LF52 Signal Level Meter – Multi-Function For The Digital Age

LF52 Signal Level Meter

Equipped with the latest innovations in RF Signal level measurement, the new LF52 brings flexibility, reliability and accuracy to your every day measurement challenges. The instrument handles both analog and digital terrestrial broadcast, satellite(option) and CATV RF signals. Level, C/N (carrier to noise), BER, MER and delay measurements can easily be performed when evaluating digital transmission paths. The instrument also offers a spectral display and a number of surprisingly robust analysis functions to this portable device.

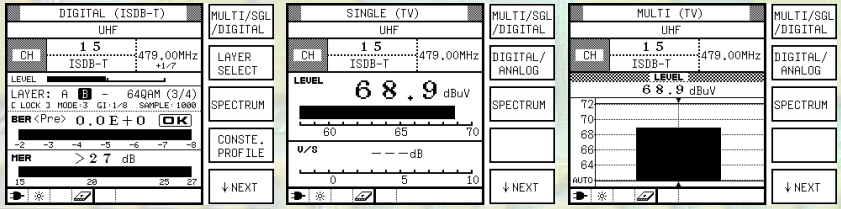
The instrument provides compatibility with a number of analog and digital modulation formats including OFDM, COFDM, BPSK, QAM and others and, in addition to level, C/N, MER and BER measurements, it produces constellation and spectral displays.

Up to 200 presets can be stored and recalled and a measurement log is provided. Measurements can be output as comma separated values and used in a spreadsheet making record keeping easy to obtain and communicate to others.

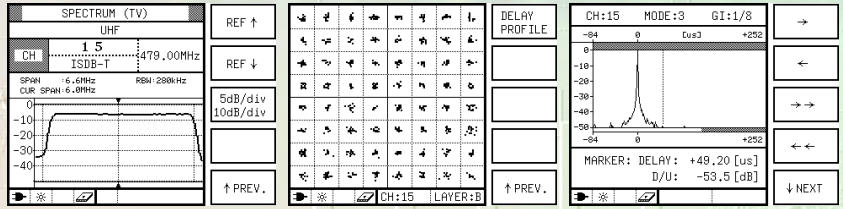
IMPORTANT NOTE : These are preliminary specifications/information and are subject to change without notice.

LF52 Signal Level Meter Main Features

- Designed specifically for the ISDB-Tb terrestrial format now being implemented in South/Central America.
- Accepts 5MHz – 870MHz and 950MHz – 2.6GHz (Satellite)
- Supports both digital and analog transmission systems to aid in the analog to digital transition.
- Supports BPSK, QPSK, 8PSK, 16-256QAM and OFDM for CATV operation.
- Supports broadcast, cable and satellite(option) operation.
- Measures RF level, C/N. BER, MER and DELAY PROFILE.
- Provides Constellation display and Spectral Display
- Presets and measurement logs can be stored in Compact Flash card for ease of use and documentation purposes.
- Provides auto-channel search function for terrestrial and CATV.
- Remote control via RS-232 serial interface.
- Lithium-Ion battery operation, battery and AC adaptor included.



C/N and MER/BER Measurement Screens



Simple Spectral Display, OFDM 64QAM and Delay Profile

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LF52 Signal Level Meter – Quick Summary

System	Function	LF52
LCD		4“ mono STN
Terrestrial	Level	Y
	BER	Y
	MER	Y
	C/N	Y
	Constelation	Y
	Delay profile	Y
	Spectrum display	Y
CATV	Level	Y
	BER	Y
	MER	Y
	Constelation	Y
	Spectrum display	Y (1ch)
	Uplink	Y
Memory		Y (CF)
Remote		Y (RS232C)
Battery		Y (Lithium)
AC Adapter		Y
Carrying case		Y

LF52 Signal Level Meter

NEW

LF52 Soft Carrying Case (Included)

MP-500 Lithium Ion Battery Pack (Included)

UIT-318-12 AC Adapter (100 – 240 Vac); (Included)

LC1589 Field Replaceable F-type Input Connector (Sold Separately)

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NEW

LF52 Signal Level Meter – Detail Specifications

Measurement frequency range		
Digital terrestrial	5 to 870MHz	Level measurement, simple spectrum display
	50 to 864MHz (Broadcast frequency)	Digital terrestrial broadcast BER measurement, MER measurement, constellation display
Frequency setting		
Digital terrestrial	50kHz step	
Built-in channel table		
Digital terrestrial	VHF, UHF in Japan and Brazil	
Level measurement		
Digital terrestrial	RF format	Analog AM (Video), FM (Audio), CW Digital QPSK, 16 to 256 QAM, OFDM
	Measurement range	Analog 20 to 120 dBuV (-40 to 60 dBmV) Digital 35 to 120 dBuV (-25 to 60 dBmV)
	Lowest display level	Digital 25 dBuV (typ)
	Accuracy	Analog +/- 2 dB (20 to 30 ° C) +/- 3 dB (0 to 40 ° C) Digital +/- 3 dB (0 to 40 ° C) (For the digital, when it is without multipath and using high accuracy measurement mode)
	Measurement bandwidth	280 kHz (typ)
Digital terrestrial broadcast related functions		
Input signal parameters	Broadcast format	Japan digital terrestrial broadcast (ISDB-T format) compliance
Input level range	45 to 100 dBuV	The level difference between channels are within 20 dB
BER measurement	Measurement format	Simple BER
	Measurement range	Before RS 7.0E-2 to 2.0E-8, 0E+0 After RS 5.0E-1 to 2.0E-5, 0E+0
MER measurement	Measurement range	QPSK 5 to 26 dB 16QAM 10 to 27 dB 64QAM 15 to 27 dB
C/N	Measurement range	5 to 30 dB
Constellation	Modulation format	DQPSK, QPSK, 16QAM, 64QAM
Measurement layer	Transmission layer (A, B, C) selectable for measurement	
Delay profile measurement	D/U ratio	Resolution: 0.1dB
		Display range: 0 to -50dB
		Accuracy: +/- dB (moving speed 0, D/U > -30dB, 0 to 40 ° C)
	Delay time	Display range: 1/3 of valid symbol length - (1/12 of valid symbol length) to + (1/4 of valid symbol length)
		Valid range: 0 to guard interval length
		Marker resolution: 0.21 us (Minimum: depends on magnification of display)
	Display	Plot: Entire display or partial magnification display
	Display	Marker: Digital value display for D/U ratio and delay time of the marker location
Level display unit		
dBuV (75 ohm terminated), dBuVemf, dBmV (75 ohm terminated), dBmW switchable		
Multi display		
Number of channel	Maximum 200	
V/S measurement		
Measurement range	+/- 25 dB (Audio level relative to video level)	
Spectrum display		
Center frequency	Center frequency of each channel for digital terrestrial	
Connector trype		
F type receptable (75 ohm)		
Voltage measurement		
AC voltage	5 to 100 Vrms (50 to 60 Hz)	
DC voltage	5 to 50 V	
Resolution	0.1 V	
Accuracy	+/- (5 % + 1 V)	

Program memory		
Number of storage	Maximum 200	
Storage contents	Setting condition of measurement display	
Data memory		
Number of storage	Maximum 200	
Storage contents	Level, C/N, BER, MER measurement value of each channel, measurement time Display format (CVS) data	
Memory card slot		
Supported card	CFA Type-I and Type-II compact flash card	
Functions	Measurement setting, measurement data, measurement display screen (BMP) storage	
RS232C		
Connector trype	9 pins D-sub connector	
Functions	Data output, remote control, printer output	
Auto power off		
Time setting	5, 10, 20, 60 minutes and continue	
Data log function		
Measurement time interval	1 to 999 minutes, 1 minutes step settable	
Begin/End of measurement time	Setting of measurement start time and end time	
Number of measurement channel	1 to 200 (Depends on the number of channel setting at the multi measurement display)	
Storage contents	Channel number, frequency and level of each measurement channel for the digital terrestrial	
Storage media	Memory card (compact flash card)	
Number of storage data	Maximum 99,999 (depends on number of channel setting and the capacity of the memory card	
Storage data type	One file per each measurement	
Channel auto search function		
Search specification	Analog	Level of 40 dBuV and above
	Digital terrestrial	Pilot signal of digital terrestrial broadcast
Power supply		
AC adapter (included)	Lithium ion battery pack (included)	
AA type Alkari battery Qty:6		
Charging function/Charging time	Battery charging for Lithium ion battery pack Within 12 hours (Time of 100% fully charge) 5 hours (typ) (Time of 70% fully charge)	
Battery life time	(When using the lithium ion battery included) 7.5 hours (typ) (VHF/UHF level measurement) 5 hours (typ) (digital terrestrial measurement mode)	
Power consumption	Maximum 16 W	
Display		
Display type	Dot matrix LCD 320 x 240 dot	
Brightness	LED backlight	
Environmental Conditions		
Operating Temperature	0 to 40 ° C	
Operating Humidity	< 85 % RH (without condensation)	
Storage temperature	-10 to 50 ° C	
Operating Environment	In door and out door (without expose to rain)	
Operating Altitude	Up to 2,000 m	
Overvoltage Category	I	
Pollution Degree	2	
Accessories		
Lithium battery pack	1	
Battery case for 6 AA Alkari battery	1	
Battery snap for AA battery connection	1	
AC adapter	1	
AC cord	1	
Carrying case	1	
Instruction manual	1	

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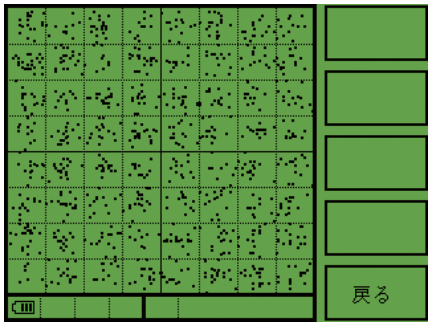
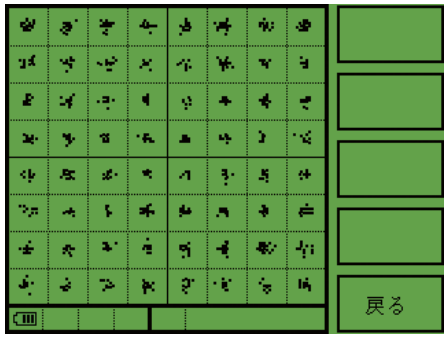
Field RF Signal Level Meter

【NOT GOOD】

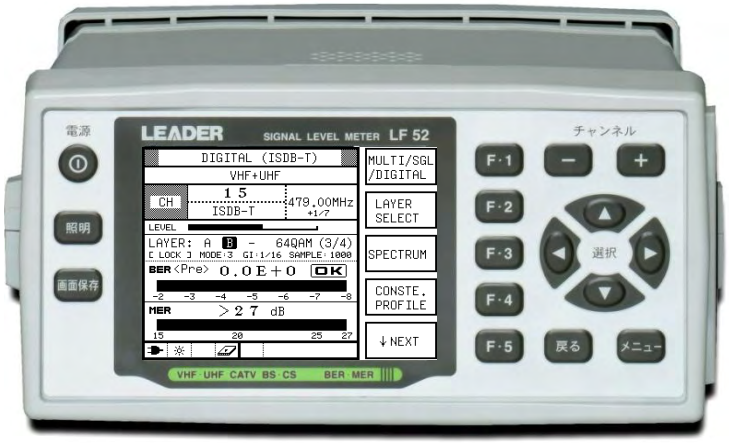


【GOOD】



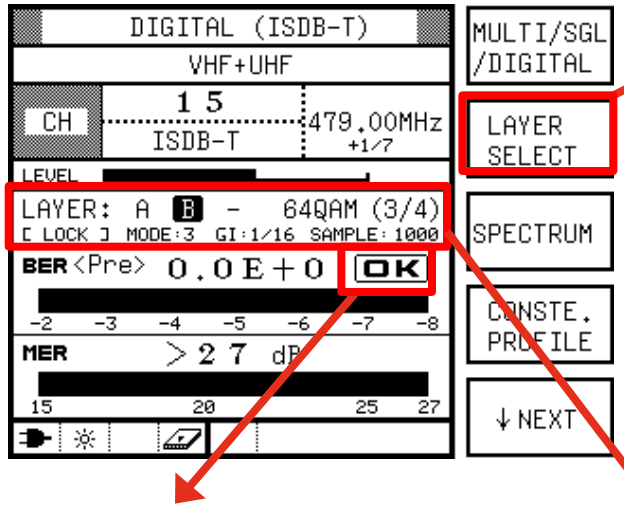
【Key Features】

- ➢Constellation display
- ➢BER/MER measurement
- ➢Spectrum display
- ➢Group delay profile measurement



LF52

Digital terrestrial measurement(1)



Measurement layer selection

F2

The weakest layer(64QAM)is selected by default, therefore, test can be performed as it is.

(Set to layer A while measuring 1seg)

Current layer and modulation format setting (code rate)

Easy Judgment display [OK] or [NG]

LAYER: A B - 64QAM (3/4)

[LOCK] MODE:3 GI:1/8 SAMPLE:1000

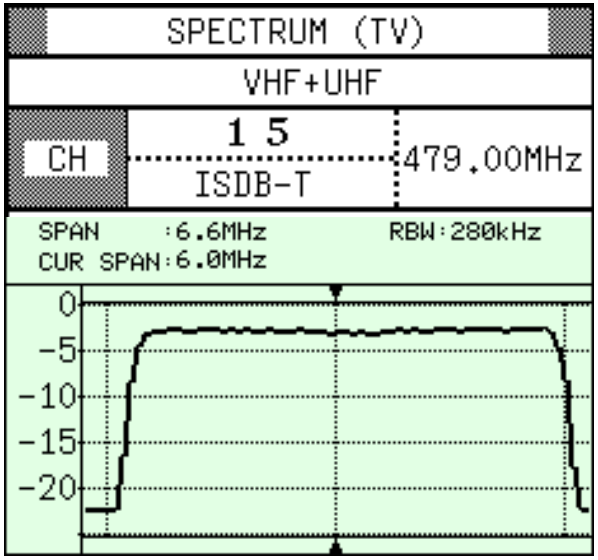
Receiving condition
[LOCK]･･･Normal
[UNLOCK]･･･ No signal received

Transmission mode and guard interval ratio

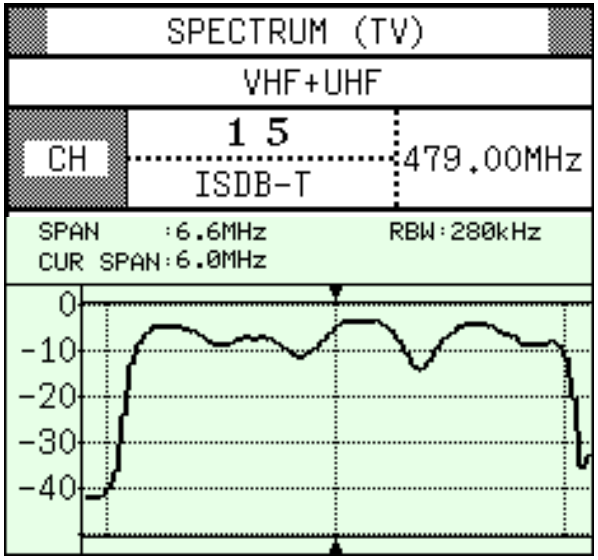
Number of sample is measured

Digital terrestrial measurement(2)

Spectrum measurement ・・・・ Antenna installation environment checking



Good waveform

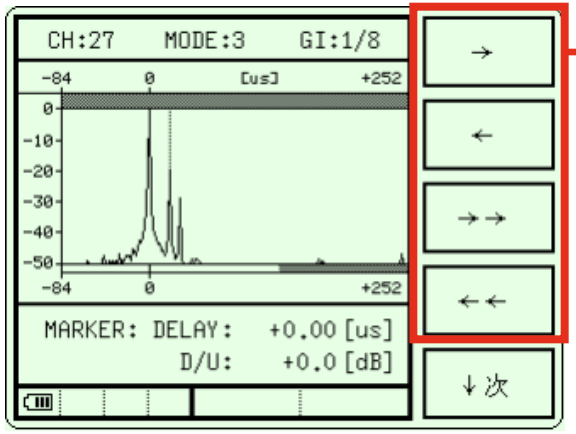


No-Good waveform

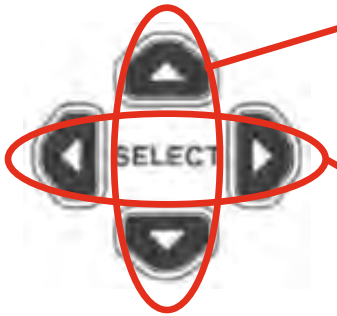
Unstable spectrum waveform sometime can be fixed by changing the antenna location, direction, and height.

Digital terrestrial measurement(3)

Delay profile measurement

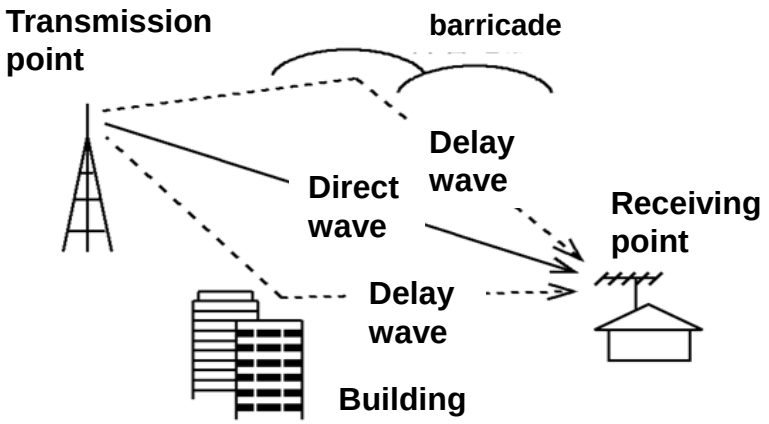


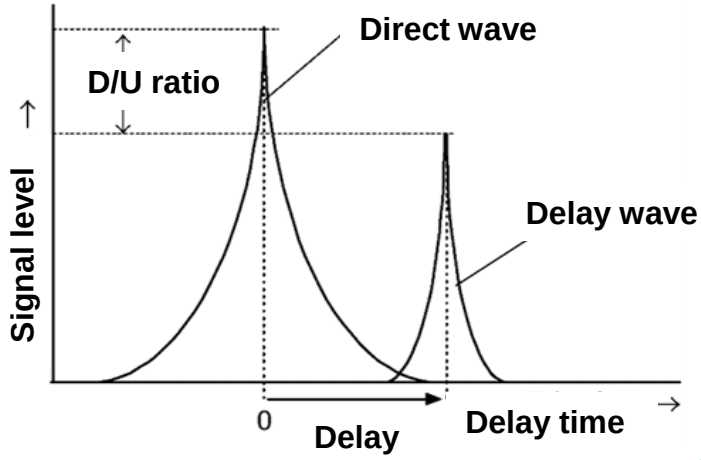
Moving marker location



Expand or narrow display range

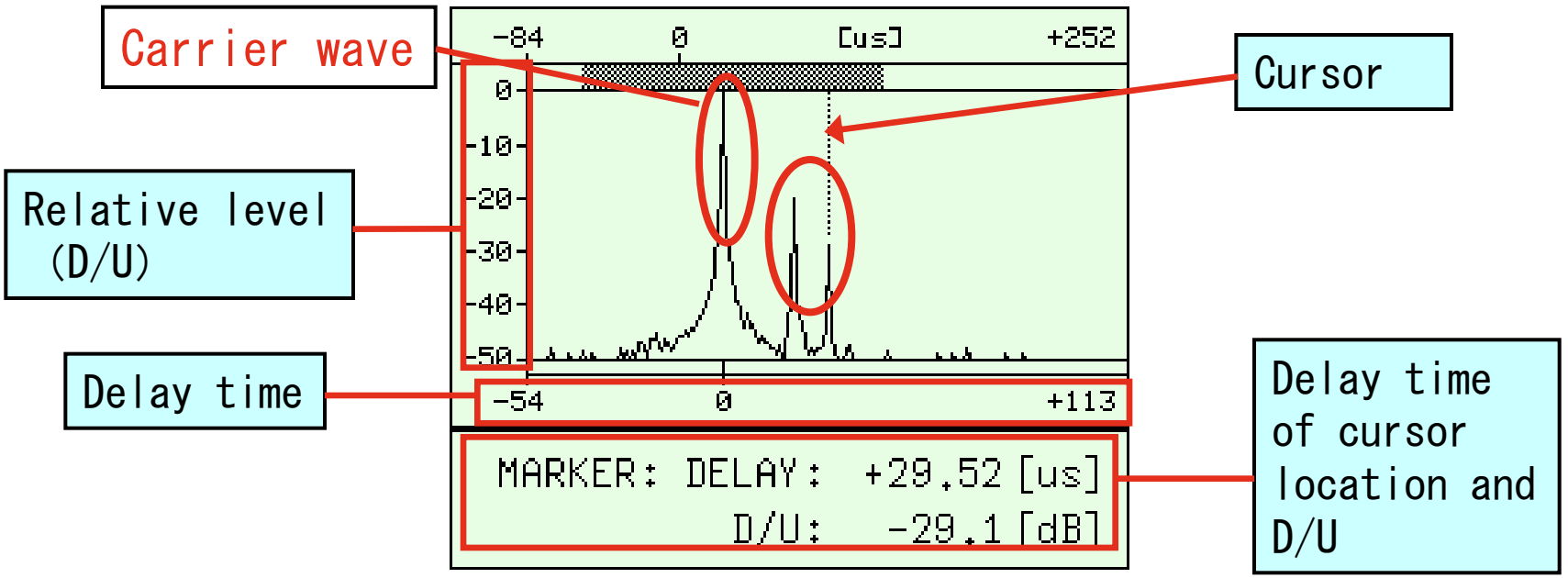
Moving the display range





Digital terrestrial measurement(4)

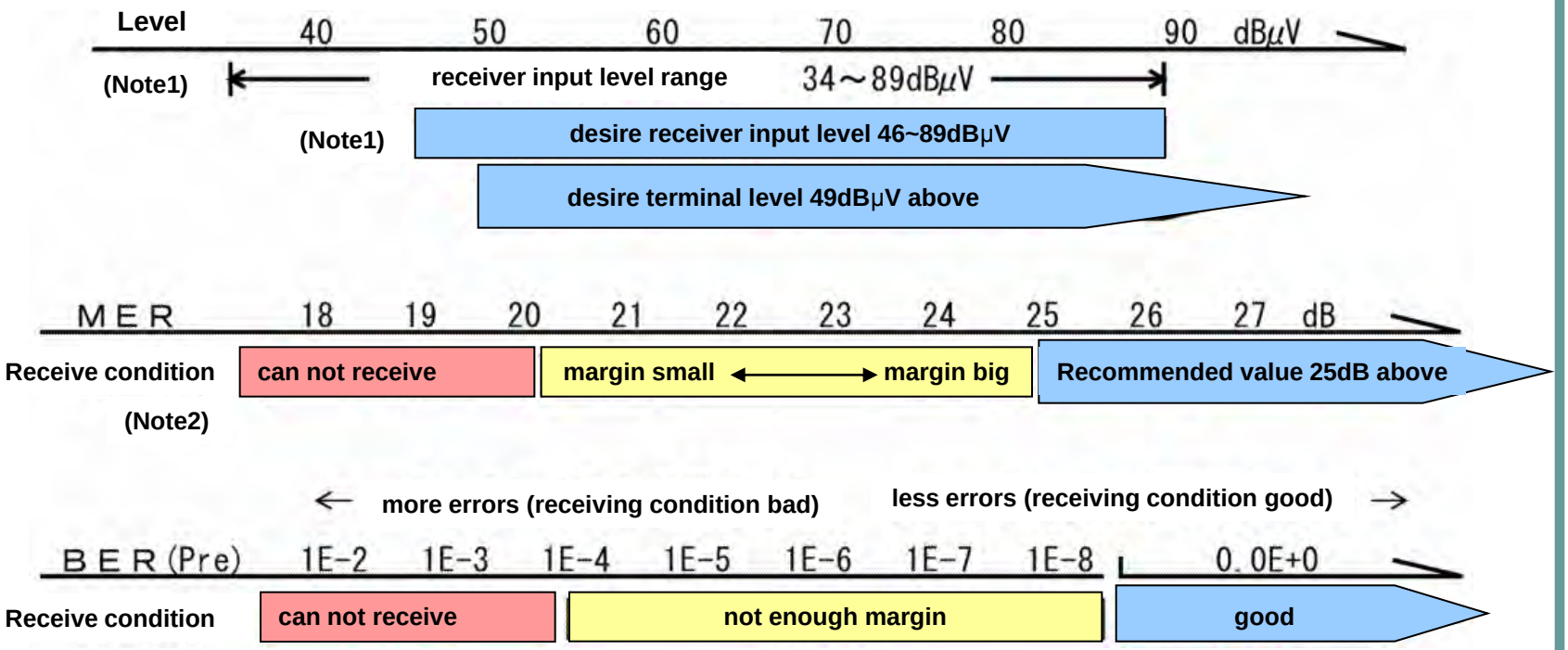
Delay profile measurement



If the delay waveform is bigger than guard interval(126μS), it will be an interference signal (Approximately D/U=20dB signal can not be received)

The measurement range of LF52 is 252μS(Twice of guard interval)

Digital terrestrial measurement(5)



(Note1) In reality most of the receivers will able to receive signal even though below 34dBμV. However, because of the level variation and multipath effect, 46dBμV and above is desired.

(Note2) In the case of carrier modulation format 64QAM (3/4)