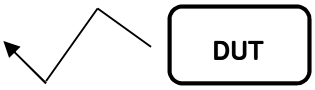
Electric field strength measurement using antenna factor of loop antenna

◇A handheld spectrum analyzer and a loop antenna enable the easy measurement of the electric field strength from 50kHz to 30MHz.

＊Application＊

Connection
block diagram



Loop antenna
MAN120

Spectrum analyzer
MSA438

＊Solution＊

■ By using the antenna factor of loop antenna MAN120, the electric field strength from 50kHz to 30MHz can be measured with handheld spectrum analyzer MSA438.

The electric field strength is calculated from the following equation.

Er = Pr +Af + 107

However, Er:electric field strength [dBuV/m], Pr: receiving power [dBm], Af: antenna factor [dB/m]

The typical value of the antenna factor of loop antenna MAN120 is as follows. This antenna has received the A2LA accreditation calibration.

Frequency[MHz]	Af [dB/m]
0.05	70.8
0.07	67.9
0.1	65
0.15	61.6
0.2	59.2
0.3	56
0.4	53.9
0.5	52.6

Frequency[MHz]	Af [dB/m]
0.6	51.4
0.7	50.7
1	49.2
1.5	48.2
2	47.5
3	47.3
4	47.1
5	47.1

Frequency[MHz]	Af [dB/m]
6	47.2
7	47.4
8	48.1
10	47.4
15	47.3
20	47.5
25	46.9
30	47.1

＊System configuration＊

■ This system is an inexpensive tool by which the elctric field strength can be easily measured.

Spectrum analyzer [MSA438]	×1
MSA438 calibration set	×1
Loop antenna [MAN120]	×1
BNC cable (1.5m) [MC314]	×1
Adapter N(P)/BNC(J) [MA307]	×1
Adapter N(J)/BNC(J)	×1

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