



Statistical Power Sensor 7022



The RF Experts

Bird offers a new thru-line sensor for measuring and maintaining your most complex wireless systems. The Statistical Power Sensor is a rugged, easy to use field instrument that uses statistical sampling techniques.

In modern communications, signal average power, although important is no longer a sufficient control variable. These communication signals often require more diagnostic measurements. In the statistical mode, the power sensor measures the percentage of time the signal exists at a specific peak-to-average ratio. In the time domain mode, the sensor adds a variety of functions similar to an oscilloscope to our standard suite of measurements.

The statistical power sensor can be used in all known communication formats and is able to accurately measure a wide range of RF measurements for non-periodic signals such as EVDO, UMTS, LTE, and HDTV. Like all Bird Sensors, its calibration is also traceable to NIST standards with no field calibration required.

TIME DOMAIN MODE

- Detailed breakdown of a single or multiple pulses.
- Includes a wide range of IEEE pulse parameters.
- Markers allows user to focus on particular portions of the signal for analysis.

STATISTICAL MODE

- Analytical results of Signal of Interest using CCDF parameters.
- Isolate and identify specific breakpoints with the use of markers

AVERAGE POWER MODE

- Extremely accurate true average power measurements.
- True Average measurement of Forward and Reflected power.
- All related reflection calculations.
- Peak Power measurement.
- Burst Measurement of Pulse Power.

APPLICATIONS

WPS MEASURES: Analog Cellular, Digital Cellular, 3G, 4G, Tetra, APCO/P25 Phase 1 & 2, DMR, MOTOTRBO, Trunking, CDMA, TDMA, WCDMA, GSM, Transportation, Tactical Military, Radar, Avionics, Marine, LMR, Analog Broadcast, Digital Broadcast, GSM, GPRS, EDGE, UMTS, HSDPA, Bluetooth, Fire, GPS, NPSPAC, Paging, Public Safety, Telematics, Utilities, WIMAX, WLAN, EVDO, UMTS, LTE, and HDTV.

Statistical Power Sensor

7022

GENERAL SENSOR CHARACTERISTICS

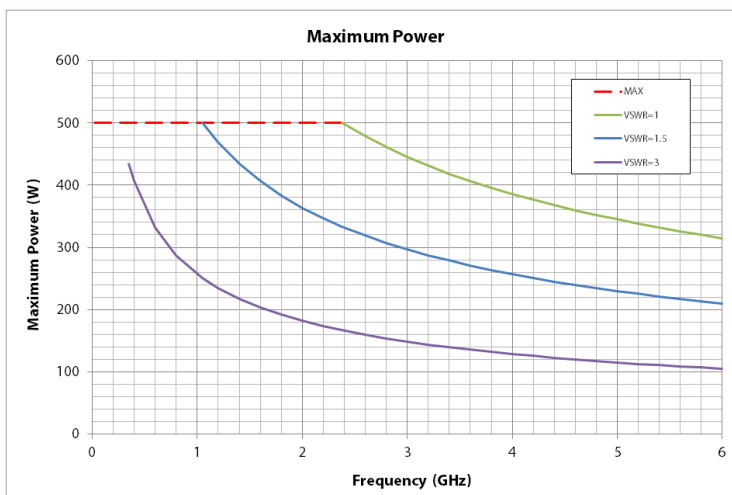
Measurement Type	Thru-Line Power
Frequency Range	350 MHz to 6 GHz
Frequency Measurement accuracy	± 3MHz with CW signals
Power Measurement Range	0.25 W to 500 W average, Average Power Rating limited by Chart below
Dynamic Range	33 dB
Peak to Average Ratio	12 dB, absolute peak power limited to 1500 W
Impedance, Nominal	50 Ohms
Insertion Loss, Max	0.05 dB
Insertion VSWR, Max	1.065 350 - 2000 MHz 1.12, 2000 - 6000 MHz
RF Connectors	N Female
Directivity, Min	<-30 dB, 350 - 1000 MHz, <-28 dB, 1000 - 6000 MHz
Factory Calibration	NIST Traceable
Field Calibration	No Field Calibration Required
Data Logging	Yes, with the VPM3 software
Interface	USB 2.0 Type B (USBTMC)
Power Supply	USB Port

Sample Rate	44 M Samples/s Max
Time Resolution	50nSec to 10 Sec
Time Base Accuracy	.01%
Display Refresh Rate	10 times/ sec (Limited by communication)
Video Bandwidth	Settable: 20 MHz (none), 5 MHz, 400 kHz, 4.5 kHz
Points per screen	1001
Trigger input connector	BNC female (1MΩ Impedance; 3V High, 1.2V Low)
Operating Temperature	-10 to +50 °C (+14 to +122 °F)
Storage Temperature	-40 to +80 °C (-40 to +176 °F)
Humidity, Max	95% maximum (non-condensing)
Altitude, Max	15,000 ft. (4,500 m)
Dimensions, Nominal	5.9" x 4.8" x 1.3" (150 mm x 122 mm x 33 mm)
Weight, Max	1.5 lbs.
Mechanical Shock and Vibration	IAW MIL-PRF-28800F class 3
Certifications	EMC Directive (2004/108/EC) European Standard: EN 61326— Electrical Equipment for measurement, control and laboratory use; EMC

Requirements
Test Spec (for radiated immunity): EN 61000-4-3—Testing and measurement techniques - 10V/meter

CE Mark

RoHS



STATISTICAL MODE

Peak-to-Average Ratio (Horizontal Axis)	0 to 16 dB
Percent Time Above Average Power (Vertical Axis)	.0001 to 100% (log display)
Number of samples*	268 M samples max
Elapsed Time*	6.5 Seconds max
Confidence Band*	85-99.99 adjustable
Modes on full buffer	Re-start Stop

*Number of samples, Elapsed Time and Confidence Band are all related, if one is set the other two parameters are calculated.

AVERAGE MODE

Average Forward Power Range	0.25 W to 500 W
Average Forward Power Accuracy	4% of Reading \pm 16 mW +3% outside 15-35°C
Average Reflected Power Range	0.025 W to 50 W
Average Reflected Power Accuracy	4% of Reading \pm 1.6 mW +3% outside 15-35°C
Return Loss	0 to 23 dB
VSWR	1.15 to 99.9
Rho	0.07 to 1.0

TIME DOMAIN MODE MEASUREMENT

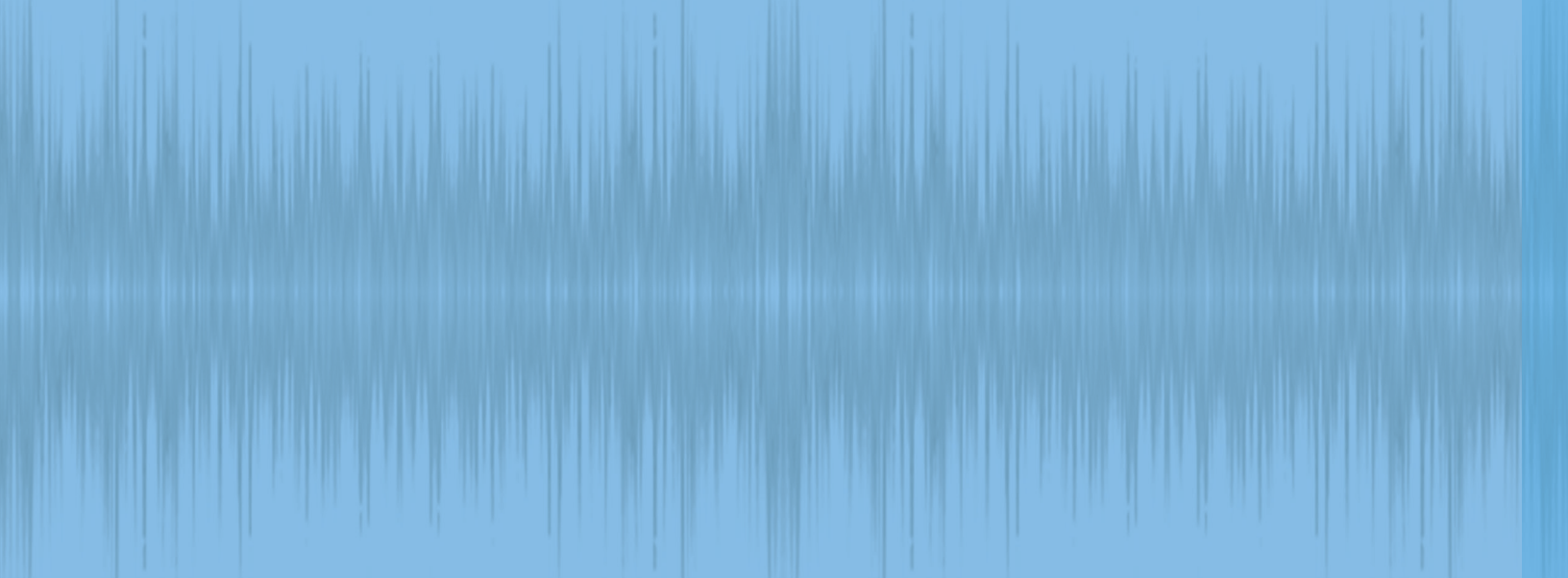
Peak Envelope Power Accuracy (up to 500 W)	\pm 5% +3.75% outside 15-35°C
Peak Envelope Power	up to 500 W
Peak Envelope Power Accuracy (500 W to 1500 W)	\pm 11% +3.75% outside 15-35°C
Burst Average Power Accuracy (0.25 W to 2 W)	\pm 7% +3.75% outside 15-35°C
Burst Average Power Accuracy (2 W to 500 W)	\pm 5% +3.75% outside 15-35°C
Burst Average Power Accuracy (500 W to 1500 W)	\pm 11% +3.75% outside 15-35°C
Pulse measurements	All IEEE Std 194 Pulse Parameters Pulse Off Time Pulse Width Pulse fall-time Pulse repetition frequency Pulse rise time Pulse period Pulse duty cycle Peak power Pulse overshoot
Triggers	Auto Free Run Marker Based (Video Trigger) External Trigger Hold Off

STANDARD ACCESSORIES

5A2653-6L	USB SeaLatch™ Cable
VPM3	Virtual Power Meter
920-7022	Manual for Statistical Power Sensor
920-VPM3	Manual for Virtual Power Meter
5A2918-11-6	BNC / BNC Trigger Cable
VSWR	1.15 to 99.9
Rho	0.07 to 1.0

OPTIONAL ACCESSORIES

PA-MNME	Adapter, Male N to Male 7/16 (DIN)
PA-MNFE	Adapter, Male N to Female 7/16 (DIN)



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