FCC Part 15C
Measurement and Test Report

For

SHENZHEN EMENO TECHNOLOGY CO., LTD

416A, Huiyi Fortune Plaza, Gaofeng Community, Dalang Street, Longhua

New Dist., Shenzhen, Guangdong, China

FCC ID: 2AS3W-AM8089

Test Rule(s):	FCC Part 15 Subpart C
Product Description:	EAS Acousto-magnetic main boards AM100
Tested Model:	AM8089
Report No.:	WTG19G04019672W
Tested Date:	2019-04-03 to 2019-04-16
Issued Date:	2019-04-16
Tested By:	Jason Su/ Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	SHENZHEN EMENO TECHNOLOGY CO., LTD
Address of applicant:	416A, Huiyi Fortune Plaza, Gaofeng Community, Dalang Street, Longhua New Dist., Shenzhen, Guangdong, China
Manufacturer:	SHENZHEN EMENO TECHNOLOGY CO., LTD
Address of manufacturer:	416A, Huiyi Fortune Plaza, Gaofeng Community, Dalang Street, Longhua New Dist., Shenzhen, Guangdong, China

General Description of EUT	
Product Name:	EAS Acousto-magnetic main boards AM100
Trade Name:	N/A
Model No.:	AM8089
Adding Model(s):	AM9800
Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model AM8089*, but the circuit and the electronic construction do not change, declared by the manufacturer.*	

Technical Characteristics of EUT	
Input rated voltage:	120V/60Hz
Output rated Current:	3A
Rated Power:	100W
Power Adapter Model:	AC1100
Lowest Internal Frequency:	/
Highest Internal Frequency:	58KHz
Classification of ITE:	/

1.2 Test Standards

The following report is prepared on behalf of the **SHENZHEN EMENO TECHNOLOGY CO., LTD** in accordance with FCC Part 15, Subpart C, and section 15.207, 15.209 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.207, 15.209 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.4 Test Facility

FCC – Registration No.: 934118

Shenzhen SEM.Test Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 934118.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C (518101).

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark
TM1	Transmitting	58KHz

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
/	/	/	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2018-05-22	2019-05-21
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2018-05-22	2019-05-21
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2018-05-22	2019-05-21
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2018-05-22	2019-05-21
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2018-05-22	2019-05-21
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2018-05-22	2019-05-21
SEMT-1042	Horn Antenna	ETS	3117	00086197	2018-05-22	2019-05-21
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2018-05-22	2019-05-21
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2018-05-22	2019-05-21
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2018-05-22	2019-05-21
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2018-05-22	2019-05-21

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.207 (a)	Conducted Emissions	Compliant
§ 15.209(a)(d)	Radiated Emissions	Compliant

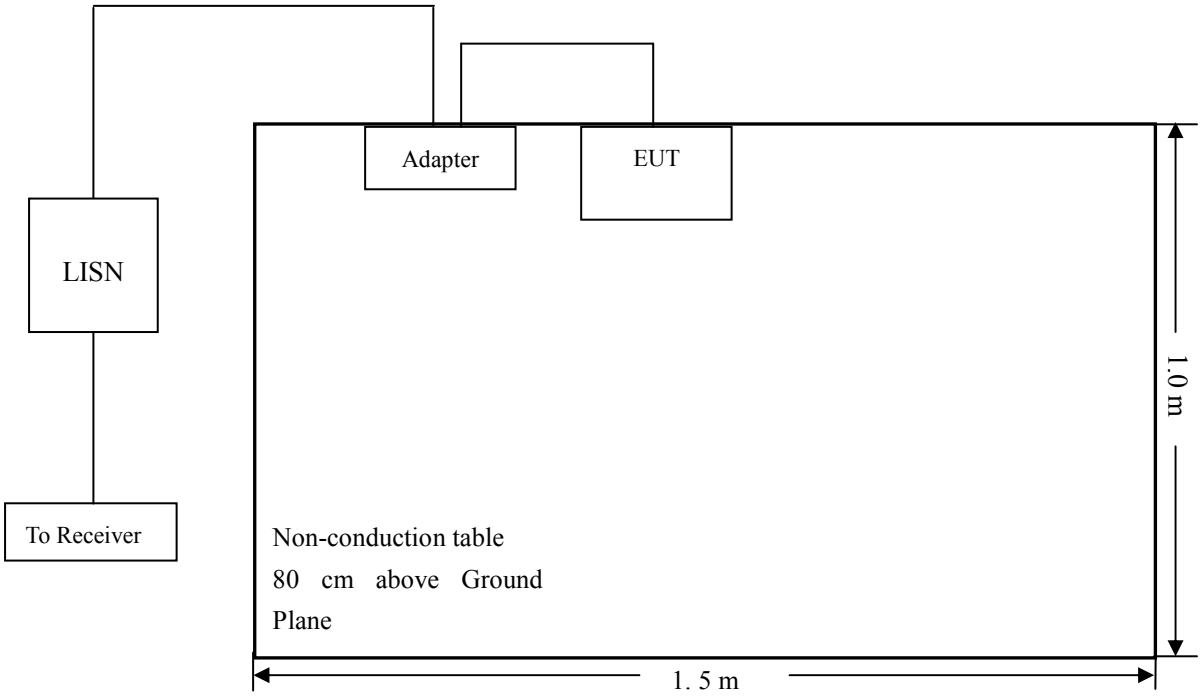
N/A: not applicable

3. Conducted Emissions

3.1 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15.207 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.

3.2 Basic Test Setup Block Diagram



3.3 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.4 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency ..... 150 kHz
Stop Frequency..... 30 MHz
Sweep Speed ..... Auto

IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth ..... 9 kHz
Quasi-Peak Adapter Mode ..... Normal

3.5 Summary of Test Results/Plots

According to the data in section 3.6, the EUT complied with the FCC Part 15.207(a) Conducted margin for a Class B device, with the *worst* margin reading of:

-22.11dB at **0.47 MHz** in the **Line**, **QP** detector, 0.15-30MHz

3.6 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

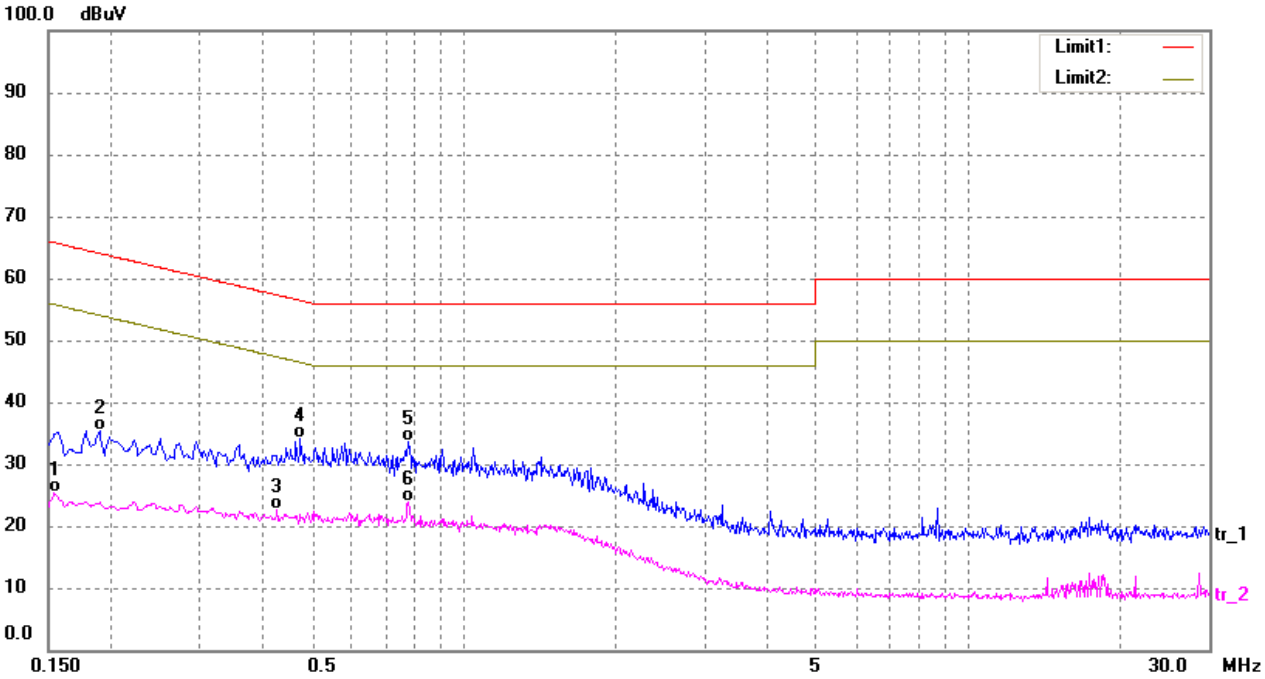
EUT: *EAS Acousto-magnetic main boards AM100*

Tested Model: *AM8089*

Operating Condition: *Transmitting*

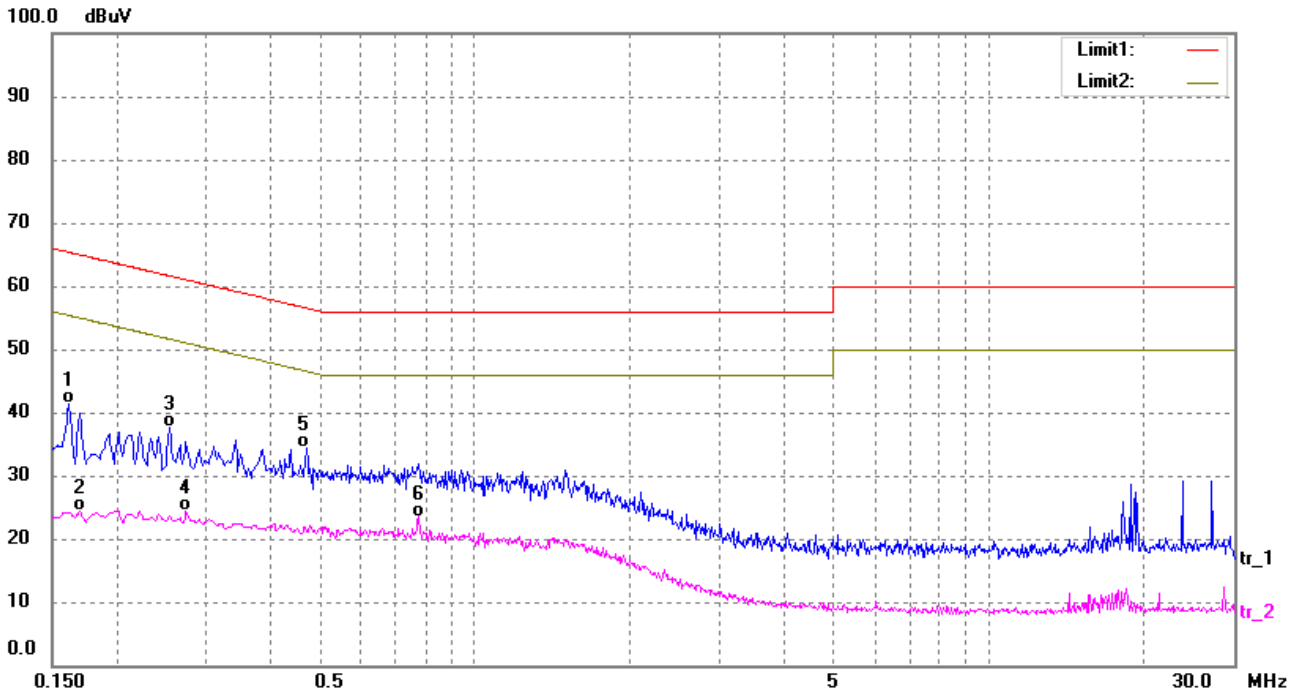
Comment:

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1539	15.32	10.10	25.42	55.78	-30.36	AVG
2	0.1900	25.26	10.12	35.38	64.03	-28.65	QP
3	0.4260	12.31	10.26	22.57	47.33	-24.76	AVG
4	0.4740	23.75	10.28	34.03	56.44	-22.41	QP
5	0.7780	23.13	10.42	33.55	56.00	-22.45	QP
6*	0.7780	13.40	10.42	23.82	46.00	-22.18	AVG

Test Specification: *Line*

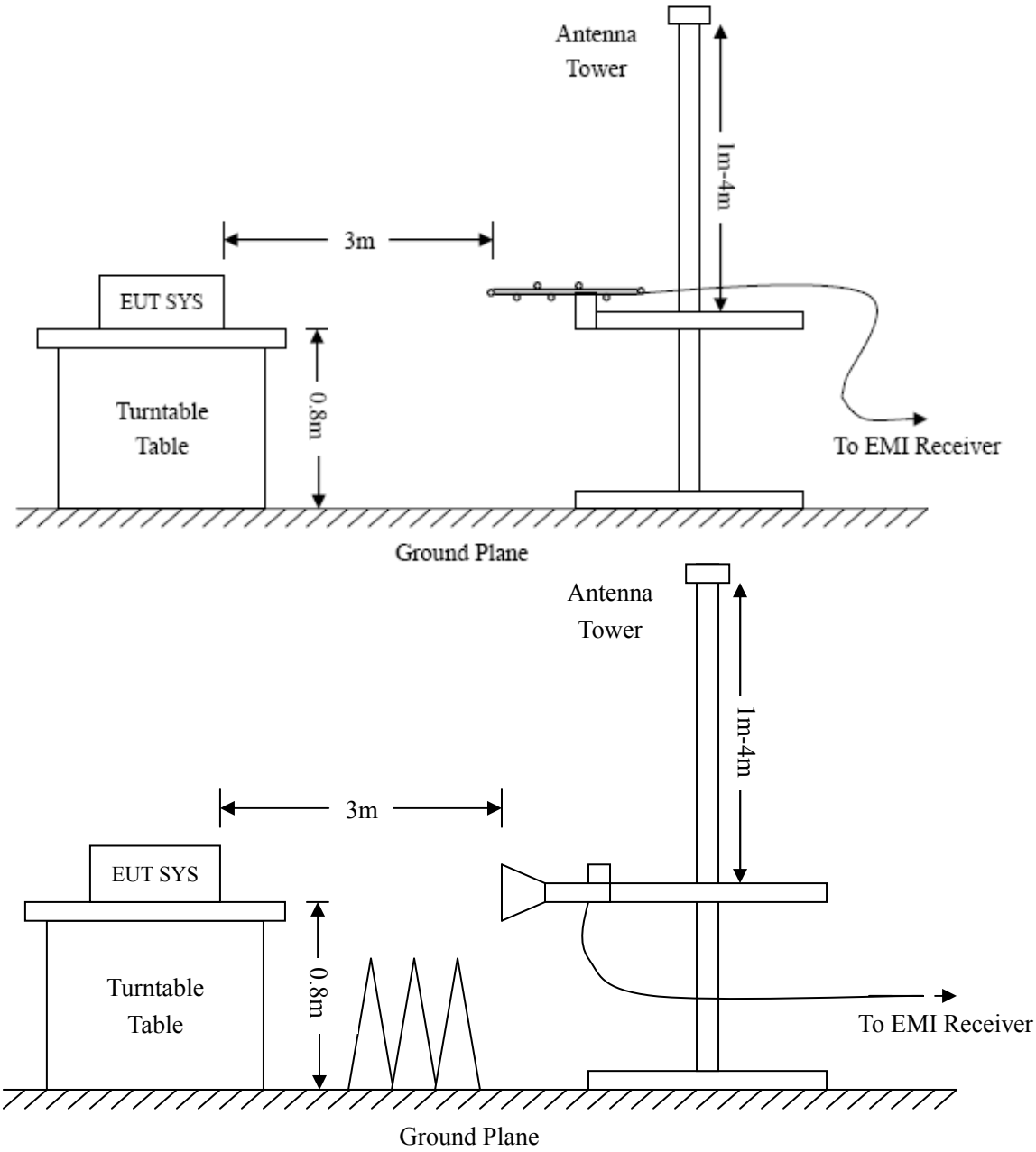


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1620	31.27	10.10	41.37	65.36	-23.99	QP
2	0.1700	14.20	10.11	24.31	54.96	-30.65	AVG
3	0.2540	27.59	10.16	37.75	61.62	-23.87	QP
4	0.2740	14.13	10.17	24.30	50.99	-26.69	AVG
5*	0.4700	24.12	10.28	34.40	56.51	-22.11	QP
6	0.7780	13.08	10.42	23.50	46.00	-22.50	AVG

4. Radiated Emissions

4.1 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.209 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.



4.2 Test Receiver Setup

Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

4.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading – Corr. Factor

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for a Class B device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15.209(a) Limit

4.4 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.5 Summary of Test Results/Plots

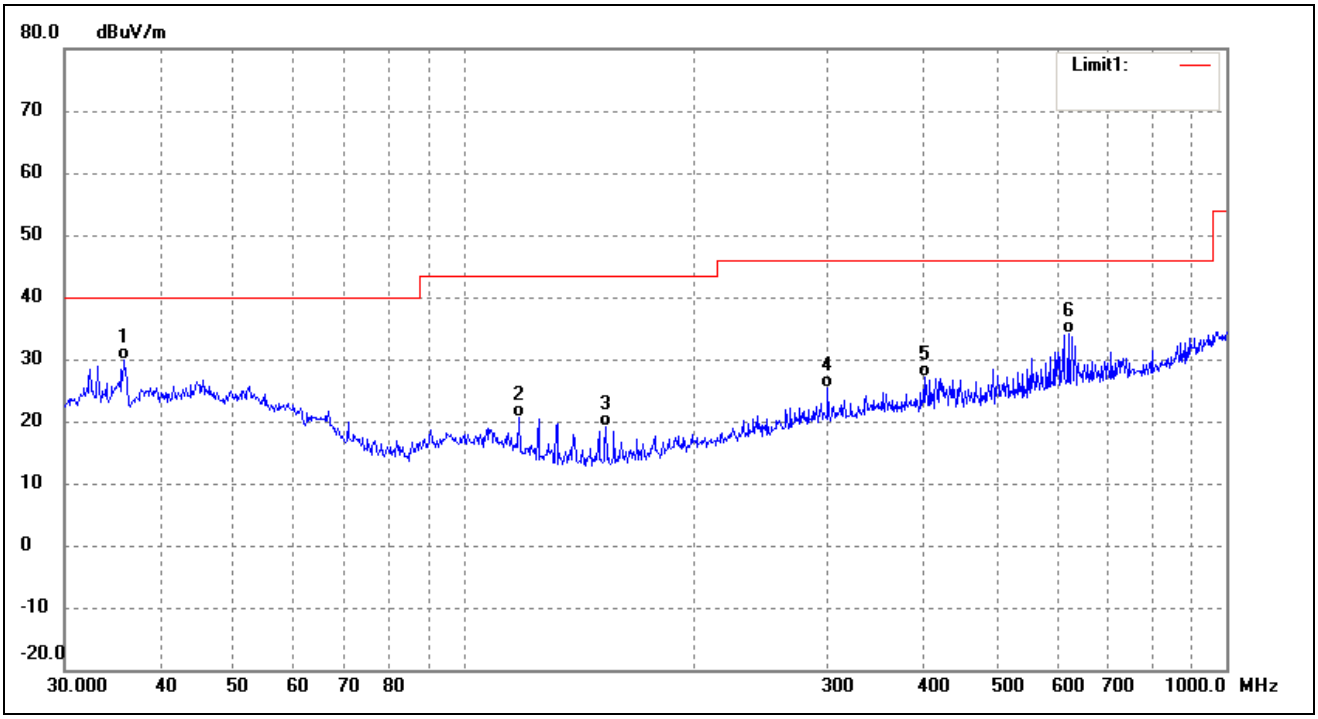
According to the data, the EUT complied with the FCC Part 15.209(a) rule, and had the worst margin of:

-10.01 dB at **35.874 MHz** in the **Horizontal** polarization, **30MHz** to **1 GHz**, **3Meters**
-54.18 dB at **0.556 MHz** in the **Horizontal** polarization, **9KHz** to **30MHz**, **3Meters**

Plot of Radiated Emissions Test Data

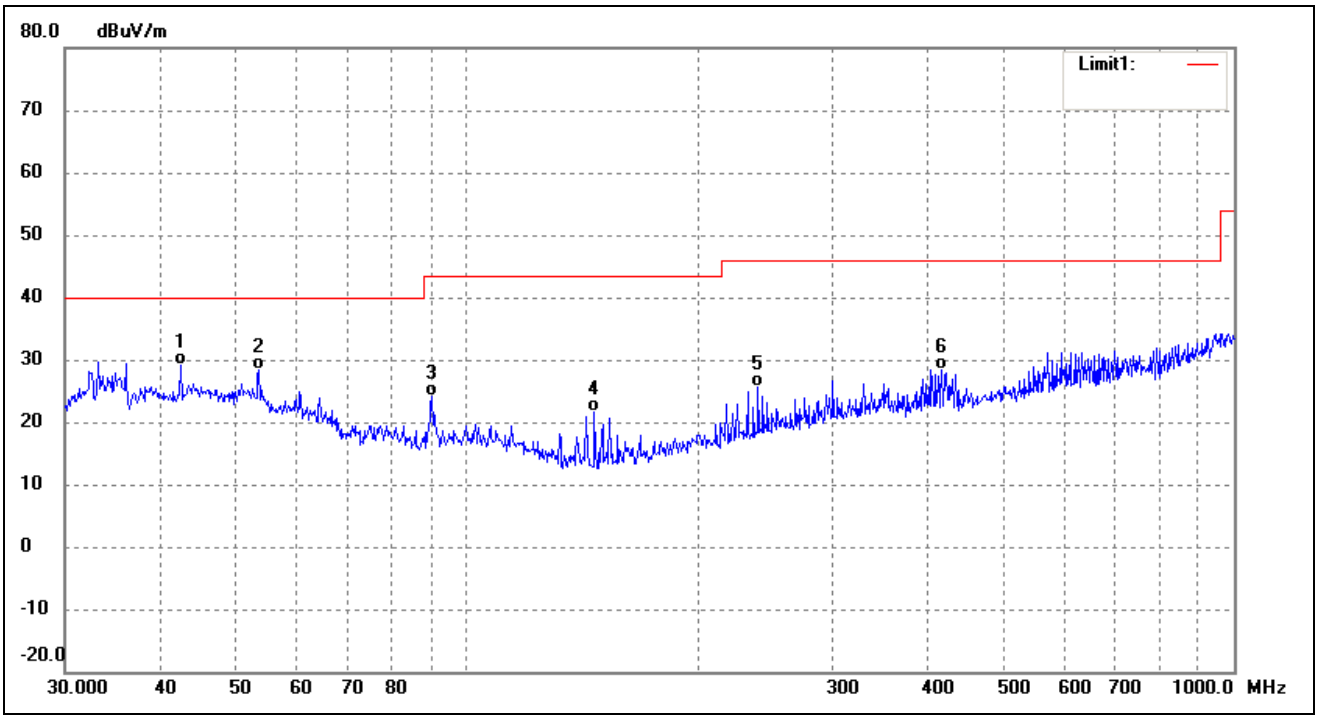
EUT: *EAS Acousto-magnetic main boards AM100*
Tested Model: *AM8089*
Operating Condition: *Transmitting*
Comment:

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	35.8746	39.49	-9.50	29.99	40.00	-10.01	QP
2	118.1862	36.44	-15.76	20.68	43.50	-22.82	QP
3	153.7385	36.31	-17.23	19.08	43.50	-24.42	QP
4	300.3672	34.79	-9.40	25.39	46.00	-20.61	QP
5	401.8385	34.61	-7.38	27.23	46.00	-18.77	QP
6	620.7096	37.85	-3.80	34.05	46.00	-11.95	QP

Test Specification: *Vertical*



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	42.4508	37.22	-8.02	29.20	40.00	-10.80	QP
2	53.6932	37.32	-8.88	28.44	40.00	-11.56	QP
3	90.2205	39.89	-15.75	24.14	43.50	-19.36	QP
4	146.8877	39.32	-17.66	21.66	43.50	-21.84	QP
5	239.9874	37.13	-11.38	25.75	46.00	-20.25	QP
6	416.1791	35.37	-6.99	28.38	46.00	-17.62	QP

Below 1G

Plot of Radiated Emissions Test Data

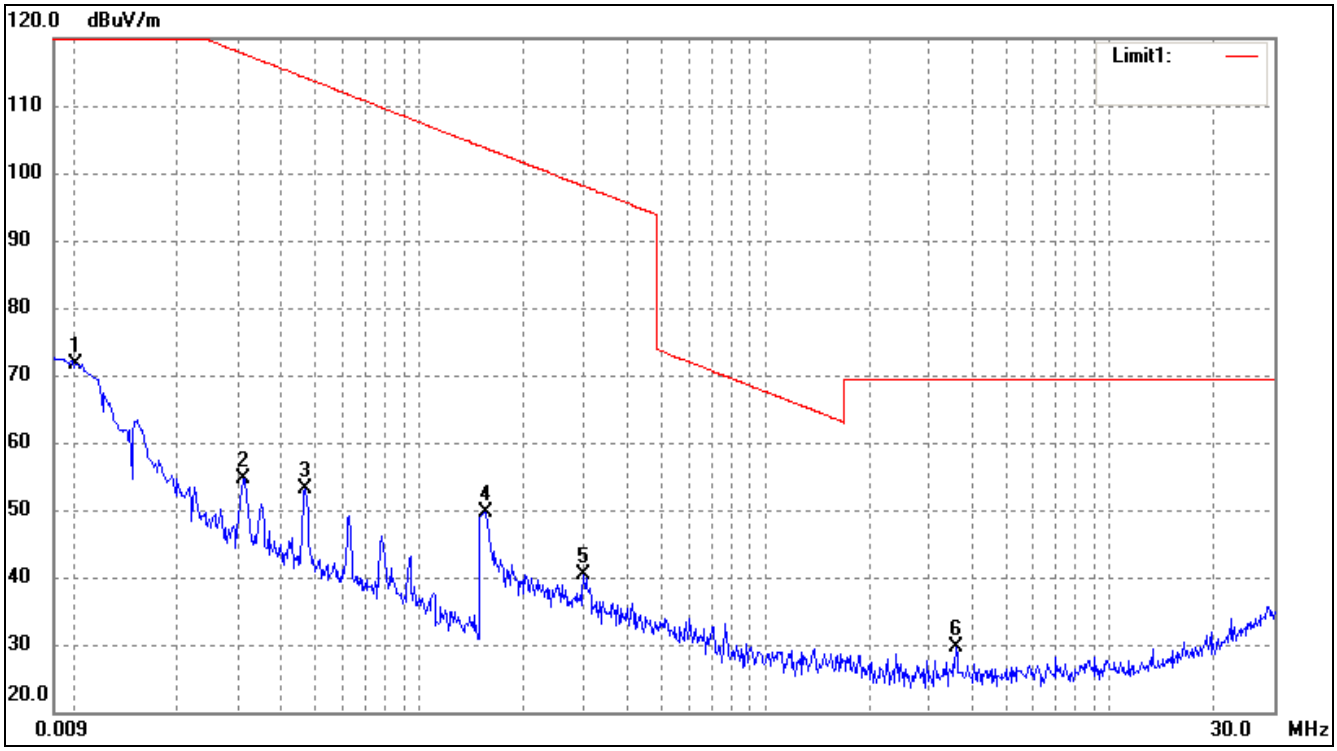
EUT: *EAS Acousto-magnetic main boards AM100*

Tested Model: *AM8089*

Operating Condition: *Transmitting*

Comment:

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	0.0102	77.31	-5.61	71.70	127.41	-55.71	peak
2	0.0310	61.79	-7.10	54.69	117.76	-63.07	peak
3	0.0468	60.21	-6.99	53.22	114.19	-60.97	peak
4	0.1556	54.97	-5.40	49.57	103.76	-54.19	peak
5	0.3003	47.30	-6.89	40.41	98.05	-57.64	peak
6	3.5843	39.94	-10.40	29.54	69.50	-39.96	peak

Note: Testing is carried out with frequency rang 9kHz to the 1GHz

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******* END OF REPORT *******