

# DVB-T/H Options

## MS2721B Spectrum Master and MT8222A BTS Master

Option 064 DVB-T/H – Measurements 30 MHz to 990 MHz

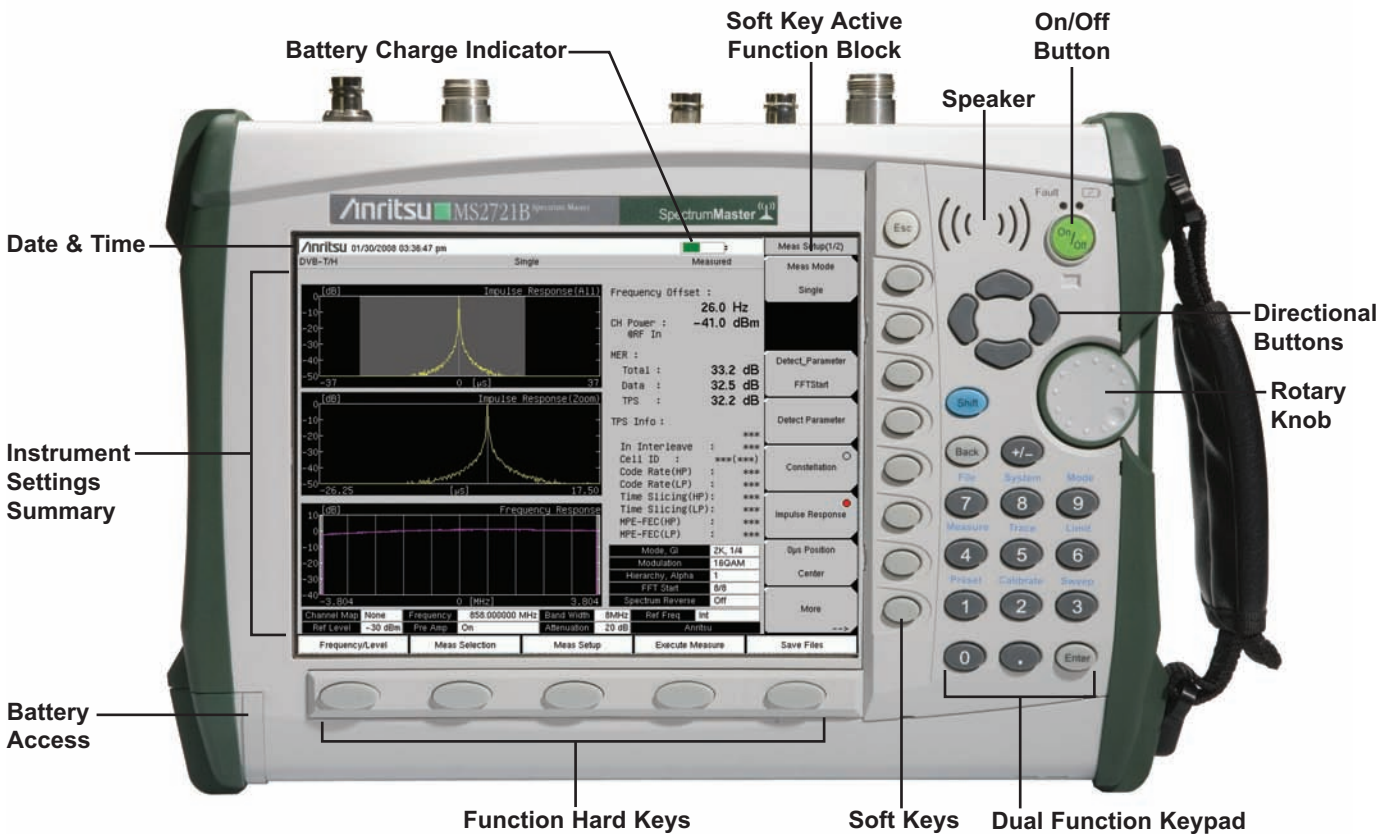
Option 078 DVB-T/H – SFN Field Measurements

Option 057 DVB-T/H – BER Unit



# The DVB-T/H Options for the MS2721B and MT8222A

The DVB-T/H options for the MS2721B and MT8222A feature high-performance in a compact, battery-operated unit. These options are very useful for area surveys and field maintenance of digital broadcasting equipment.



## High-Performance Handheld Spectrum Analyzer

This high-performance spectrum analyzer covers the frequency band from 9 kHz to 7.1 GHz.

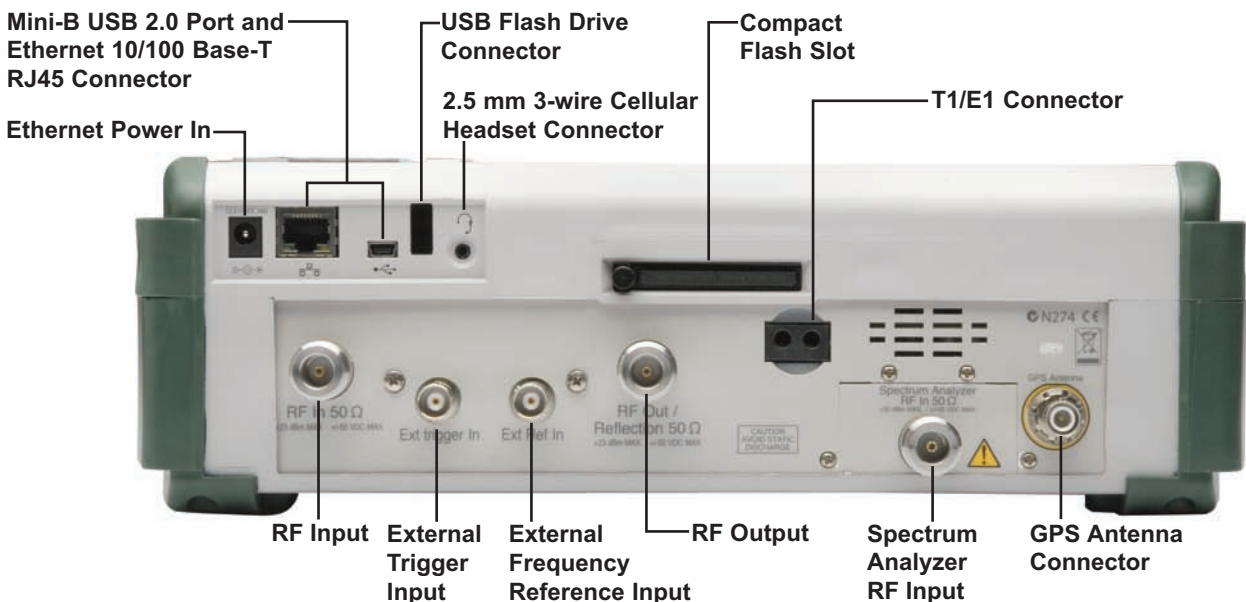
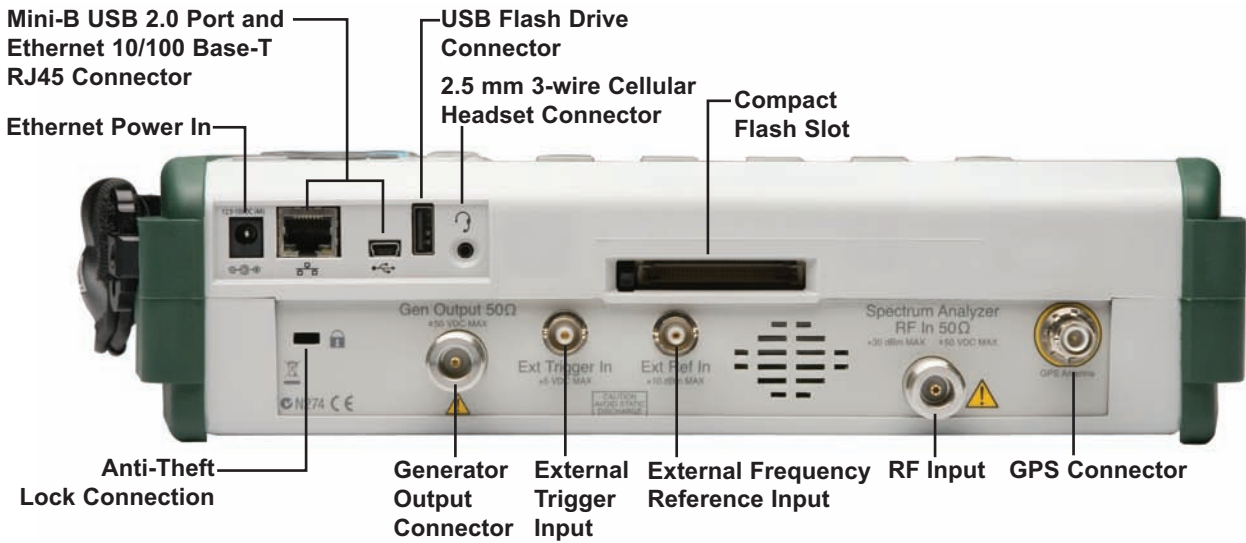
# Option 64 – DVB-T/H Analysis Option

## DVB-T/H Terrestrial Digital Broadcasting Measurements

DVB-T/H field strength, modulation analysis MER, constellation, frequency offset, impulse response, and frequency response measurements are supported, making this analyzer the ideal solution for area surveys and maintenance of DVB-T/H equipment.

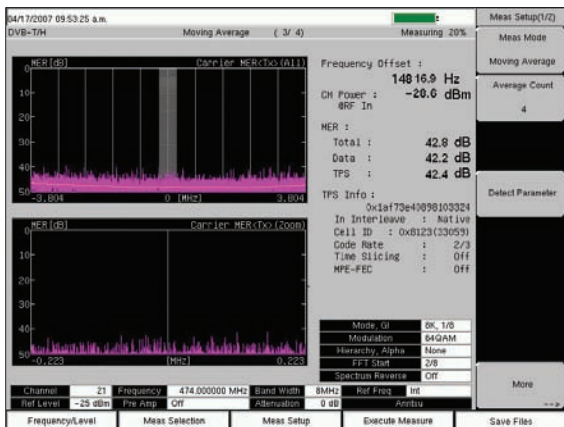
## Usability

The design of the DVB-T/H analysis option minimizes the number of steps required to measure DVB-T/H signals, so that even novices can analyze signals easily and quickly.



# High-Performance Handheld Spectrum Analyzer Functions

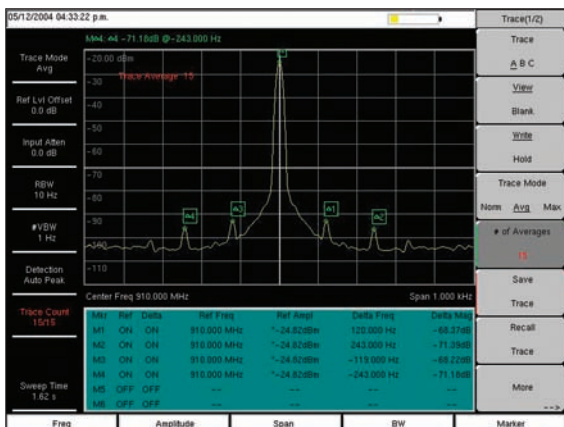
Option 64 DVB-T/H Analysis firmware covers 30 MHz to 990 MHz.



Measuring small signal in presence of very large signal

## Field Measurements

The MS2721B and MT8222A shorten field measurement time while covering a wide dynamic range. User can save measurement results to internal memory, Compact Flash or USB Flash drive.



Power-line related sidebands on synthesized signal generator

## R&D Measurements

This analyzer has a full range of versatile functions, including RBW, VBW, and span. It can be used as a high-performance spectrum analyzer for R&D, manufacturing and field measurements. For example, the power-line sideband noise of a signal source can be measured.

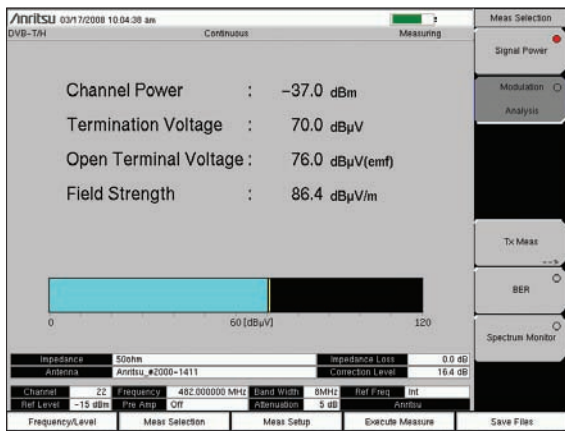
## Other Features

- Automatically sweep as fast as possible, consistent with accurate measurements: 10  $\mu$ s to 600 seconds.
- Maximum safe input level +43 dBm (20 W) (Maximum measurable signal +30 dBm, Zero Span)
- Limit Lines
- Remote operation using Ethernet with Master Software Tools



# Option 64 DVB-T/H Measurement Functions

Option 64 analyzes terrestrial digital broadcast (DVB-T) and mobile terminal (DVB-H) signals. This is very useful for area surveys, and installation and maintenance of terrestrial digital broadcasting equipment.



Signal Power Measurement

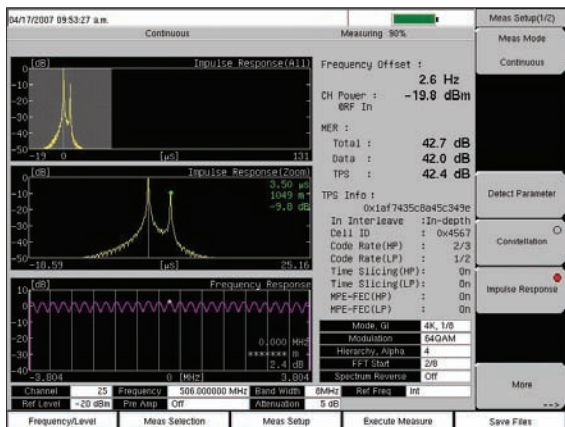
## Option Measurements

- Terminal voltage, channel power, and field strength
- Impulse response
- MER, constellation, and frequency offset
- Detection of Mode, GI, and TPS parameters

## Signal Power Measurement

This function measures terminal voltage, channel power, and field strength (dBμV/m) accurately.

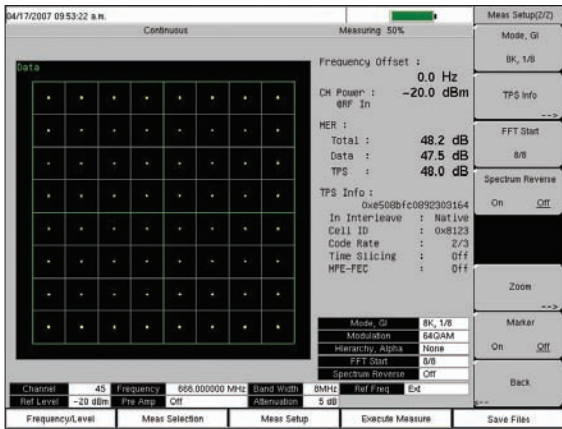
The results are displayed as numeric values and bar graphs. It is useful for adjusting antenna angles and when doing area surveys.



Impulse Response Measurement

## Impulse Response Measurement

This function measures the difference in time and frequency of multi-path signals. By measuring the channel frequency response, the multi-path effect or frequency selective fading can be observed, which is useful for adjusting the timing of SFN repeaters.



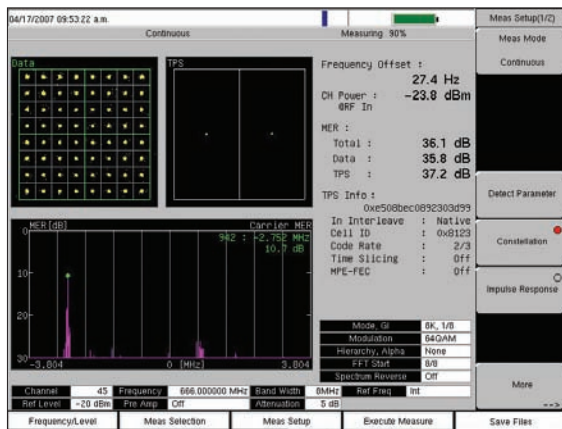
MER/Constellation Measurement

## MER/Constellation Measurement

The MER measurement function quantifies the modulation signal quality of digital broadcasting signals directly. It is essential for managing signal margin and the fixed deterioration of equipment with time, as well as for maintaining stable broadcast services.

The constellation function is very useful for analyzing the condition of the received signal by monitoring the modulation symbol movement.

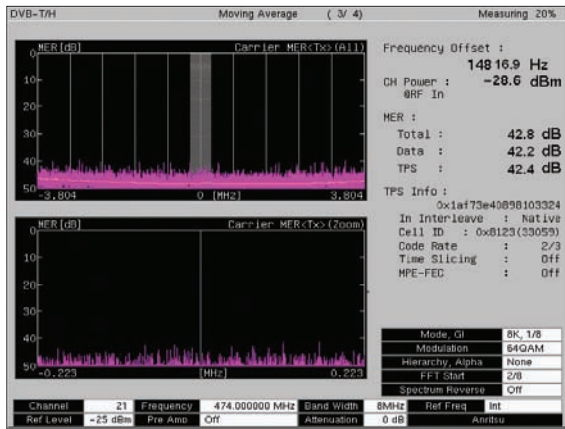
In addition, this function measures the center frequency accurately by using a proprietary advanced signal processing technique.



Merits of Measuring MER

## Merits of Measuring MER

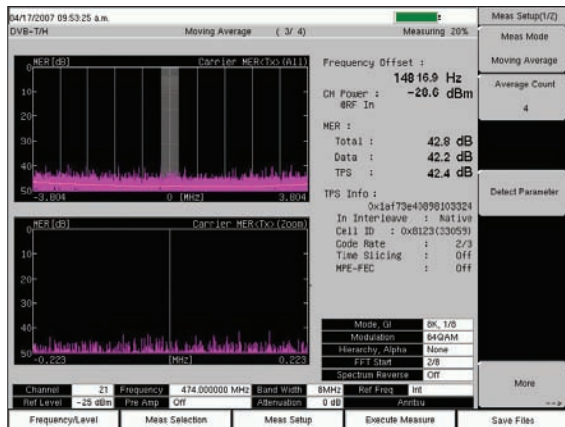
- MER indicates the signal deterioration even when BER measurement does not detect errors (error-free range), making it possible to maintain margin quality.
- MER is unrelated to modulation parameters, so one MER result is easily compared with other MER results.



Carrier MER Graph

## In-Band Interference Measurement

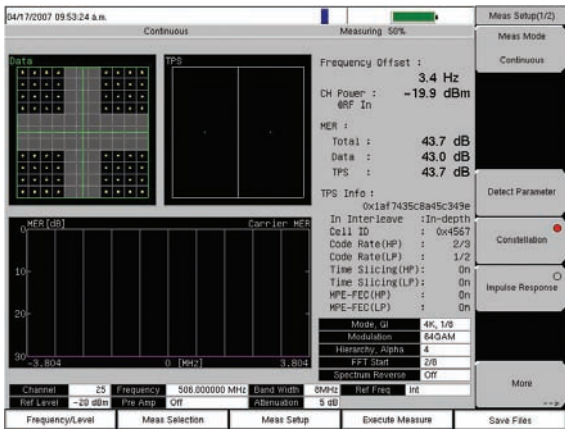
This function identifies the frequency of interference or spurious signals hiding in the bandwidth of the DVB-T/H signal, using the Carrier vs MER function.



Carrier vs MER

## Tx Meas Mode: Carrier vs MER

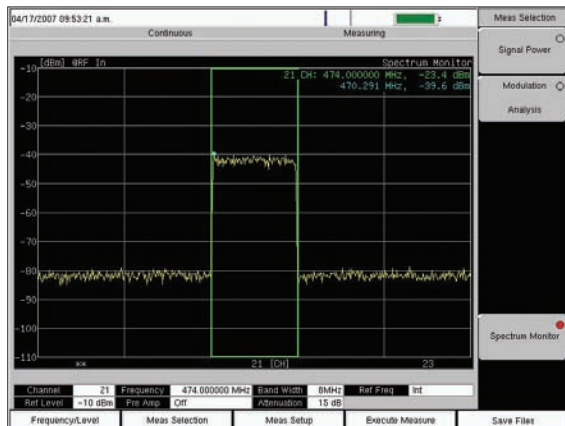
This function is very useful for transmitter installation or maintenance because it offers a very wide dynamic range (50 dB) for high-performance transmitters on the vertical scale and very precise checks of each carrier by zooming all carriers on the horizontal scale.



Constellation Display

## Troubleshooting

Option 64 uses Anritsu's proprietary analysis technology for monitoring problems, such as AM or PM. Impairments are visible on the constellation display.



Spectrum Monitor (Span = 5 Channels)

## Spectrum Monitor

This function displays the frequency response around the desired channel. The variable span supports display of up to 51 channels simultaneously, so broadcast service signals can be checked at a glance.



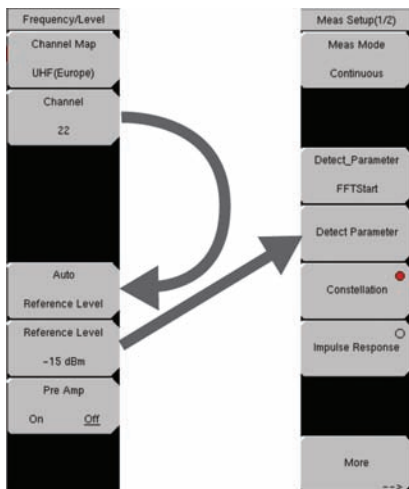
# Ease of Use

Field measurements are restricted by time, place, and the user's level of skill. Option 64 makes operation easy, so even novices can make measurements just by setting the required channel number.

The Auto Reference Level and Detect Parameter buttons set the reference level and transmission parameters automatically.



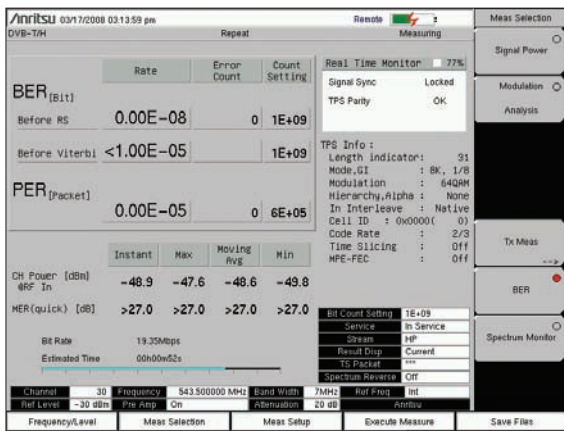
Option 64 makes operation easy



Basic Signal Analysis Operation:  
Channel to Auto Reference Level to Detector  
Parameter

# Option 57 BER

The Option 57 BER option adds BER measurement to the Option 64 DVB-T/H Measurements.



BER Measurement

## BER Measurement

This function measures the BER of actual broadcast signals. Measurement of BER is a useful index for evaluating the quality of a broadcast signal. The BER and PER can be measured simultaneously along with channel power and MER.

## DVB-ASI

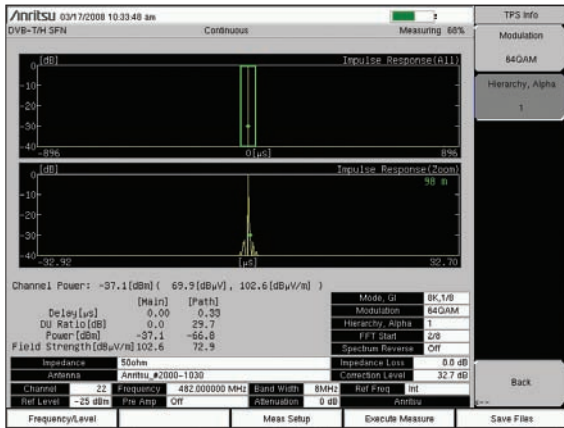
This function provides an MPEG-TS output from the DVB-ASI connector during demodulation (BER measurement).

## Functions

- BER (Bit Error Ratio) Measurement
- PER (Packet Error Ratio) Measurement
- DVB-ASI Output

# Option 78 DVB-T/H SFN Field Measurement

Option 78 DVB-T/H Single Frequency Network (SFN) Field Measurement accurately calculates the field strength of each incoming signal in single frequency network (SFN) environments.



SFN Measurement

## SFN Measurement

Measurement of field strength of each base station or broadcast station in an SFN environment becomes more difficult as the number of broadcast locations increases because the signals appear to be mixed up. This option simplifies field strength measurements of incoming signals without needing to stop broadcasts coming from non-target stations.

## Long-Term Delay

Previously, impulse response was measured as the difference in the delay time exceeding the measurement range from the actual delay time. Using this software, the measurement range is expanded to six times ( $\pm 1$  OFDM Symbol) the previous range for more accurate measurement of delay time.

## Functions

- Field Strength Measurements in SFN Environments
- Level, Delay and DU Ratio of Each Incoming Signal
- Time Delay between Signals (Time length:  $\pm 1$  OFDM Symbol length)

## Ordering Information

Please specify the model/order number, name and quantity when ordering.

### Options

|             |   |
|-------------|---|
| MS2721B-064 | DVB-T/H Analysis Option (requires Option 9) |
| MS2721B-078 | DVB-T/H SFN Option (requires Option 9)      |
| MS2721B-057 | BER Measurement (requires Option 64)        |
| MT8222A-064 | DVB-T/H Analysis Option*                    |
| MT8222A-078 | DVB-T/H SFN Option*                         |

\*The BER measurement option is not available for the MT8222A



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