

Filter Analyzer (FA-300)

Operating Manual

**Please read carefully this manual before usage/operation
Please keep this manual with the equipment**

ELECTRO-MAGNETIC COMPATIBILITY INSTRUMENTS & SOLUTION

EMCIS Building, 77 Duchun-ro, Manan-gu, Anyang-si,
Kyunggi-do, Korea

Tel : +82-(0)31-444-0058 Fax : +82-(0)31-465-0058

www.emcis.co.kr

e-mail : emcis@emcis.co.kr

WARRANTY

EMCIS will repair this equipment free of charge if a malfunction occurs within 2 years after shipment due to a manufacturing fault, provided that warranty is rendered void under any or all of the following conditions.

- The fault is outside the scope of the warranty conditions described in the operation manual.
- The fault is due to disoperation, misuse, or unauthorized modification or repair of the equipment by the customer.
- The fault is due to severe usage clearly exceeding normal usage
- The fault is due to improper or insufficient maintenance by the customer.
- The fault is due to natural disaster including fire, flooding, and earthquake, etc.
- The fault is due to use of non specified peripheral equipment, peripheral parts, consumables, etc.
- The fault is due to use of non specified power supply or in non-specified

If this equipment develops a fault, contact office of EMCIS at the address in the operation manual, or your nearest sales or service office.

Certificate of Compliance

Dear Sir;

We hereby certify that the products are manufactured, inspected, and tested according to the rule and regulation of EMCIS quality control program based on ISO9001,version 2000.

With best regards,

EMCIS Co., Ltd.

Quality Control Dept.



Please read carefully this manual before usage/operation

Please keep this manual with the equipment

FA-300 OVERVIEW

1. Overview

2. Package Contents

3. Specification

1. Overview

1-1 About FA-300

FA-300 measures characteristic of EMI Filter which is generally used to solve EMI noise generated various instruments. By simple operation, you can measure with the method in CISPR17 or MIL-STD-220B, on the wide range 9kHz~300Hz and you can get attenuation characteristic of Differential mode and Common mode effectively. FA-300 has TG and Spectrum Analyzer so operation is very easy i.e., you can easily set Limit, decide Pass/Fail, save or recall spec and print inspection data.

1-2 Usage FA-300

- For development of FMI Filter

Most of EMI Filter is consist of L and C. Its goal is to attenuate effectively Common mode and Differential mode. EMI Filter is influenced by L, X-Capacitor and Differential mode Choke coil and C parts' characteristic and arrangement, length of parts' lead. With FA-300, you can check easily their characteristic.

- Analysis of parts for EMI Filter

Analyze characteristic of EMI Filter and characteristic of component parts, Choke Coil, X-Capacitor, Y-Capacitor individually.

- For quality control

Used for quality control of EMI Filter or the related parts. Quality control of each Lot is possible cause and analysis of problem is possible.

1-3 What is EMI Filter characteristic measurement

EMI Filter measurement shows in dB the output difference when Filter is connected and not connected as the figure 1 and figure 2

$$\text{Insertion Loss} : 20 \log \frac{V_2}{V_1} \text{ dB}$$

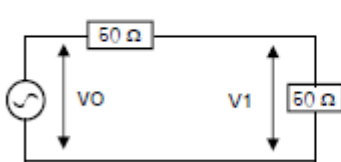


figure 1

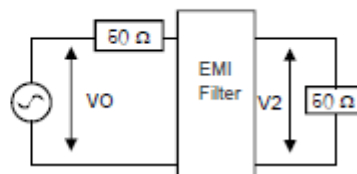





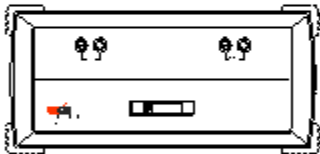
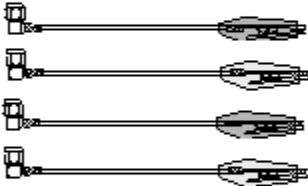

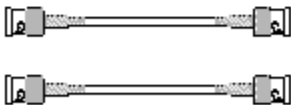

figure 2

2. Package of Contents

2-1 Main Item

		
FA-300	Power Cord	Manual

2-2 Optional Accessories

<p>Test Table</p> 	<p>Test Table-Filter connect</p> 	<p>FA300-Test Table connect</p> 
<p>Test Table</p>	<p>Cable (SMA-MC-140)</p>	<p>Cable (BNC-MM-140)</p>
<p>FA300-Spectrum Analyzer</p>  <p>Length is varied with distance of FA-300 and Spectrum Analyzer</p>	<p>FA300-Test Table</p> 	
<p>Cable (BNC-MM-160)</p>	<p>GND Terminal (GND-RR-90)</p>	

3. Specification

- 1. Frequency Range
 - MIL-STD-220B 9kHz ~ 300MHz
 - CISPR 17 LOW : 9kHz ~ 30MHz
- 2. RF INPUT
 - Connector BNC Female 50Ω
 - Max Input Level 130 dBuV
 - Input Sensitivity 10 dBuV
- 3. RF OUTPUT
 - Connector BNC Female 50Ω
- 4. CM/DM Separation LOW : 40 dB / HIGH : 30 dB
- 5. Insertion Loss LOW : 3 dB / HIGH : 6dB
- 6. Input Power AC 100 ~ 240V 50/60Hz
- 5. Input Current 1 A
- 6. Dimension(Net.) W391 D370 H216(mm)
- 7. Weight(Net) 9.4kg
- 8. Built-in Module T.G & Spectrum Analyzer
- 9. Auto-operating Data scanning
 - Inspection result
 - File save

SAFETY INSTRUCTION

1. Safety Symbols

2. Safety Guideline

3. Installation & Operation

4. Storage & Transportation

5. Disassemble

1. Safety Symbols



- **WARNING**

Identifies conditions that could result in injury or loss of life.

Do not proceed beyond a WARNING notice until the indicated condition are fully understood and met.



- **CAUTION**

Identified condition that could result in damage to the equipment

Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.



- **PROTECTIVE GROUND TERMINAL**



- **PROHIBITION**

2. Safety Guideline



- Do not touch power cord with wet hands, it could be electric shock.
- Do not use unspecified power receptacle or power cords for extending. It may result in the fire or electric shock.
- Do not pull or bend power cords by force, it could result in injury or electric shock.
- Do not place heavy objects on power cord. Damaged or entangled cords could result in the fire or electric shock.
- Dust around power cords and power receptacles could cause the fire.
Keep clean around.
- Do not place containers of chemicals or water around or on the equipment.
If those entering into the equipment, it could be cause of fire or electric shock.
- Do not apply many plugs to only one multi outlet at the same time, it could result in over-heating or fire.
- Do not drop the equipment, it could result in damage to the instrument or injury.

3. Installation & Operation



- * Location for installation
 - In door, no direct sunlight, dust free
 - No high humidity
 - No activated gases

※ **To keep the equipment well for a long time, it should be used with stable voltage and temperature.**

※ **If using the equipment in room temperature immediately after stored in cold temperature for a long time, because of condensation, it could cause short. To avoid it, the instrument is dried fully before using**



- * Before operating, check the line power voltage and connect to ground for protecting the instrument. Unspecified voltage/ current could result in damage to the instrument or the fire.



- * Protective Ground Terminal
 - Connect to Frame Ground Terminal
 - If no grounded AC receptacle, put to earth Rear panel frame.



- * Properly operate by the specified manner.
- * Ensure that cable is connected correctly, if not, it could be result in malfunction.
- * Avoid heavy impact on LCD, LCD or Touch pad may not be operated.
- * Heavy impact on the equipment could cause of malfunction or operating stop.

3. Installation & Operation



- Fuse change
 - Before changing fuse , to avoid electric shock, ensure power turned off and plug out of socket.
 - After checking protective ground and specified power voltage, turn on the power.

- ※ **If no spare fuse provided with the equipment, use the specified fuse for the instrument. (250V /1A / 5X20 / T-LAG / GLASS) .**
- ※ **Unspecified fuse will be risk of unstable connection or cause to delay fuse cut off.**
- ※ **Use specified fuse without failure. If not, it cause damage to the equipment.**
- ※ **When fuse cut off, change fuse after checking the reason to cut off and solving problem.**
- ※ **While operating, if you find any problem, contact EMCIS.**
- ※ **EMCIS doesn't have any responsibility for the problem cased by improper operating.**

5. Storage & Transportation



- * Location for storage
 - Do not keep in high temperature(<50°C)
 - Do not keep in wet environment
 - No direct sunlight, dust free place
 - No activated gases (thinner, benzene)

- * Location for storage
 - Do not keep in high temperature(<50°C)
 - Do not keep in wet environment
 - No direct sunlight, dust free place
 - No activated gases (thinner, benzene)

- * Storage Environment
 - Temperature : -20 °C ~ 50 °C
 - Humidity : 20% ~ 80%RH

- * Transportation
 - Avoid heavy impact or shaking

6. Disassemble



- Disassemble, repair, an modification of inner side of the equipment must be by EMCIS's qualified engineers because it could be danger of electric shock by high voltage.

※ EMCIS is not responsible for the problem caused by disassemble of the unqualified.

OPERATION GUIDE

1. Overview

2. Basic Operation

3. Manufacturing Analysis

4. Engineering Analysis

5. Setting

1. Overview

A. Front Panel

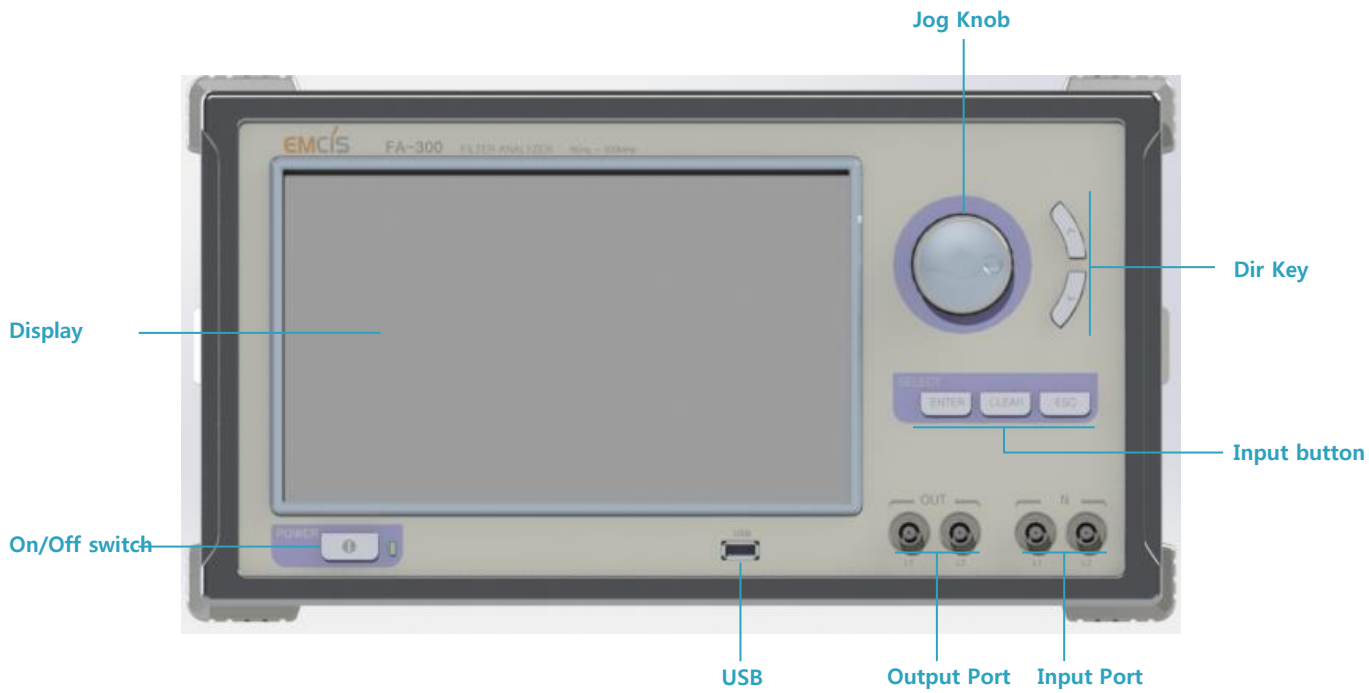
B. Rear Panel

C. Accessories

D. Buttons

E. Main Display

A. Front Panel



B. Rear Panel



C. Accessories

FA-300 is supplied with the following basic accessories.



Power Cord (220V)



RF Cable

※ 본 이미지는 실제와 다를 수 있습니다.

item	Description
Power cord (220V)	Main power connection (rear panel power cord plug).
RF cable	Connect FTT(Filter To Test) to Filter Analyzer, FA-300

D. Button

1) Jog Knob

Move and select icons on the display screen,
Move the "Marker" on engineering mode



Move right Icons or "Marker"




Move left Icons or "Marker."


2) Direction button

Same function as Job knob



Dir button

- 

Move left Icons or "Marker"
- 


Move right Icons or "Marker"


3) Function Button


select, delete and/or input data on the display screen



Function button

- 

Select Icon, and list
Input the test
- 

Delete the text
- 

Move to the previous stage
Close the operation stage
(message, key pad)

E. Main Display










1) Measuring mode

Show measuring mode and measurement setting information

Analysis – Manufacturing Mode	Analysis mode	Show the selected mode
Filter	Mode selection	Mode selection. (select: Manufacturing Mode, cancel: Engineering Mode)
Prog. Mode : AUTO	Test Mode	Show the selected test mode
Eval. Mode : POINT	Evaluation Mode	Show the selected evaluation mode.(POINT)
Start Freq. : 9 KHz	Start frequency	Show START frequency
Stop Freq. : 30 MHz	Stop frequency	Show STOP frequency
Test Count : 1	No of measurement	Show the no of measurements.
2016-06-22 12:23:21	time	Current time display

2) Button

control the measurement operation setting and selection.


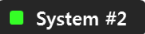


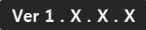
	Setting button	Select measurement mode
	Calibration button	Calibration
	Save button	Save the measured results/data (Engineering Mode only)
	Clear (Delete) button	Delete the data
	Data view button	Check the measured data
	Start button	Start the measurement.
	Stop button	Stop the measurement.

3) Explanation

show the measurement process information

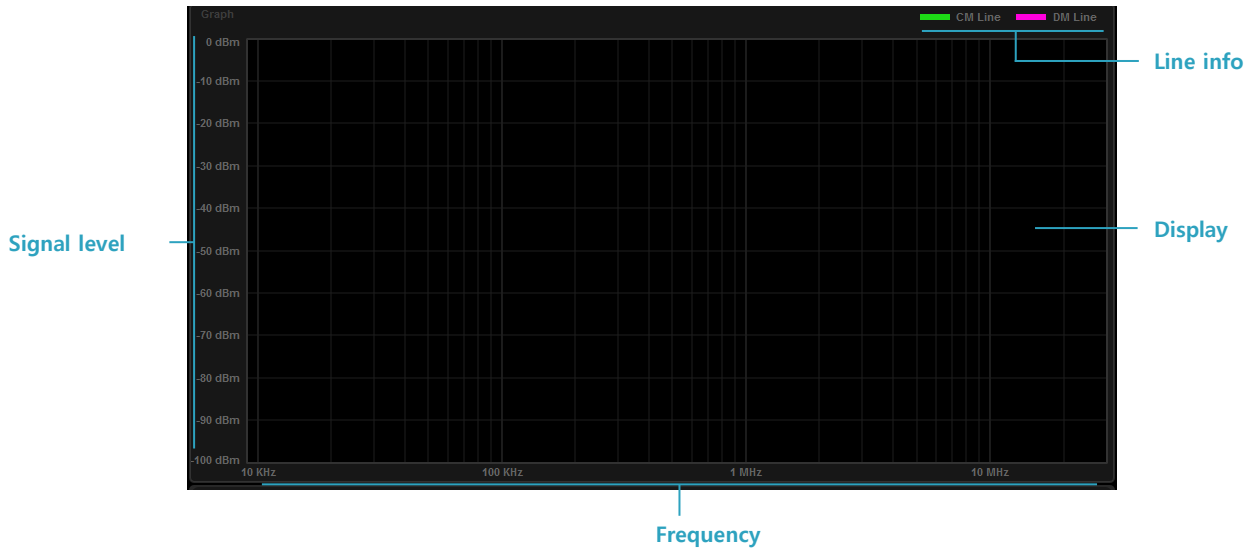
4) System information

show system information.

 	Link	Show connection position. (connected  disconnected 
	Version	System version information

5) Measurement display

display the measured graph.



Signal level

Show from the setting point to 100dBm upper range

Frequency

Show the setting frequency range (log scale)

Line info

Show line info. (CM: █ , DM: █ , MIL: █)

Display

Display the measured signal/data in graph (as color line selected by mode)

2. Basics

A. Power On/Off

B. Cable Connection

C. Operation Input

D. Mode selection

E. Calibration

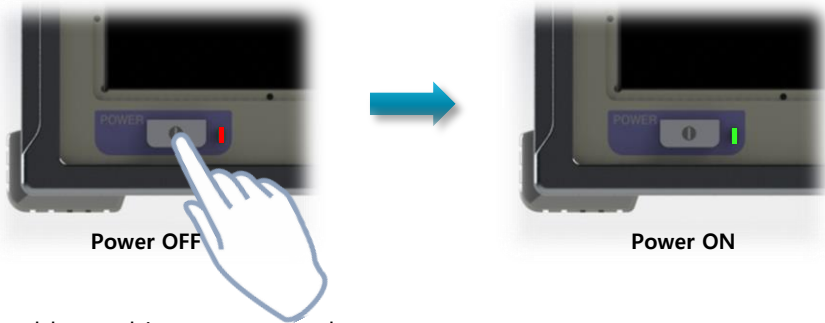
F. Data View

G. Data Backup/Delete

H. Software update

A. Power On/Off

Power On/Off (on front panel).



Main power cable cord is on rear panel.

B. Cable Connection

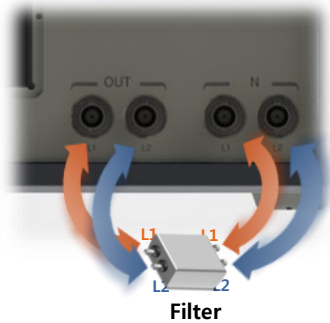
Connect cables with instruction.

calibration



Direct connection from Output to Input port

Measurement






Connect Input to Filter Input
Connect Output to Filter Output



C. Operation Input


Key pad is displayed when input is selected.
Input filter name, setting data .





- Delete old setting data**  select and push

- All input data delete**  

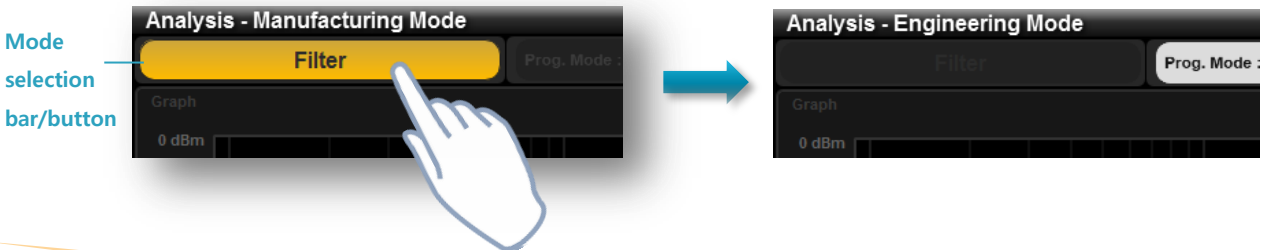
- Capital letter Input** 
Keep Capital letter, pushing  once more)

- Special key/symbol** 

- Special unit value input** Input figure and unit input  

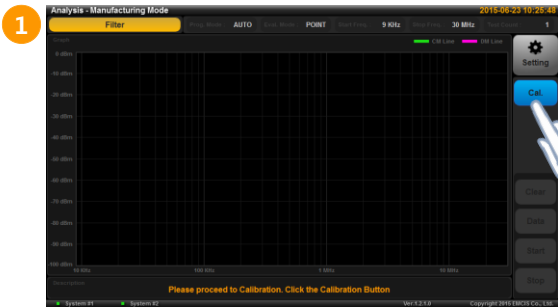
D. Mode Selection

select mode by push the bar/button.

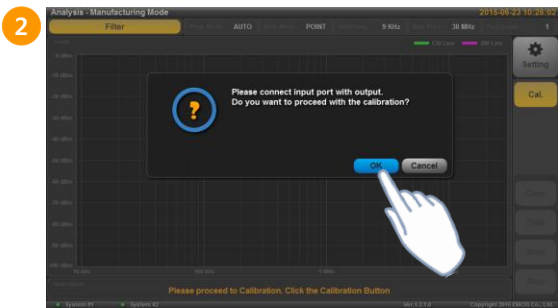


E. Calibration

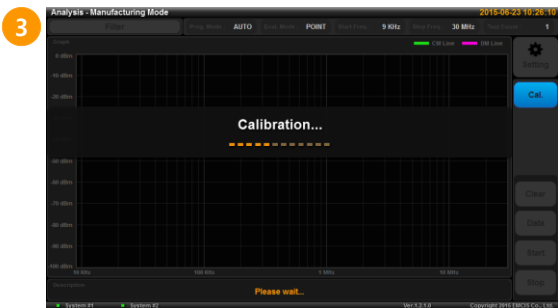
Required calibration at each measurement setting



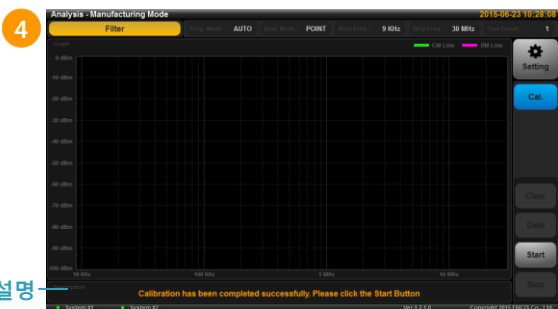
Connect cable as instruction
Push button.



Select OK button on the screen



Calibration is in process, taking approx. 2min



"Start" button is activate, when the calibration is finished.



And ready to measurement

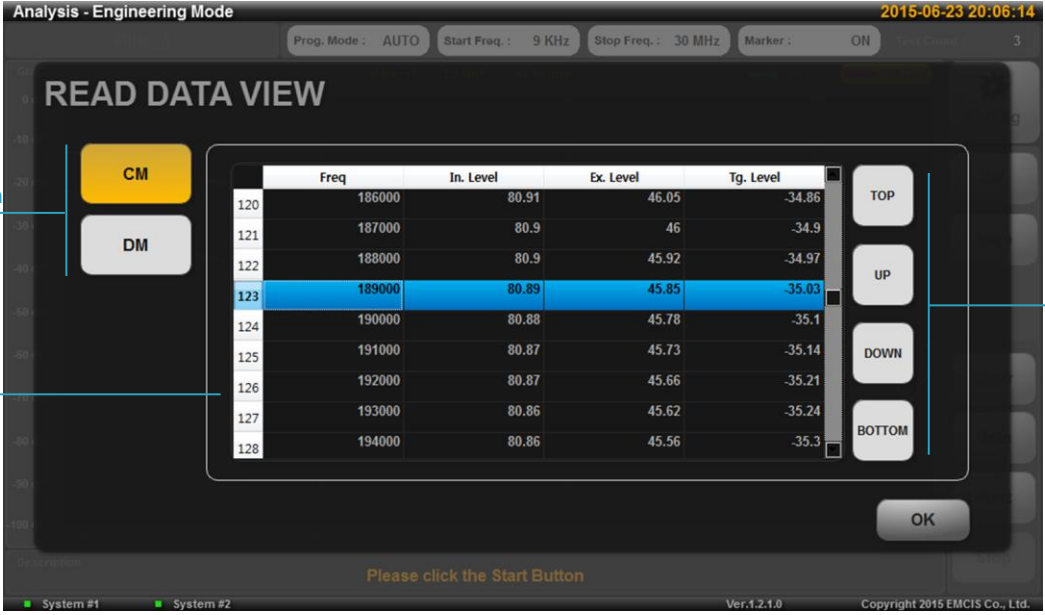
설명

※ Note

Calibration is required at each measurement setting.

F. Data View

When the measurement is finished, "Data" button is activated. Click and Data View is displayed. Data View show all measured data.



Data selection button

Data List

Focus moving button

1) Data selection button



2) Data List

List the measured data

3) Focus moving (on Data list column)

Move the pointed data line by touching or front Job knob/dir. button

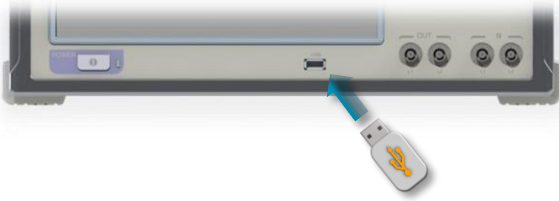


Move to first line	TOP
Move to upper line	UP
Move to down line	DOWN
Move to last line	BOTTOM

G. Data Backup/Delete

Save and back up the measured data to USB.
Delete all measured data

1



Put in USB on the front port.



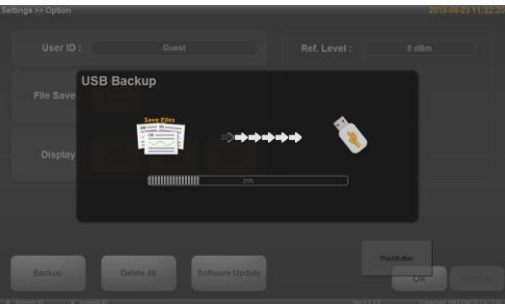
2



Home > Setting > Option

Backup push button.

3



Back up is in process.

4



When the back up is finished, display "delete" Selection .

OK

All data is deleted

Manually delete only the selected data

Delete All

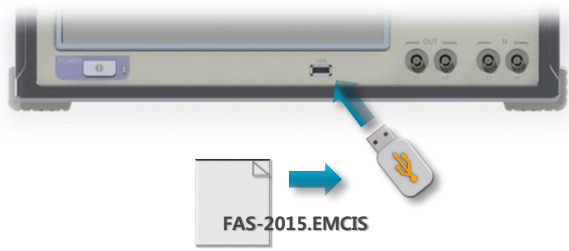
※ Caution

To back large data up , check the storage capacity of USB used. It could be missing data by using small storage USB .

H. Software update

software update is done by USB and update file(*.EMCIS).

1



Copy FAS-2015.EMCIS to USB
Put in USB on the front port



2



home > Setting > Option

select the button



Select .



3



Check version and select the button



4



Update is in process

Finish the update and re-booting the system

※ Recommended to use the latest version S/W

3. Manufacturing Analysis

A. Setting

B. Measurement

C. Evaluation

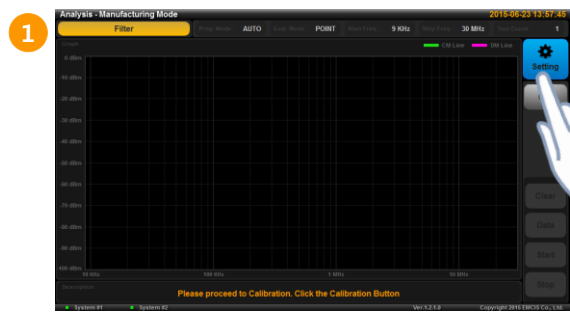
D. Saving

A. Setting

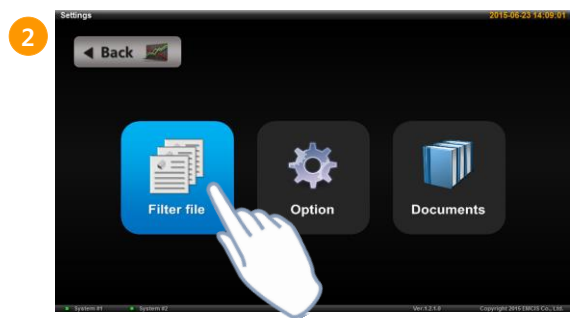
On Manufacturing Mode, select the filter file to be tested/measured.

(User can add/modify/delete the measurement setting details)

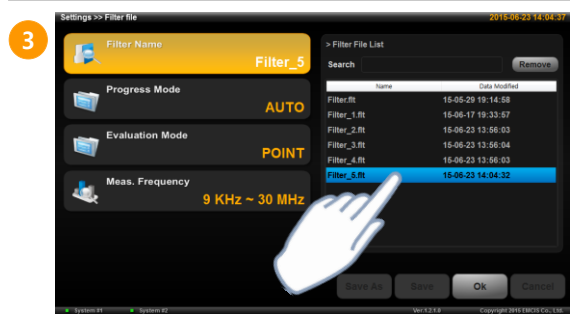
(Details on 5.Setting>filter file)



 push button.



 push button



Select the file of actually tested/measured filter

Push OK button



Check the setting details displayed on the screen.

B. 측정

설정이 완료되면 필터의 특성을 측정할 수 있습니다. 아래 내용은 AUTO 진행 모드 기준 입니다.

※ Be sure of calibration before test/measurement.



Connect the cables .
(2.Basics > cable connection > test/measurement)



CM measurement in process



DM measurement in process
Measurement  stop just push "Stop" button during the measurement,



Measurement is finished
Measurement results is displayed in/by Mode color

C. evaluation

the measurement results is displayed



Point measurement mark

Final measurement Results

1) Point measurement mark

show the measured results at each pre-selected points

	Pass	<i>Measured ≤ Limit</i> Upside down triangle, in deeper color of mode,
	Fail	<i>measured > limit</i> Triangle, in lighter color of mode

※ CM,DM, MIL have the same display except color.

2) Final measurement results

display the final measurement results - filter

CM PASS	pass
CM FAIL	fail

※ CM,DM, MIL have the same display except text.

C. saving

On Manufacturing Mode, the measured data is automatically saved as selected file format (excel *.csv or image *.bmp)

1) Saving path

save on "save" folder, but be edit the path .

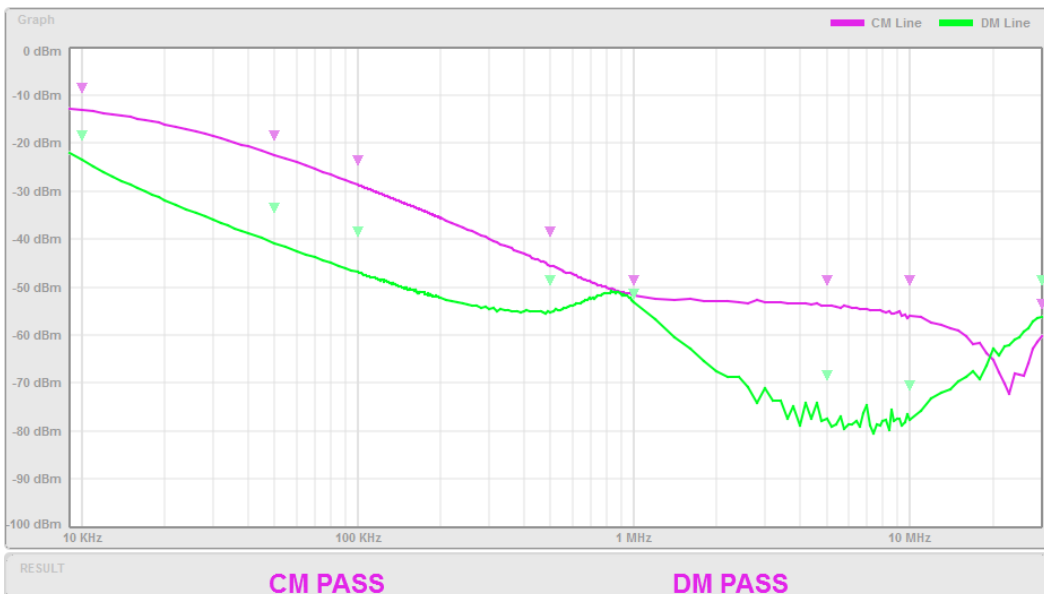
save / manufacturing_mode / filter name / date_ID / file

Filter name	Measured filter name.
Date_ID	YYMMDD . ID : selected by user
file	excel(*.csv), or image(*.bmp) file

2) Image file (*.bmp)

show the measured results in graph form.

IMG_MNF_filter name.id_date.time.bmp



3) excel (*.csv)

show setting details, measured data.

DAT_MNF_filter_name_id_date_time.csv

1.Information									
Filter	User ID	Analysis N	Prog. Mod	Eval. Mod	Meas. Freq	Test Coun	CM Result	DM Result	
Filter_5	Guest	Manufactu	AUTO	POINT	9 KHz ~ 30	4	PASS	PASS	
2. Attenuation Loss									
CM									
Freq	10000	50000	100000	500000	1.00E+06	5.00E+06	1.00E+07	3.00E+07	
Std. dB	-10	-20	-25	-40	-50	-50	-50	-55	
Meas. dB	-13.11	-22.5	-28.71	-45.52	-51.66	-53.87	-56.05	-60.23	
DM									
Freq	10000	50000	100000	500000	1.00E+06	5.00E+06	1.00E+07	3.00E+07	
Std. dB	-10	-20	-25	-40	-50	-50	-50	-55	
Meas. dB	-13.11	-22.5	-28.71	-45.52	-51.66	-53.87	-56.05	-60.23	
3. Raw Data									
No.	Freq	CM In	CM Ex	CM Tg	DM In	DM Ex	DM Tg		
1	9000	-12.25	-25.08	-12.83	-11.86	-33.93	-22.06		
2	10000	-11.81	-24.92	-13.11	-11.45	-35.01	-23.56		
3	11000	-11.45	-24.85	-13.4	-11.11	-35.97	-24.85		
4	12000	-11.15	-24.85	-13.7	-10.83	-36.81	-25.98		
5	13000	-10.89	-24.89	-14	-10.59	-37.59	-26.99		
6	14000	-10.66	-24.97	-14.3	-10.39	-38.28	-27.89		
7	15000	-10.48	-25.09	-14.6	-10.22	-38.93	-28.71		
8	16000	-10.31	-25.22	-14.9	-10.07	-39.52	-29.45		
9	17000	-10.17	-25.38	-15.2	-9.94	-40.09	-30.14		
10	18000	-10.04	-25.54	-15.49	-9.83	-40.61	-30.78		
11	19000	-9.93	-25.72	-15.78	-9.73	-41.1	-31.36		
12	20000	-9.84	-25.91	-16.07	-9.65	-41.56	-31.91		
13	22000	-9.68	-26.3	-16.62	-9.5	-42.42	-32.91		
14	24000	-9.55	-26.7	-17.15	-9.39	-43.2	-33.81		
15	26000	-9.44	-27.11	-17.66	-9.29	-43.9	-34.61		
16	28000	-9.35	-27.51	-18.16	-9.21	-44.55	-35.34		
17	30000	-9.28	-27.91	-18.63	-9.15	-45.18	-36.02		
18	32000	-9.21	-28.3	-19.08	-9.09	-45.74	-36.65		
19	34000	-9.15	-28.67	-19.52	-9.04	-46.27	-37.22		
20	36000	-9.1	-29.05	-19.94	-9	-46.77	-37.77		
21	38000	-9.06	-29.41	-20.34	-8.96	-47.25	-38.28		
22	40000	-9.02	-29.76	-20.73	-8.93	-47.69	-38.76		
23	45000	-8.95	-30.6	-21.65	-8.86	-48.72	-39.86		
24	50000	-8.88	-31.39	-22.5	-8.8	-49.63	-40.83		

Measurement Information

Confirm setting and result data.

Attenuation

Confirm measured data with point evaluation.

Measured Data

Confirm all measured data.

4. Engineering Analysis

A. Setting

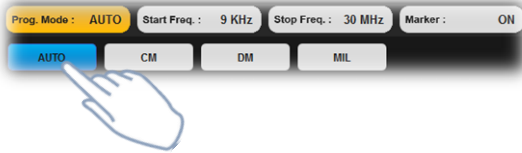
B. Measurement

C. Saving

D. Marker

A. setting

On Engineering Mode, setting details can be edit/modified on the display screen.



Mode setting



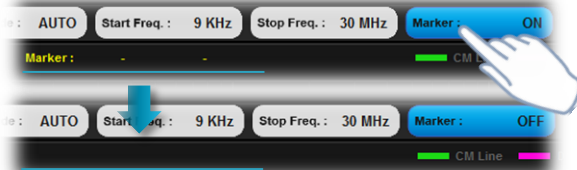
Start frequency

Set the start frequency to click START button.



Stop frequency

Set the stop frequency to click STOP button.



marker


Click Marker button to turn on/off.

B. 측정

설정이 완료되면 필터의 특성을 측정할 수 있습니다. 아래 내용은 AUTO 진행 모드 기준이며, Manufacturing Mode와 동일합니다.

※ Before measuring, make sure calibration. Skipped calibration process in this page.




Make suitable cable connection for measuring
(2.Basics > Cable connection > 측정 참조)
After preparing click 



Wait while measuring CM




Wait while measuring DM
Click  to stop measuring while inspecting



Confirm inspection date after measurement

C. saving

On Engineering Mode, the measured results is saved in manual, by push  button.
"save" button is active when the measurement is finished.

Saving file is in both excel(*.csv) or image(*.bmp)

1) Saving path

save on "save" folder, but be edit the path .

save / engineering_mode / date_id/ file

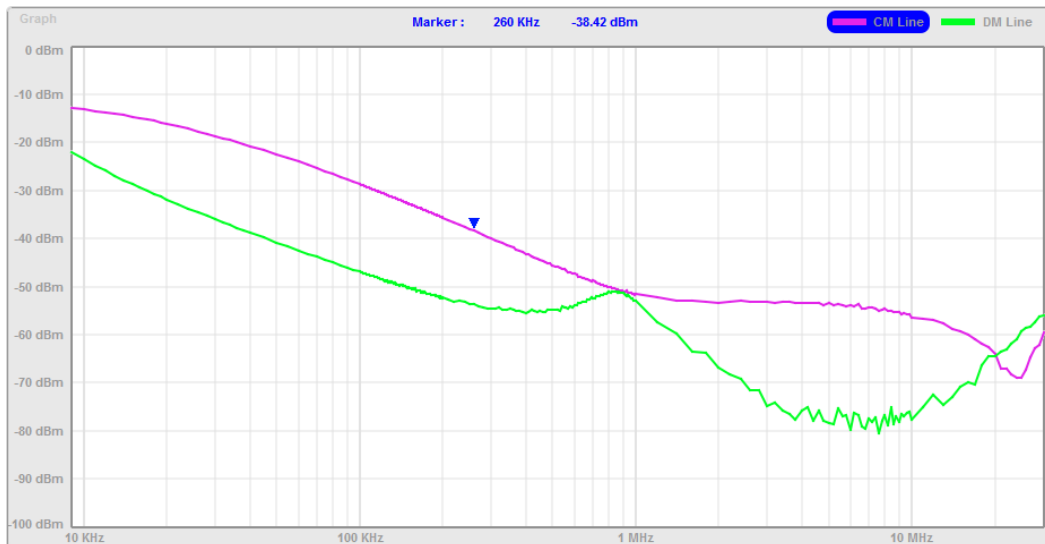
No filter name

2) Image file(*.bmp)

save the measured results on image.

IMG_ENG_id-dat.time.bmp

No filter name



※Except the above mentioned, the details are same as Manufacturing Mode, refer to 3. Manufacturing Analysis>D. Saving .

3) Excel file (*.csv)

show setting details, measured data.

DAT_ENG_id_date_time.csv

No filter name

Setting details

1.Information				
User ID	Anlysis I	Prog. Mo	Meas. Fre	Test Count
Guest	Engineerir	AUTO	9 KHz ~ 3	1

Measured data

2. Raw Data								
No.	Freq	CM In	CM Ex	CM Tg	DM In	DM Ex	DM Tg	
1	9000	-12.64	-25.52	-12.88	-12.27	-34.27	-22	
2	10000	-12.19	-25.36	-13.16	-11.85	-35.36	-23.5	
3	11000	-11.83	-25.28	-13.45	-11.51	-36.32	-24.8	
4	12000	-11.52	-25.27	-13.74	-11.23	-37.17	-25.94	
5	13000	-11.26	-25.31	-14.04	-10.98	-37.94	-26.95	
6	14000	-11.04	-25.38	-14.34	-10.77	-38.64	-27.86	
7	15000	-10.85	-25.5	-14.64	-10.6	-39.29	-28.68	
8	16000	-10.68	-25.62	-14.94	-10.45	-39.89	-29.44	
9	17000	-10.54	-25.78	-15.24	-10.32	-40.45	-30.12	
10	18000	-10.41	-25.94	-15.53	-10.21	-40.97	-30.76	
11	19000	-10.3	-26.12	-15.82	-10.1	-41.45	-31.34	
12	20000	-10.21	-26.31	-16.1	-10.02	-41.92	-31.9	
13	22000	-10.04	-26.7	-16.65	-9.87	-42.78	-32.9	
14	24000	-9.91	-27.09	-17.18	-9.76	-43.56	-33.8	
15	26000	-9.79	-27.49	-17.69	-9.65	-44.26	-34.6	
16	28000	-9.7	-27.89	-18.19	-9.57	-44.91	-35.33	
17	30000	-9.63	-28.29	-18.65	-9.51	-45.53	-36.02	
18	32000	-9.57	-28.68	-19.11	-9.46	-46.1	-36.64	
19	34000	-9.51	-29.05	-19.54	-9.4	-46.63	-37.23	
20	36000	-9.46	-29.42	-19.96	-9.36	-47.14	-37.77	
21	38000	-9.42	-29.79	-20.37	-9.32	-47.63	-38.3	
22	40000	-9.38	-30.14	-20.76	-9.29	-48.08	-38.79	
23	45000	-9.3	-30.98	-21.67	-9.22	-49.08	-39.86	
24	50000	-9.24	-31.76	-22.52	-9.16	-50	-40.83	
25	55000	-9.18	-32.49	-23.31	-9.11	-50.81	-41.7	
26	60000	-9.13	-33.18	-24.04	-9.06	-51.57	-42.5	

Setting details Show setting and the result information.

Measured data Show the measured data

※Except the above mentioned, the details are same as Manufacturing Mode, refer to 3. Manufacturing Analysis>D. Saving .

D. marker



with marker function, evaluate the measured results

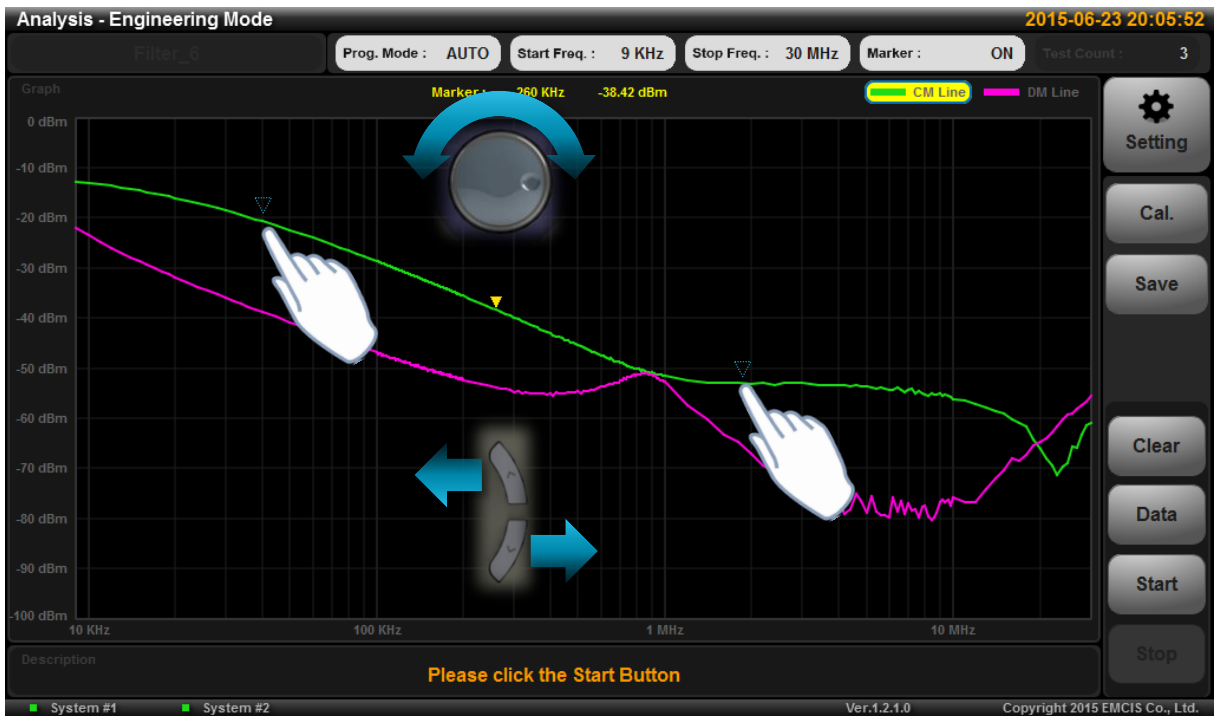
1) data (graph line) selection

 CM Line or  DM Line button



2) Move marker point

Move by touching on screen or  /dir.  button on the front panel.



5. Setting

A. Filter file

B. Option setting

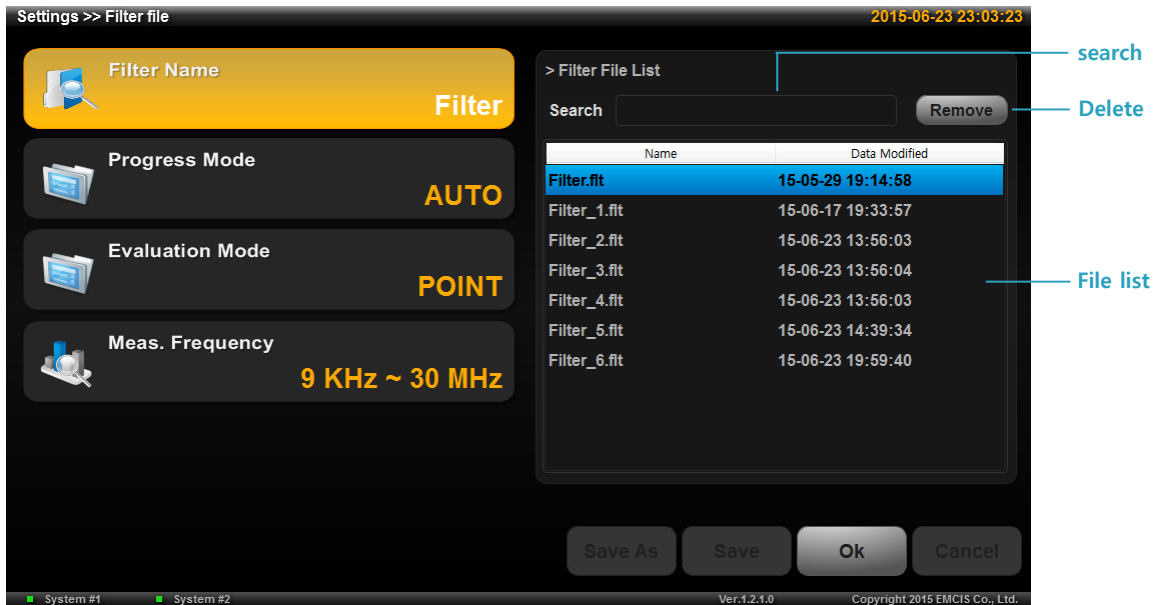
C. Paper work

A. Filter file

edit filter file and sett the measurement details. (home > *Setting* > *Filter file*)

1) Filter file (list)

files are listed being select/delete/edit



Filter file

Double click the selected file.

File search

Click *Search*
Type in the file name on key pad

Filter file delete

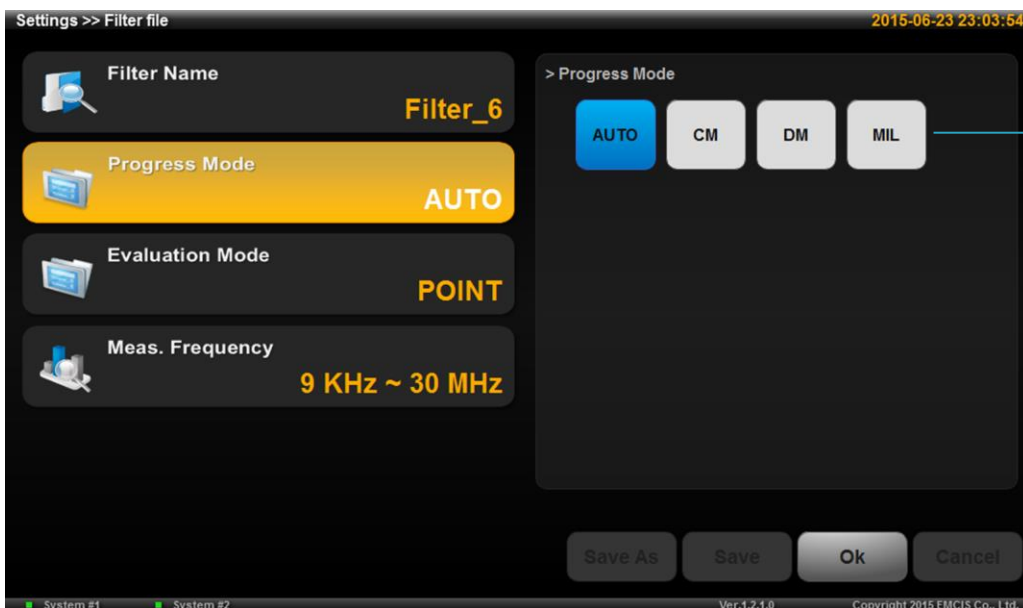
Click to delete the selected file in the file list

Filter file saving

When the setting is changed, button is activate and save the file or save file with key pad

2) Progress mode selection

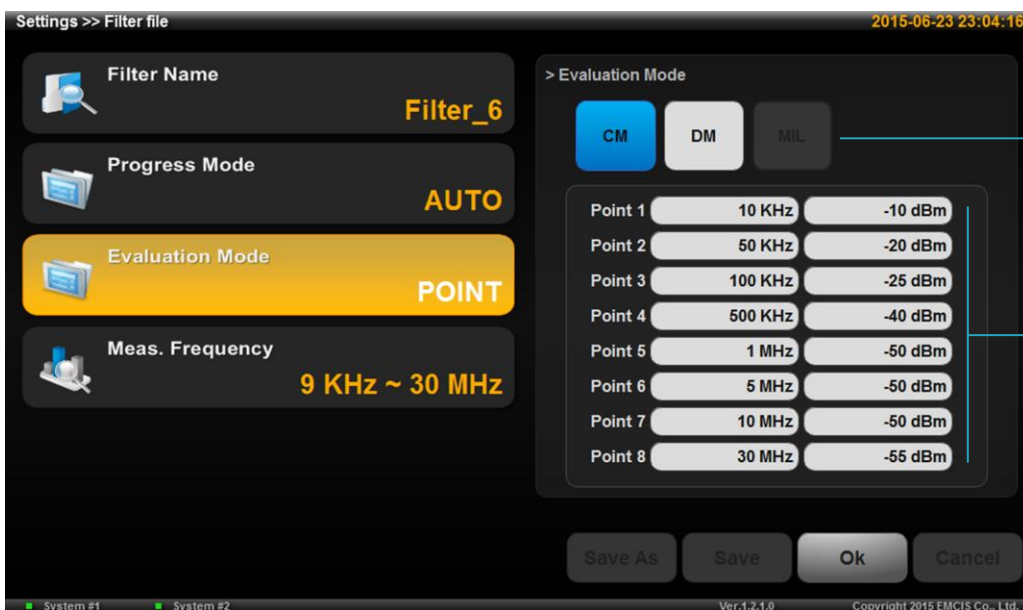
show selected progress model.



Mode selection Click , , , (AUTO : CM+DM)

3) Evaluation mode

Confirm present file evaluation mode. Change to generate new file.



Mode selection Click

Point edit Set frequency, and level with key pad.

4) Frequency setting

show the setting frequency.

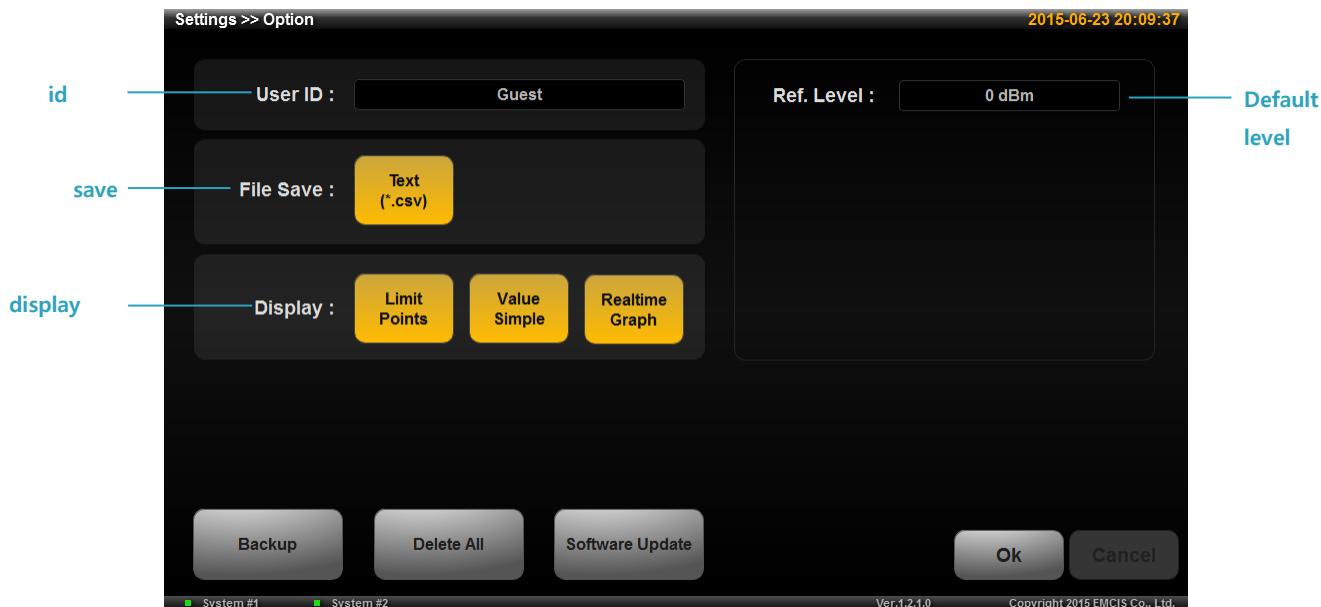


Start frequency 5 KHz , 9 KHz , 10 KHz , 100 KHz , 150 KHz click button

Stop frequency 30 MHz , 50 MHz , 100 MHz , 110 MHz , 300 MHz click button

B. option

(home > Setting > Option)



1) id

Guest edit with key pad.

2) save

click **Text (*.csv)** to save or not

3) Default level

0 dBm graph default level,
edit with key pad

4) Display

Point mark selection

Limit Points

click to display ▼ ▲ on the result graph in Manufacturing Mode

Display digit setting

Value Simple

click to round off the numbers to two decimal places

Measuring graph display

Realtime Graph

click to display data graph measured in real time

C. Paper work

(home > Setting > Documents)



※ 본 매뉴얼 이미지는 실제 매뉴얼 이미지와 다를 수 있습니다.

1) Selection button

User Manual click to turn on/off document view

2) Paper view

Display the document related to measure on screen

3) page

move the page of document view to check data.

Move to pre-page



Move to next page



Thank You !!!