

DEVISER

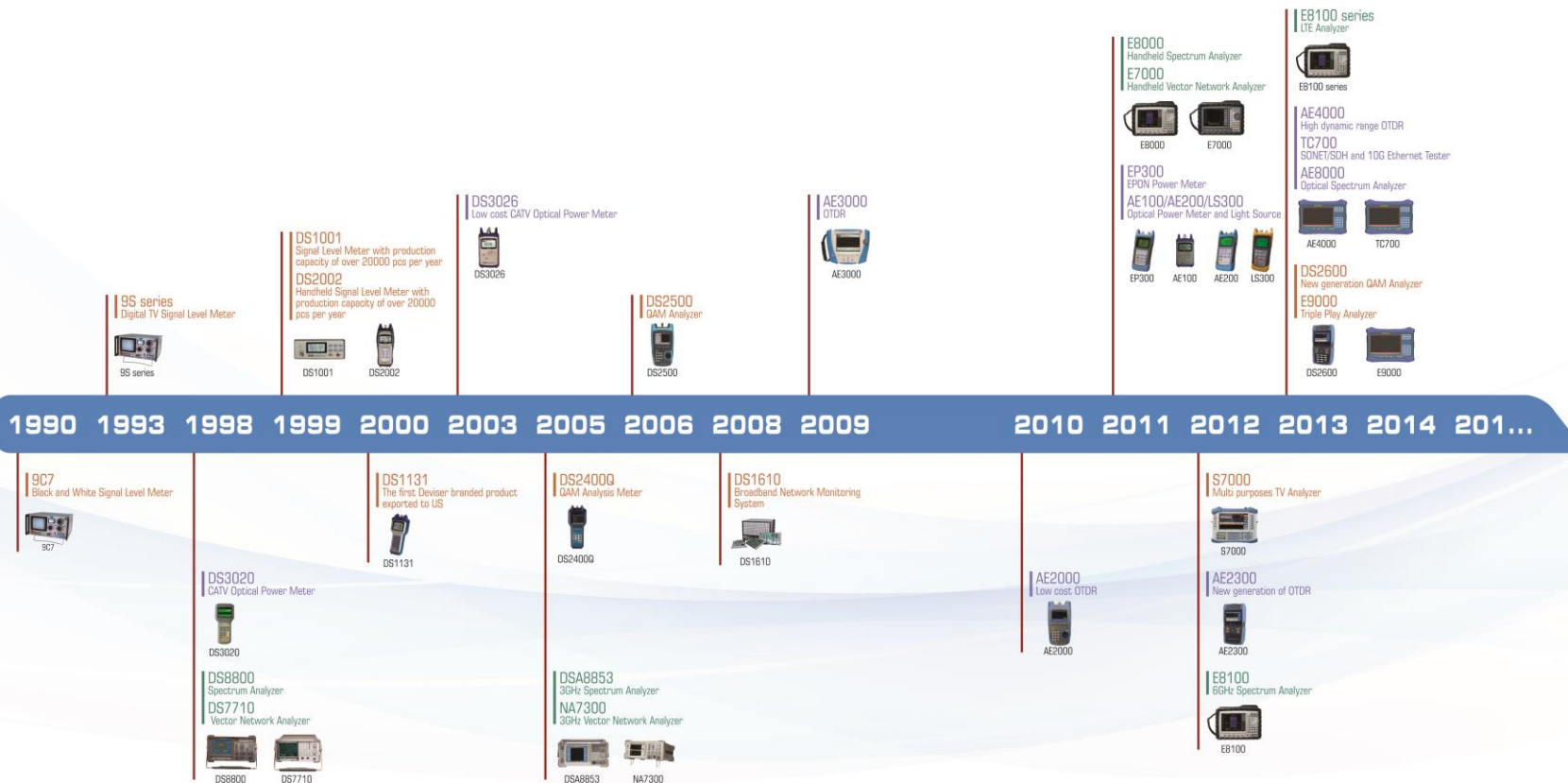
Welcome to Deviser
WELCOME TO DEVISER

1990
二十^余年
的里程和信任

Twenty years of expertise
and trust

IMGUSA AGSIL2 OF EXBELTJ26
SUD TINSF





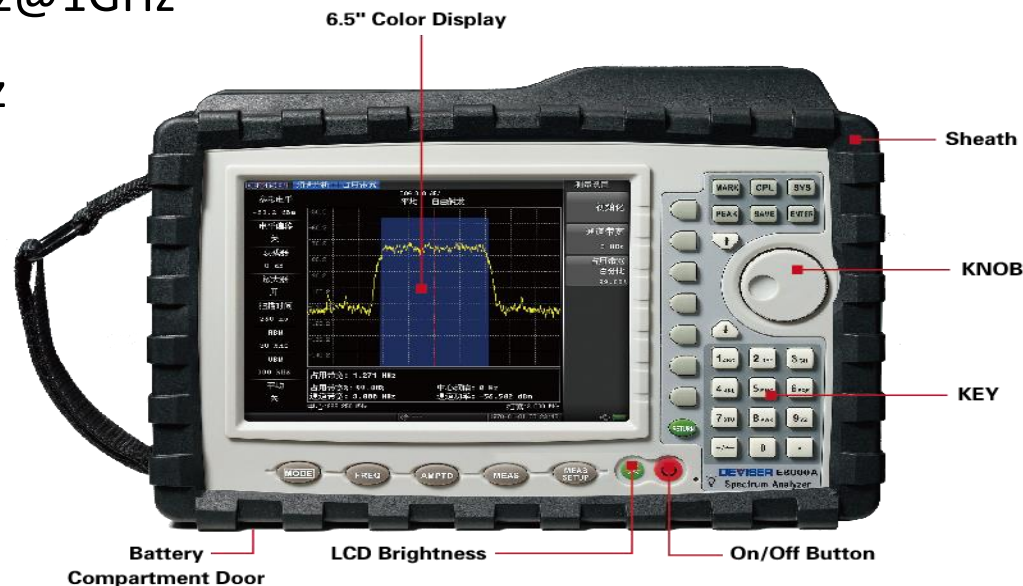
E8000A 9kHz~3.0GHz Released

E8100A 9kHz~6.0GHz 2014-Q1

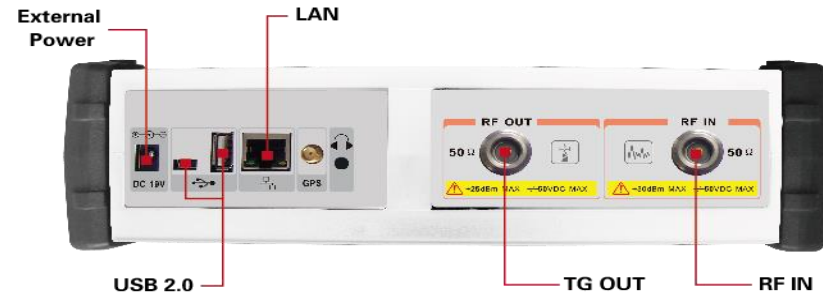


- Introduction
- Features
- PC Software
- Accessories and Options
- Competitive Analysis
- Specification

- 6.5inch TFT LCD, visible under strong light
- 9kHz~3/6GHz frequency span
- Lower DNAL -145dBm@RBW=100Hz@1GHz
- Fast sweep 1ms~250S@span>1kHz
- Large DR >90dB@RBW=100Hz
- IP3≥15dBm @ATT=0
- Phase Noise< -95dBc/Hz@10kHz



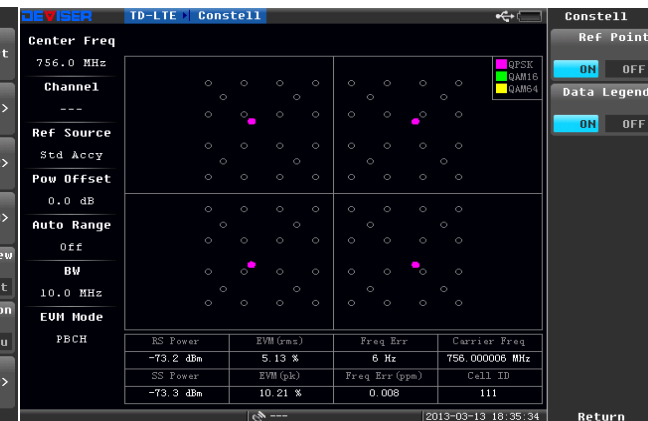
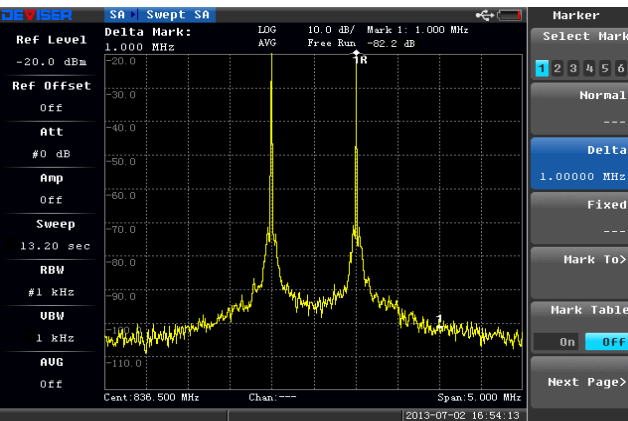
- One button test , CHP, ACP, OBW
- LAN/USB data port with SCPI
- 3/6GHz TG OPTION
- GPS option
- LTE Analysis Option
- Interference Analysis Option
- > 3.5 hours battery working time



- Introduction
- **Features**
- PC Software
- Accessories and Options
- Competitive Analysis
- Specification

Key Features:

- 3/6GHz Spectrum Analysis (SA)
- Interference Analysis (IA)
- 3GPP 2G/3G/4G Base Station Analysis LTE Analysis will be released in



Spectrum Analysis

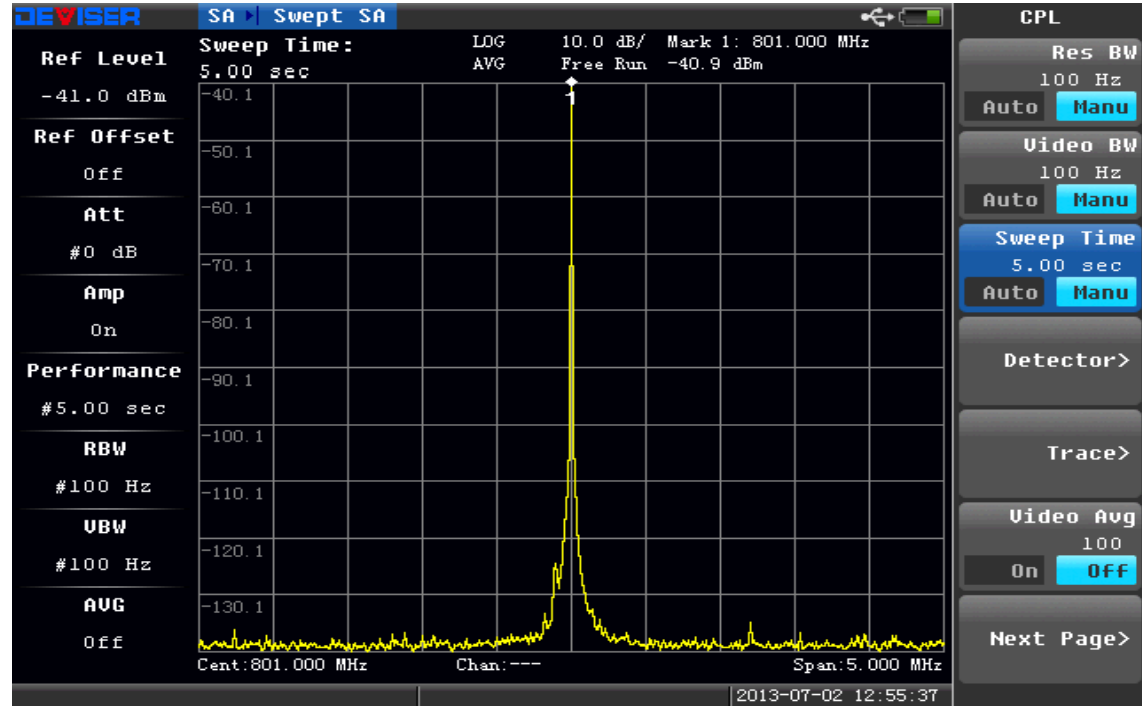
Interference Analysis

LTE Analysis

Dynamic Range

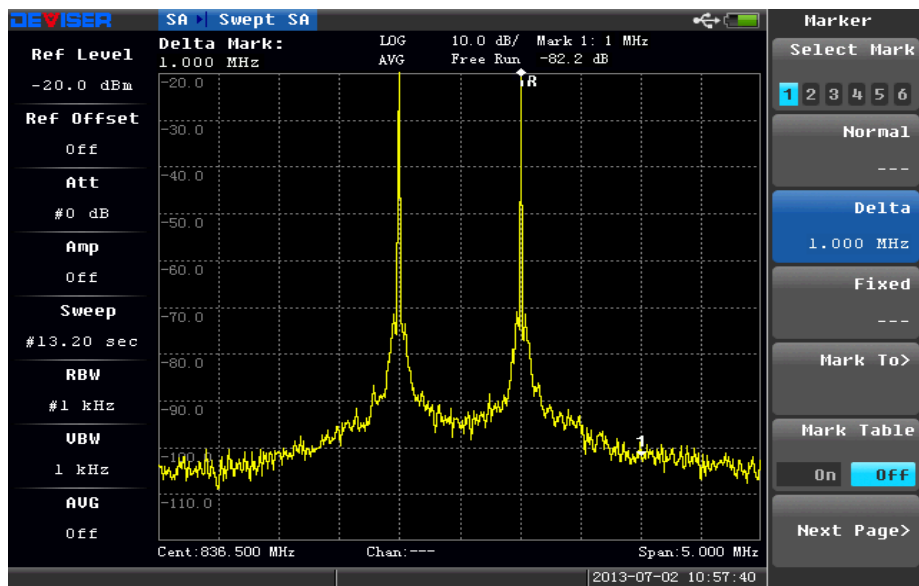
What is Dynamic Range?
Max Input level – DANL

- Input related Spurious
- Spurious
- TOI
- DANL
- Phase Noise



Large Dynamic Range
> 90 dB @ 100Hz RBW

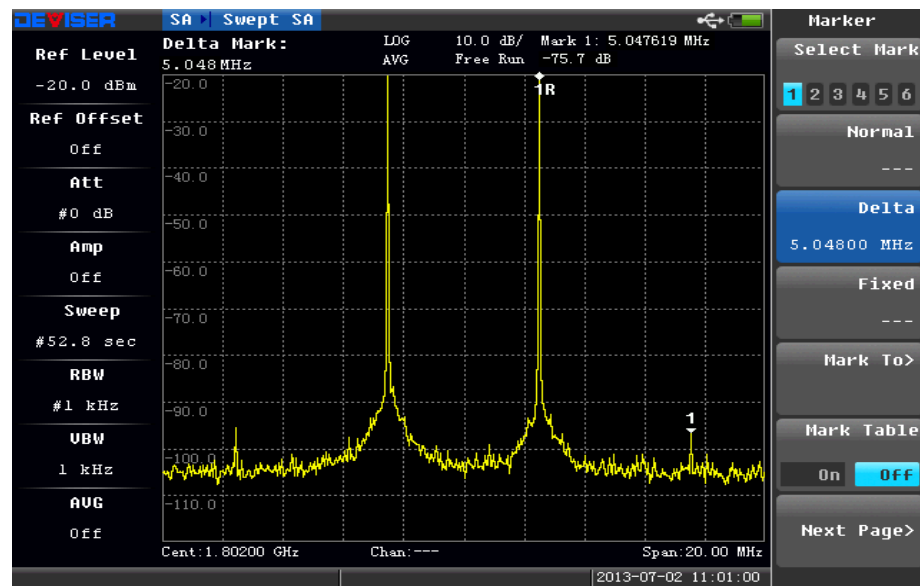
High TOI - IP3 > +15dBm @ ATT=0, -20dBm two tone input



836&837MHz , -20dBm

ATT=0dB

IM3 >80dB

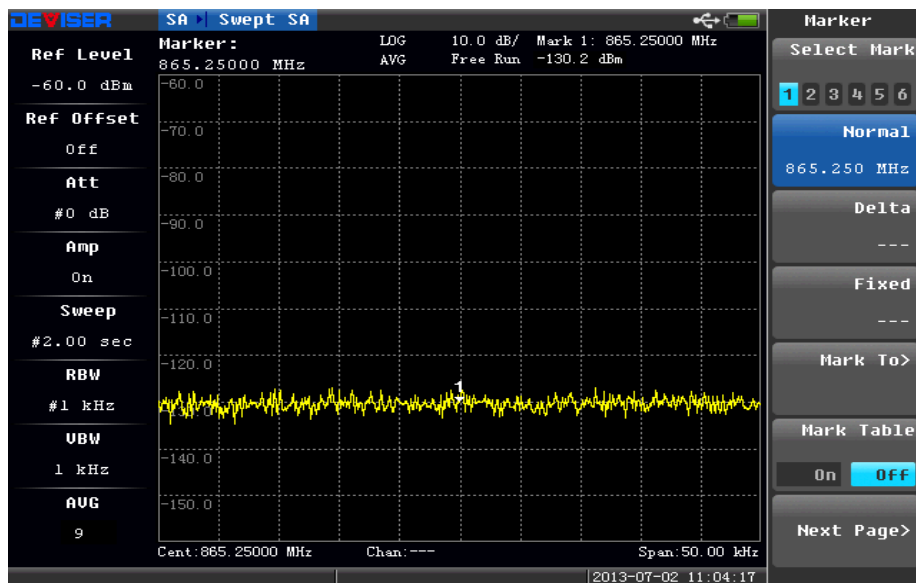


1800&1805MHz , -20dBm

ATT=0dB

IM3 >75dB

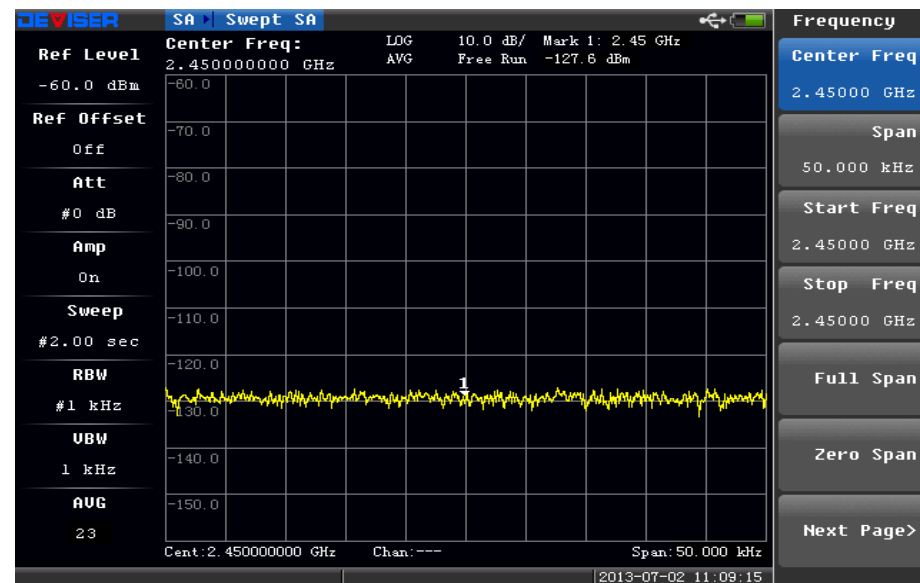
Low DANL



800MHz, amplifier=on, ATT = 0dB

DANL -135dBm@1kHz RBW

DANL -165dBm@1Hz RBW



2400MHz, amplifier=on, ATT = 0dB

DANL -131dBm@1kHz RBW

DANL -161dBm@1Hz RBW

Spectrum Analysis - Fast sweep and helpful for catch impulse signal

Full span:

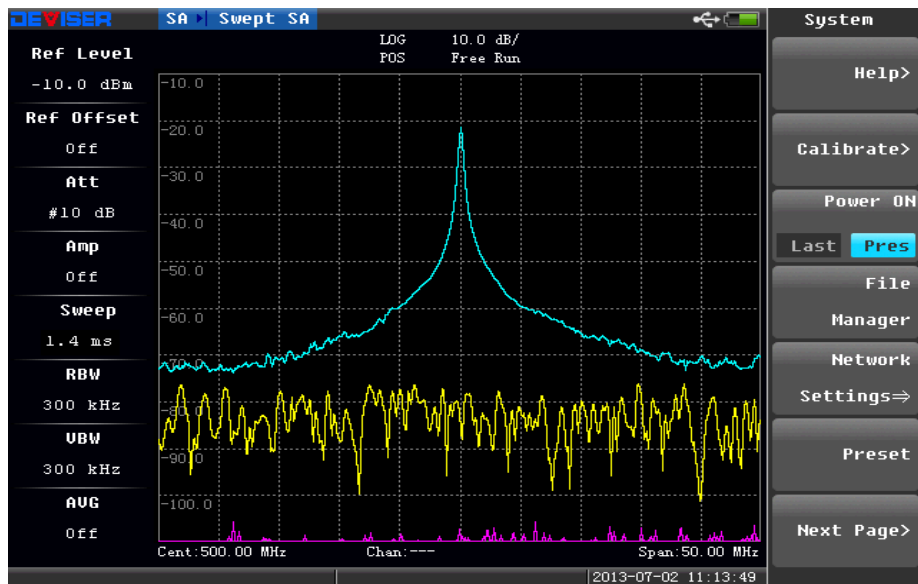
60mS

Span > 1kHz:

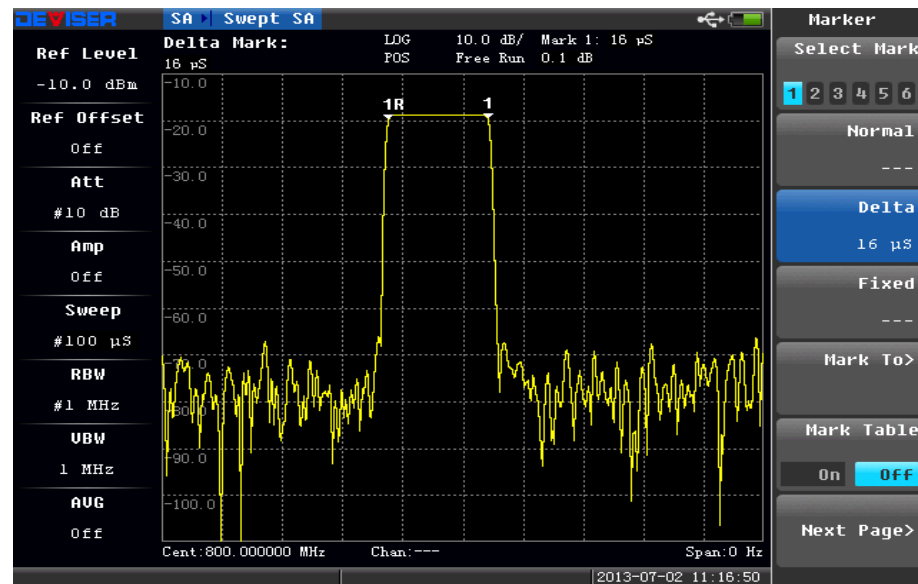
1mS – 250S

Zero span:

20 μ S – 250S



SPAN≠0 1mS-250S



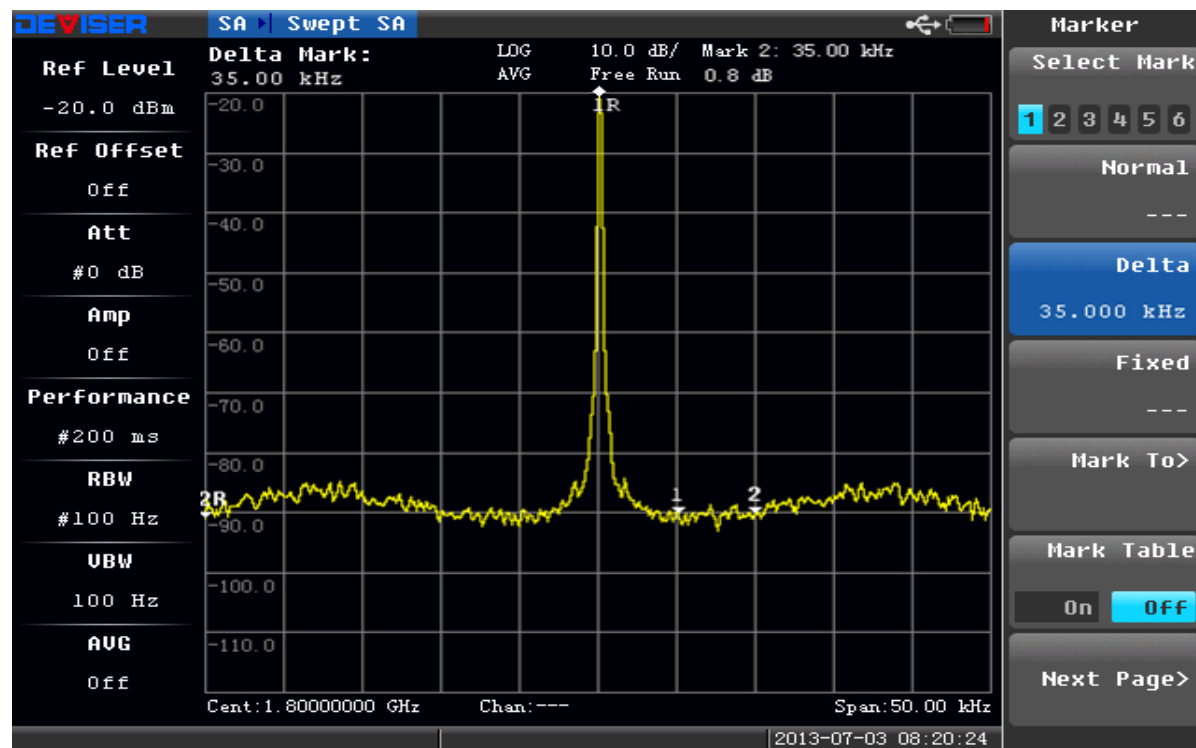
SPAN=0 20 μ S-250S

Spectrum Analysis - Lower phase noise

<-85dBc/Hz@1kHz

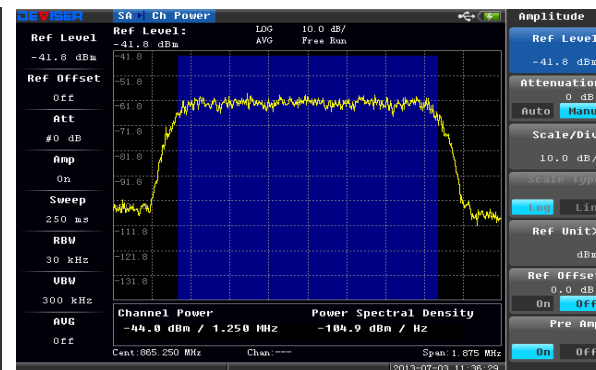
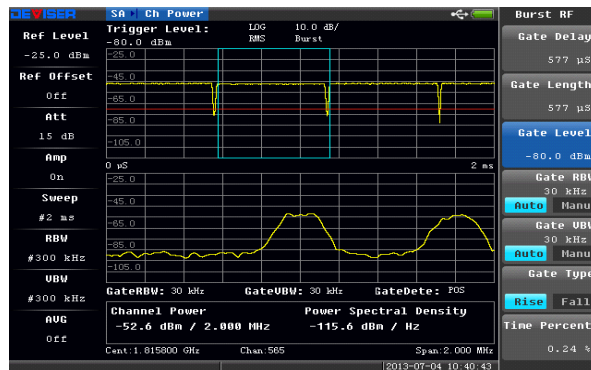
<-95dBc/Hz@10kHz

<-105dBc/Hz@100kHz

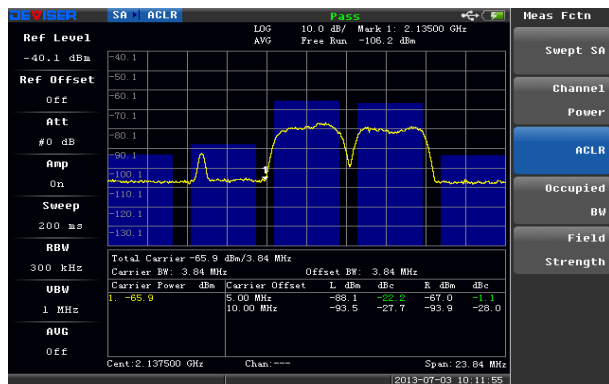


Spectrum Analysis - One Button Testing

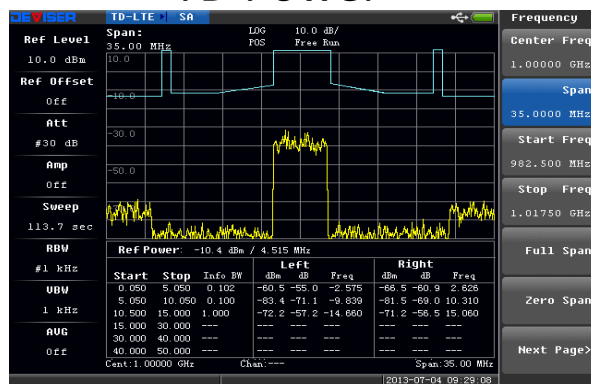
- CHANNEL POWER
- ACP
- OBW
- SEM



TD Power

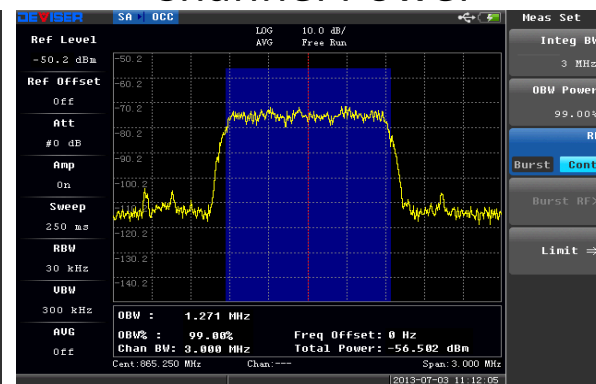


ACLR



SEM

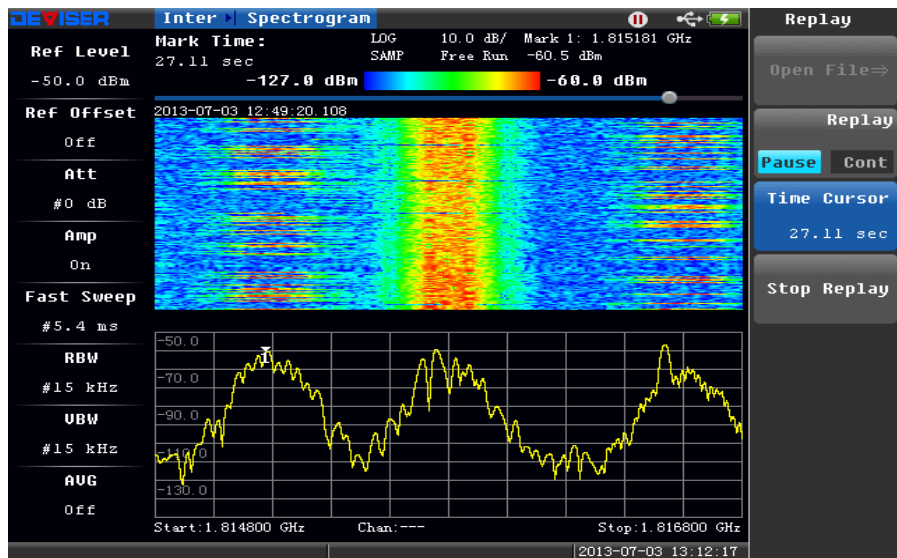
Channel Power



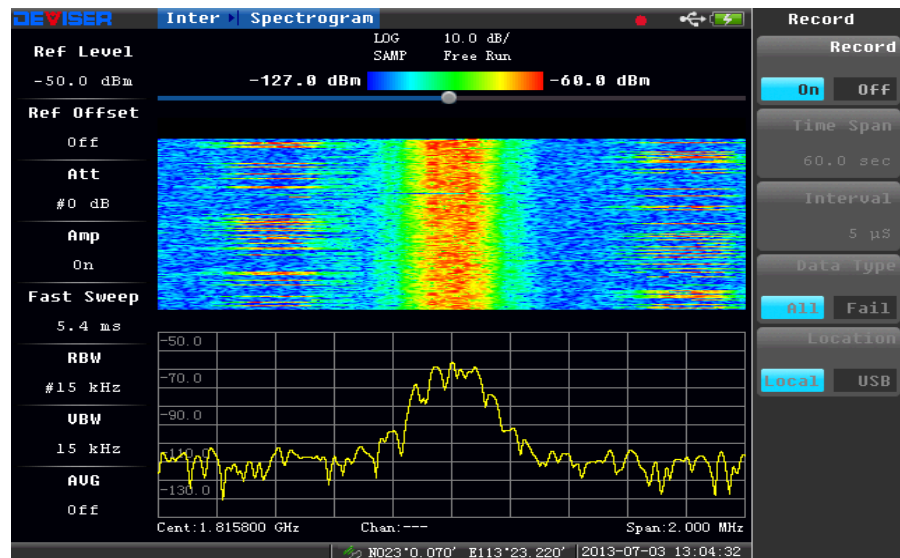
OBW

Interference Analysis — Spectrogram

- Monitoring Spectrum over time
- Save/recall a history of data up to 3 days
- Save/recall a history of warning data up to 3 days



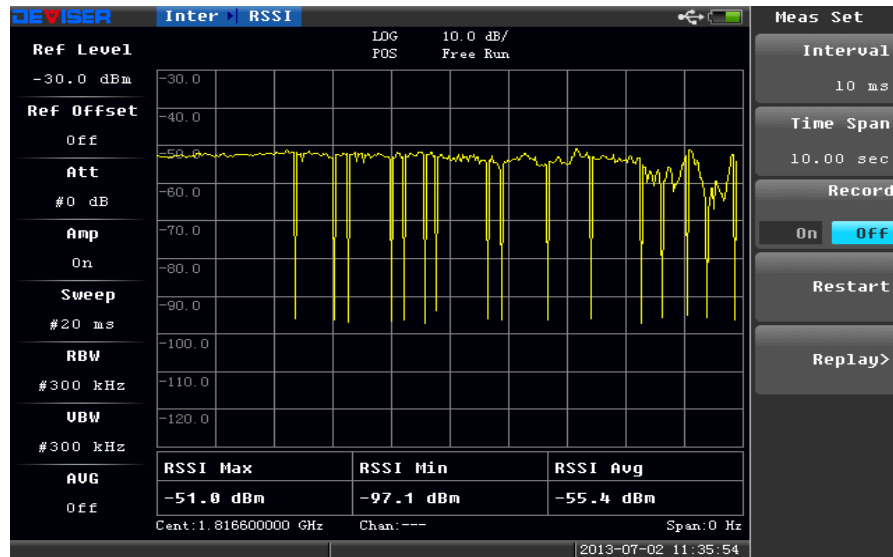
Spectrogram replay



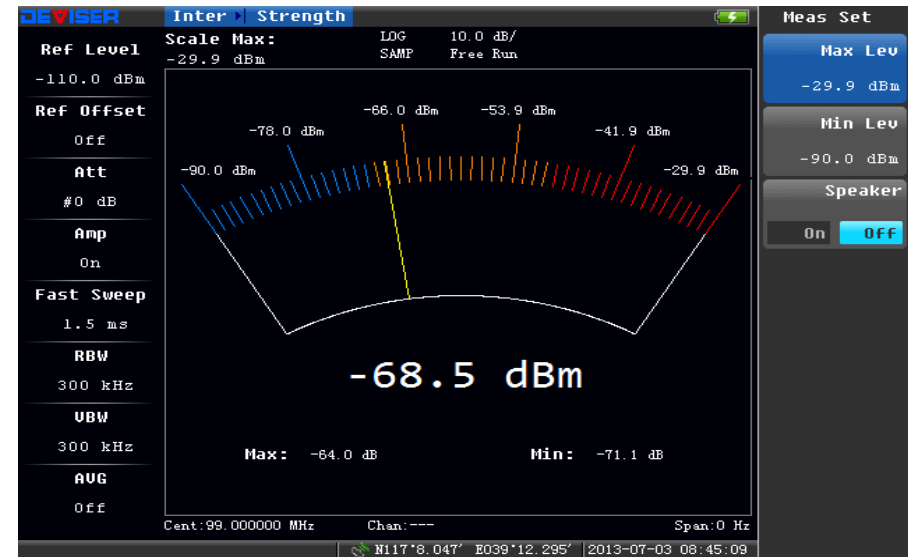
Spectrogram and Auto save

Interference Analysis — Signal Strength

- Monitoring Signal Strength
- An Audible beep proportional to the Signal Strength
- RSSI monitor/save Signal Strength data up to 10 days



RSSI



Signal Strength

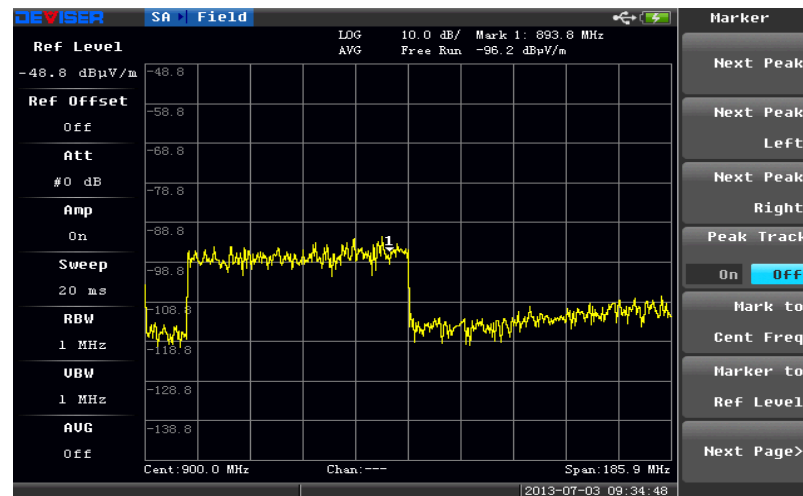
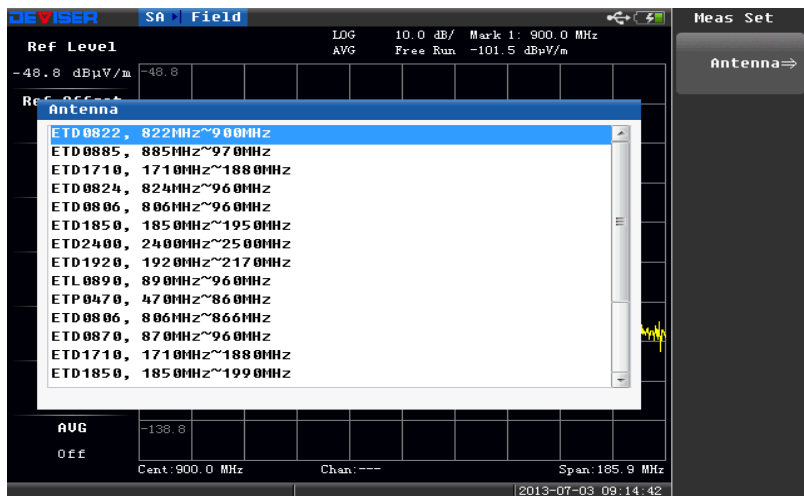
Interference Analysis — Interference mapping

- With GPS and compass to triangulate interfering signal
- GPS identifies the location on the map
- Compass identifies direction of the antenna
- The additional map can be imported from USB disk
- GPS and Compass are designed inside of the directional antenna



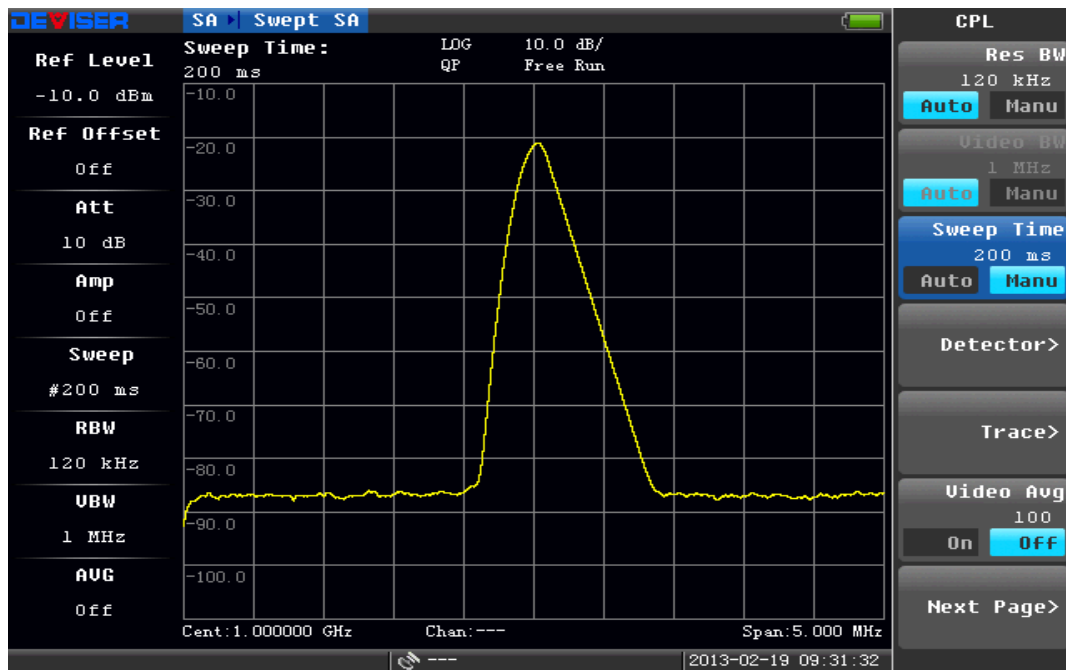
Interference Analysis — Field Strength

- The Antenna factor can be imported from USB disk



Interference Analysis —EMI Test

- 6dB RBW
200Hz/9kHz/120kHz
- Detector mode
Quasi-peak
Peak
Avg.

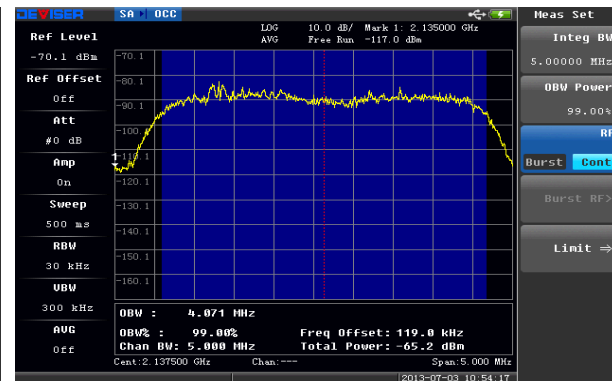
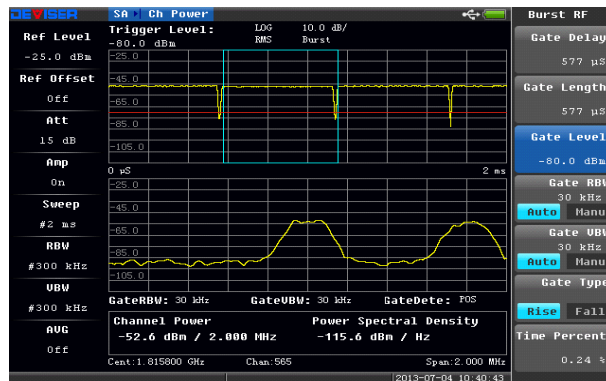


Interference Analysis — AM/FM/SSB demodulation and monitoring

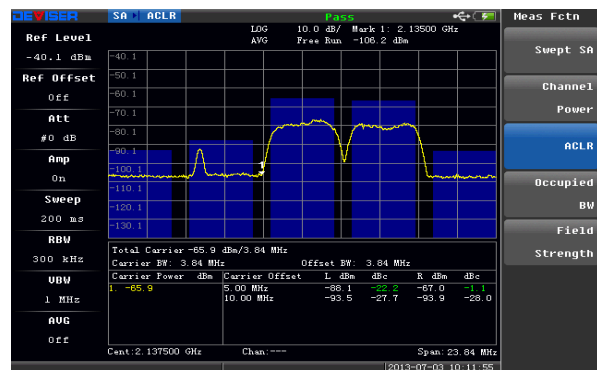
- Demodulate AM/FM/SSB signal
- Listen the signal and figure out what it is

Base Station Analysis — RF measurements

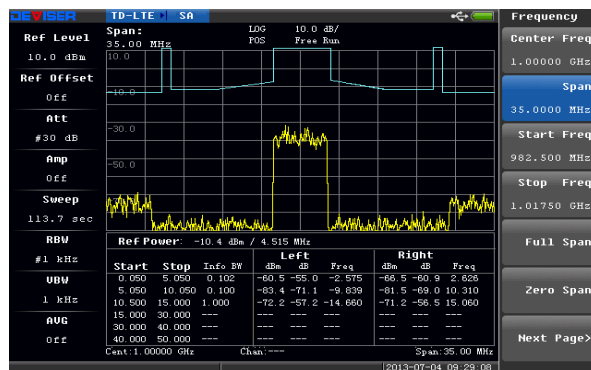
- CHANNEL POWER
- ACLR
- OBW
- SEM



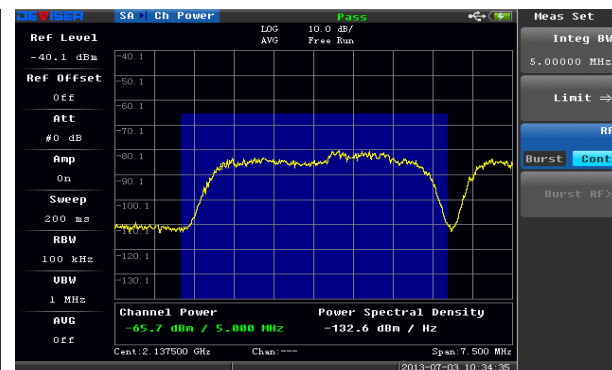
Power vs. Time



ACLR



SEM

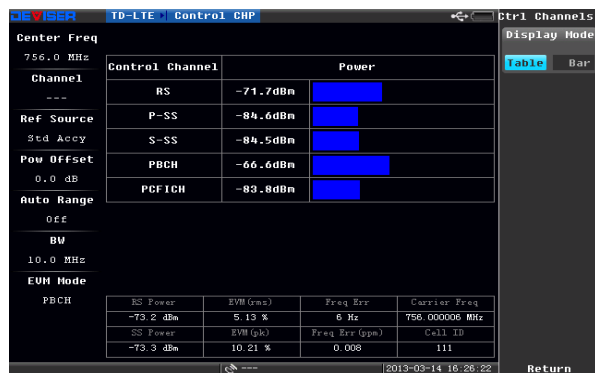


OBW&Channel Power

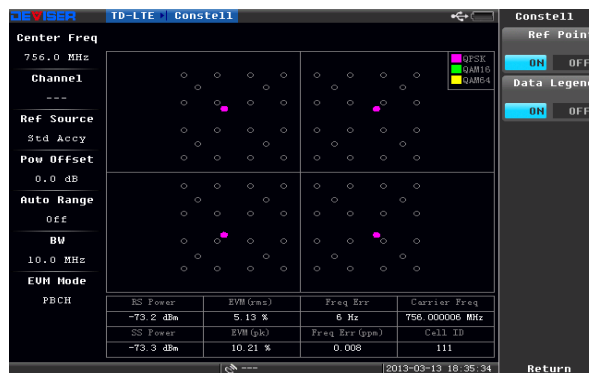
Channel Power

Base Station Analysis — Demodulation Measurements

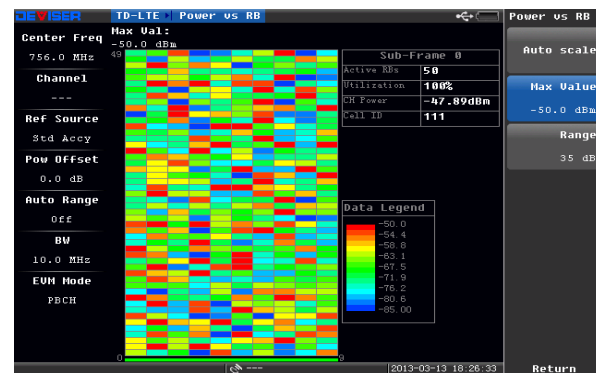
- Power vs. Resource Block (RB)
- Constellation (EVM/frequency error)
- Control Channel (CCH) Power



CCH Power



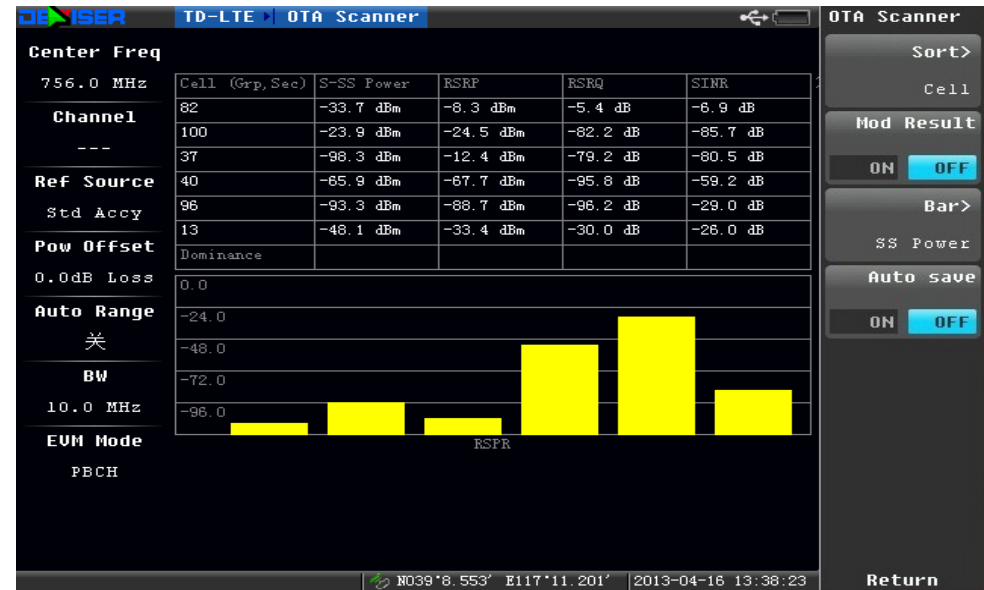
Constellation/EVM



Power vs. RB

Base Station Analysis – OTA Measurements

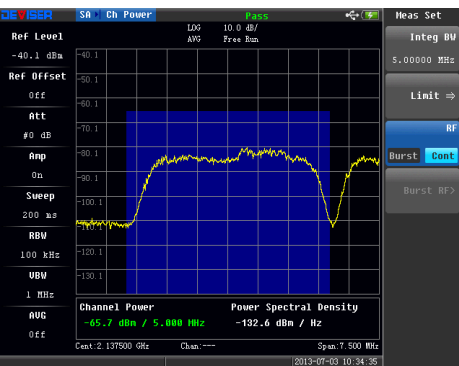
- SS-P
- RSRP/RSRQ/SINR
- Cell/Sector/Group ID
- Auto save with GPS
- Tagging information



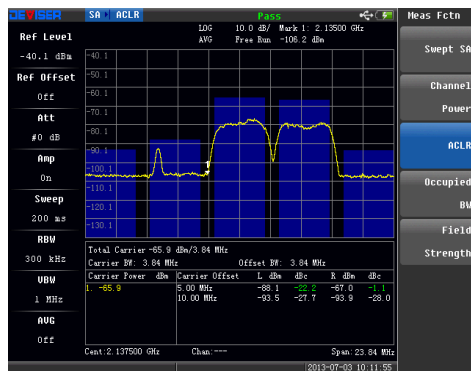
E8000A series spectrum analyzer includes LTE-TDD/FDD signal analysis option for downlink signal quality measurement to ensure the quality of signal coverage of base station and identify the possible interference. There are three portions of test: RF testing, signal modulation quality testing and over-the-air testing.



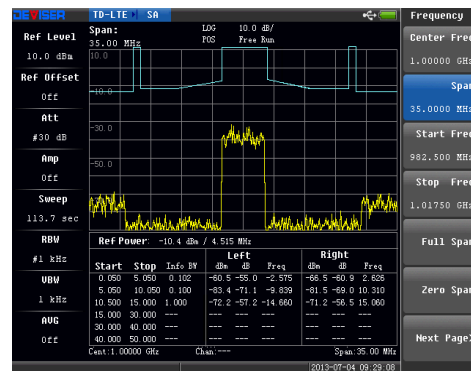
RF test includes Channel Power, Occupied Bandwidth (OBW), Adjacent Channel Leakage Ratio (ACLR), Spectrum Emission Mask (SEM) and Power vs. Time (PVT) measurement. All test results can be exported and printed. PVT measurement applies to LTE-TDD specifically.



Channel Power and OBW



ACLR



SEM



PVT

Signal modulation quality test is used to measure Error Vector Magnitude (EVM), Channel Power and Resource Block (RB) power of control channels, EVM analysis on sub-carrier, co-channel interference (CCI) ...etc. All measurement results can be formatted in a report to export.

RB power measurement provides RB quantity, RB utilization, channel power, Cell ID ... etc. metrics.

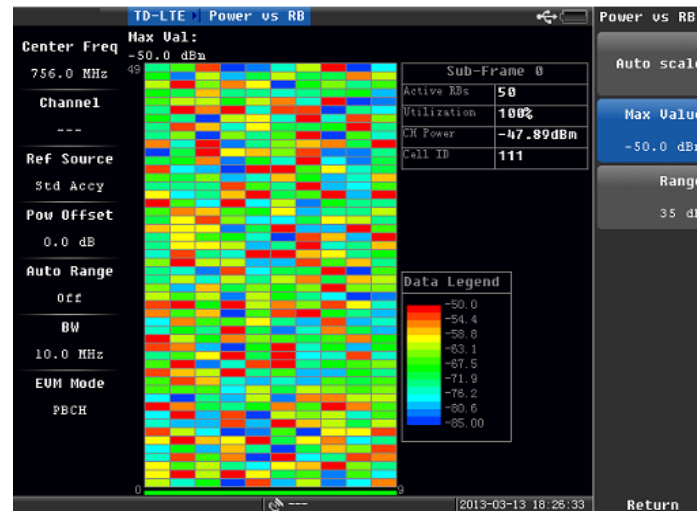
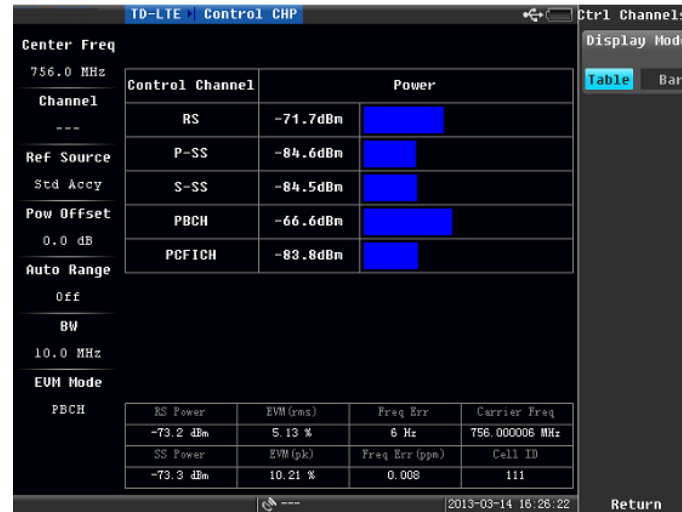


Table of Control Channel Power

Control channel power of Reference Signal (RS), Synchronization Signals (PSS and SSS), Physical Broadcast Channel (PBCH), Physical Control Format Indicator Channel (PCFICH), Physical Hybrid ARQ Indicator Channel (PHICH) and Physical Control Channel (PDCCH) are displayed in table and bar graph formats.

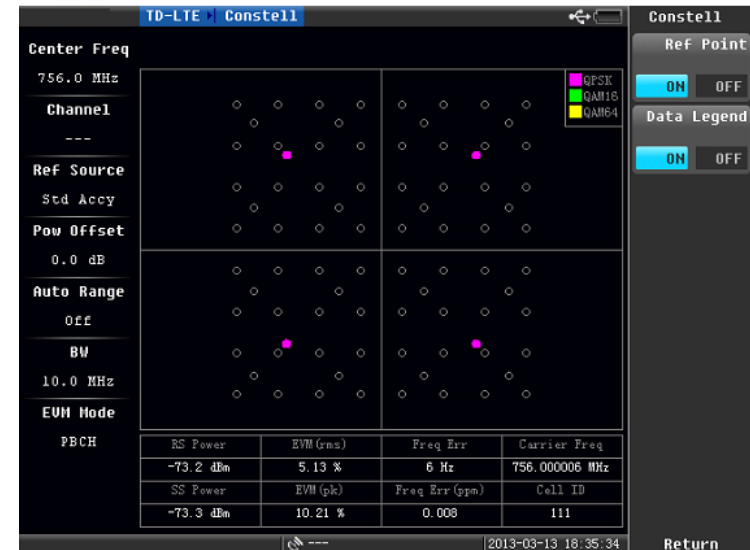


RS/SS/PBCH/PCFICH/PHICH/PDCCH Power Measurement

Constellation analysis is used to test LTE-TDD/FDD signal quality to ensure the signal coverage can be received by network terminals and any potential problems.

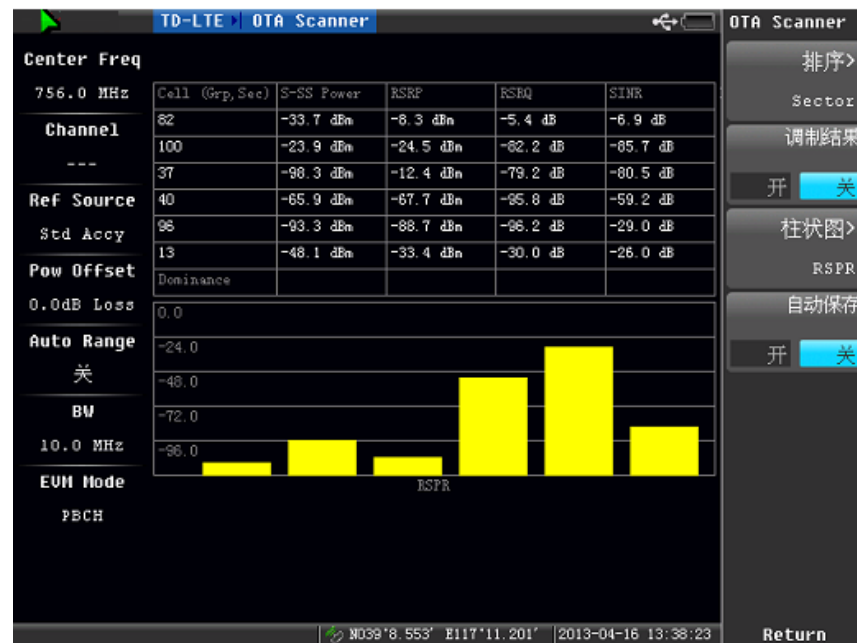
Test measurement metrics are:

- Reference Signal Channel Power / Synchronization Signal Channel Power
- EVM – Peak & Root Mean Square (RMS)
- Sub-Carrier EVM for in-band interference
- Frequency Deviation / Cell ID

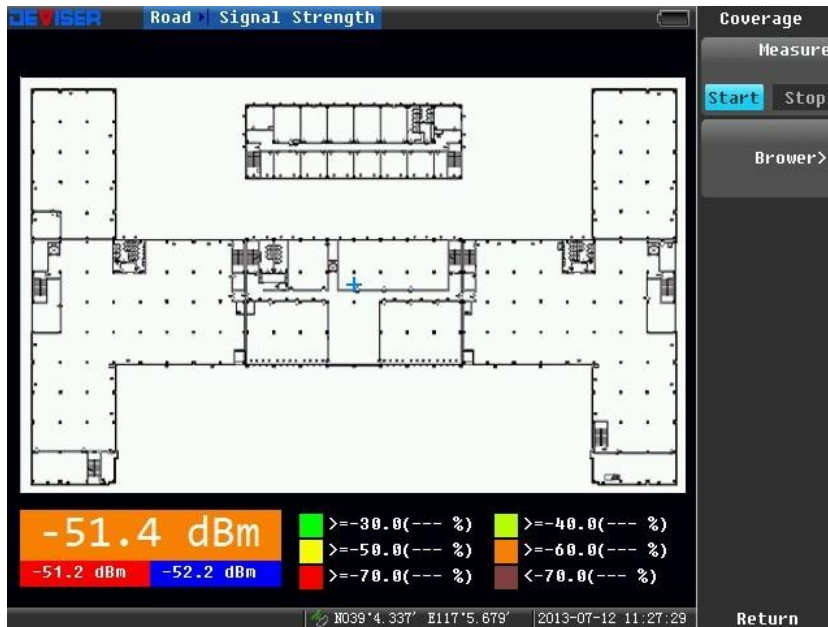


Over-the-Air test measures the quality of covered signal with signal sweep, GPS, electronic compass, output signal coverage and outdoor geographical mapping.

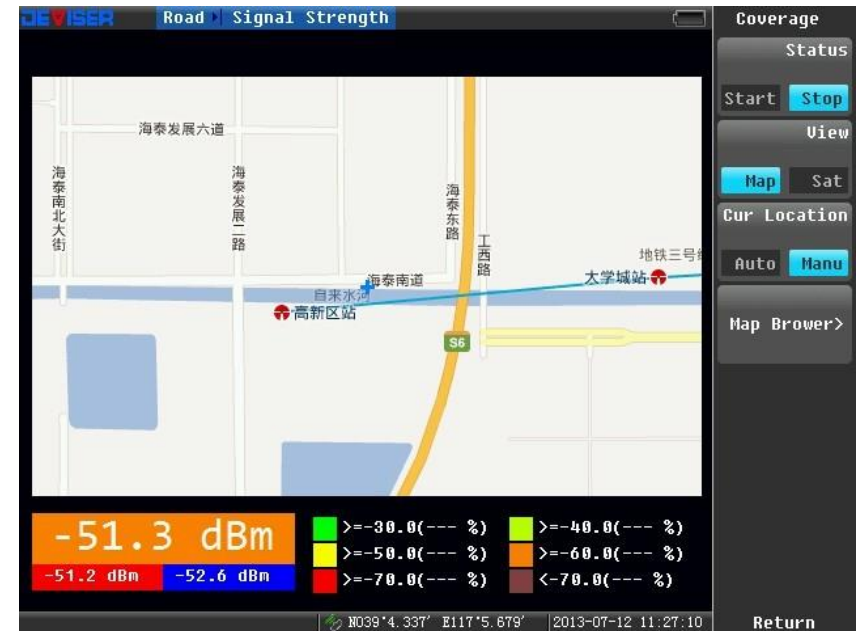
- Signal sweep provides fast measurement of SS power, Reference Signal Receive Power (RSRP), Reference Signal Receive Quality (RSRQ), Signal to Interference plus Noise Ratio (SINR) and Cell ID. GPS information can be recorded and exported to the geographical mapping tool.



- Signal Coverage Map reflects the signal coverage of the area. Coverage measurement indicators can be CW signal strength or LTE mobile signal quality (synchronization channel power, reference signal power, Cell ID) etc.



Outdoor Signal Coverage



Indoor Signal Coverage

Tracking Generator Option

- Frequency Range 10MHz – 3000/25M – 6000MHz
- Level Range -50dBm – 0dBm
- Level Resolution 1dB
- Level Accuracy ± 2 dB
- Output Port N-F



Interface

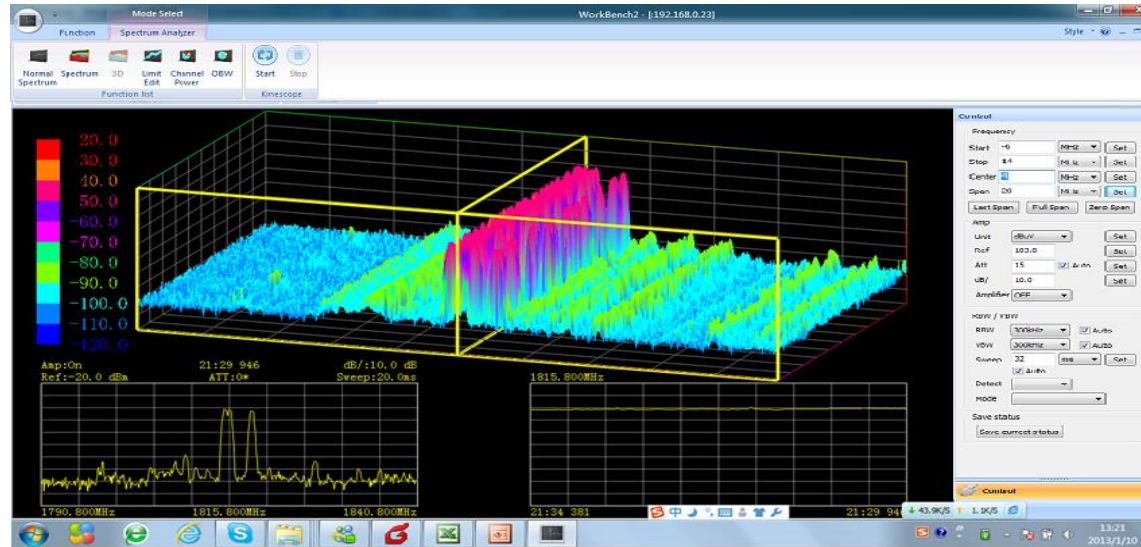
- 10M/100M LAN port
SCPI program command
- 2 USB port
USB1.1 and USB2.0
for import and export file
support USB printer



- Introduction
- Features
- **PC Software**
- Accessories and Options
- Competitive Analysis
- Specification

PC software

- It supports Max. 64 E8000A series or E8001M module connection
- Remote control via LAN port
- File import and export
- SCPI compatible programming interface



Monitoring multi-SA

- Introduction
- Features
- PC Software
- Accessories and Options
- Competitive Analysis
- Specification

Accessories

- Analyzer
- AC adaptor
- Car Cigarette Lighter 12 VDC Adapter
- Soft Carrying Case
- Li-on Battery
- User Manual
- CD with PC tool software



Options

- Tracking Generator
- Power Meter
- LTE Analysis
- Interference Analysis



- Introduction
- Features
- PC Software
- Accessories and Options
- **Competitive Analysis**
- Specification

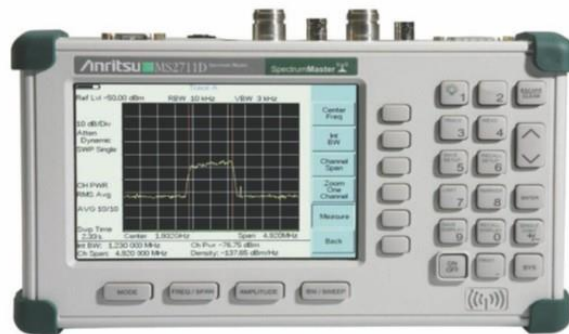


E8000A
N9340B

VS



MS2711E
MS2711D



To see the complete competitive analysis spreadsheet please review the excel file:
[E8000 Deviser vs Anritsu vs Agilent Competative Analysis.xls](#)

- Introduction
- Features
- PC Software
- Accessories and Options
- Competitive Analysis
- **Specification**

Specifications

- **Frequency Specifications**
- **Frequency Range** 100 kHz to 3000 MHz
- **Frequency Reference**
 - Aging** ± 1 ppm per year
 - Stability** ± 1 ppm
 - Temperature Stability** ± 2 ppm (0 to +50°C)
- **Marker Count Accuracy (S/N 25 dB, RBW/span 0.01)**
 - Accuracy** ± 2 ppm, ± 1 count
 - Counter Resolution** 1 Hz
- **Frequency Span** 0 Hz (zero span), 1kHz to 3000 MHz

- **Sweep**
 - 1mSec to 250 sec (span > 200 Hz)
 - 20 μ Sec to 250 sec (span = 0 Hz)
- **Trigger Type**
 - free run, single, video, TV
- **Resolution Bandwidths**
 - Range** 10Hz to 3 MHz in 1-3-10 sequence
 - Bandwidth Accuracy** < \pm 10%
 - Selectivity (60 dB/3 dB Bandwidth Ratio)** < 5:1
- **Video Bandwidths**
 - 3 Hz to 1 MHz in 1-3-10 sequence
- **Phase Noise**
 - < -105dBc/Hz @ 100 kHz offset from CW signal
 - < -95 dBc/Hz @ 10 kHz offset from CW signal
 - < -85 dBc/Hz @ 1 kHz offset from CW signal

Specifications

- **Amplitude Specifications**
- **Measurement Range** displayed average noise level to maximum safe input level
- **Input Attenuator**
 - Range** 0 dB to 50 dB
 - Step** 5dB
- **Internal Preamplifier**
 - Frequency Range** 1 MHz to 3000 MHz
 - Gain** 15 dB
- **Max Safe Input** +30dBm (peak power/input attenuation >15 dB), 100 VDC

Specifications

- **DANL (Input Terminated, 0 dB Attenuator, RBW=10Hz, VBW=3Hz, Sample Detector)**
 - Pre-amplifier OFF (typical)
 - < -142 dBm 1MHz ~ 1GHz
 - < -138 dBm 1GHz ~ 3GHz
 - Pre-amplifier ON (typical)
 - < -155 dBm 1MHz ~ 1GHz
 - < -151 dBm 1GHz ~ 3GHz
- **Spurious Responses**
 - Second Harmonic** < -68dBc for -20 dBm signal at input mixer
- **TOI** >+15dBm (two -20 dBm signals at input mixer with > 1 MHz separation and att=0)
- **Residual Responses (Input Terminated and 0 dB Attenuator)**
 - < -85 dBm 1 MHz to 3000 MHz

Specifications

Display Range

- **Log Scale** 0.1 to 1 dB/div in 0.1 dB step 1 to 40 dB/div in 1 dB step
- **Linear Scale** 10 divisions
- **Scale Units** dBm, dBmV, dB μ V, mV
- **Marker Readout Resolution** 0.03 dB for log scale
0.03% of ref level for linear scale

Specifications

- **Traces** 3 traces
- **Trace Detector** sample, posi-peak, neg-peak, normal, average
- **Marker Functions** peak, next peak, marker to center, marker to ref, etc.
- **Marker Display** normal, delta, fix marker & frequency counter
- **Reference Level** -130 dBm to +30 dBm
- **Level Accuracy** $< \pm 1 \text{ dB @ } +25^{\circ}\text{C}$ (typical)

Specifications

- **Inputs/Outputs**

- **RF INPUT**

Input

N-F

Input Impedance

50Ω

- **USB PORT**

USB 2.0 port and USB 1.1 port

- **LAN port**

10M/100M RJ45

- **CHARGER**

Battery charger connection

- **Power Specifications**

Battery Type

11.1V @ 5.2Ah Lithium-Ion

Charge Time

< 5 hours

Operating Time

> 3.5 hours

> 2.5 hours with TG

AC Adapter

19 VDC @ 3.42A

Specifications

- **TG (tracking generator) OUT**

Output

N-F

Frequency Range

10 MHz to 3000 MHz

Phase Noise

< -70 dBc/Hz @ 10 kHz

Level Range

-40 to 0 dBm

Level Accuracy

± 2 dB

Harmonic Distortion

< -20 dBc

Non-Harmonic Distortion

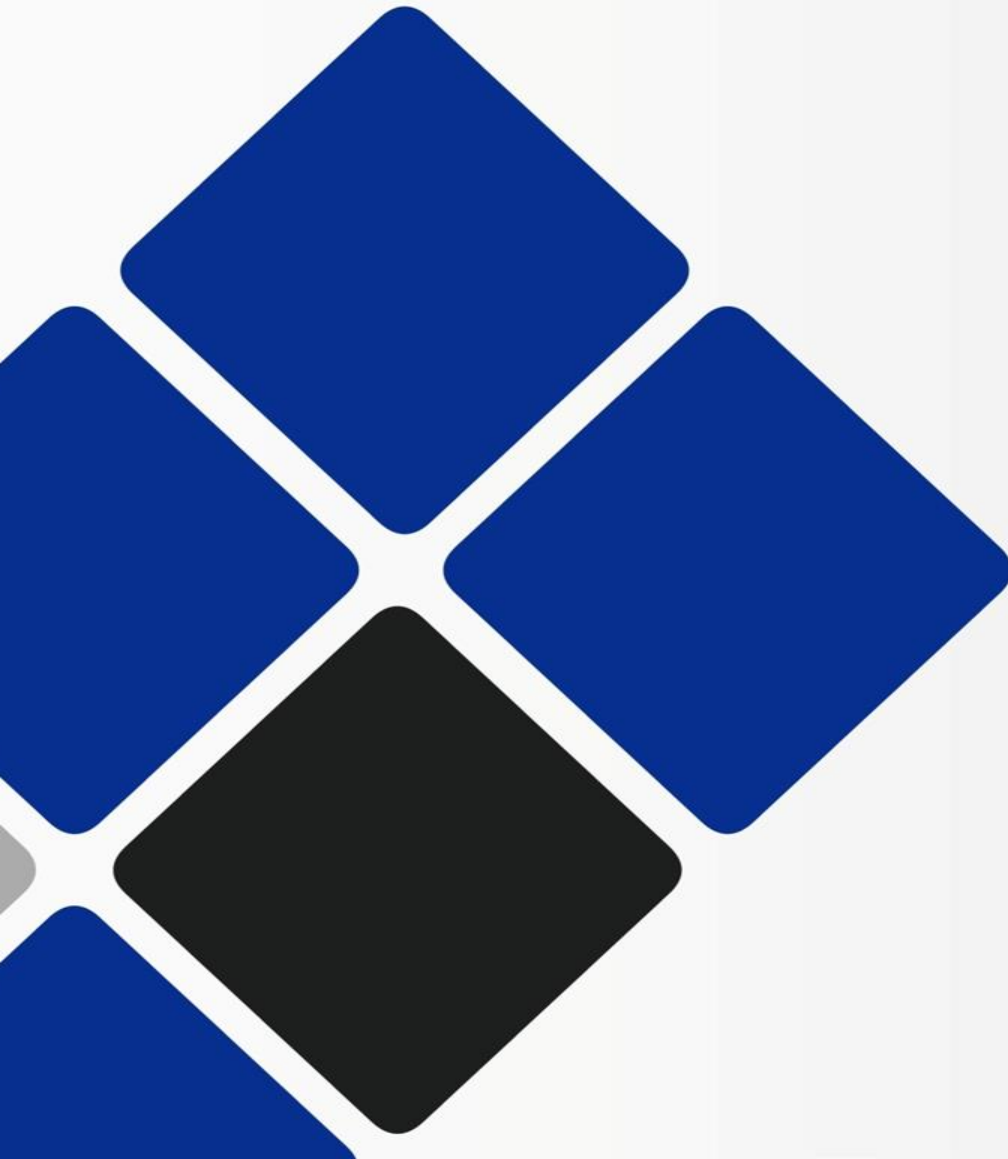
< -30 dBc

Output Impedance

50 Ω

Other Specifications

- **Temperature, Operating** -10°C to +55°C
- **Temperature, Storage** -30°C to +80°C
- **Dimensions (W x H x D)** 258 mm x 173 mm x 74 mm
- **Weight (With Battery)** <2.2 kg
- **Display Type** 6.5 inch TFT color LCD
- **Display Resolution** 640 X 480 pixels
- **Language** Chinese, English



DEVISER

Thank you
Thank you