NOISE SPECTRUM ANALYZER

SL-5868F

CONTENT

1. OVERVIEW

The Noise Spectrum Analyzer is a universal sound level meter that measures the exponential time weighted sound level, an integrated average sound level meter that can measure the time average sound level, and an integrated sound level meter that measures sound exposure. It can also measure Accumulated percentile sound level (statistical sound level), the instrument is also a spectrum analyzer that can measure 1/1 octave filter and 1/3 octave filter, and its performance is in accordance with GB/T 3785-2010 standard level 2 And IEC 61672:2013 Class 2 sound level meter requirements, but also meet the requirements of IEC 1260:2014 Class 2 and GB/T 3241-2014 for Class 2 1/1 octave filter and 1 1/3 octave filter. It also meets the JJG 188-2017 standard.

2. FUNCTIONS AND FEATURES

* With built-in 1/1 octave and 1/3 octave filters. Either manual or automatic frequency sweep measurement is available. 12 groups of data can be saved automatically in automatic sweep measurement.
* With the function of integration and statistics, 800 groups of single measurement and 6 days of regular measurement can be achieved. The stored data can be read and printed. The collected data can be checked when the regular measurement is paused.
* The three time weighting F, S, and I measurements can be selected.
* The digital detection technology is used to replace some traditional sound level meters, the stability and reliability are greatly improved.
* Large screen display is adopted, with clear and intuitive display. With dynamic scale display.
* It can be connected with computer through USB interface or Bluetooth adapter, and measurement data can be sent to general computer for analysis and processing.
* Optional Bluetooth printer for measurement data printing.

3. TECHNICAL PERFORMANCE

Microphone: Φ12.7mm (1/2') test condenser microphone
frequency range: 10Hz~20,000Hz
Frequency weighting: A, C, and Lin(Linear)
Measurement range: 25dB~130dB (A)
Range control: manual, three gears, linear range > 60dB
Measurement ranges:
30dB~90dB (dynamic scale display 10~100)
50dB~110dB (dynamic scale display 30~120)
70dB~130dB (dynamic scale display 50~140)
Accuracy: in accordance with IEC61672 standard, class 2

Frequency range: 20Hz-8kHz

Time weighting: Fast (F), Slow (S), Impulse (I)

Filter: built in 1/1 and 1/3 octave filter

Display: large screen dynamic LCD, instantaneous sound level, with analog ammeter display.

The output interface:

AC signal output

USB data cable output

Calibration: use class 1 sound level calibrator

Power Supply: 4 x 1.5 V AAA (UM-4) Battery

External power supply: 5V

Weight: 185g (Not Including Batteries)

Dimensions: 227x63x26 mm

Operating Condition: Temperature: -10~50°C

4. STRUCTURE AND FUNCTION

See Figure 1 for the outline of sound level meter. The test condenser microphone and preamplifier should be installed in the head of the main unit during normal operation. The shape is tapered to reduce acoustic reflection. The case is made of ABS injection molding, and the battery is installed in the battery box. The battery can be easily replaced by removing the back cover plate of the meter. The measurement results are displayed by large screen LCD. The frequency weighting, time weighting and range switch are are located in the front middle of the sound level meter. The sensitivity potentiometer, data cable interface, output port and power interface are located on the right side of the meter.

Appendix: Indicator & Meaning comparison table

Lp	Instantaneous sound pressure level
Leq	Equivalent continuous sound level
Lin	Linear
FAST(F)	Time weighting 'Fast'
SLOW(S)	Time weighting 'Slow'
Man	Manual
Regular	Regular (hourly)
Low Value	Under range indication
OVER	Over range indication
HOLD	Max value hold
A	A Frequency weighting
C	C Frequency weighting
L5	Statistical sound level
L10	Statistical sound level
L50	Statistical sound level
L90	Statistical sound level
L95	Statistical sound level
SD	Standard deviation
LAE	Acoustic exposure level
Lmax	Maximum sound level
Lmin	Minimum sound level
E	Human voice exposure, Taking Pa^2h as a unit
Ld	Daytime equivalent sound level
Ldn	Day night equivalent sound level
Ts	Set measurement time
Mode	Measurement Mode
RUN	Run / Confirm
PAUSE	Pause measurement
END	End of measurement
Leq-T	Distribution of equivalent continuous sound level with time

6-3 No printing

    Check whether the connection indicator on the printer is on. If not, restart the meter and printer.

6-4 Unable to communicate with computer.

    Check the interface and try again.

7. POINTS FOR ATTENTION

The microphone used in the instrument is a kind of precision sensor. Do not collide, otherwise the diaphragm will be damaged. Keep it in place when not in use. If man-made damage is not covered by the warranty.

Pay attention to the polarities when installing the batteries or external power supply. Do not reverse the connection. When the instrument is not in use for a long time, the batteries shall be removed to avoid damage to the instrument due to leakage.

The instrument shall not be placed in places with high temperature, humidity, sewage, dust and air or chemical gas with high hydrochloric acid and alkali content. Avoid direct sunlight.

Do not disassemble the instrument without permission. If the meter does not work normally, it can be sent to the repair unit or manufacturer for maintenance. Disassembly without permission is not covered by warranty.

8. PARTS LIST

Standard accessories:

    1) Noise spectrum analyzer..1
    2) Wind shield..1
    3) Operation manual...1
    4) Carrying case...1

Optional accessories:

    1) CD...1
    2) Data cable..1
    3) Bluetooth adapter...1
    4) Bluetooth printer..1
    5) Printer power adapter...1
    6) External power supply (5V)...1

4-1 Microphone

4-2 Preamplifier

4-3 Lock nut

4-4 LCD screen

4-5 Panel buttons

4-6 Sensitivity calibration potentiometer

4-7 Data cable interface

4-8 AC output port

4-9 Power input

Fig.1

Function description of each key on the panel:

WEIGHTING:

    Frequency weighting selection key, press the key to select A, C, and Lin.

▲/HOLD:

    Up key, hold key. Press to enter hold mode during normal measurement, exit to normal measurement in hold state. In case of multiple choices, move up or increase.

FAST/SLOW:

    Time weighting selection key, press the key to select F, S and I.

RESET:

    System reset key for system reset and data area reset.

OUTPUT:

    Output selection key, press the key to select display output, printer output and computer output.

RUN/PAUSE:

    Operation control and screen option confirmation key. Run and pause control during Leq measurement. In case of multiple choices, make option confirmations.

MODE:

Working mode selection key, press the key to select Leq measurement, 1/1 filter measurement and 1/3 filter measurement.

▼/BL:

Down key, backlight selection key. Press to turn on or off the backlight display during normal measurement. In case of multiple selection, move down or decrease.

RANGE:

Range selection key, press the key to select the low, medium and high range step by step, and the screen scale display changes accordingly (10~100), (30~120), (50~140).

◀▶ :

Left key and right key. Decrease or increase in multiple selection. Select previous or next in parameter selection.

SET:

Parameter setting key. Press the key to select Leq measurement time setting, real-time clock setting and test grid point setting respectively during instantaneous measurement. Settings can be made in cycles.

5. USING METHOD

5-1 Preparation before use

Check whether the battery is under voltage. If it is under voltage, replace it with new batteries (see 5-14). If necessary, the sound level meter shall be calibrated with a sound calibrator. See 5-12 for the calibration method. The sound level meter shall be sent to the measurement department for verification regularly to ensure the accuracy of the sound level meter.Before using the instrument for the first time, please carry out "initialization of data area" according to 5-8.

5-2 Parameter settings

Settings of Leq working state

After power on, the sound level meter will enter into normal working state, that is, fast, medium range, A weighting. Under the normal working state of the sound level meter, press the **SET** key, the sound level meter will enter the setting of Leq working state, and the display is as shown in Fig. 2.
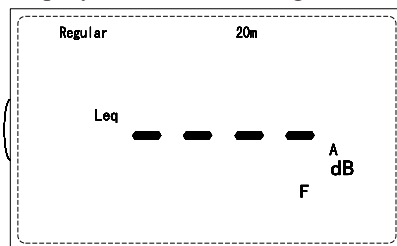
```
Regular          20m

  Leq
      ___ ___ ___ ___
                     A
                     dB
               F
```
Fig.2

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The meter has been calibrated and verified before leaving the factory. Generally, it does not need to be calibrated. However, if the microphone is not used for a long time or replaced, or if there is a requirement in the measurement specification, it shall be calibrated. Generally, the sound calibrator ND9 is used for sound calibration. The calibrator produces a constant sound pressure with a frequency of 1000Hz and a sound level of 94dB. The calibration value of this meter is 93.8dB due to the use of 1/2-inch free field response microphone.

Put the sound calibrator (94db, 1kHz) on the microphone of the meter, without vibration or shaking. Press the power switch button of the sound level calibrator once, and set the weighting of sound level meter to A or C (press the **WEIGHTING** key on the panel). The sound pressure level reading should be 93.8dB, otherwise adjust the sensitivity calibration potentiometer on the right side of the meter. Calibration complete and remove the calibrator.

5-13 Power supply

There is Φ 1.1 external power socket on the right side of the sound level meter. The external power supply can be connected to the sound level meter. At this time, the internal battery of the sound level meter should be taken out. The voltage range of the external power supply is 5V, the plug shell is negative, and the plug core is positive. When the sound level meter is used continuously for a long time, external power supply is recommended.

5-14 Battery check and replacement

When the sound level meter works, it will automatically check whether the battery power is sufficient. If the battery power is insufficient, 'batt' will be displayed on the top left of LCD to remind that the battery should be replaced. Remove the battery back cover and battery, install new battery, cover back the back cover, and the instrument can be used normally.

If the instrument is not used for a long time, take out the battery in the instrument to avoid the battery leakage damaging the instrument

5-15 Use of wind shield

When the measurement is carried out in the windy situation, the wind shield can be used to reduce the influence of wind noise.

6. COMMON PROBLEMS

6-1 When the meter is turned on, but there is nothing displayed.

1) The batteries are not installed or the batteries are in poor contact.

2) The **POWER** key damaged or in poor contact.

6-2 The sound level is obviously low.

The microphone or preamplifier may be damaged. Replaceable microphone or preamplifier. It may also be that the connection between the preamplifier socket and the main board falls off.

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charger to charge first. When charging, turn off the power switch of the printer. When the indicator light on the printer is red, it means that the printer is charging. When the indicator light turns green, it means that the printer has been charged and can be printed.

3) Computer output

The data collected by the sound level meter can be sent to the computer for analysis and storage. Press the **OUTPUT** key until the '-PC' is displayed of the sound level meter, indicating that the sound level meter is ready to communicate with the computer, waiting for the computer to collect data.

The computer should install and run the 'TestRS232' software equipped with the sound level meter in advance. Follow the instructions in the help files.

Installation of 'TestRS232' software:

When the computer is running in the windows environment, run the installation program 'TestSetup' on the CD provided by the product, and follow the prompts.

5-8 Initialization of data area

All data collected by the sound level meter can be saved when the sound level meter is off or without power supply. The real-time clock is also running. Because all data is stored in the first in, first out mode, it is necessary to initialize the data area regularly. Initialization of data area is to clear all contents of data area and write all '1'.

Press the **RESET** key and press the ◀ key at the same time, the sound level meter screen will display the countdown from 51.2, indicating that the sound level meter is clearing the saved data until it counts to 0. After initialization of data area completed. Sound level meter reruns.

The initialization of data area will clear all saved data, please be careful.

5-9 Reset

The sound level meter can be reset in the working process, exiting the current mode and returning to the initial state. Press the **RESET** key to reset. Note that the **RESET** key does not work in Leq's test.

5-10 Backlight

When measuring at night, press the ▼/**BL** key to turn the backlight of LCD on or off. Note: when the 'down' selection function of ▼/**BL** is effective, the LCD backlight cannot be turned on or off. Lighting the LCD will increase the current consumption of the sound level meter and shorten the battery life.

5-11 Use of AC output

The AC signal can be output from the AC output socket on the right side of the sound level meter for observation of signal waveform or signal processing.

5-12 Sound calibration

The current Leq working status is displayed on the fixed line of the screen. Press the ◀▶ key to change the current Leq working status in order. (The order of Leq working state is, Man, 10s, 1m, 5m, 10m, 20m, 30m, 1h, 8h, 24h, regular 10s, regular 1m, regular 5m, regular 10m, regular 20m, regular 30m, regular 1h). After confirmation, press the **SET** key to save the current settings and enter the real-time clock settings.

Setting of real time clock

Press the **SET** key twice under the normal working state of the sound level meter, or press the **SET** key once when setting the Leq working state, that is to enter the setting of the real-time clock. The display is as shown in Fig. 3.
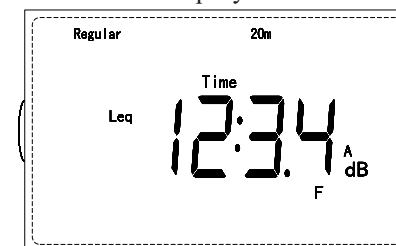

Fig. 3

Display the current time HH: MM (hour: minute). When a digit is flashing, you can use the ▲▼ key to modify the time, use the ◀▶ key to select the year, month, day, hour and minute to modify. After the modification is confirmed, press the **SET** key to save the current setting and enter the grid number setting. The real-time clock is powered by backup battery. Once set, it can not be changed.

Grid number settings

Press the **SET** key three times in the normal working state of the sound level meter, or press the **SET** key once in the setting state of the real-time clock to enter the grid number setting. When a digit is flashing, you can use the ▲▼ key to modify the number size, and press the ◀▶ key to select the digit to be modified. See Fig. 4. After the modification is confirmed, press the **SET** key to save the current settings and return to the normal working state.
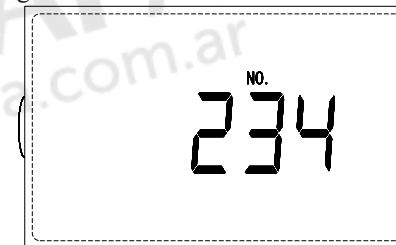

Fig. 4

5-3 Measurement of the A, C and Lin sound levels

Turn on the power of the sound level meter, and the LCD will display the measured value of the A sound level.

1) Press the **WEIGHTING** key to make the display shows 'C', and the value displayed on the LCD is the measured value of 'C' sound level. Press the weighting key to make the display shows 'Lin', and the value displayed on the LCD is the measured value of 'linear sound level'. See Fig. 5.

2) Range selection

Generally, the range switch is set at the 'middle' position, and indicator of the meter is 30dB~120dB. If the tested sound level exceeds the upper limit of the range, the overload indicator 'OVER' flashes, then press the **RANGE** key to switch to 'high', and the indicator head indicates 50dB~140dB. If the tested sound level is lower than the range, the sound level is too low, and the 'LOW' range indication appears on the right of LCD, the **RANGE** key shall be pressed to set to the low level, and the indicator head shall indicate 10dB~100dB. The range switch is cyclic.
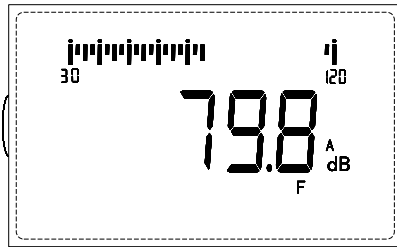

Fig. 5

3) There are 3 kinds of time weightings, Fast (F), Slow (S) and Impulse (I). Generally Fast 'F' is used. If the reading changes greatly, Slow 'S' can be used. Impulse (I) measurement is used for special requirements. As shown in Fig. 5.

5-4 Measurement of maximum sound level

Press the ▲ /**HOLD** key once, the 'HOLD' symbol will be displayed on the LCD, and the sound level meter will be in the maximum value measurement state. At this time, the reading will change (increase) only when the louder level comes, otherwise it will be held. Press this key again, the sound level meter exits hold mode, and the 'hold' disappears. The ▲ /**HOLD** key is for hold function during measurement.

5-5 Equivalent continuous sound level (Leq) measurement

1) Single measurement

After power on, the sound level meter enters into normal working state. Press the **MODE** key once, the sound level meter wait for the Leq measurement, and

collected in automatic frequency analysis, and print the histogram of frequency distribution. The print pattern is shown as Fig. 17.

```
Filter TYPE = 1 / 3 No=02
   2004/08/06 15:30:00
     20 Hz 35.6dB
     25 Hz 36.6dB
     31.5Hz 37.6dB
     40 Hz 38.6dB
     50 Hz 45.6dB
     63 Hz 46.6dB
     80 Hz 47.6dB
    100 Hz 55.0dB
    125 Hz 55.3dB
    160 Hz 56.6dB
    200 Hz 58.6dB
    250 Hz 58.8dB
    315 Hz 56.6dB
    400 Hz 55.6dB
    500 Hz 56.7dB
    630 Hz 58.8dB
    800 Hz 65.0dB
    1.0 kHz 69.0dB
    1.25 kHz 75.0dB
    1.6 kHz 75.1dB
    2.0 kHz 75.2dB
    2.5 kHz 68.5dB
    3.15 kHz 67.4dB
    4.0 kHz 66.3dB
    6.3 kHz 67.0dB
    8.0 kHz 55.6Db
    10.0 kHz 52.6dB
    12.5 kHz 47.8dB
    16.0 kHz 43.0dB
```

Fig. 17

After a group of printing is finished, the sound level meter waits for further commands. Press the ◀▶ key to change the group number and print again. If you want to use the optional printer, you should use the intelligent
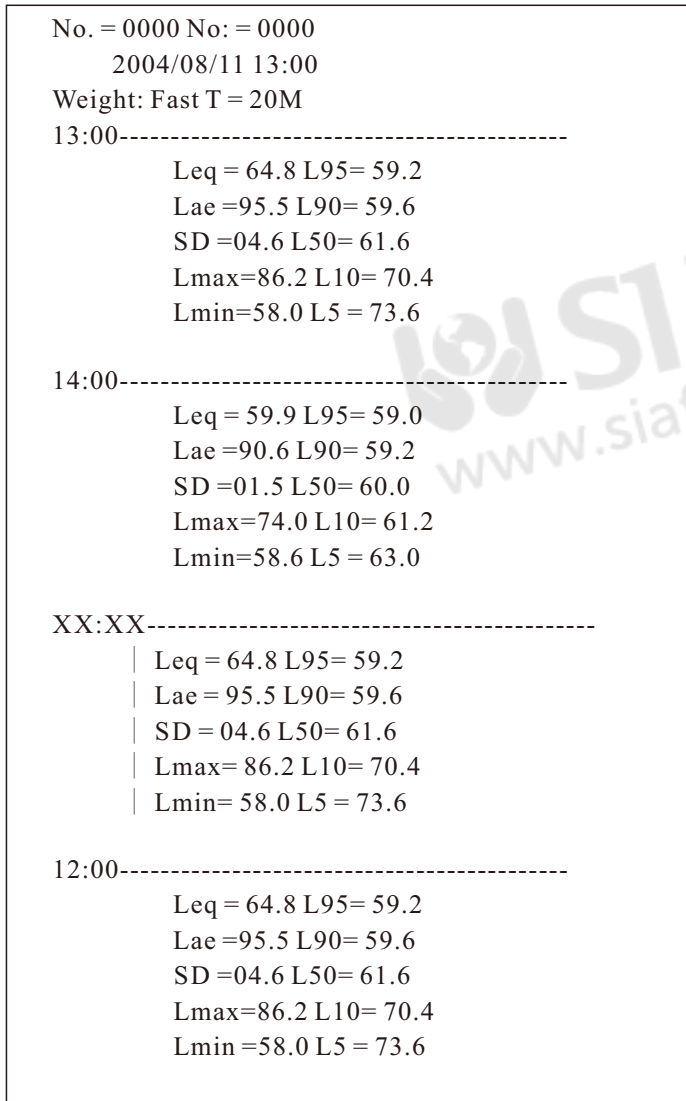
```
No. = 0000 No: = 0000
        2004/08/11 13:00
Weight: Fast T = 20M
13:00-------------------------------------------
            Leq = 64.8 L95= 59.2
            Lae =95.5 L90= 59.6
            SD =04.6 L50= 61.6
            Lmax=86.2 L10= 70.4
            Lmin=58.0 L5 = 73.6


14:00-------------------------------------------
            Leq = 59.9 L95= 59.0
            Lae =90.6 L90= 59.2
            SD =01.5 L50= 60.0
            Lmax=74.0 L10= 61.2
            Lmin=58.6 L5 = 63.0


XX:XX-------------------------------------------
          | Leq = 64.8 L95= 59.2
          | Lae = 95.5 L90= 59.6
          | SD = 04.6 L50= 61.6
          | Lmax= 86.2 L10= 70.4
          | Lmin= 58.0 L5 = 73.6


12:00-------------------------------------------
            Leq = 64.8 L95= 59.2
            Lae =95.5 L90= 59.6
            SD =04.6 L50= 61.6
            Lmax=86.2 L10= 70.4
            Lmin =58.0 L5 = 73.6
```

Fig. 16

C) Filter printing

Similarly, in the filter printing, the 'XX : XX' in the middle of screen indicates the time of the latest set of automatic frequency selection test, hour : min. The group number is shown at the bottom of screen as a small number. Press the ◀▶ key to select the group to print. After confirmation, press the **RUN/PAUSE** key to immediately print the selected group of data
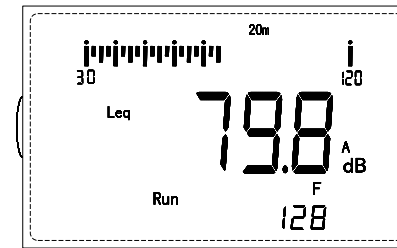
the screen is as shown in Fig. 6.

Fig. 6

The Leq and integration time are displayed. At this time, checked whether the measurement time of equivalent continuous sound level meets the requirements. Confirm that it is correct. Then press the **RUN/PAUSE** key to start the equivalent continuous sound level measurement according to the preset requirements. The RUN indicator appears on the screen, indicating that the equivalent continuous sound level measurement is in progress.

The equivalent continuous sound level measurement can be suspended. Press the **RUN/PAUSE** key, the sound level meter will enter the pause state, press the **RUN/PAUSE** key again, and the sound level meter will continue the original test. The suspended time is deducted from the whole running time.

If the sound level meter is running in a single group form, after each group of tests, the data is saved and the data of the current group is displayed. The sequence number of the group is displayed by the small number below. You can use the ▲▼ key to select the content to be displayed in order. The order is Leq, LAE, SD, L95, L90, L50, L10, L5, Lmax, lmin and the test time hour : min.

If you want to continue the single group measurement, you can directly press the **RUN/PAUSE** key to sample the next group, and the sequence number of the group shown in the small number below will be automatically increased by one.

2)Regular measurement

If the regular measurement is selected when setting the Leq, press the **MODE** key again, and the sound level meter waits for entering the measurement of equivalent continuous sound level (Leq). At this time, press the **RUN/PAUSE** key to enter the regular measurement of Leq. The screen display is as shown in Fig. 7. RUN and PAUSE are displayed at the same time, indicating that the regular measurement procedure has been entered, but it is not the time for the regular measurement at present, because the regular measurement is carried out hourly.

When the real-time clock in the sound level meter goes to the next hour, the sound level meter starts to take the next measurement. RUN is displayed and PAUSE is off. The small number at the bottom of the screen shows the current measured group number and hour number, For example, 523 indicates that the test in progress (RUN only) or the test just now (RUN PAUSE) is the 23rd hour of the fifth regular measurement. After the completion of the 24th hour of tests, the sound level meter automatically calculates Ldn, Ld, Ln and saves the data. Then return to the initial state of the sound level meter and wait for the start of the next test project.
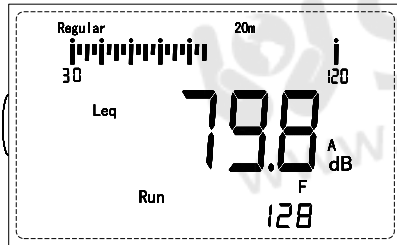
Fig. 7

In the regular measurement of Leq, all the tested data are saved. The saved data can be checked at the pause time or after the end of the test.

5-6 Frequency analysis

1) Manual frequency selection

Press the **MODE** key twice in the initial state of the sound level meter, or press the **MODE** key once in the measurement state of equivalent continuous sound level (Leq). '1/1' is displayed on the screen, indicating that it is currently 1/1 octave spectrum analysis. Press the **MODE** key again, and the screen will display '1/3', indicating that the current frequency spectrum analysis is 1/3 octave. Press the ◀▶ key to change different center frequencies for a certain frequency band analysis. The center frequency is indicated by a number at the bottom right of the display. As shown in Fig. 8.
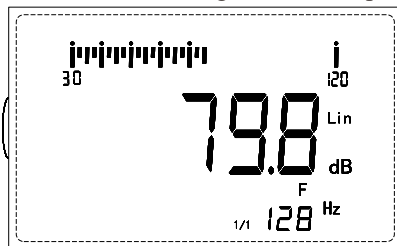

Fig. 8

For 1/1 octave frequency, the center frequency changes according to 31.5hz → 63Hz → 125Hz → 250Hz → 500Hz → 1.0khz → 2.0khz → 4.0khz →

printing the single test data selected above.
The print pattern is shown as Fig. 14.
No. is the sequence number, No: is the grid number.

No. = 0000	No: = 0000
2004/08/11	16:30:57
Weight: Fast	T = 8H
Leq= 58.1	L95= 57.6
Lae=102.6	L90= 57.6
SD=00.3	L50=58.2
Lmax=58.6	L10=58.4
Lmin=57.2	L5=58.4

Fig. 14

B) Regular printing

When it is in the regular printing, PRT is displayed in the middle of screen, and the '--1' is displayed at the bottom of screen. As shown in Fig. 15. You are prompted to enter the regular group number to start for printing. Press the ◀▶ key to change the regular group number. Press the RUN/PAUSE key to start printing the entire 25 sets of data in a group. The print pattern is shown as Fig. 16.
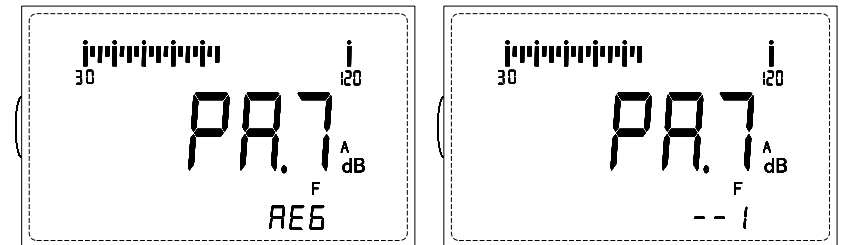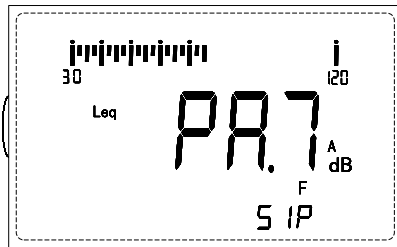

Fig. 15

Fig. 11

PRT (the same as PA7) displayed in the middle indicates printer output. SIP shown below indicates that it is a single output at present. Press the ◀▶ key to change the displayed output content circularly SIP → REG → FIT. Respectively represent printer outputs of single → regular → filter. Press the **RUN/PAUSE** key to enter single printing, regular printing and filter printing respectively according to the SIP, REG and FIT currently displayed.

A) Single printing

When it is in single printing, the PT-F (the same as P7-F) is displayed in the middle of screen, and the current group number is displayed at the bottom of screen. As shown in Fig. 12.
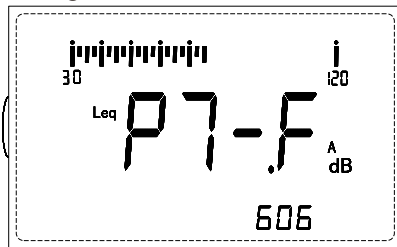

Fig. 12

It indicates that you are prompted to enter a group number for printing. Press the ◀▶ key to change the start group number, then press the **RUN/PAUSE** key to confirm and PT-T (P7-7) is displayed. And then, you will be prompted to enter the ending group number, as shown in Fig. 13.
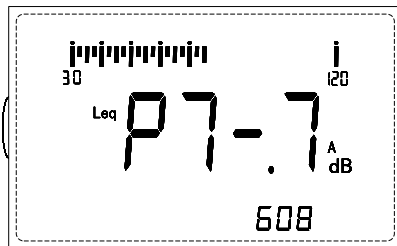

Fig. 13

As mentioned above, press the **RUN/PAUSE** key to confirm and start

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8.0khz → 16KHz.

For 1/3 octave frequency, the center frequency changes according to 20Hz → 25Hz → 31.5hz → 40Hz → 50Hz → 63Hz → 80Hz → 100Hz → 125Hz → 160hz → 200Hz → 250Hz → 315hz → 400Hz → 500Hz → 630hz → 800Hz → 1.0khz → 1.25khz → 1.6kHz → 2.0khz → 2.5KHz → 3.15khz → 4.0khz → 5.0khz → 6.3khz → 8.0khz → 10kHz → 12.5khz → 16KHz → 20kHz.

The spectrum characteristics shall be treated according to their own standards. When testing 1/1 and 1/3 filters, pay attention to the frequency weighting characteristics of the sound level meter. The sound level meter can measure the filter + frequency weighting, that is, the filter test under A or C frequency weighting characteristics. Therefore, when conducting frequency analysis, pay attention to the weight characteristics of frequency weighting, which should be tested under Lin generally.

2) Automatic frequency selection

During the manual frequency selection, by pressing the **RUN/PAUSE** key, the sound level meter will enter the automatic frequency selection for frequency analysis and measurement. At this time, '- - XX' is displayed on the screen of sound level meter. XX represents the group number of the current test, which is cyclically displayed from 1 to 12 according to the first in, first out principle. After 2 seconds, the sound level meter will automatically test according to the selected 1/1 octave band. According to the above frequency sequence, the sound level meter automatically changes the frequency with a speed of about 5 seconds at each point. The tests are automatic, and the test results are automatically saved. At the same time, the time when the testing started is saved.

After a group of test, the automatic frequency selection test can be started again. Press the **RUN/PAUSE** key to enter the next group of test. The test group number is automatically increased by one. At present, 12 groups of test data can be saved. When there are more than 12 groups, the earliest test data will be lost.

5-7 Output

1) Screen display output

Press the **OUTPUT** key once in the initial state of the sound level meter, and the screen is as shown in Fig. 9.
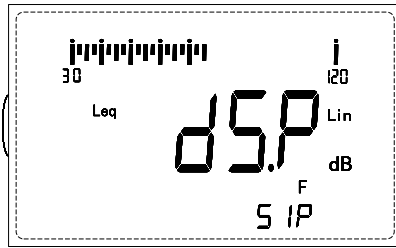
9

Fig. 9

The dSP is displayed in the middle, indicating screen display output.

SIP (the same as 51P) is shown below, indicating that it is a single output at present.

Press the ◀▶ key to change the display output content circularly SIP → REG (the same below AE6) → FIT (the same below F17), indicating output single → regular → filter.

Press the **RUN/PAUSE** key to enter single screen display, regular screen display or filter screen display respectively according to the SIP, REG and FIT currently displayed.

A) Enter single screen display

The number XXX displayed below the screen, indicates the sequence number of the single data currently collected. Leq XXX.Xdb is displayed in the middle of the screen, as shown in Fig. 10.
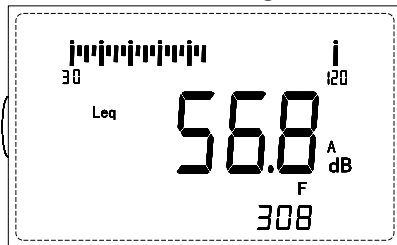

Fig. 10

It represents group 308, Leq = 56.8db.

Use the ▲▼ key to select the contents to be displayed in order. The order is Leq, LAE, SD, L95, L90, L50, L10, L5, Lmax, Lmin and the time of test hour : minute. Press the ◀▶ key to change the group number displayed.

Because the data is stored according to principle of first in, first out. Therefore, when you press the ◀▶ key to change the number of displayed groups, you can change it from 1 to 800, but the first group that appears is the last group that you just collected. 9999 indicates that there is no data collected in the group at present.

B) Enter regular screen display

The number XXX displayed below the screen, indicates the sequence number of the current regular data collected. Leq XXX.Xdb is displayed in the middle of the screen, as shown in Fig. 10. It represents the 8th hour of group 3, Leq = 56.8db. Use the ▲▼ key to select the contents to be displayed in order. The order is Leq, LAE, SD, L95, L90, L50, L10, L5, Lmax, Lmin and the time of test hour : min. Press the ◀▶ key to change the group number displayed. The 25th group represents the statistical results in the day and night. Use the ▲▼ key to select the displayed contents of Ldn, Ld and Ln in sequence.

Because the data is stored according to principle of first in, first out. Therefore, when you press the ◀▶ key to change the number of displayed groups, you can change it in order 101, ..., 125, 201, 202, ..., 625, but the first group that appears is the last group that you just collected. 9999 indicates that there is no data collected in the group at present.

C) Enter filter screen display

The 'XX : XX' in the middle of the screen indicates the time of the latest automatic frequency selection test, hour : minute. The small number below shows the group number. Use the ◀▶ key to select the group displayed. After confirmation, press the **RUN/PAUSE** key to display the '1/1' or '1/3' octave selected during the filter test and the lowest gear frequency. At this time, press the ▲ key to change to the displayed frequency. The number XXX Hz displayed below the screen indicates the center frequency of the passband. As shown in Fig. 8. The sound level dB value measured under the frequency band is displayed in the middle of the screen. Press the ▲▼ key to change the center frequency of the passband.

To change the group, press the ◀▶ key to select the group to display. Other operations are the same as above.

2) Printer output

The data displayed on the sound level meter screen can be sent to the optional Bluetooth printer through the Bluetooth module built in the sound level meter. Generally, turn on the printer first, and then turn on the sound level meter. The printer and the sound level meter are connected automatically.

Press the **OUTPUT** key twice in the initial state of the sound level meter, or press the **OUTPUT** key once again under the screen output state, as shown in Fig. 11.