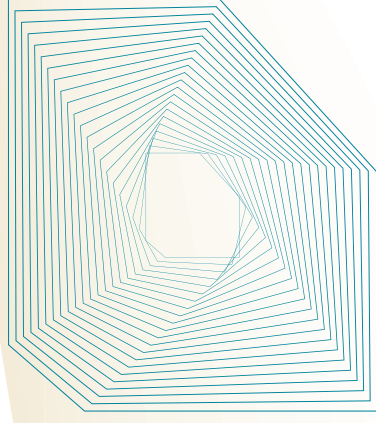


# MP7300

300KHZ-3GHZ



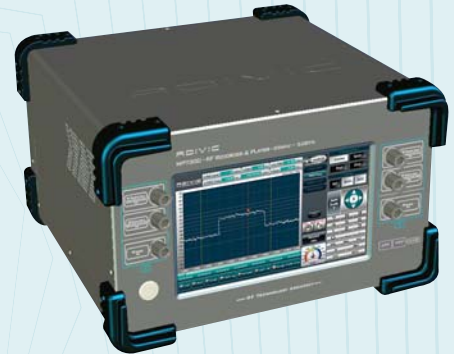
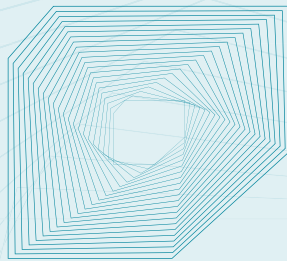
 45MHz Wideband  
RF Recorder / Player

# MP7300

300KHz-3GHz



45MHz Wideband  
 RF Recorder / Player



## Idea

The RF communication application moves faster and faster. ADIVIC RF Recorder brings the next generation tool concept into the world. MP7300 RF recorder and player system covers the frequency spectrum from 300KHz to 3GHz. It satisfies various wireless communication applications. The RF recorder can support a large range of digital or analog modulation signals in the frequency spectrum. The new design concept complies with Diversity and Dual Channel RF record and play application. With the bandwidth of acquisition 45MHz, it allows users to record and analyze the wide band wanted channel signal, adjacent channel signal, noise/fading signal and any distortion signals accordingly.

## Introduction

ADIVIC RF Recorder, MP7 SERIES is an exquisite RF-engineering tool for both field testing and performance testing. MP7300 is engineered for all existing RF communications and all modulation schemes, analogue and digital. The 45MHz real-time bandwidth makes the satellite and wideband communication recorder more possibility.

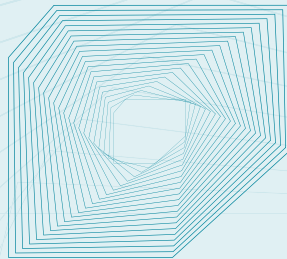


# MP7300

300KHz-3GHz



45MHz Wideband  
 RF Recorder / Player



## Design

The RF recorder incorporates a hardware capture module covering the frequency spectrum from 300KHz to 3GHz. MP7300 has two RF input interfaces which can support active and passive antenna types. With the dual channel option, it equips two independent RF RX modules. User can define the Diversity or Dual Channel application in various RF communication scheme. The 45MHz RF bandwidth can fulfill most satellite and wideband communication requirement.

The swap SSD or HDD RAID can easily extend the storage ability. Due to the high speed of the data throughput 250MByte/sec. The \*SAS (Serial Attached SCSI) interface complies the streaming function.

Each recording can be easily named by the friendly UI. Remote control function can be operated via Ethernet RJ45 interface. MP7320 RF player also supports segment play function.

Users can set any start and stop points in any RF file to play.

**RAID:** Redundant Array of Independent Disks

**SAS:** Serial Attached SCSI (SAS) is a computer bus used to move data to and from computer storage



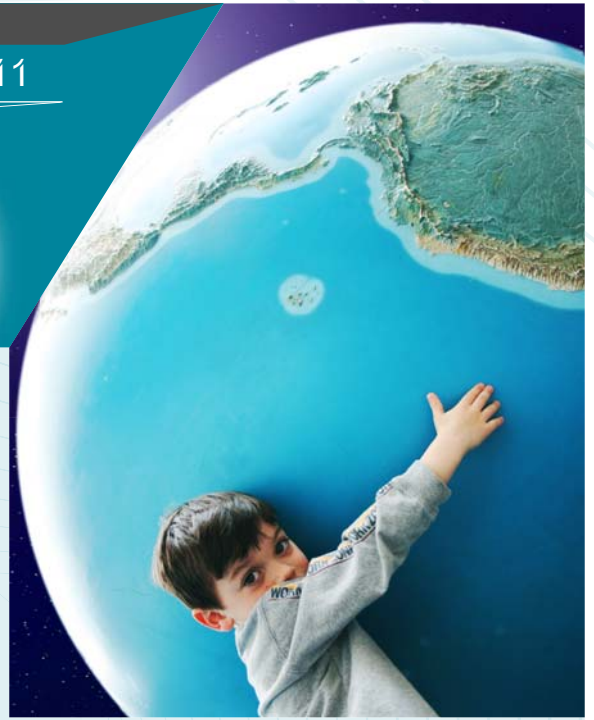
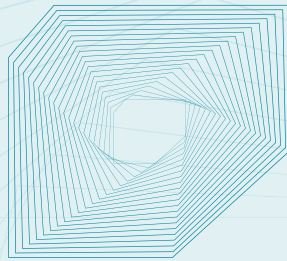


# MP7300

300KHz-3GHz

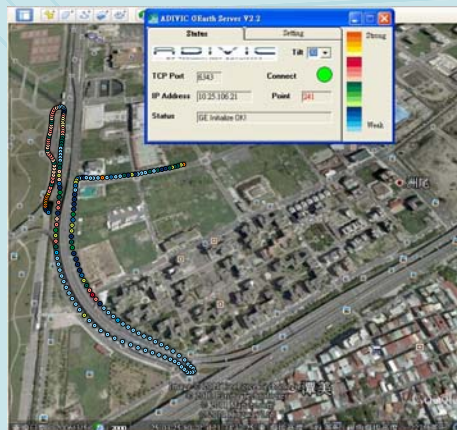


45MHz Wideband  
 RF Recorder / Player



# Location Function

GPS location log function can support the recordings of the GPS NEMA. The data can be transmitted via Ethernet to other PCs installed with Google Earth software and ADIVIC's utility software, and users can freely define the power level color class and the rate of GPS location update according to each recording length and mobile speed. It helps users to see clearly the geographical condition via Google earth. Users can free download Google Earth software from Google web. Please notice that PCs need to be connected to the Internet to get the Google Earth map data during operation.

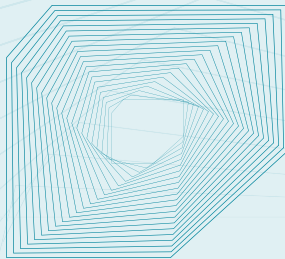


ADIVIC

# MP7300

300KHz-3GHz

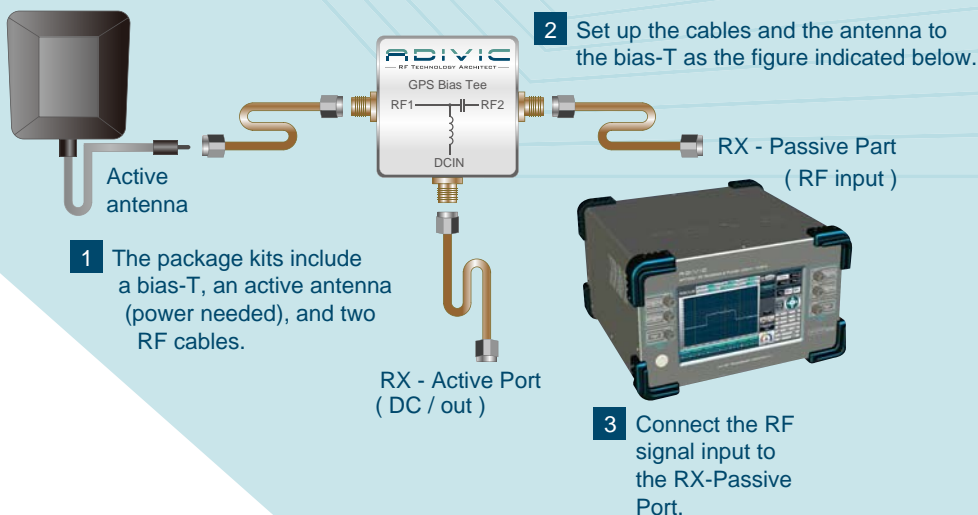
45MHz Wideband  
 RF Recorder / Player



## GPS Signal Recorder Scenario

ADIVIC, GPS Option allows MP7300 to record low-power-level signals, such as GPS signals with its package kits. An active antenna is used in this case, however via the passive input port to the recorder in order to get the maximum gain. The following instructions will guide you to set up the kits properly :

## The GPS Option Package Setup Instruction

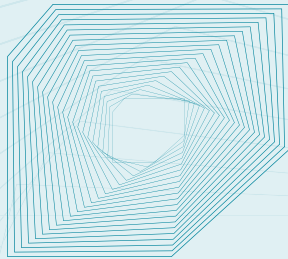


# MP7300

300KHz-3GHz



45MHz Wideband  
 RF Recorder / Player



## Feature

- ◆ FREQUENCY COVERAGE: 300KHz to 3GHz
- ◆ ADJUSTABLE BANDWIDTH FROM 1MHz TO 45MHz
- ◆ SAMPLE RATE: 250MS/s
- ◆ RESOLUTION: 16bit RX / 14bit TX
- ◆ NOISE FLOOR: < -165dBm/Hz
- ◆ Diversity Receiver and Generator function
- ◆ 2 x RX and 2 x TX configuration
- ◆ Spectrum analyzer / Marker / Channel Power Measurement
- ◆ Swap internal SATA 2.5" SSD 300GB x 4
- ◆ Pre-Trigger Recorder function
- ◆ Reference 10MHz Clock In/Out
- ◆ Supports GPS NEMA data logging recording and power color marker
- ◆ 10.2" Touch Screen
- ◆ RF file format support MATLAB software analyzer
- ◆ File segment play function
- ◆ Remote control

## Standard



### Worldwide Radio Broadcasting Standard

FM/RDS/TMC  
 IBOC - HD Radio  
 Satellite Radio  
 DAB/DAB+



### Worldwide Navigation Standard

GPS  
 GLONASS  
 GALILEO  
 CNSS  
 (BeiDou Navigation Satellite System, CHINA)  
 QZSS  
 (Quasi-Zenith Satellite System, JAPAN)



### Worldwide TV Broadcasting Standard

DVB-T/H  
 DVB-T2  
 DVB-SH  
 CMMB  
 ISDB-T  
 ISDB-Tsb  
 MediaFLO  
 ATSC-MH  
 T-DMB

DVB-C  
 DVB-C2  
 OPEN Cable  
 ATSC  
 DTMB  
 NTSC  
 PAL  
 SECAM



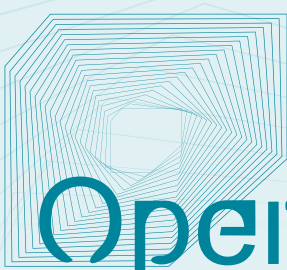


# MP7300

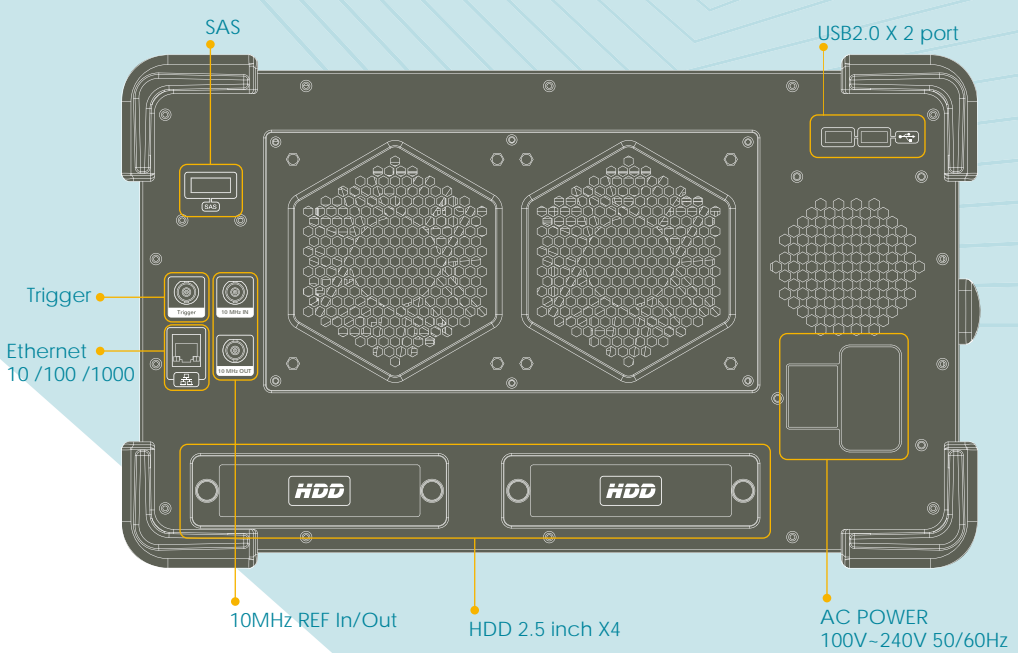
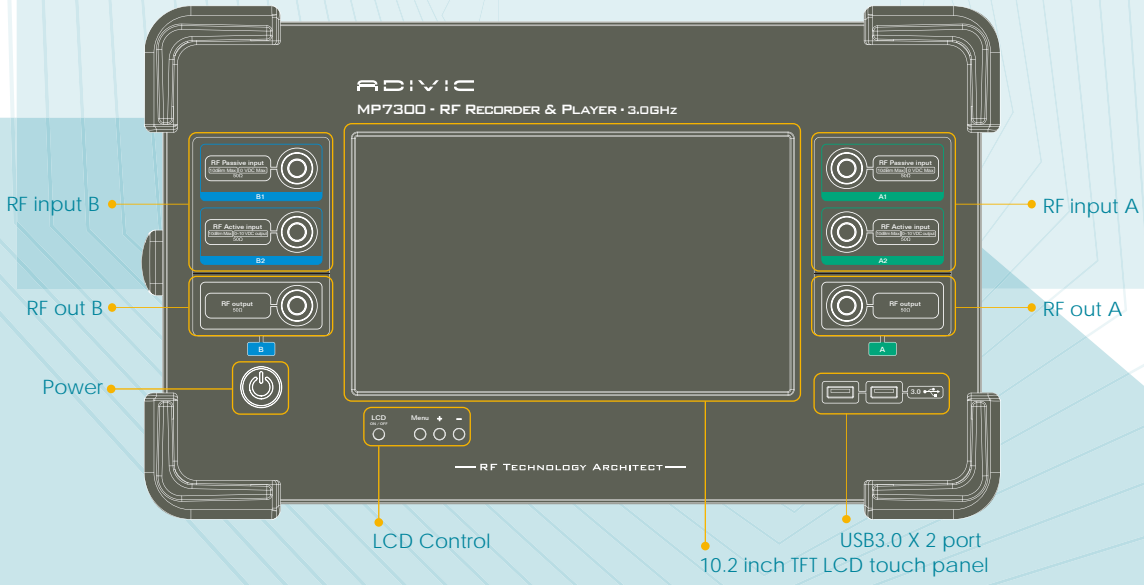
300KHz-3GHz



45MHz Wideband  
RF Recorder / Player



## Operation

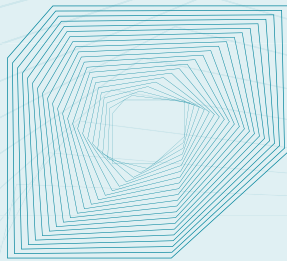


ADIVIC

# MP7300

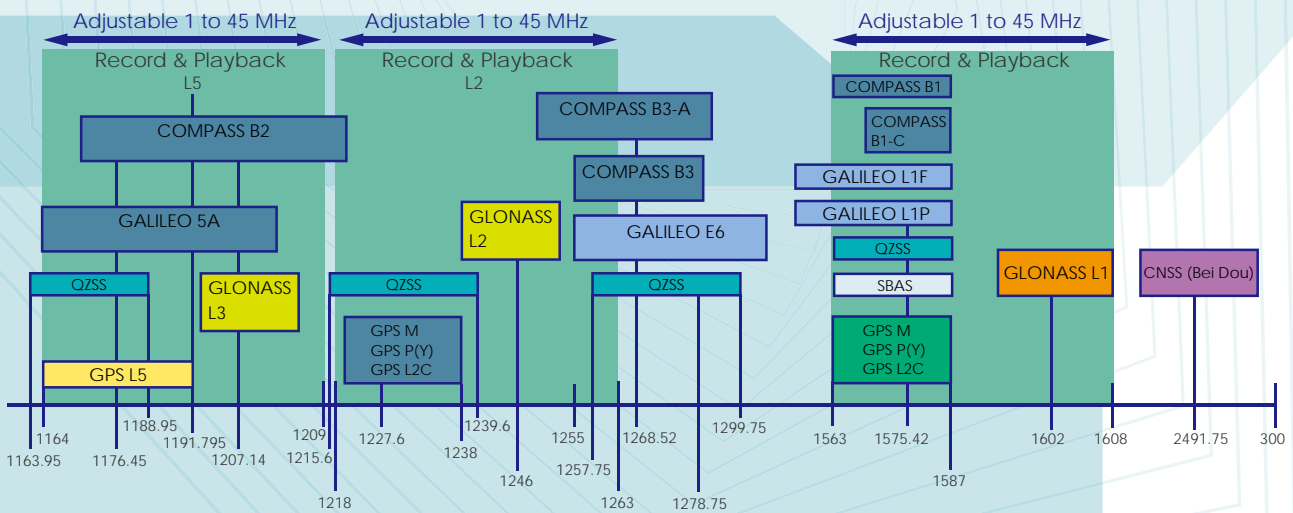


300KHz-3GHz

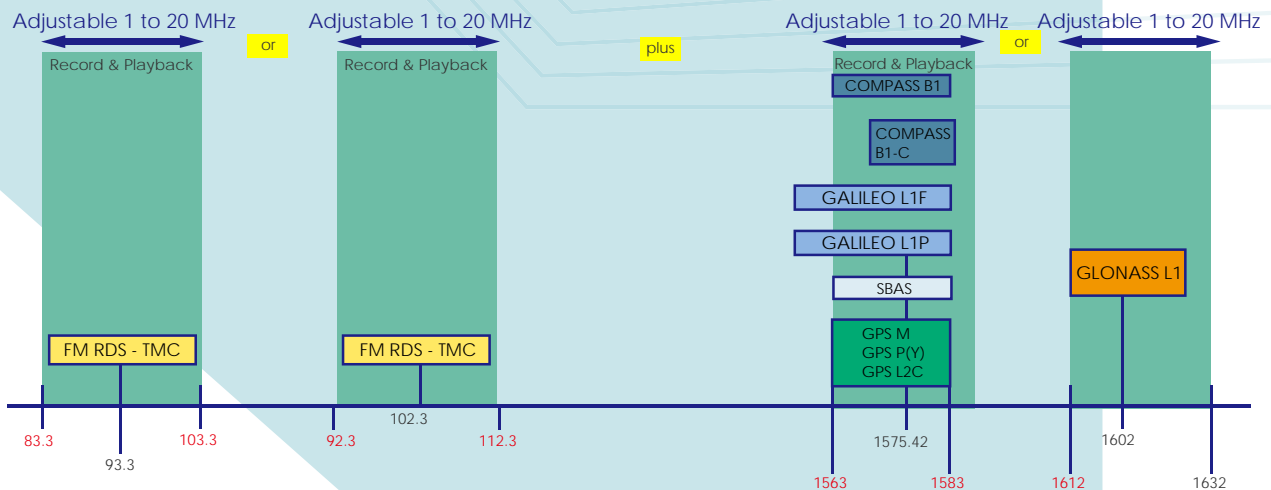


45MHz Wideband  
 RF Recorder / Player

GPS Recorder / Player up to 45 MHz with Single RF channel RX / TX  
 case study 1: Wideband 45 MHz RF Record & Playback  
 MP7300 Standard unit



Recorder / Player up to 20 MHz with Dual RF channel RX / TX  
 for Record & Playback FM RDS-TMC & GPS Signal  
 case study 2: Dual 20 MHz RF Record & Playback  
 (Standard unit MP7300 with option : MP73-Diversity TX+RX)



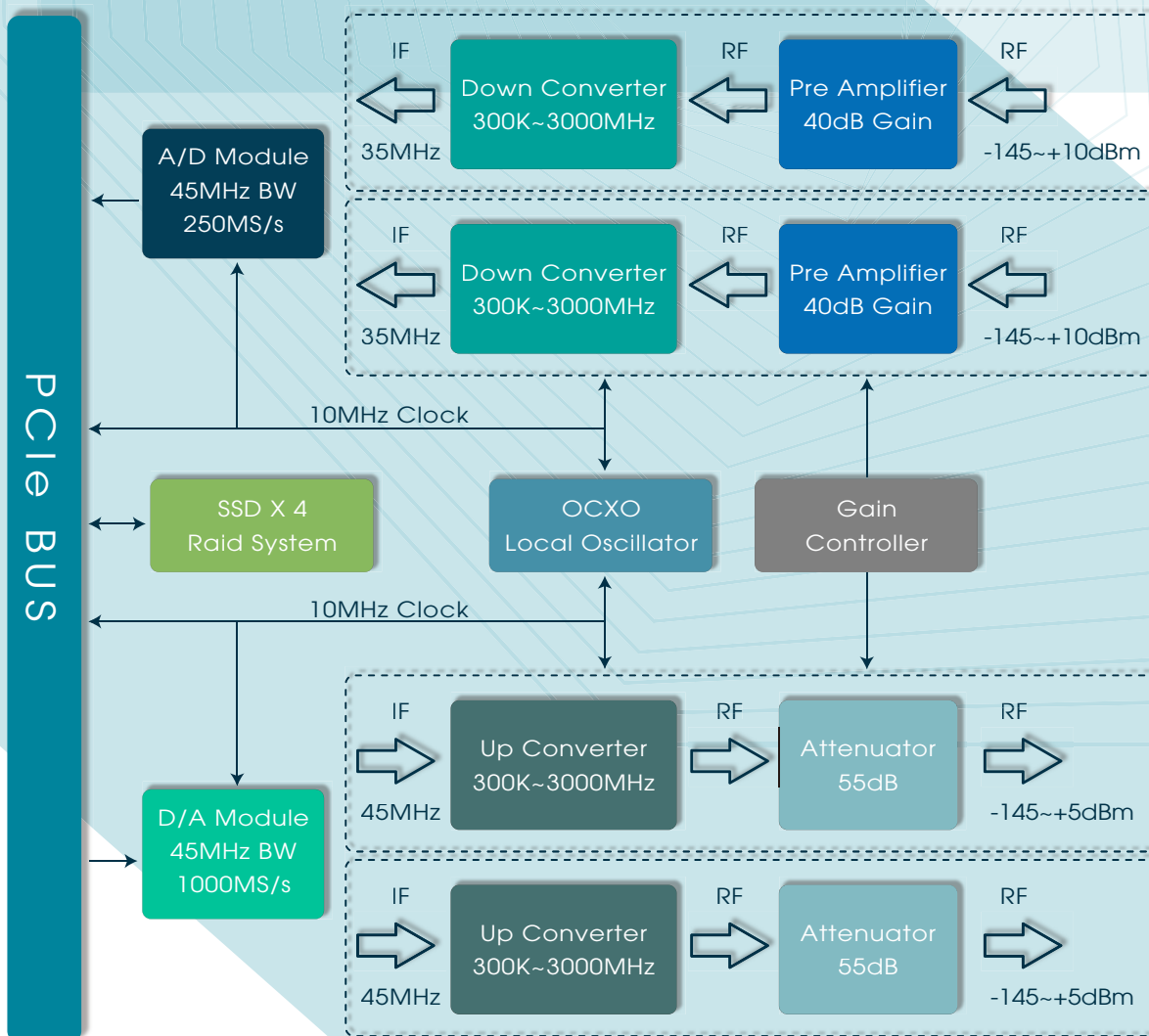


# MP7300

300KHz-3GHz

45MHz Wideband  
RF Recorder / Player

## MP7300 SYSTEM Block Diagram

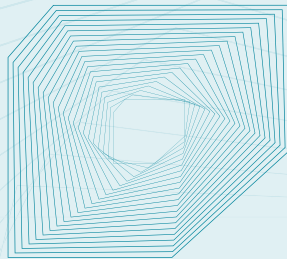


# MP7300

300KHz-3GHz



45MHz Wideband  
 RF Recorder / Player



## Order information

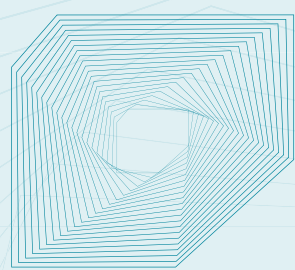
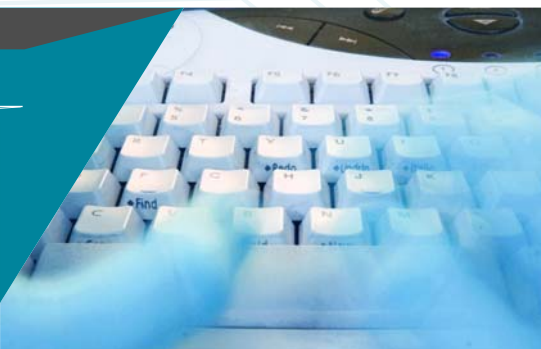
Main Unit	Description
MP7300	RF Recorder/Player Frequency 25MHz – 3GHz Bandwidth 45MHz Single Transmitter and Receiver module
MP7310	RF Recorder Frequency 25MHz – 3GHz Bandwidth 45MHz Single Receiver module
MP7320	RF Player Frequency 25MHz – 3GHz Bandwidth 45MHz Single Transmitter module

Option	Description
MP73-LF	Frequency extend 300KHz to 30MHz support all MP73 series
MP73-Diversity TX+RX	Additional one Transmitter and Receiver module support diversity. Support MP7300 model.
MP7310-Diversity RX	Additional one Receiver module support diversity RX. Support MP7310 model.
MP7320-Diversity TX	Additional one Transmitter module support diversity TX. Support MP7320 model.
MP73-Rugged Case	Rugged case for shipping purpose, One Double-layered, Soft-grip Handle, Suit for MP73 series
SSD Package	SSD 300GB x 4
Extend Warranty	3 years warranty
Calibration Report	Calibration document with certificated

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# MP7300

300KHz-3GHz



45MHz Wideband  
 RF Recorder / Player

	MP9000	MP7100	MP7200	MP7300
Model	RF player	RF Recorder	RF Recorder/Player	RF Recorder/Player
TFT Touch Screen	Resistive	Capacity	Capacity	Capacity
Frequency	25MHz~2.7GHz	48MHz~1GHz 1575.42MHz	25MHz~2.7GHz	300KHz~3.0GHz
Bandwidth	25MHz	24MHz (20MHz Guaranty BW)	25MHz (20MHz Guaranty BW)	45MHz
Sample Rate	100MS/s	100MS/s	100MS/s	250MS/s
Resolution RX/TX	14Bit	14Bit	14/14bit	16/14bit
Recorder Channel	-	1	1	1/2
Playback Channel	1	IF 36/44MHz -20dBm	1	1/2
Diversity function	No	No	No	Yes (Diversity option)
Trigger function	No	Yes	Yes	Yes
10MHz Clock In/Out	No	No	No	Yes
SWAP Hard Disk	Yes	Yes	Yes	Yes
SSD	Option	Option	Standard	Standard
Power	AC 100~250V	DC 9V to 36V 120W	AC 100~250V	AC 100~250V
Size	L:36xW:34xH:20 cm	L:27.8xW:24.2 xH:23.6 cm	L:36xW:34x H:22.9cm	L:45 x W:44 x H:26.4 cm
Weight	17kgw	9kgw	14.3kgw	depends on configuration



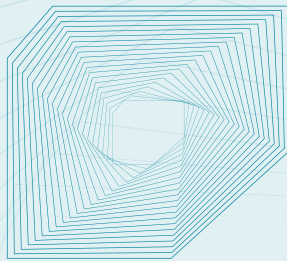
# MP7300



300KHz-3GHz



45MHz Wideband  
 RF Recorder / Player



## MP7300 3.0 GHz RF Signal Analyzer Specifications

### Frequency

Frequency range .....	300KHz to 3.0 GHz
Continuous bandwidth.....	45MHz
Frequency resolution.....	1KHz step minimum
Resolution bandwidth (RBW).....	Fully adjustable (100 Hz to 3MHz)
Warm-up time (typical).....	30 minutes
Temperature stability .....	±20 ppb maximum
Initial achievable accuracy.....	±50 ppb maximum
Aging	
Per year.....	±100 ppb maximum
Per day.....	±1 ppb maximum
Initial achievable accuracy.....	±50 ppb maximum

### Spectral purity

Phase Noise@1 kHz offset, 1GHz.....	<-80 dBc/Hz
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### RF input Spurious Response

.....	<-90 dBm
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### Noise Density

Passive Port (Gain : 40dB/100MHz).....	<-165dBm/Hz
Active Port (Gain : 20dB/100MHz).....	<-145dBm/Hz

### Amplitude(Passive Port)

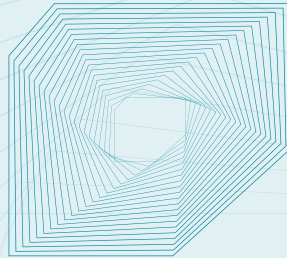
Input level Accuracy ( 15 to 35°C ).....	<+/- 1dB
Input signal range@CW mode.....	-145 dBm~-30 dBm
VSWR@40dB Gain.....	<2.5
Gain Range.....	0~+40 dB@ 5dB step
Input level resolution.....	0.01dB
Maximum DC input.....	±50 VDC
Group delay Variation.....	30 ns Typical



# MP7300



300KHz-3GHz



45MHz Wideband  
RF Recorder / Player

## MP7300 3.0 GHz RF Signal Analyzer Specifications

### Amplitude (Active Port)

Input level Accuracy ( 15 to 35°C )	<+/- 1dB
Input signal range @CW mode	-135 dBm~+10 dBm
VSWR@ 25dB	<2.5
Gain Range	-5~+20 dB@ 5dB step
Input level resolution	0.01dB
DC Voltage Output Range	0~+10V@0.1Vstep
Group delay Variation	30 ns Typical

### RF input

Passive RF input	50ohm , AC-coupled N female
Active RF input	50ohm , DC-coupled N female

### IF Band

Resolution	16 bits
Sample rate	250MS/s

### Storage

Storage	SSD 300GB X 4
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### Calibration

Calibration	1 year
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### Environment

Operating temperature	0 to +50°C
Relative humidity	10 to 90%
Storage temperature	-20 to 70 °C
Relative humidity	5 to 95%



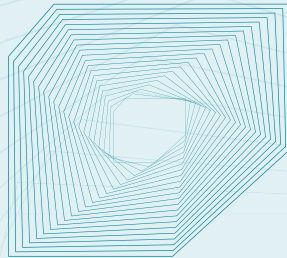
# MP7300



300KHz-3GHz



45MHz Wideband  
RF Recorder / Player



## MP7300 3.0 GHz RF Signal Analyzer Specifications

### Frequency Characteristics

Frequency range .....	300KHz to 3.0GHz
Real-time bandwidth (Digital vector modulation bandwidth) .....	45 MHz maximum
Frequency resolution.....	1KHz step minimum
Warm-up time (typical) .....	30 minutes
Temperature stability.....	±20 ppb maximum
Per year.....	±100 ppb maximum
Per day .....	±1 ppb maximum
Initial achievable accuracy.....	±50 ppb maximum

### Spectral purity

Phase Noise@1KHz offset, 1Ghz.....	<-80 dBc/Hz
------------------------------------	-------------

### Spurious Responses

Second harmonic.....	< -40 dBc
Output third-order distortion (IMD) (two -13 dBm tones, >200 kHz apart).....	-70 dBc Typical
LO leakage.....	<-80dBm

### RF Output Characteristics

Output power range .>=25MHz.....	-145 dBm to +5dBm
< -25MHz.....	-145 dBm to -10dBm
Amplitude resolution.....	0.1 dB step minimum
Amplitude Accuracy.....	<+/-1 dB -100dBm~-10dBm
	<+/-2 dB <-100dBm
Output Impedance.....	50 ohm

### Voltage Standing Wave Ratio (VSWR)

25 MHz to 3.0 GHz .....	<2.5
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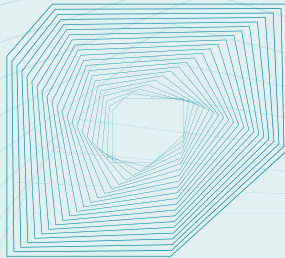
# MP7300



300KHz-3GHz



45MHz Wideband  
 RF Recorder / Player



## MP7300 3.0 GHz RF Signal generator Specifications

### **Overload protection on RF output**

Maximum reverse RF power ..... 1 W maximum  
 Maximum DC input.....±50 VDC

### **Noise Floor@1GHz**

-10dBm output power..... <-120dBm/Hz Typical  
 -20dBm output power.....<-130dBm/Hz Typical  
 -30dBm output power.....<-140dBm/Hz Typical  
 -40dBm output power .....<-150dBm/Hz Typical  
 -50dBm output power.....<-160dBm/Hz Typical

### **Flatness**

IF Band(20MHz) flatness.....1 dB Typical  
 Group delay Variation.....30 ns Typical

### **RF Output**

RF Output..... 50ohm , AC-coupled N female

### **IF Band**

Resolution..... 14 bits  
 Sample rate.....250MS/s

### **Calibration**

Calibration ..... 1 year

### **Operating Environment**

Operating temperature .....0 to +50°C  
 Relative humidity.....10 to 90%  
 Storage temperature .....-20 to 70 °C  
 Relative humidity.....5 to 95%





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www.adivic.com

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# MP7300

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