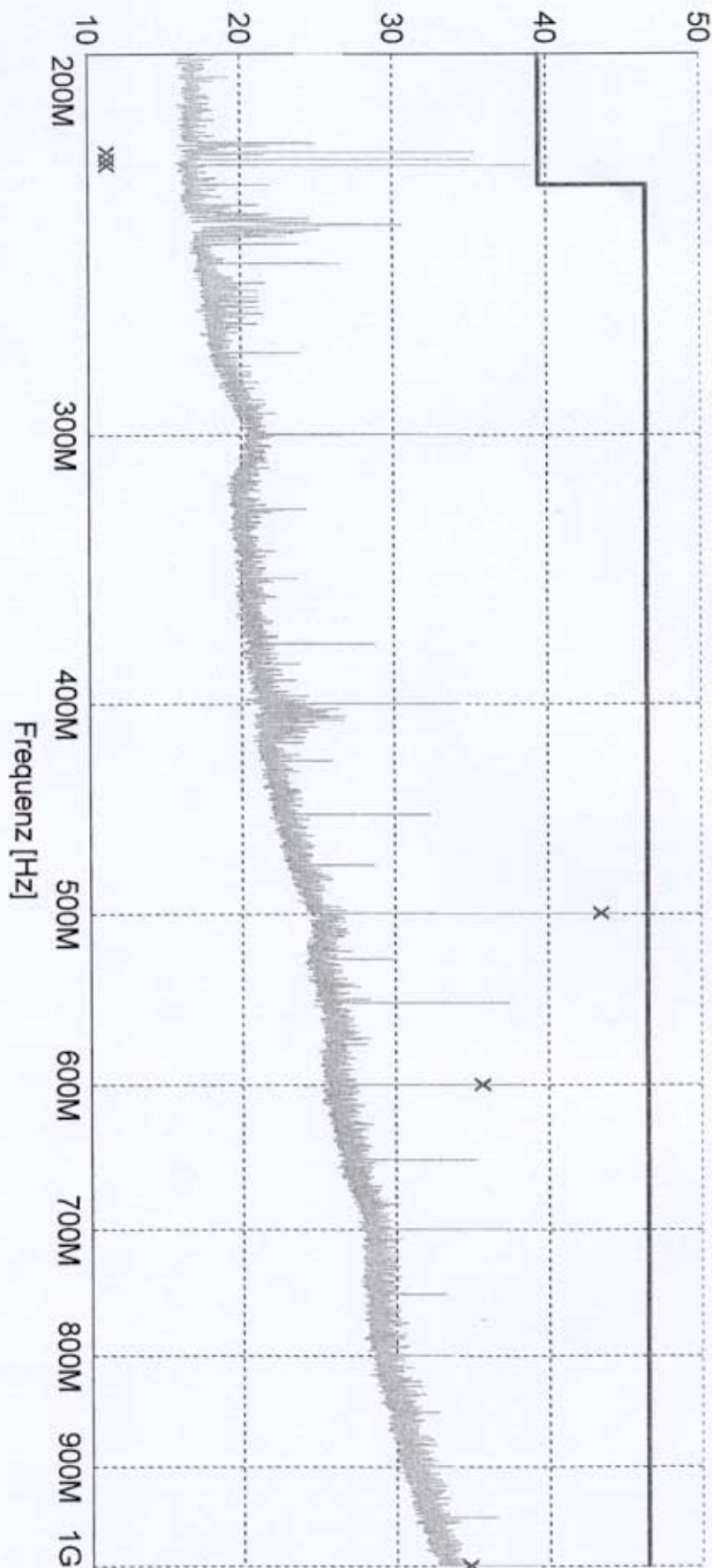
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