

## S7200 TV Signal Analyzer

### Key Benefits

- All-In-One TV Signal Analyzer:
  - Digital TV: DVB-C/C2/T/H/T2/S/S2
  - Video Decoder: MPEG2/4/H.264/VC-1, SD/HD
  - Handheld Transport Stream Analysis
  - Fast Spectrum Analysis
  - IPTV Analysis
- Internal Wi-Fi Receiver
- Dolby Digital



### Overview

The S7200 TV Signal Analyzer provides fast, easy real-time analysis and monitoring of terrestrial, cable, and satellite TV signals (8VSB, QAM [J.83A/B/C2], QPSK, 8PSK, and PAL, SECAM, & NTSC RF Channels). The range of capabilities offered by the S7200 includes all measurements required to install, maintain, and troubleshoot 8VSB transmitters and includes complete RF analysis and logging, along with transport stream recording.

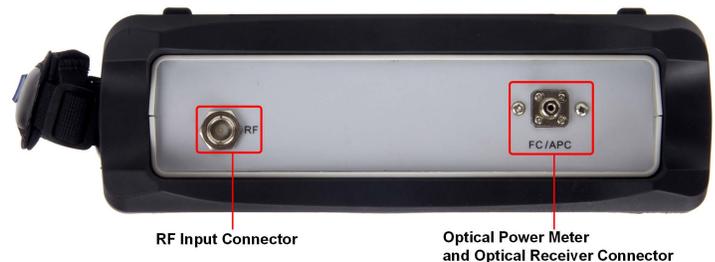
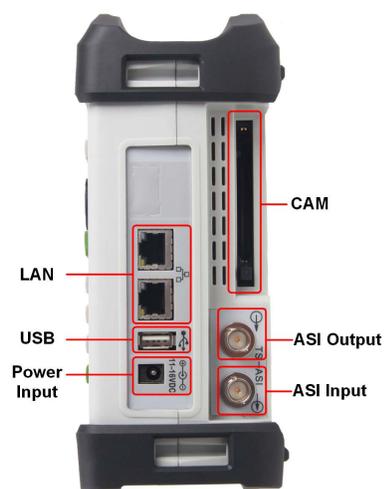
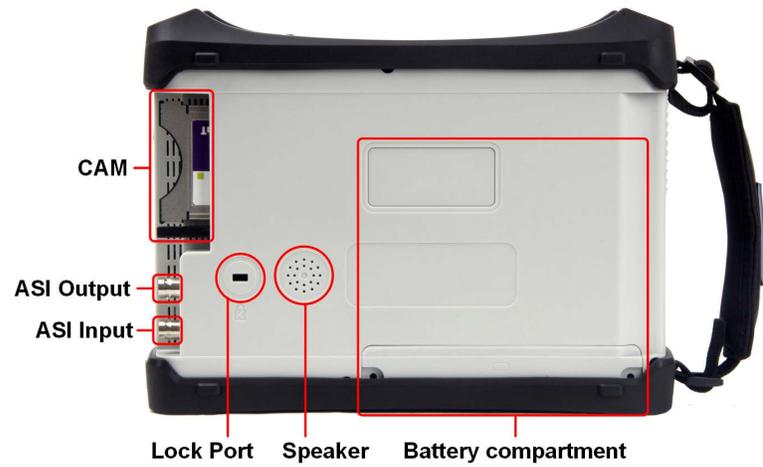
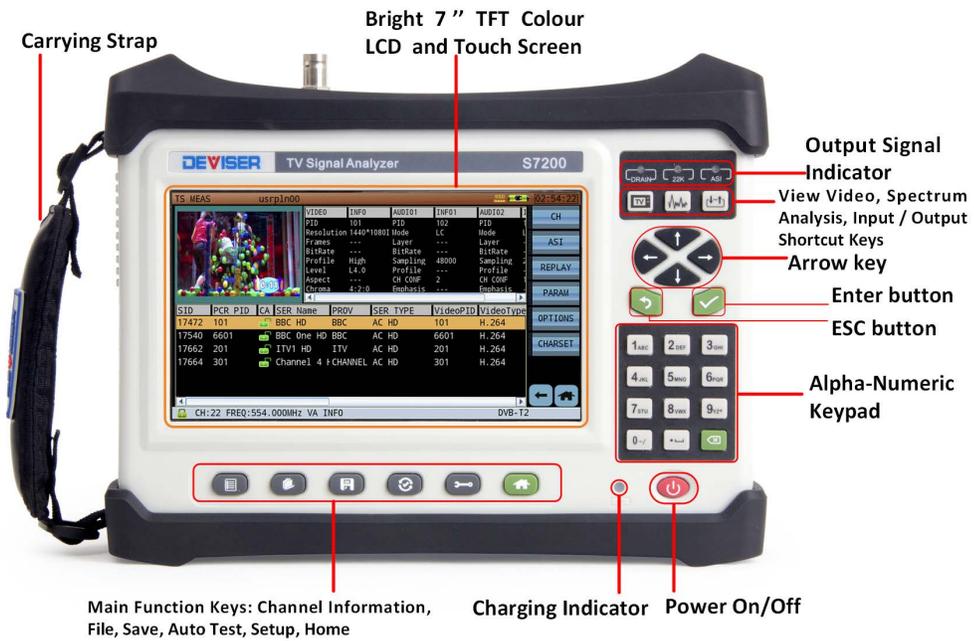
### Main Features

- Digital/Analog TV and Digital Satellite TV analysis
- MPEG2 Transport stream analyzer and monitoring via TS-ASI input & RF input
- High Speed Spectrum Analysis: frequency range 5 ~ 2150 MHz, max span 1200MHz
- Video decoding of MPEG2, MPEG4, and H.264 for 1080p, 720p and 560i, and PAL/NTSC/SECAM color system
- MPEG and AC3 audio support
- Real-time analysis, monitoring, and recording of MPEG Transport Streams via TA-ASI input & RF output
- Easy-to-read fast spectral displays, including constellation and eye diagram displays
- ATSC 8VSB Spectral Emissions Mask
- Remote monitoring capable
- Closed captions monitoring
- Electronic programming guide
- User channel plan for ATSC/USA
- CAM modules for encrypted channels
- WiFi Analysis and Communication - 2.4 & 5 GHz (802.11 a/b/g/n)
- Optical Power measurements and Optical Receiver option

### Model & Option Guide

Models	Features
S7200 Standard	DVB-C (J.83 Annex A/C) S, S2, T, H, T2; ASI Input & Output
S7200-ATSC	DVB-C (J.83 Annex A/B/C) S, S2, T, H, T2, ATSC, ASI Input & Output, Spectrum Emissions Mask
S7200-ISDB-Tb	DVB-C (J.83 Annex A/C) S, S2, T, H, T2, ISDB-Tb; ASI Input & Output
Option	Features
DVB-C2	DVB-C2 Support
SATA	Serial AT Attachment Disk
MPEG-TS	TR 101 290 Transport Stream Analysis
IPTV	IPTV Analysis
Wi-Fi Analysis	802.11 a/b/g/n Wi-Fi Analysis
CAM *	DVB-CI Conditional Access Module for Channel Decryption
OPT *	Optical Receiver & Power Meter
GPS *	GPS Dongle
AC Adapter (US)	Power supply w/ region-standard plug
AC Adapter (UK)	Power supply w/ region-standard plug
AC Adapter (AUS)	Power supply w/ region-standard plug

\* Hardware upgrade



## TV Monitoring

The Deviser S7200 provides analog and digital TV monitoring, supporting multiple major decoding standards with DSP Technology - including MPEG-2, MPEG-4, and H.264 for 1080i, 720p, and 576i. The S7200 also supports PAL/NTSC/SECAM color encoding, SD&HD video formats, and an optional CAM (Conditional Access Module) for encrypted channels.



Figure 1: 1080p Decoding



Figure 2: Fullscreen Picture Display

## Easy-to-Use Touchscreen Interface

The analyzer's menu structure is designed to recall a Windows environment. It features touch icons and a navigation keyboard that is easily mastered with minimal training.



Figure 3: TV Main Menu

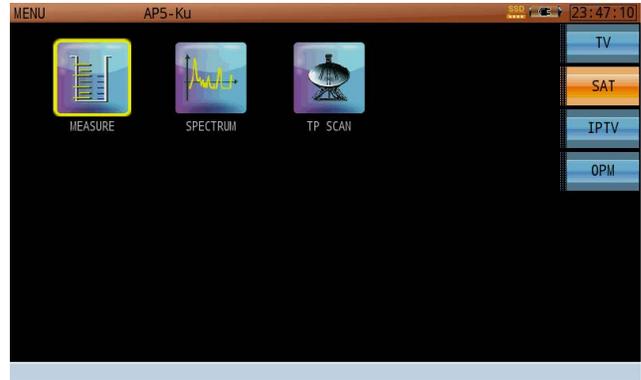


Figure 4: Satellite Main Menu

## Spectrum Measurement

Featuring integrated high-speed spectrum analysis capability, the S7200 covers TV & Broadcasting signals (5-1220 MHz) as well as Satellite IF signals (950-2150 MHz).

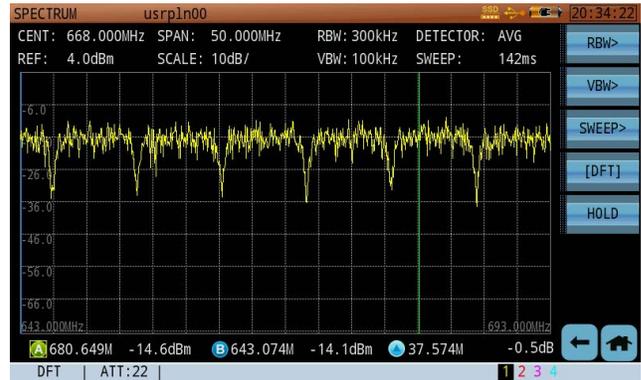


Figure 5: Cable Digital TV Signal Spectrum

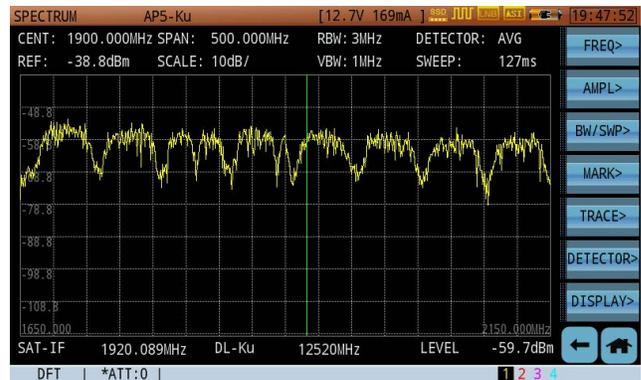


Figure 6: Satellite Signal Spectrum

### DVB-S/S2 Signal Analysis

The S7200 supports the DVB-S/S2 digital broadcast standard, providing power level, MER, BER, & constellation measurements.

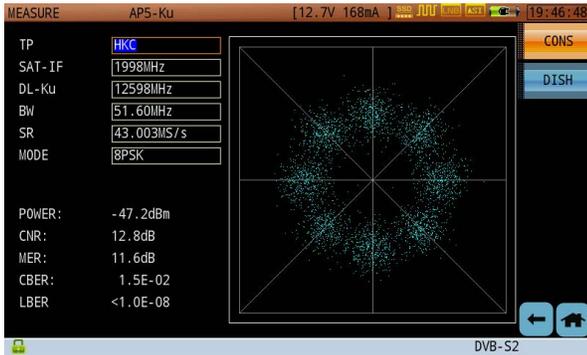


Figure 7: DVB-S2 Constellation

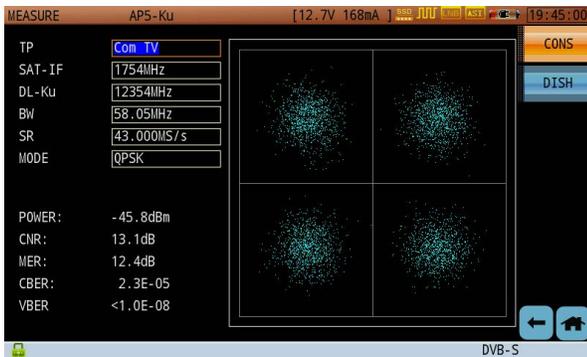


Figure 8: DVB-S Constellation



Figure 9: DVB-S/S2 Signal Measurement

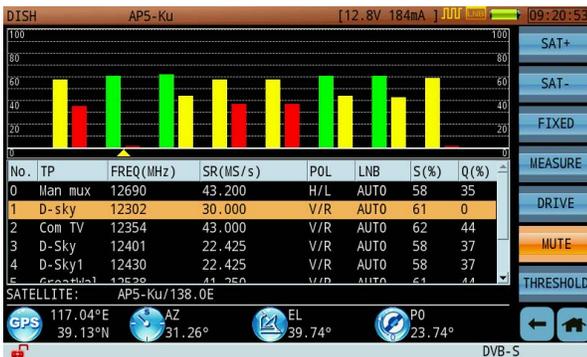


Figure 10: Display Max. 12 Transponders Signal Quality to Align Dish Antenna

### Remote Feeding & Control Signal Setting

The instrument provides feeding power of 5/13/15/18/21V, with a maximum power of 5W. The 22-kHz control signal is compatible with DiSEqC 1.2 and SaTCR.



Figure 11: Remote Feeding & Control Signal Setting

### DVB-C Signal Analysis

Other supported standards include J.83 Annex A/C (on models S7200 and S7200-ISDB-Tb) and J.83 Annex A/B/C (on model S7200-ATSC), providing power level, MER, BER, & constellation measurements. Use the Error Vector Spectrum (EVS) function to quickly find interference signals beneath the QAM mask. The frequency domain EVS tool helps measure narrow-band interference signals, while the time domain EVS function is used for wide-band interference signals such as LTE interference.



Figure 12: DVB-C Signal Quality Measurement



Figure 13: DVB-C Constellation

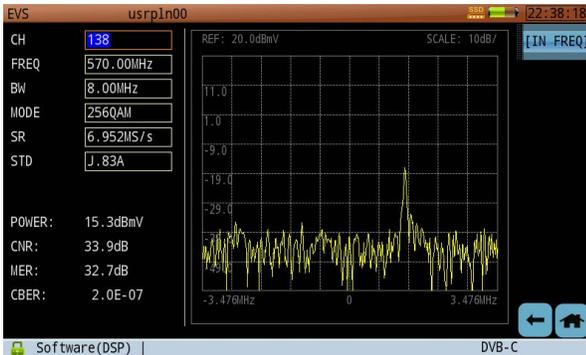


Figure 14: Frequency-Domain EVS Measurement

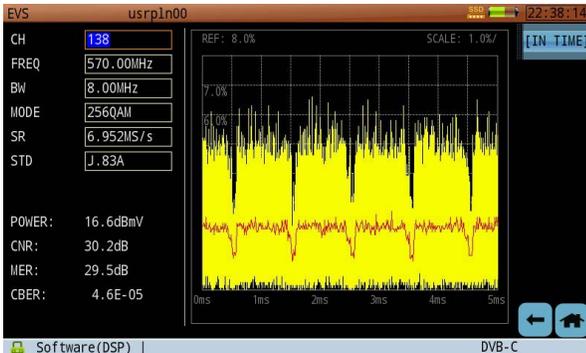


Figure 15: Time-Domain EVS Measurement

### DVB-C2 Signal Analysis

The S7200 also supports the DVB-C2 standard, providing power level, MER, BER, and constellation measurements (including 64, 256, 1024, and 4096QAM).



Figure 16: DVB-C2 Signal Quality Measurement



Figure 17: DVB-C2 4096 QAM Constellation

### DVB-T / T2 Signal Analysis



Figure 18: DVB-T Signal Measurement

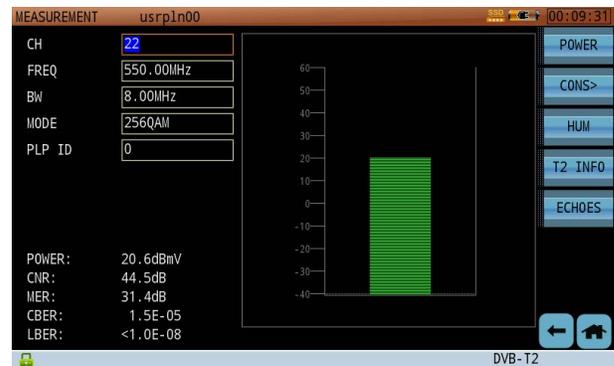


Figure 19: DVB-T2 Signal Measurement



Figure 20: DVB-T Constellation

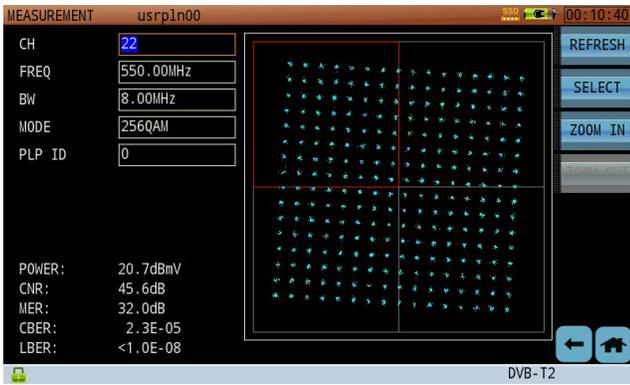


Figure 21: DVB-T2 Constellation

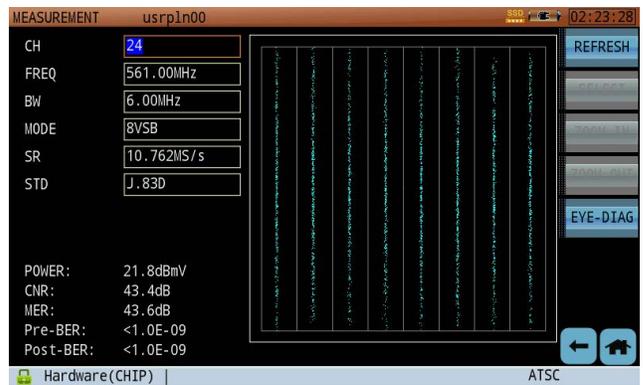


Figure 25: 8VSB Constellation Measurement



Figure 22: DVB-T2 Signal Information

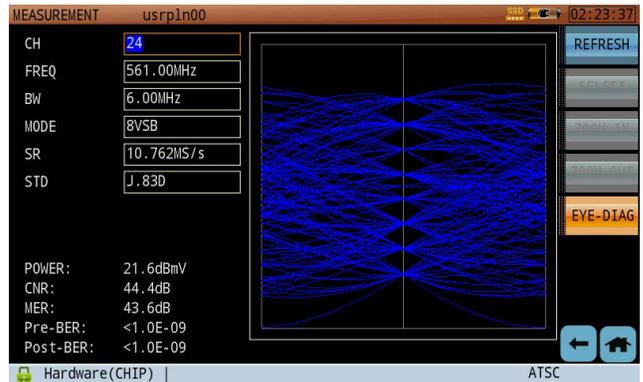


Figure 26: 8VSB Eye Diagram



Figure 23: Echo Pattern Display to Locate

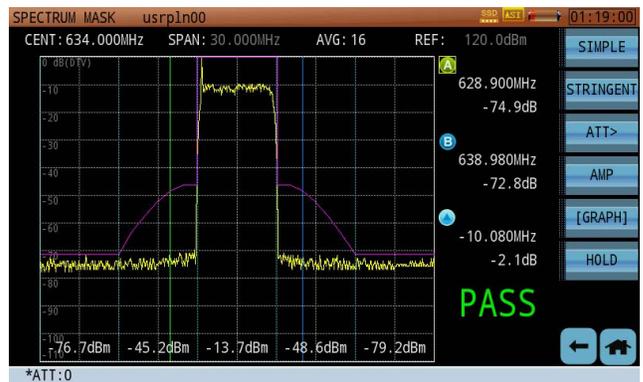


Figure 27: 8VSB Spectrum Mask

## ATSC Signal Analysis



Figure 24: 8VSB Signal Quality Measurement

## ISDB-Tb Signal Analysis

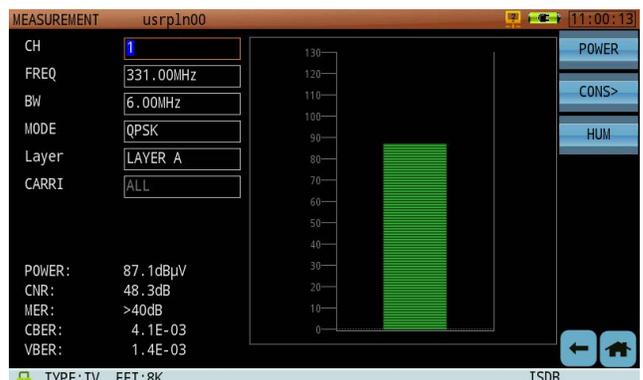


Figure 28: ISDB-Tb Signal Quality Measurement

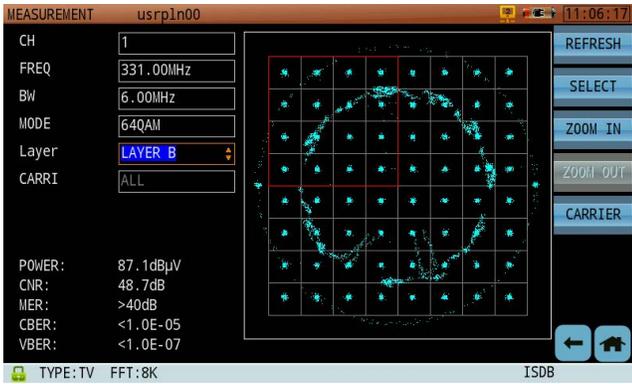


Figure 29: ISDB-Tb Constellation Measurement

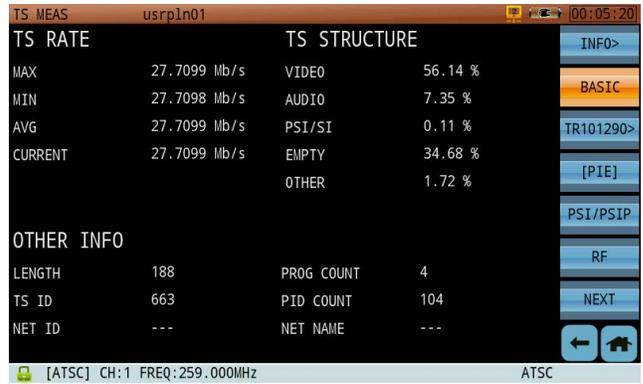


Figure 32: Basic TS Information

### Transport Stream Analysis & Monitoring

The S7200 provides real-time analysis, monitoring, and recording of MPEG Transport Streams via TS-ASI input & RF output. Featuring TR101 290 3-level monitoring, the S7200 lists PSI/SI and transport stream program informaton. In addition, the S7200 lists details of all programs running in a TV network or a transponder. With 32GB of storage, the S7200 can save hours of TS footage for instant replay and analysis.

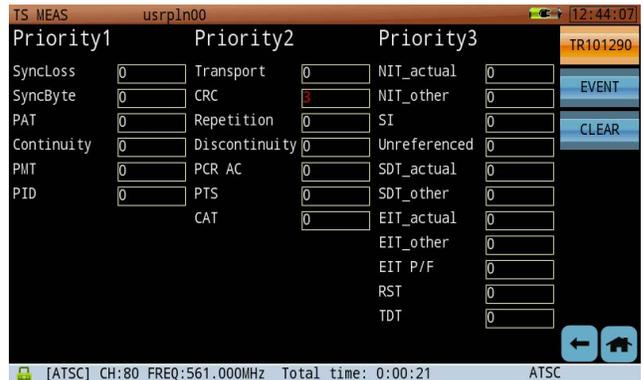


Figure 33: TR101 290 Three-Level Monitoring



Figure 30: Programs Decode Monitoring & List

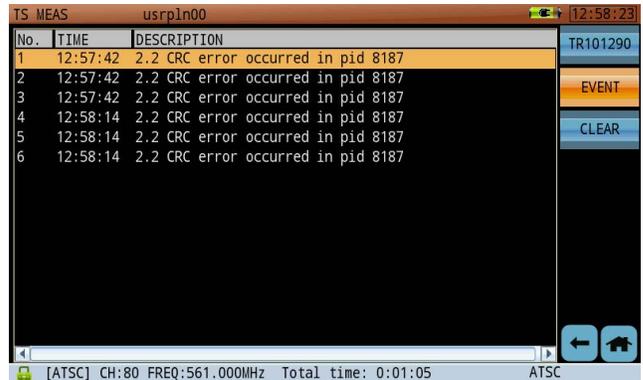


Figure 34: TR101 290 Monitoring Error Event List



Figure 31: Closed Captions

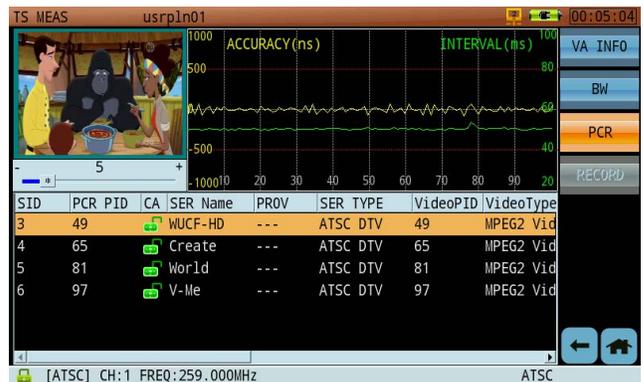


Figure 35: PCR Interval & Accuracy Monitoring



Figure 36: EPG



Figure 40: PID Capture

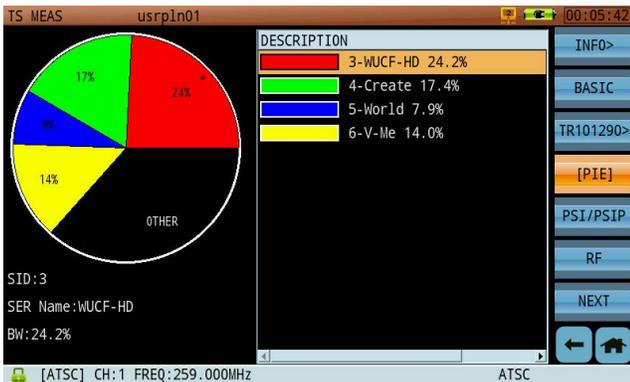


Figure 37: Bandwidth Statistics Pie Chart

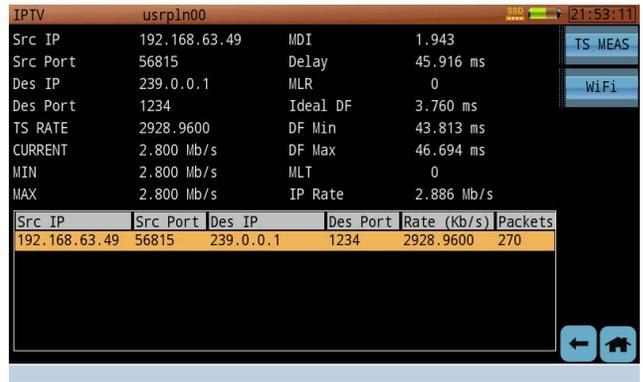


Figure 41: IPTV Analysis



Figure 38: PSI/SI Tree List



Figure 42: Optical Power Measurement



Figure 39: Program List (Transponder or TV System)

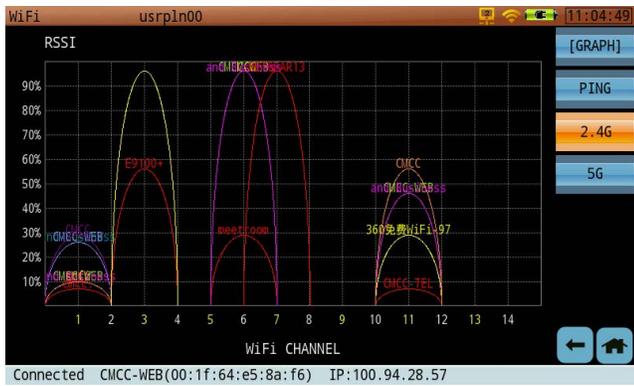


Figure 43: 2.4G WiFi Channel - Graphical Display

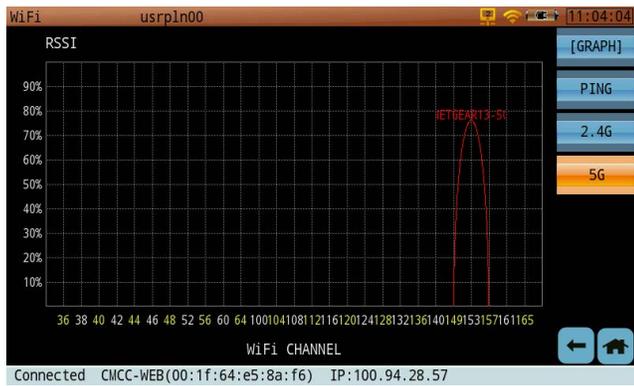


Figure 44: 5G WiFi Channel - Graphical Display

## Specifications

Spectrum Analysis	
Frequency Range	5~1220 MHz (TV), 950 MHz ~ 2150 MHz (Satellite)
Frequency Span	0~1215 MHz (TV) 0~1200 MHz (Satellite)
Frequency Step	1kHz (TV & Satellite)
Resolution Bandwidth (-3dB)	30kHz, 100kHz, 300kHz, 1MHz, 3MHz
Level Measurement Range	-50dBmV ~ +60dBmV (TV), -30dBmV ~ +60dBmV (Satellite)
Measurement Accuracy	<1.5 dB
Measurement Detector	Positive Peak, Negative Peak, Sample, Average, RMS
Reference Level	-30dBmV ~ +60dBmV
Markers	2 vertical markers
Analog TV Measurement	
Supported Standards	B/G, I, D/K, L/L', M/N
Supported Color Standards	PAL, SECAM, NTSC
Frequency Step	10 kHz
Hum Measurement	1% ~ 15%
C/N	> 50dB
Level Measurement Range	-30dBmV ~ +60dBmV
Measurement Accuracy	< 1.5 dB
Level Resolution	0.1 dB
DVB-T/H Measurement	
Frequency Range	42 MHz ~ 1002 MHz
Modulation Type	QPSK, 16 QAM, 64 QAM
Power Level Range	-35dBmV ~ +50dBmV
Level Resolution	0.1 dB
Power Level Accuracy	±1.5 dB (C/N >20 dB)
MER Measurement	> 35 dB
MER Accuracy	±2.0 dB
CBER/VBER	√
Constellation	√
Echo Pattern	√
DVB-T2 Measurement	
Frequency Range	42 MHz ~ 1002 MHz
Modulation Type	QPSK, 16 QAM, 64 QAM, 256 QAM
Power Level Range	-35dBmV ~ +50dBmV
Level Resolution	0.1dB
Power Level Accuracy	±1.5 dB(C/N >20 dB)
MER Measurement	>38 dB
MER Accuracy	±2.0 dB
CBER/VBER	√
Constellation	√
Echo Pattern	√

ATSC Measurement	
Modulation Type	8 VSB
Power Level Range	-35dBmV ~ 50dBmV
Level Resolution	0.1 dB
Power Level Accuracy	±1.5 dB(C/N >20 dB)
MER Measurement	>40 dB
MER Accuracy	±2.0 dB
BER	√
Constellation	√
ISDB-Tb Measurement	
Modulation Type	QPSK, 16 QAM, 64 QAM
Modulation Bandwidth	6MHz
Power Level Range	-35dBmV ~ 50dBmV
Power Resolution	0.1dB
Power Level Accuracy	±2.0dB (C/N>20dB)
MER Measurement	> 40dB
MER Accuracy	±2.0dB
CBER	1E-1~1E-5
VBER	1E-1~1E-7
Constellation	√
DVB-C Measurement	
Frequency Range	42 MHz ~ 1002 MHz
Modulation Type	16/32/64/128/256 QAM ITU-T J.83 ANNEX A/C/B*
Symbol Rate	1.8 MS/s ~ 7.0 MS/s
Power Level Range	-30dBmV ~ +50dBmV
Level Resolution	0.1 dB
Power Level Accuracy	±1.5 dB(C/N > 20 dB)
MER Measurement	~42 dB
MER Accuracy	±2.0 dB
BER	1E-3 ~ 1E-9
Constellation	√
DVB-C2 Measurement	
Power Level Range	-30dBmV ~ +50dBmV
Power Level Accuracy	±1.5 dB (C/N >20 dB)
Guard Interval	1/64, 1/128
Bandwidth	6 MHz and 8 MHz
Spectrum Inversion	Auto
PLP Code Rates	2/3, 3/4, 4/5, 5/6, 8/9, 9/10
PLP Constellation	16, 64, 256, 1024, 4096 QAM
Data Slices	Type 1 & 2 supported, width up to 7.61 MHz
Cell ID	Detected from Transmitter Station
Network ID	Detected from Transmitter Station
CS System ID	Detected from Transmitter Station
DVB-S/S2 Measurement	
Modulation Type	QPSK, 8PSK
Symbol Rate	2 - 45 MS/s (DVB-S) 1 - 45 MS/s (QPSK DVB-S2) 1 - 45 MS/s (8PSK DVB-S2)
Power Level Range	-20 ~ -50dBmV
Level Resolution	0.1dB
Power Level Accuracy	±1.5 dB (C/N>20dB)
MER Measurement	> 25 dB
MER Accuracy	±2.0 dB
BER	DVB- S (CBER/VBER) DVB-S2 (CBER/LBER)
Constellation	√

\* J.83 Annex B only available on model S7200-ATSC.

## Specifications (continued)

TS Analyzer	
Standard Interface	En 50083-9 (DVB SPI, ASI)
DVB-ASI Interface	75 Ω BNC
DVB-ASI Clock	270 MHz
DVB-ASI Max Data Rate	0 to 72 Mbps
DVB-ASI Output Signal Level	1.0 Vp-p nominal
DVB-ASI Return Response	> 15dB
DVB-ASI Input Level	800 mV +/- 10%
Realtime Decoder	Display real-time television feed (through CA system), including: program name, no., provider information, video & audio PIDs
TR101290 Monitor	TR101 290 3-level real-time monitor, not incl. buffer test parameters
Base Information	Count PID% by stream type: Videos, Audios, PSI/SI, Null Packages
PID List	Display all PIDs in current stream
Program Information	Detailed program information (if unencrypted); video resolution; audio compression rate
PCR Monitor	Calculate PCR interval and PCR accuracy
PSI/SI	Display PSI/SI details in tree structure, including PAT, PMT, CAT (NIT, SDT, RST, TDT, EIT options)
Program Info	EPG
PID Capture	Capture a specified PID by its type, e.g. Video, Audio, PSI (PAT, PMT, NIT, TDT, RST, SDT, EIT); display data in HEX format
Record/Replay	32GB SSD for Transport Stream recording
Video/Audio Decoder	
Video	MPEG1/2/4, H.264, VC-1
Video Resolution	1080p, 720p and 576i
Audio	MPEG1/2/4, AAC
CAM Module	EN50221 (DVB-CI) PCMCIA interface
TS-ASI Input And Output	√
TS Record	√
Wi-Fi Analysis	
Frequency	2.4G, 5G
Support Standard	802.11 a/b/g/n
Security Mode	WPA/WPA2/WPA-PSK/WPA2-PSK
Encryption	WEP/AES/TKIP
Test Parameters	SSID, Level, Channel
Optical Power Measurement	
Measurement Wavelength	1310nm, 1490nm, 1550nm
Measurement Range	-50dBm ~ +27dBm
Accuracy	±0.17dB (±3%)
Linearity	0.07dB/10dB
Resolution	0.01 dBm
Interface	FC/SC/ST/APC General Optical Adapter
Optical to RF Converter	
Dynamic Conversion Range	-70dBm ~ +10dBm
RF Band Converted	5 MHz ~ 2150 MHz

Interface	
RF Input	75Ω F
USB	1 USB 2.0
LAN	2 100/1000 M
CAM	1 PCMCIA
TS-ASI Input / Output	2 75Ω BNC
DC Supply Input	12 V / 5 A
GPS Input	USB Dongle
General	
Display	7", 800 x 480 TFT LCD capacitive touchscreen
AC/DC Adapter	100 - 240 V/50-60 Hz (AC); 12 V/5 Ah (DC)
Battery	Li-ion, 7.4 V/13 Ah
Charge Time	~ 5 hrs.
Working Time	>5 hrs.
Remote Feeding	5/13/15/18/24 V, maximum 5 W
22 kHz Control Signals	DiSEqC 1.2 and SaTCR
Dimension (W×H×L)	253 mm × 194 mm × 84mm (10" x 7.6" x 3.3")
Weight	~2.4 kg (5.3 lbs.)
Working Temperature	-10 ~ +50 °C

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