

Spectrum analyzer/Signal analyzer

MSA400 series spectrum analyzer



**Standard model of sweep method
Compact, lightweight and low Price**

Comparison between MSA400 and MSA500

	MSA400 series	MSA500 series
Frequency range	50kHz to 3.3GHz : MSA438/TG/E 50kHz to 8.5GHz : MSA458	20kHz to 3.3GHz : MSA538/TG/E 20kHz to 8.5GHz : MSA558/558E
Center frequency setting resolution	20kHz	100Hz
Resolution bandwidth[RBW]	3kHz to 3MHz(1-3step) : MSA438/TG/458 6dB@9kHz, 120kHz, 1MHz : MSA438E	300Hz to 3MHz(1-3step) : MSA538/TG/558 6dB@9kHz, 120kHz, 1MHz : MSA538E/558E
Selectivity	1:12	1: 4.5
SSB phase noise	-90dBc/Hz@100kHz offset	-95dBc/Hz@100kHz offset
Average noise level	-127dBm@cf 1GHz, RBW 3kHz : MSA438/TG/E -123dBm@cf 1GHz, RBW 3kHz : MSA458	Real time mode -140dBm@cf 1GHz, span 20kHz : MSA538/TG/E -135dBm@cf 1GHz, span 20kHz : MSA558/558E Sweep mode -129dBm@cf 1GHz, RBW 300Hz : MSA538/TG/E -128dBm@cf 1GHz, RBW 300Hz : MSA558/558E
Real time mode	-	○
Frequency span of Real time mode	-	20MHz maximum
Time domain	-	○
Marker	Single, Delta	Single, Dual, Delta

※The dimensions and weight are almost same.

3.3GHz band MSA438



Frequency range:50kHz to 3.3GHz

The successor model of MSA338.

Center frequency accuracy:±52kHz
@sweep 100ms, span 10MHz, RBW 3kHz
RBW: 3kHz to 3MHz (1-3 step)
SSB phase noise: -90dBc/Hz @100kHz offset
Reference level: +10 to -60dBm (1dB step)
Average noise level: -127dBm @1GHz
Sweep time: 10ms to 30s

8.5GHz band MSA458



Frequency range:50kHz to 8.5GHz

The successor model of MSA358.

Center frequency accuracy:±52kHz
@sweep 100ms, span 10MHz, RBW 3kHz
RBW: 3kHz to 3MHz (1-3 step)
SSB phase noise: -90dBc/Hz @100kHz offset
Reference level: +10 to -60dBm (1dB step)
Average noise level: -123dBm @1GHz
Sweep time: 10ms to 30s

3.3GHz band with TG MSA438TG



Frequency range:50kHz to 3.3GHz

〈Tracking generator〉
Output frequency range: 5MHz to 3.3GHz
Output level: -10dBm

The successor model of MSA338TG.

- The desired characteristics data is obtained because frequency setting resolution is improved to 20kHz and 5dB/div is added to the display scale.
- By connecting VSWR bridge MVS300B, the return loss can be measured.
- By connecting DTF adapter MA430, the distance to discontinuity point of cable can be measured.

3.3GHz band for EMI MSA438E



Frequency range:50kHz to 3.3GHz

〈EMI measurement〉
Detection mode: PK, QP and AV detections
Resolution bandwidth:
9kHz/120kHz/1MHz @6dB

The successor model of MSA338E.

Provides a wider dynamic range and enables a lower noise measurement, because average noise level is improved 10dB.

- Radiated emission measurement by connecting antenna
- Conducted emission measurement by connecting LISN MPW201B
- Noise measurement on PCB by connecting magnetic field probe CP-2SA < applied to all models >

MSA500 series signal analyzer

Handheld signal analyzer with REAL TIME plus SWEEP system

For offering both the real time system based on Fast Fourier Transform (FFT) and the conventional sweep system, each strong points of both systems are effectively usable.

By real time system, unsteady signal can be measured, and time domain analysis and modulation analysis can be performed. By sweep system, the wide frequency range can be observed at a glance.

3.3GHz band MSA538



Frequency range: 20kHz to 3.3GHz

The most popular model of MSA500 series.

- Real time mode
 - 8 types of analysis functions
[Spectrum, Spectrogram, OverWrite,]
[Time domain (5 types)]
 - 20MHz maximum span
 - Fast OverWrite analysis
 - Large memory of 16K frames and high speed
USB communication of 19ms/frame
- Sweep mode: 300Hz minimum RBW
- Average noise level: -162dBm/Hz
- Four hour battery operation

8.5GHz band MSA558



Frequency range: 20kHz to 8.5GHz

Covering almost all applications of wireless communication systems because of 8.5GHz band.

- The specifications are almost same as MSA538 excepting frequency range.
- Since the frequency range is wider, 5GHz band wireless LAN and 5.8GHz band DSRC can be measured. Moreover, three times more spurious signal of 2.4GHz band equipment.
- Real time processing up to 8.5 GHz
- Average noise level: -157dBm/Hz
- Four hour battery operation

3.3GHz band with TG MSA538TG



Frequency range: 20kHz to 3.3GHz

〈Tracking generator〉
Output frequency range: 5MHz to 3.3GHz
Output level: -10dBm

By being equipped with a tracking generator and keeping the functions of MSA538, it is possible to perform the measurement and evaluation of the amplitude frequency characteristics of filter, amplifier, electronic component and circuit. Moreover, the following options are available.

- DTF adapter MA430
Enables to measure the distance to discontinuity point of cable and the length of normal cable.
- VSWR bridge MVS300B
Enables to measure the return loss of electronic component and circuit. The measuring frequency range is 5MHz to 3GHz.

8.5GHz band for EMI MSA558E



Frequency range: 20kHz to 8.5GHz

〈EMI measurement〉
Detection mode: PK, QP and AV detections
Resolution bandwidth(6dB): 9kHz, 120kHz, 1MHz

A model being equipped with EMI measurement function and keeping the functions of MSA558. Capable of EMI measurement up to 8.5 GHz.

- Radiated emission measurement by connecting antenna
- Conducted emission measurement by connecting LISN MPW201B
- Noise measurement on PCB by connecting magnetic field probe CP-2SA < applied to all models >

3.3GHz band for EMI MSA538E



Frequency range: 20kHz to 3.3GHz

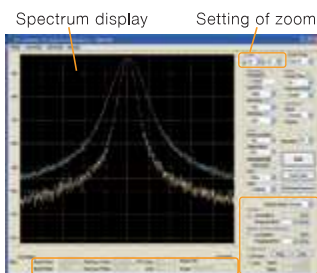
〈EMI measurement〉
Detection mode: PK, QP and AV detections
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A model being equipped with EMI measurement function and keeping the functions of MSA538.

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Spectrum analyzer/Signal analyzer

Spectrum analyzer/Signal analyzer Option

■ PC software MAS400/500

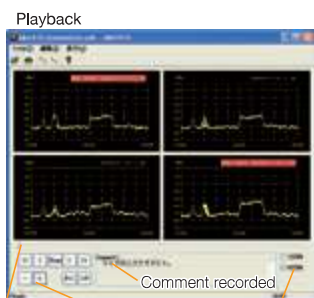


Spectrum display Setting of zoom
Setting of measuring function Setting of marker

This is a software that controls the spectrum analyzer or signal analyzer by the PC and displays the spectrum waveform on PC screen.

MAS400: for MSA400 series
MAS500: for MSA500 series

■ Logging software MAS410/510



Playback
Track bar Operation button Number of screens
Comment recorded

This is a PC software that collects the measurement data by uninhabited. Optimum for watching an abnormal signal at night and recording the data by uninhabited for a long time.

MAS410: for MSA400 series
MAS510: for MSA500 series

■ DTF adapter MA430



Option: 50Ω measurement kit
75Ω measurement kit

Enables to measure the distance to discontinuity point of cable and the length of normal cable.

Distance range: 0.3 to 1000m @50Ω cable
1 to 400m @75Ω cable

Cable characteristics list:
11 types of cables @50Ω cable
11 types of cables @75Ω cable

Applied models: MSA438TG/538TG

■ VSWR bridge MVS300B



Enables to measure the return loss of electronic component and circuit.

Frequency range: 5 to 3000MHz
Directivity: more than 40dB @50 to 3000MHz
more than 25dB @5 to 50MHz

Insertion loss: less than 7dB @SOURCE to DUT
less than 8dB @DUT to REFLECTED

Applied models: MSA438TG/538TG

■ Dipole antenna



M301 M302 M303 M304 M305 M306 M307 M308 M309
M401 M402 M403 M404 M405 M406 M407

Antenna for electric field strength measurement

Model	Freq. range
M301/401	0.8 to 1GHz
M302/402	1.25 to 1.65GHz
M303/403	1.7 to 2.2GHz
M304/404	2.25 to 2.65GHz
M305/405	300 to 500MHz
M306/406	4.8 to 6.2GHz
M307/407	470 to 770MHz
M308	3.6 to 4.2GHz
M309	4.4 to 4.9GHz

Connector: SMA(P) @M300, N(P) @M400
Applied models: M401 to M407: MSA400/500 series

■ Magnetic field probe CP-2SA



Measures the magnetic field strength at pattern on PCB and terminals of device. The probe is calibrated in the instrument.

Frequency range: 10MHz to 3GHz
Space resolution: approx. 0.25mm
(depending on objects)

Applied models: MSA400/500 series

■ Wideband passive probe MP300



A passive probe with low input capacitance and wide frequency band.

Frequency range: DC to 6GHz

Attenuation ratio: 10:1, ±2%

Input resistance: 500Ω±2%

Input capacitance: 0.25pF(typ)

Applied models: MSA400/500 series

■ Printer



(With AC adapter and one rollpaper)
※Option: Rollpaper (10 rolls)

Enables a hard copy of the screen.

Interface: USB @MSA400/500 series

Printing method: Thermal line dot method

Paper: 80mm width thermal paper

Power source: internal: AA-sized alkaline battery(4pcs)
external: 7.5VDC/3A(dedicated AC adapter)

Applied models: MSA400/500 series

■ Frequency counter (factory option)

Item	Specifications
Frequency range	1MHz to 3.3GHz @excepting MSA458 1MHz to 8.5GHz @MSA458
Measured level	+10 to -70dBm @1MHz to 2GHz, RBW100kHz +10 to -60dBm @2 to 8.5GHz, RBW100kHz
Measurement resolution	100Hz
Display digits	8 digits max
Reference X'tal	Accuracy: ±2ppm @23°C Temp. characteristics: ±5ppm @0 to 40°C
Applied models	MSA400 series

■ Battery

Lithium-ion battery
MB400



7.4V/5000mAh
Applied models: MSA400/500 series

■ Interface cable

USB cable MI400



Connector: A plug/B plug
Length: 1m
Applied models: MSA400/500 series

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