C & U CREATIVE & UNIQUE

MICRONIX

Measurement of distance to fault of cable (DTF) 〈by simulated house wiring〉

◇Example using DTF (Distance To Fault) measurement function of MSA438TG

＊Application＊

Using MSA438TG equipped with DTF function firmware (DTF/FW), the discontinuity point of a cable and the length of a normal cable can be measured. In addition, the measurement data can be viewed using dedicated software.
The measurement range is 0.3 to 1000m at 50Ω cable and 1 to 400m at 75Ω cable.
In this application note, the data which measured using simulated house wiring of CATV will be introduced.

＊Solution＊

The measurement data shown in Fig.1 is actual data measured in the verification model of the simulated house wiring diagram of CATV shown in Fig.2.

″1.44m″ in Fig.1 corresponds to the distance between DTF (MA430) and Distributor 1 in Fig.2. Similarly, 2.89m (distributor 2), 3.96m (distributor 3) and 5.52m (distributor 4) show the reflection at the distributors. The level at 6.29m is low because terminal 2 is terminated.

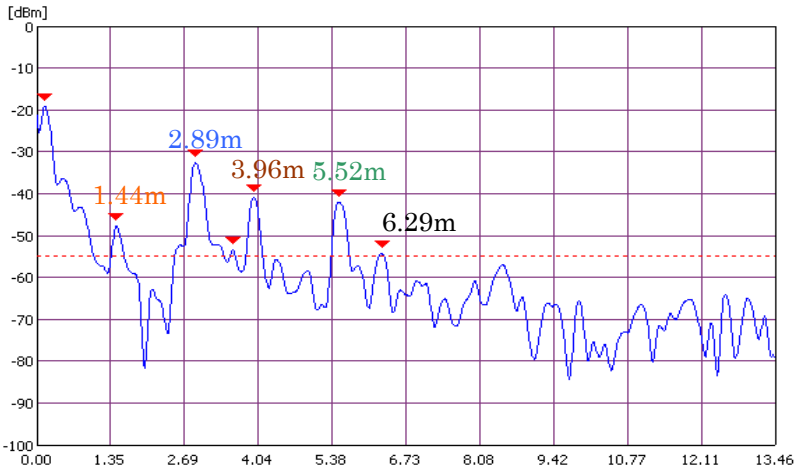

Fig.1 Measurement data

Almost all the conventional measuring instruments adopting TDR method can detect only the maximum reflecting point. Moreover, they have the weak points of bad distance accuracy and slow measurement response, but MSA438TG + DTF (MA430) is better accuracy and faster response comparing with them.

Since our DTF function can measure from 1m to 400m with 75ohm cable, even cable length in house (10 to 100m) and of trunk line (200 to 400m) can be measured.

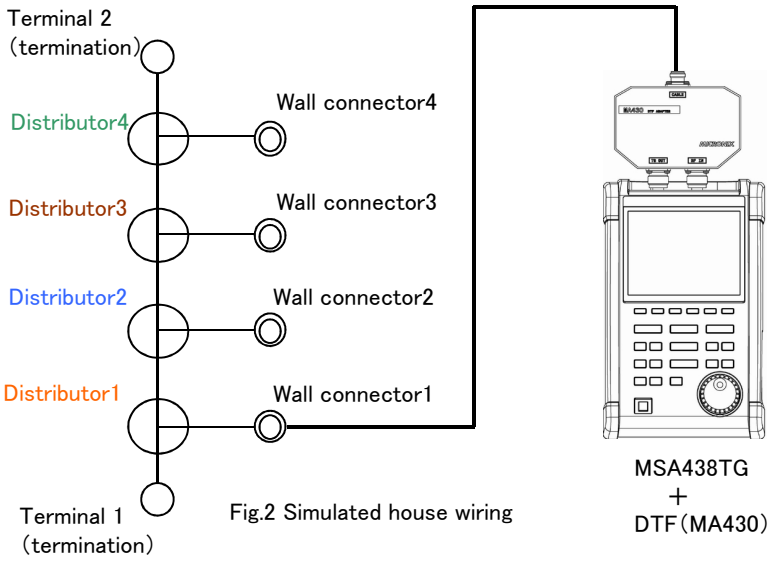

Fig.2 Simulated house wiring

＊System configuration＊

① 50Ω cable measurement set
Spectrum analyzer MSA438TG
DTF adapter MAS430
Optional software (DTF/FW)
50Ω terminator (MG-50N)

② 75Ω cable neasurement set
Spectrum analyzer MSA438TG
DTF adapter MAS430
Optional software (DTF/FW)
75Ω measurement kit (MK430)

※75Ω measurement kit:
50Ω/75Ω adapter, 75Ω terminator and cable

2011/4

MICRONIX Corporation
2987-2 Kobiki-cho, Hachioji-shi, Tokyo Japan
Tel: +81-42-637-3667 Fax:+ 81-42-637-0227
URL http://www.micronix-jp.com
E-mail micronix_e@micronix-jp.com