

## Single & Multi-Channel GPS Simulator



# MODEL MP6220

### Overview

ADIVIC MP6220 GPS simulator is a cutting-edge design for the purpose of various GPS receiver testing. In multi-channels mode, users are able to scrutinize position fix sensitivity, signal tracking sensitivity, TTFF (time to first fix), position deviation, and position accuracy of GPS receiver. Single channel mode enables users to test sensitivity, S/N ratio(C/N0 value), and ATE test in laboratory and production line. Capitalizing on flexible usage, availability of switching between the single-channel and multi-channel modes provides users quick and effective testing to generate the best profit.

### Features

- Almanac data upgradeable
- Built-in ultra high precise OCXO
- RF input range from -55 dBm to -160 dBm
- Control by RS232 interface
- Sensitivity testing

### MP6220 Specifications

#### Frequency Characteristics

Frequency Range	1575.42 MHz
Warm-up time (typical)	30 minutes
Frequency Accuracy	±100 ppb maximum
Temperature stability	±100 ppb maximum
Aging (Per year)	±100ppb maximum
(Per day)	±1 ppb maximum

#### Channels

Number	1 CH~ 8 CH
Navigation data	GPS C/A @ 1.023 MHz with 50 bps
Modulation	BPSK

#### Spectral purity

Phase Noise @ 1 KHz offset	< -80 dBc/Hz
Harmonic	< -70 dBc

#### RF Output Characteristics

High power normal output level	-55 dBm to -90 dBm
Low power normal output level	-90 dBm to -160 dBm
Channel Attenuation range (refer normal output level)	-31.5 dB to 0 dB)
Power level ranged from	-55 dBm to -145 dBm in 1 dB step, -145 dBm to -160 dBm in 0.5 dB step.
Amplitude Resolution	1 dB step
Amplitude Accuracy	< ±1 dB
Output Impedance	50 Ω

#### Voltage Standing Wave Ratio

1575.42 MHz	< 1.2
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#### Overload protection on RF output

Maximum reverse RF power	1 Watt maximum
Maximum DC input	±25 VDC

#### Calibration

Calibration	1 year
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#### Environmental

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

## Single & Multi-Channel GPS Simulator GUI

The main GUI window is titled "B-CH GPS Signal Simulator" and includes a toolbar with icons for "Profile & Power Level Edit", "Play Icon", "Simulated GPS Time", "View Icon", "Program", and "Real Time Sync".

Key components and their labels:

- SKY**: Points to the SkyView window showing satellite constellation data.
- Position**: Points to the World Position window showing a world map and coordinates (Latitude: S-33d51m25.25s, Longitude: E 151d12m55.03s, Altitude: 10).
- SV Data**: Points to the Satellite Data table.
- Profile**: Points to the User profile table.
- Almanac / Ephemeris Simulating Readiness**: Points to the "Preparing..." status bar.
- System Connection Status**: Points to the "Connect" button.
- Location / Time status**: Points to the status bar showing current location and time.
- Profile Edit**: Points to the "Apply", "Add", "Delete", "Edit", and "Close" buttons.

CH	SVID	EI	Az	Ionospheric	Pseudorange	PR rate
0	5	10.36	224.22	11.78	24790977.43	-350.29
1	6	16.97	131.42	11.49	23875635.65	334.27
2	7	61.06	186.77	5.56	20722027.33	-13.80
3	8	42.52	238.78	6.93	21583823.45	-251.23
4	10	35.30	276.98	8.00	22263762.57	139.93
5	13	65.54	57.48	5.54	20886012.13	225.41
6	19	33.72	90.01	8.57	22822104.70	-153.31
7	28	25.96	315.10	9.95	23014241.72	-661.95

No.	Location (Lon, Lat,...	Date / Time	Description
0	E 121d33m56.76s...	2013/01/07 00:00:00	Taipei,101,Tower
1	E 2d17m36.69s, N...	2013/01/07 00:00:00	Paris,Eiffel,Tower
2	E 116d23m29.13s...	2013/01/07 00:00:00	Beijin,Forbidden,City
3	W 73d55m40.23s...	2013/01/07 00:00:00	NYC,Yankee,Stadium
4	E 139d44m45.06s...	2013/01/07 00:00:00	Tokyo,Tokyo,Tower
5	E 151d12m55.03s...	2013/01/07 00:00:00	Sydney,Opera,House
6	E 127d29m22.01s...	2013/01/07 00:00:00	I-Cheon in Korea
7	E 37d37m13.33s...	2013/01/07 00:00:00	Red Square in Moscow, Russia

The "Set location" dialog box includes the following controls:

- Date**: 2013, 3, 7
- Time**: Hr: 0, Min: 0, Sec: 0
- Longitude**: 121 d 33 m 56.76 s (E/W)
- Latitude**: 25 d 2 m 0.27 s (N/S)
- Altitude**: 10
- Description**: Taipei, 101, Tower
- Power Levels**: A slider set to -120.
- Main Gain**: A vertical slider ranging from -120 to -145.
- Channel Attenuation Adjust**: Four vertical sliders for channels 0, 1, 2, and 3, each ranging from 0.0 to -31.5.
- Power path**: Radio buttons for "High power" and "Low power" (selected).