



SPECIFICATION

CUSTOMER:

PRODUCTS : MICRO SPEAKER

MODEL : XHS151156LN-01-RH

ITEM. NO. :

DATE : 2023-01-06



APPROVER	CHECKER	DESIGNER

CUSTOMER APPROVER

SIGNATURE	IMPRINTMENT

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		TYPE NO.	XHS151156LN-01-RH	Issue:A/0
Revision				
No	Date	Page	Description	Sign
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ZHEJIANG ELECTRONIC CO.,LTD. TEL:86-573-84645930 、 84646197 FAX:86-573-84646190 E-mail: services@xh-haosheng.com.		SPECIFICATIONS (2/16)		
		TYPE NO.	XHS151156LN-01-RH	Issue:A/0
1. Product Outline				
1-1. Scope	This specification is a typical speaker unit for telephone handset			
1-2. Dimensions	As shown in figure 1			
1-3. Net Weight	Approx 1.5grams			
1-4. Operating Temperature Range	-30 C to +70 C without loss of function			
1-5. Storage Temperature Range	-40 C to +85 C (Note: Return to ambient room temperature before using)			
2. Electroacoustic Characteristics				
2-1. Test Setup	Measuring instrument as shown in Figure 4			
2-2. DC resistance	6±10% ohm			
2-3. Impedance	7 15% ohm (at 2 KHz, 2.83V input)			
2-4.Sound Pressure Level	97 2 dB at 2KHz (2.83v, 10cm , in 0.8cc box with baffle) Speaker shall be mounted in a baffle with minimum dimensions of 80cm x 100cm. See Figure 5.			
2-5.Frequency Response	See Figure 6 Test at 2.83v/10 cm with the speaker mounted in 0.8cc measure box in a baffle.			
2-6.Bass Resonance Frequency	900 100 Hz in 0.8cc box, input 2.83V			
2-7. Iput Power (Rated./Max.)	Rated Power: 1.14W (in 0.8cc box)			
2-8.Rub and Buzz:	The input power shall be set at 1.14W. Using an audio oscillator, sweep from 200 to 2000 Hz with the speaker mounted in 0.8cc measure box and in a baffle.There shall be no buzzes, rattles, nor spurious noises.			
2-9.THD	See Figure 7 Test at 2.83v/10 cm with the speaker mounted in 0.8cc measure box in a baffle.			
2-10.Polarity	When a DC source’s “+” polarity is attached to speaker’s “+” polarity,“-“ polarity is attached speaker’s “-“ polarity ,the membrane will move forward .			

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3. General Reliability				
3-1 电声性能 Acoustic Performance		按照规格书测试 FR、THD、R&B 等电气参数 Test FR、THD、R&B and other electrical parameters according to Specifications		
3-2 跌落试验 Drop Test		测试前先检查产品状况，将产品装入 180g 的跌落工装中，从 1.5m 高度处自由跌落，冲击面：大理石地面，每个面 6 次（6*4），每个角跌落 4 次(4*4)。 Check the condition of the product before testing, and load the product into 180g drop machine In the installation, free fall from 1.5m height, impact surface: marble ground Face, each face 6 times (6*4), each corner fell 4 times (4*4).		
3-3 高温存储 High Temperature Storage		在 85℃环境中放置 96 小时。 Place samples to +85℃ for continuous period of 96 hours		
3-4 低温存储 Low Temperature Storage		在-40℃环境中放置 96 小时。 Place samples to -40℃ for continuous period of 96 hours		
3-5 温度冲击 Temperature Shock Test		采用两箱法，在-40℃中放置 0.5 小时，取出在 85℃中放置 0.5 小时，最大转换时间小于 5min，循环 100 次。 Low temperature: -40℃ high temperature: 85℃ dwell time: 30 minutes transfer time: <5min cycle: 100 cycles		
3-6 高温高湿存储 High Temperature And Humidity Storage		试验温度 65℃，湿度 95%RH，不上电,进行 96 小时。 Temperature: 65℃. humidity: 95%RH. dwell time: 96 hours		
3-7 低温负载试验 Low Temperature Load Test		-20℃保持 24 小时。 Rated power: 1.14W. Noise: pink noise. Temperature: -20℃ dwell time: 24 hours		

3-8 高温负载试验 High Temperature Load Test	'65℃保持 96 小时。 Rated power: 1.14W Noise: pink noise Temperature: 65℃ dewll time: 96 hours
3-9 长期高温高湿上电 High Temperature And Humidity Load	试验温度 65℃ ，湿度 95%RH，样品馈以额定功率的粉红噪声,进行 96 小时。 Rated power: 1.14W Noise: Pink noise.65℃ , 95% RH.dwell time: 96 hours
3-10 长期温度循环 Temperature Cycle Test	样品馈以额定功率的粉红噪声，温度变化范围-20℃~65℃，，温变率 10℃/min，在-20℃和 65℃各停留 20min，恢复时间 2h，共进行 78 个循环。 Rated power: 1.14W Noise: Pink noise Temperature ranges: -20℃ to 65℃,change rate:10℃/min -20℃ for 20min, 65℃ for 20min.total 78 cycles
3-11 音圈破坏试验 I Coil Damage I	5V 直流信号，持续 1 分钟，电流方向正反各 10pcs Tested under 5V DC signal for 1 minute Each direction of current 10 samples
3-12 音圈破坏试验 II Coil Damage II	馈给音频器件最大功率扫频信号，置于常温环境中，扫频范围 200Hz~3.5kHz，单次循环 2s，持续 48 小时 Max power: 1.75W sinewave 25℃, sweep range:200Hz~3.5kHz One cycle for 2s, continus period for 48 hours
3-13 短时最大功率 Short Term Max Power	样品馈以最大功率的粉红噪声，1s 秒开，59s 秒关，持续 60 个周期。 Max power: 1.75W. Noise: pink noise. 1 second on, 59 seconds off Cycle: 60 cycles
3-14 Xmax 试验 Xmax Test	扫频信号，扫频范围 F0+/-100Hz 信号，速度 2s/周期，样品处于极限振幅对应电压（3.2v），工作 96h。 sweep range of sinewave:F0+/-100Hz Speed:2s per cycle, working at the voltage 3.2v which the sample is at its limit amplitude for 96h.
3-15 Tmax 试验 Tmax Test	用 3KHz 的信号，样品处于设计极限温度（110℃）对应电压(3v)，工作 96h。 sinewave, 3kHz Working zt the voltage 3v at design limit temperature of sample for 96h.

SPECIFICATIONS (4/16)

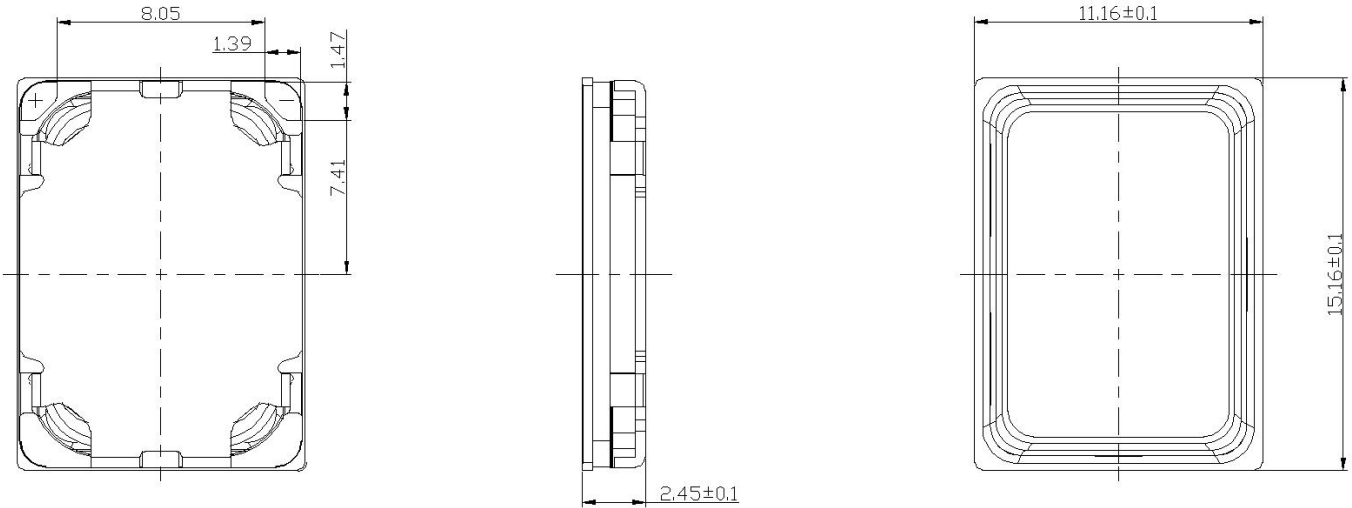
TYPE NO.

XHS151156LN-01-RH

Issue:A/0

4. Mechanical Layout and Dimensions

4.1 Mechanical Layout



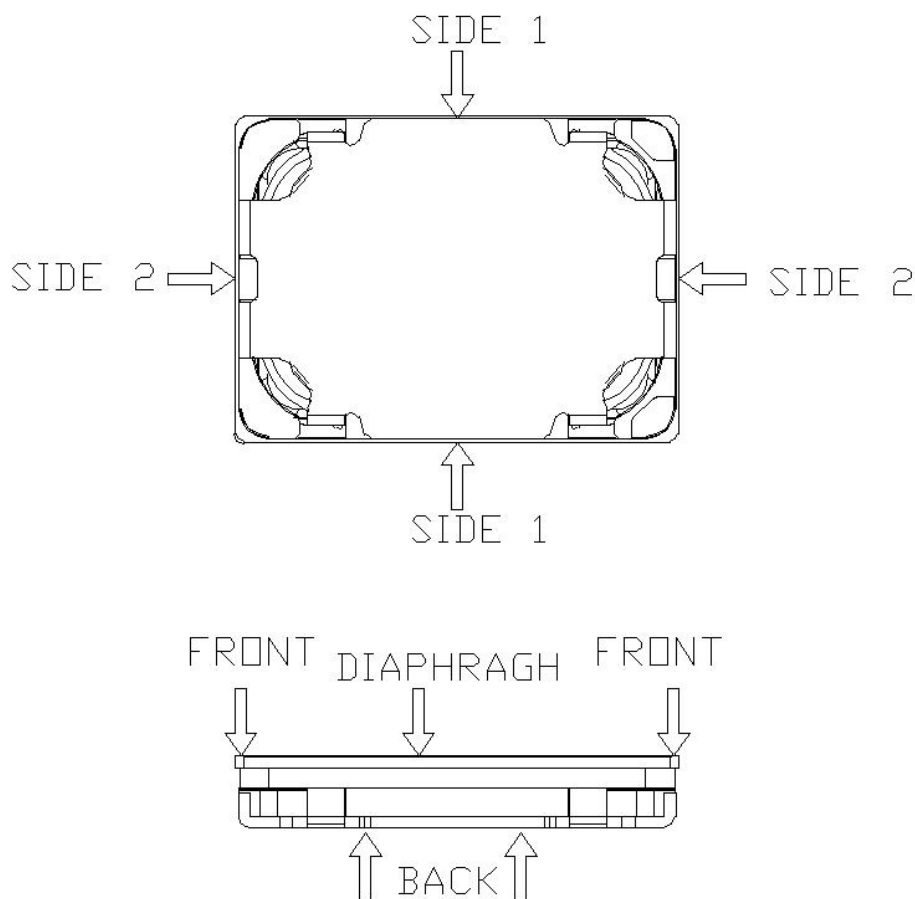
Notes:

1、 General unless otherwise noted $\pm 0.15\text{mm}$.

(Figure 1)

8	FPC	PI+Copper	2	
7	Voice Coil	Copper	1	
6	Dome Type	PMI+AL	1	
5	Diaphragm	Rubber	1	
4	Pole Piece	SPCC	1	
3	Magnet	NdFeB	5	
2	Yoke	SPCC	1	
1	Frame	SPCC	1	
No.	Part Name	Material	Q'TY	Remark

4.2 Permitted Force to Speaker



(Figure 2)

Table 1: Max. Permitted compression forces

NO	From	To	Max Force (N)
1	SIDE 1	SIDE 1	10
2	SIDE 2	SIDE 2	10
3	Front	Back	5
4	Front Cover	Yoke	10
5	To Diaphragm		0
6	Pull force of Yoke		0

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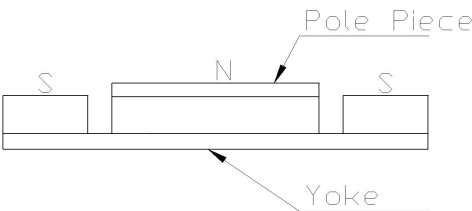
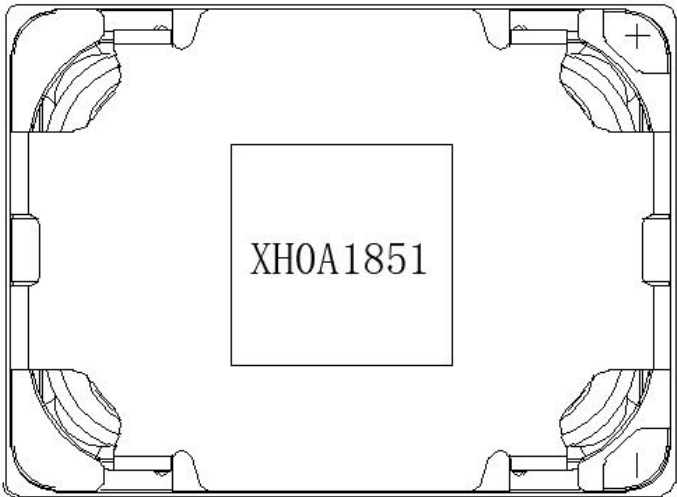
SPECIFICATIONS
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4.3 Polarity &Date Code



印字描述Description of the digital:
XH:公司名称缩写Company name abbreviation
0:年Year(2020:0, 2021:1, 2022:2...)
A:月Month(01, 02, 03, ... 12)
18:日Day(01, 02, 03, ... 31)
5:自动线Autoline
1:线别Line(1, 2,...)

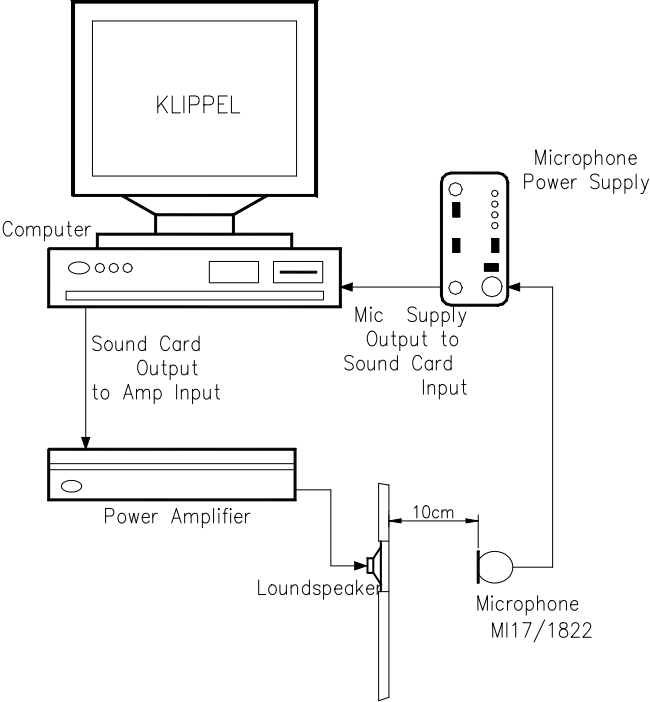
(Figure 3)

**TYPE
NO.**

XHS151156LN-01-RH

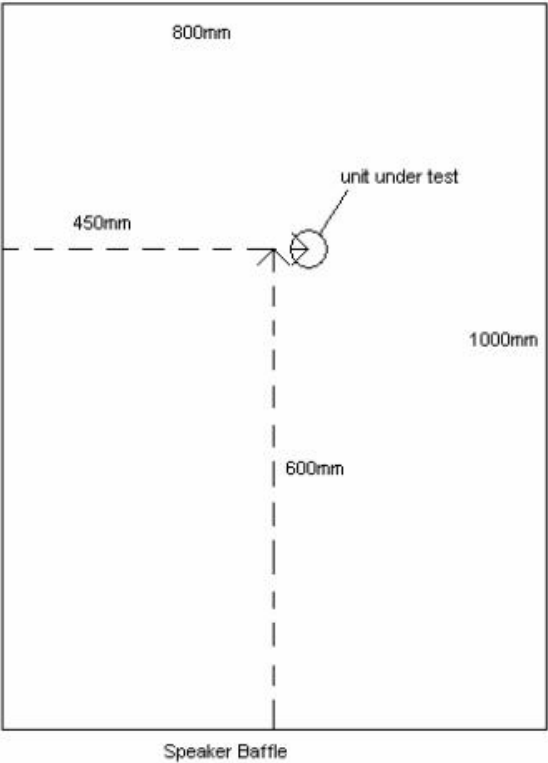
Issue:A/0

5. Measuring Setup



(Figure 4)

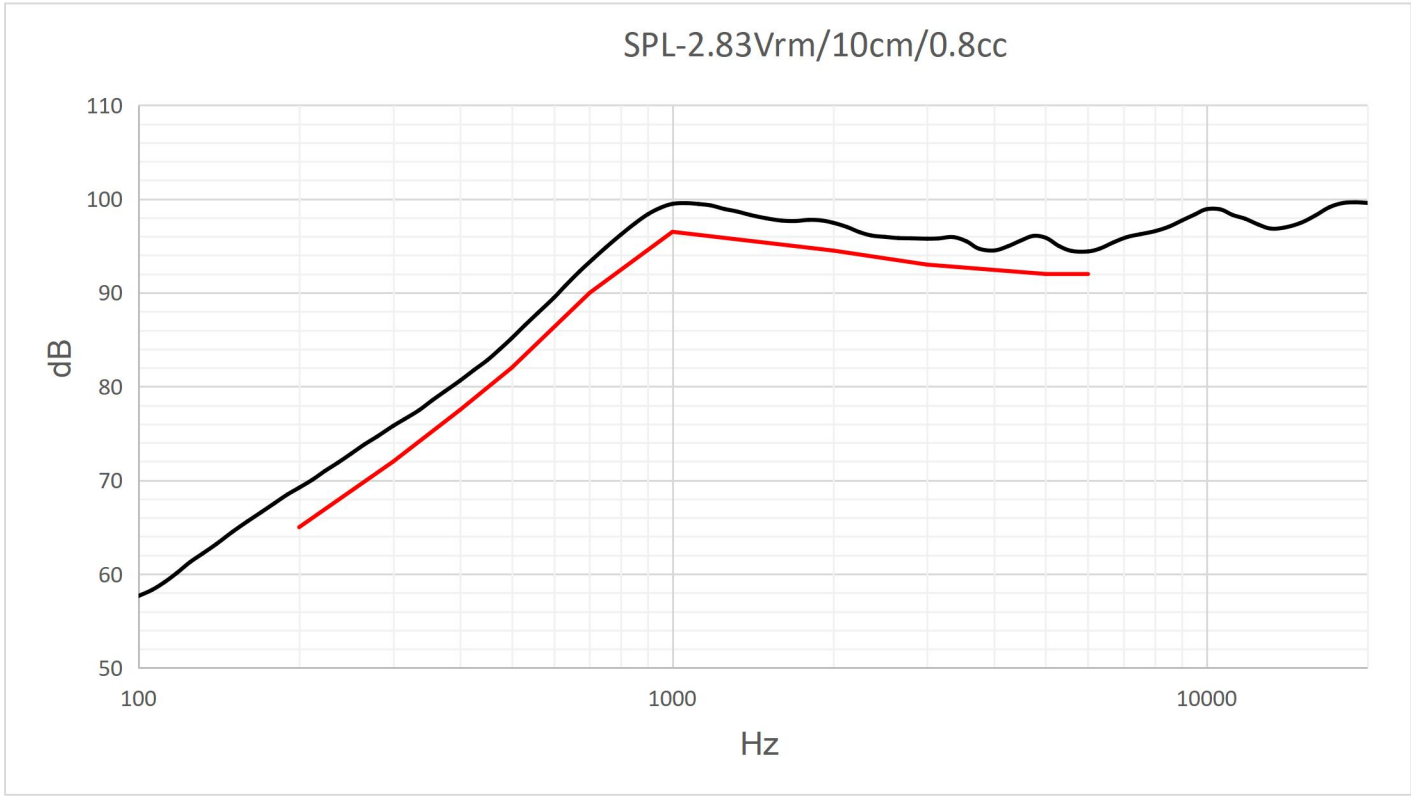
Baffle



(Figure 5)

6. Frequency Response

6.1 Frequency Response Curve with 2.83V



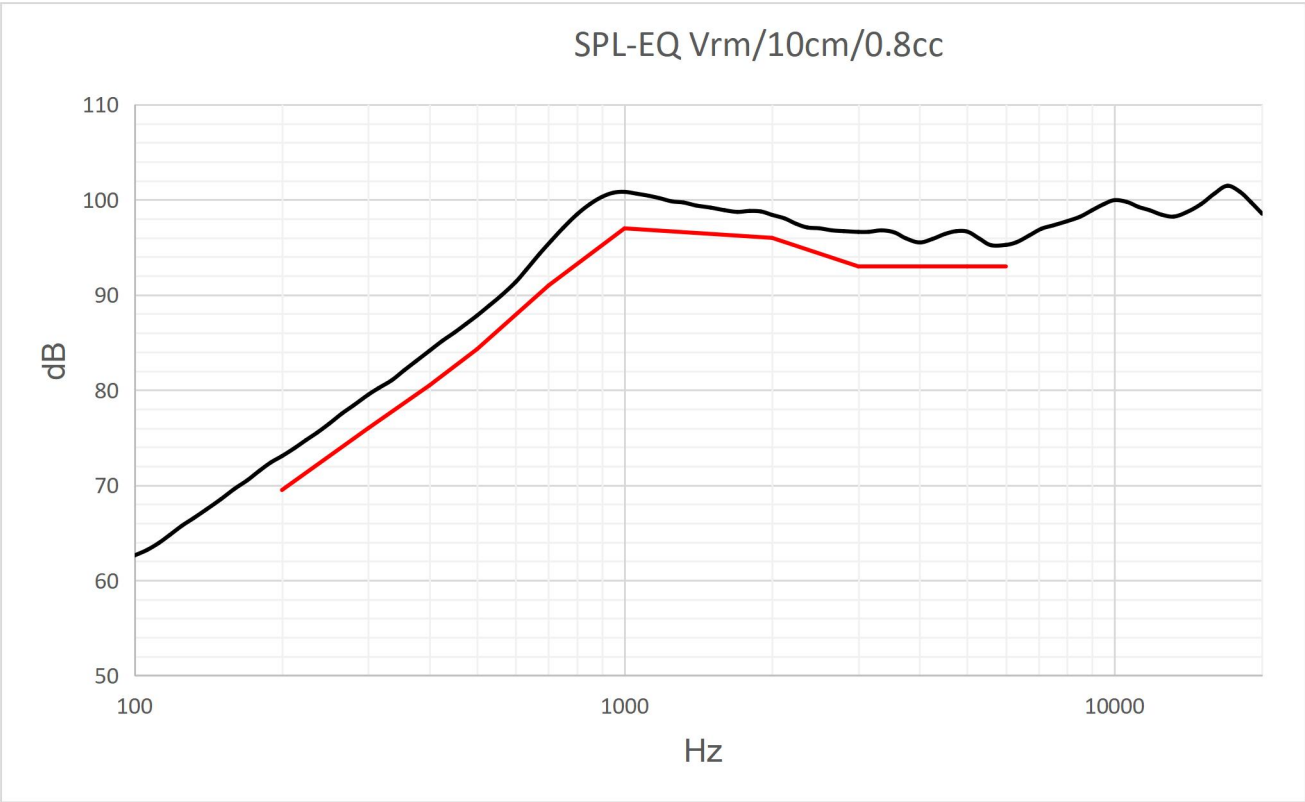
(Figure 6)

Table 2: Limits Data for FR

Frequency (Hz)	Lower Limits (dB)
200	65
300	72
400	77.5
500	82
700	90
1000	96.5
2000	94.5
3000	93
5000	92
6000	92

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	HAOSHENG TECHNOLOGY	TYPE NO. XHS151156LN-01-RH	Issue:A/0

6.2 Frequency Response Curve with EQ 电压



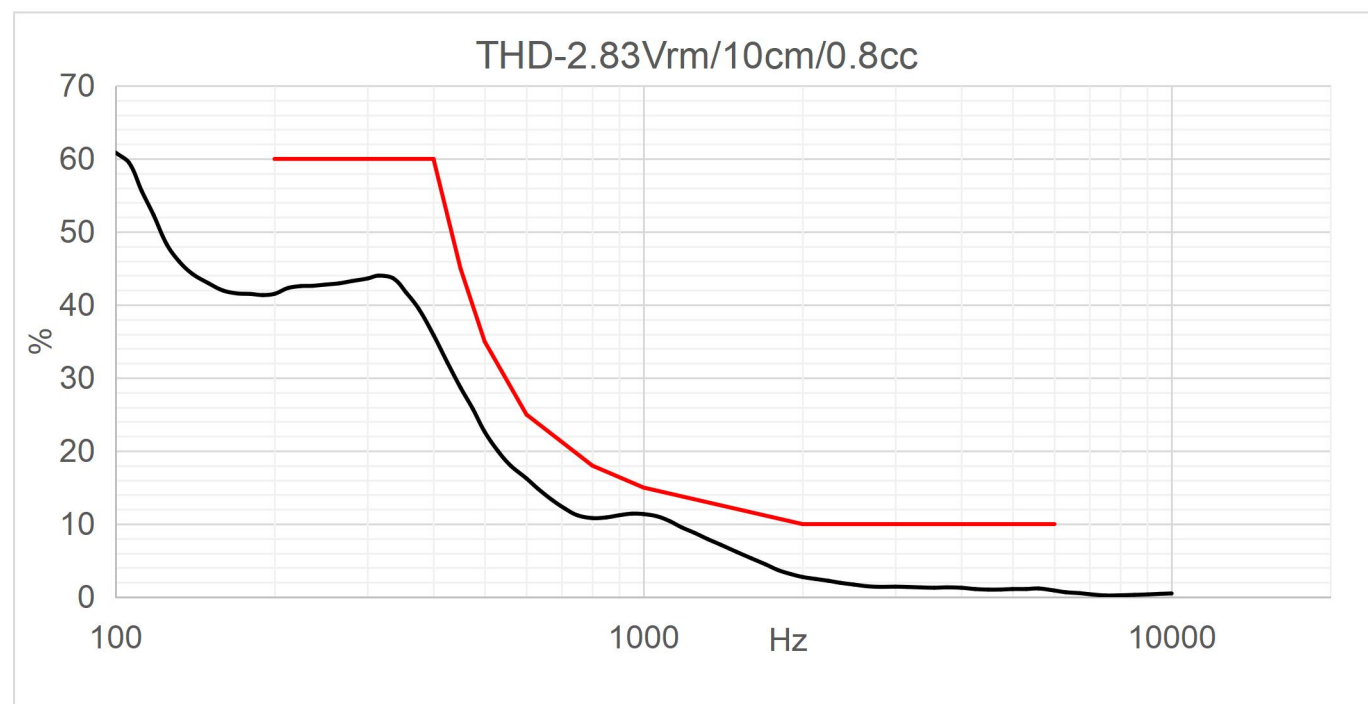
(Figure 7)

Table 3: Limits Data for FR

Frequency (Hz)	Lower Limits (dB)
200	69.5
300	76
400	80.5
500	84.3
700	91
1000	97
2000	96
3000	93
5000	93
6000	93

7. Total Harmonic Distortion

7.1 Total Harmonic Distortion with 2.83V

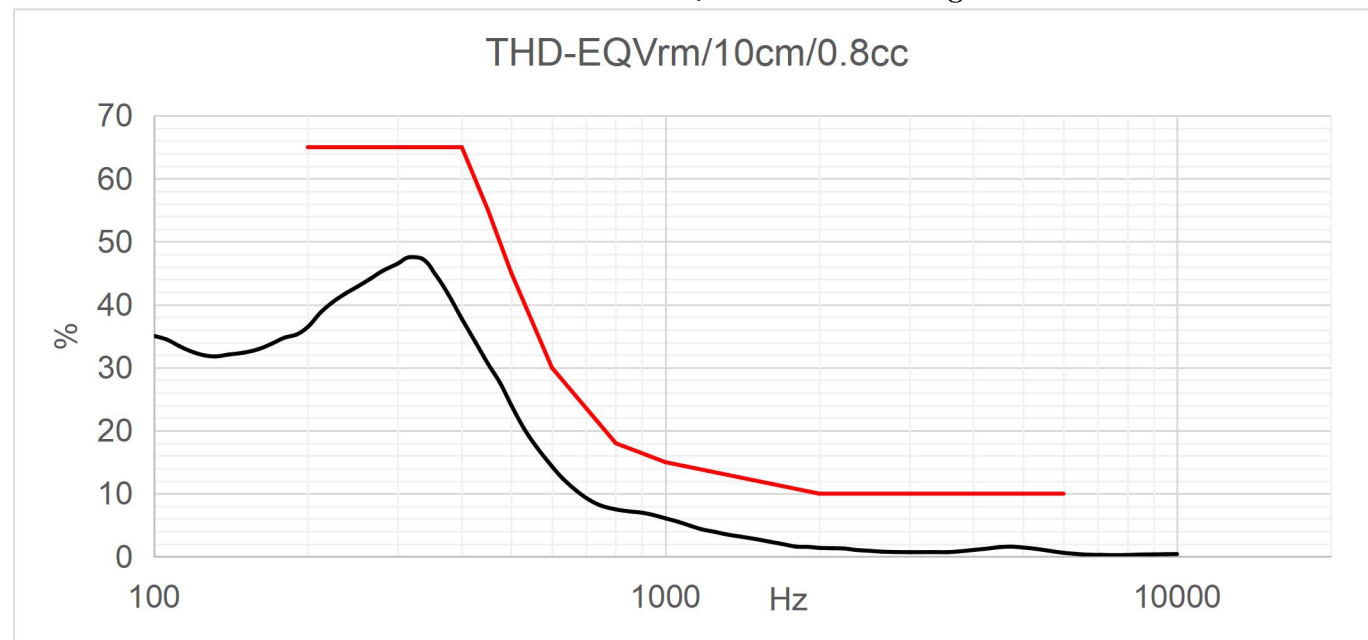


(Figure 8)

Table 4: Limits Date for THD

Frequency(Hz)	Limit
200	60
400	60
450	45
500	35
600	25
800	18
1000	15
2000	10
6000	10

7.2 Total Harmonic Distortion with EQ sine wave signal



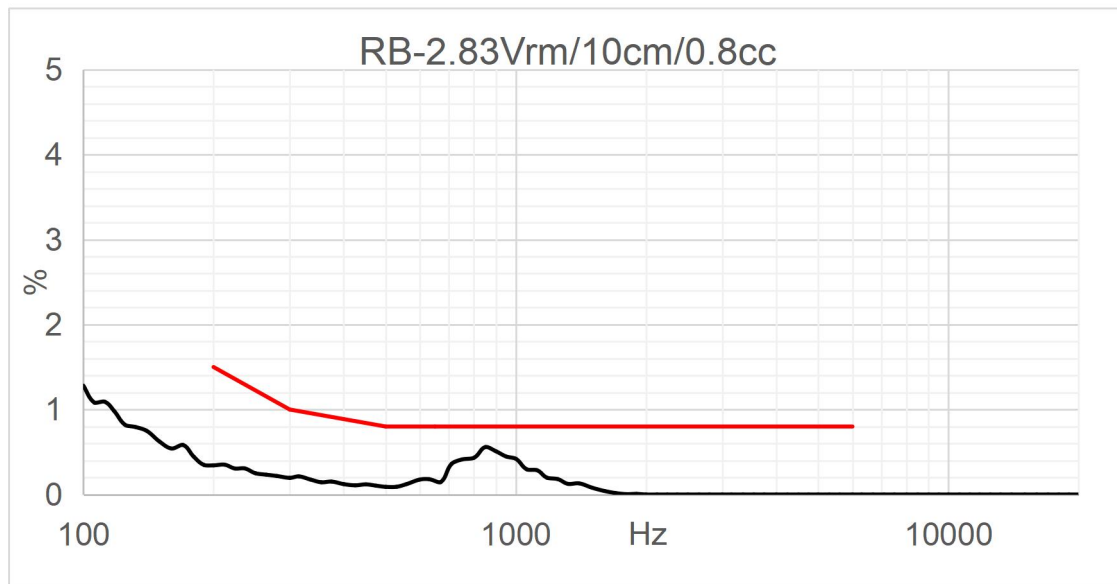
(Figure 9)

Table 5: Limits Date for THD

Frequency(Hz)	Limit
200	65
400	65
450	55
500	45
600	30
800	18
1000	15
2000	10
6000	10

8. R&B

8.1 R&B with 2.83V

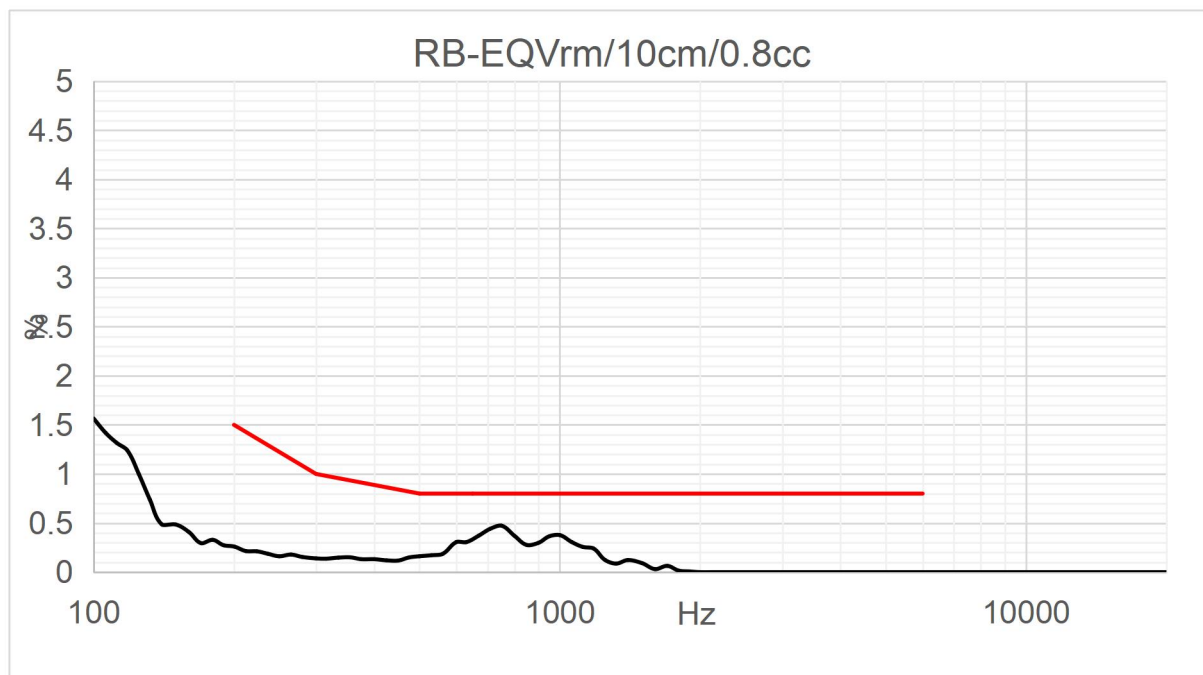


(Figure 10)

Table 6: Limits Date for R&B

Frequency(Hz)	Limit
200	1. 5
300	1
500	0. 8
650	0. 8
6000	0. 8

8.2 R&B with EQ sine wave signal

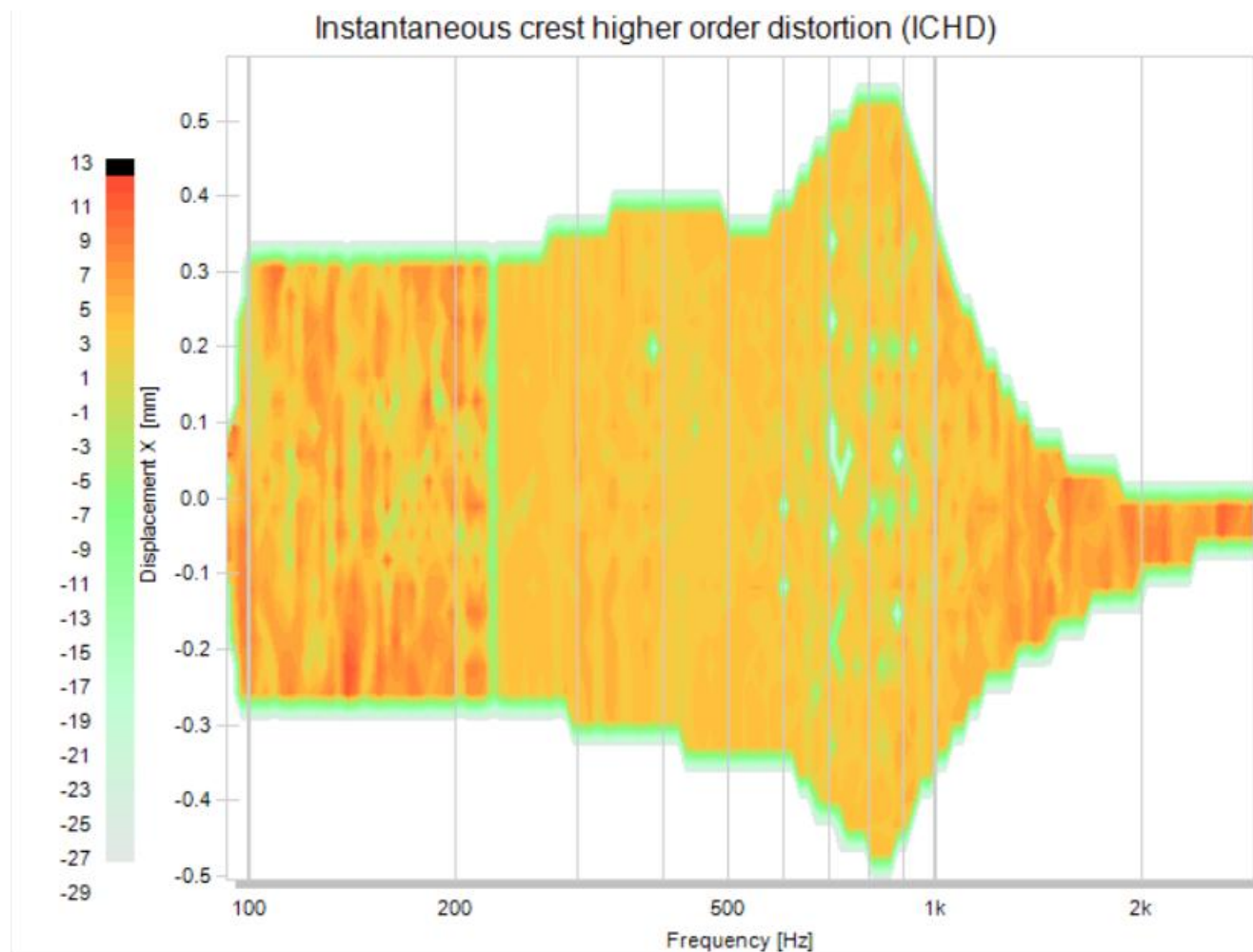


(Figure 11)

Table 7: Limits Date for R&B

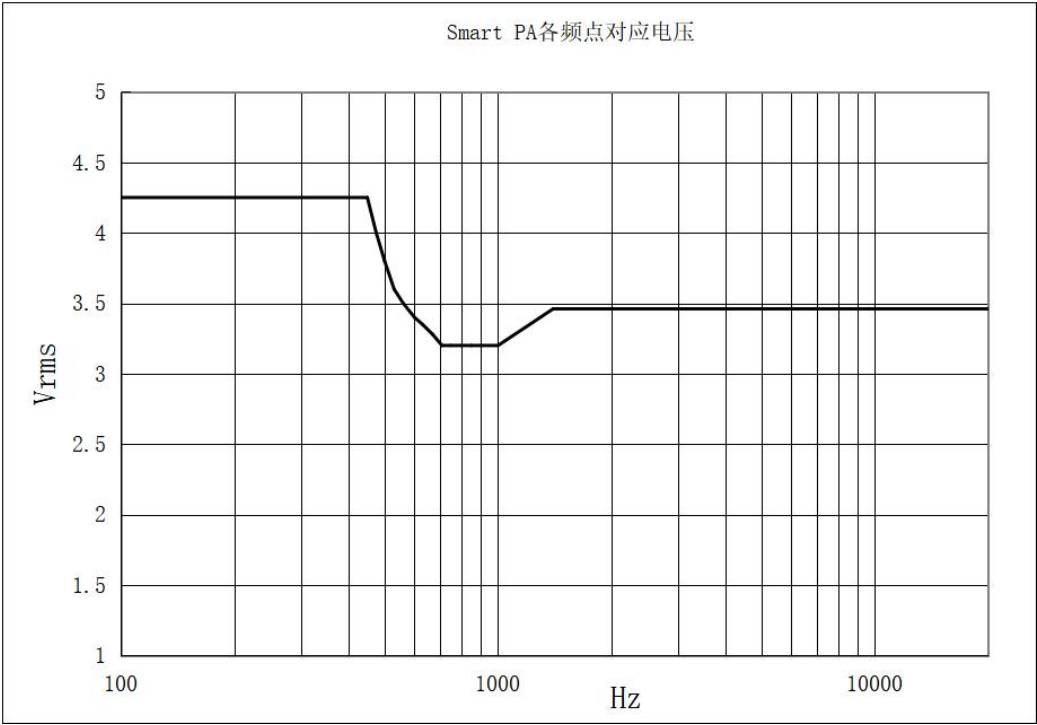
Frequency(Hz)	Limit
200	1.5
300	1
500	0.8
650	0.8
6000	0.8

9.EQ 振幅



(Figure 12)

10.SPK mode input EQ voltage



(Figure 13)

Table 8:EQ Voltage

Frequency (Hz)	Voltage	Frequency (Hz)	Voltage
100	4.25	710	3.2
450	4.25	750	3.2
475	4	800	3.2
500	3.8	850	3.2
530	3.6	900	3.2
560	3.5	1000	3.2
600	3.4	1400	3.46
630	3.35	20000	3.46
670	3.28		

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(16/16)**

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11.T/S Parameters

TS 参数	XHS151156LN-01-RH
Re (ohms)	6. 1
Le (mH)	0. 043
BL (N/A)	0. 953
DO (mm)	11. 72
Mm (g)	0. 081
Cm (mm/N)	1. 22
Rm (mech ohms)	0. 122
F0 (Hz)	504
Qms	2. 11
Vas (l)	0. 002
Xmax (mm)	0. 50
Sd (mm ²)	126
vol disp. (mm ³)	54
Tmax (°)	110
Tcoeff	0. 00397