High Performance Super Low Phase Noise Products
Company Profile – APA Wireless Technologies

• HEADQUARTERS: Fort Lauderdale, Florida

• FACILITY: 28,000 Square foot newly remodeled facility dedicated to Synthesizer/VCO design and manufacturing

• OWNERSHIP: Privately held

• EMPLOYEES: 70 employees

• HISTORY: APA evolved out of a group of companies that have an established 35-year track record in technological innovation and manufacturing excellence. Ownership group has a combined 75 years of experience in the Electronics Industry

Company Profile cont. – APA Wireless Technologies

• APA Wireless Technologies is a single-source technology developer and manufacturer of high performance Super Low Phase Noise/Fast Switching PLL Synthesizers, Voltage Controlled Oscillators, Coaxial Resonator Oscillators, YIG Replacement Oscillators, and various custom design Signal Sources

• Engineering and design expertise providing leading edge Synthesizer and VCO solutions to our customers.

• ISO 9001:2015 Certified
• IPC-610 Class 3 certified for assembly and inspection
• Website: www.apawireless.com
Capabilities – APA Wireless Technologies

• All APA synthesizers and oscillators are designed for ease of manufacturing to ensure excellent quality in high volume production.
• APA manufactures from frequencies of 10 MHz on up to 22 GHz.
• APA’s RF Design Engineering team works closely with our Process Engineering and Manufacturing Engineering departments guaranteeing all designs will be easily repeatable in volume.
• High Volume Telecom approved.
• APA specializes in Military/Avionics applications:
  - Temperature test capability (Liquid Nitrogen assist)
  - Vibration test capability
  - AS9100 Rev. C Approved/ J-STD-001 Class 3 Soldering Certified
• APA has continued to add new manufacturing (3 Juki SMT Lines) and test equipment (Agilent E5052’s) in order to produce the type of technology designed by engineering in a volume environment.
APA Advantages

- Capable of delivering the best Phase Noise performance/switching speed in the industry.
- All PLL’s and VCO/CRO’s are 100% electronically tested on Agilent 5052 test equipment. Customer can have access to all test data.
- Highly automated manufacturing, all parts are assembled by machine, including the shields
- High Speed Robotic Auto-Trim machines are used to trim all resonators
- Foam filled and Parylene product capability for Military applications
- Liquid Nitrogen assist temperature testing and vibration testing capability
- Ultrasonic cleaning to guarantee performance at high frequencies
- All processing is done in house
- Readily available Engineering support that can solve customer design issues
- Ability to deliver prototypes/samples quickly
APA Obsolescence Plan

- Component availability is an on-going challenge for every organization. The oscillator industry is particularly vulnerable, as products designed have traditionally used a narrow subset of available transistors in order to achieve their performance. When those transistors are no longer available, oscillator companies have had to discontinue entire product lines, disrupting supply chains across the board.

The APA Wireless business model is very different. APA Wireless does not end-of-life any product, having supplied the most technologically advanced product to its customers for over 20 years. Our unique approach to oscillator design is independent of transistor choice. If one transistor goes obsolete, another is put in its place with no change in product performance, and no interruption in product availability.

As recent events have highlighted the on-going consolidation in our industry, APA Wireless continues to provide a clear path forward. Your supply chain is safe with APA Wireless, now and into the future.
New products/Emerging technologies

- New fundamental approach - **8 GHz Ultra Low Noise CRO**
- Multiple VCO’s in one tiny package (up to 8 VCO’s in one package)
- New high freq CRO’s - **APA Transitions to Physics Based Modeling**
- New military ruggedized parts
- Multi-band PLL Synthesizers
- Load sensitive High Frequency capability
- Ability to design in one part whereas our competitor uses 2-3 parts
- Phase hit testing
- Accusource/Instasource (customers can spec. and choose parts on line)
- Robotic Assist Auto-trim cutting/etching capability
- State of the art equipment for product analysis
Miniaturized Design/Process Capability
EIGHT BAND DEVICE
Semi-Hermetic Package
5GHz Fundamental: Semi-Hermetic Package
Package X-Ray
Package CT Scan with Slice
Package Slice – Electron Microscope

Copper Thickness (0.0006-0.0007) inches

Copper Thickness (0.002) Inches
Need to cover hundreds of MHz with great performance? APA has the solution!

Our wideband CRO's are designed for superb phase noise operation with a rugged design to protect against vibration and phase hits. Trust your signal to an APA VCO and eliminate loss of Data in your communication link.
Multiple Fixed Frequency PLL in a tiny LOW PROFILE package!

Need Low Integrated Noise Performance at multiple frequencies? APA’s new MULTIBAND Series have multiple fixed frequencies available in one very small and completely sealed package. Replace several fixed sources and multiple loops with one source that can switch in multiple frequencies, all under phase lock. In a package slightly bigger than a standard VCO and only 0.110” high, this is a completely integrated solution with supply voltages available down to +3V.
Looking for a Fundamental 5GHz VCO with -115dBc @10KHz phase noise?

Features:
- High Frequency
- Fundamental/ No sub-harmonics
- Small SMT Package
- Enhanced humidity/ vibration sensitivity
- Eliminates doubler in PLL/ power savings

Does your DRO or VCO give you -115 dBc @ 10 KHz?? Not likely!

APA's high frequency fundamental mode 5 GHz CRO's give you that and more. Fantastic phase noise performance in a small surface mount package and proven APA reliability that won't break your budget. Plus fundamental operation, no sub-harmonics to filter out, no costly doublers, just a pure outstanding 5 GHz signal.
Need to cover hundreds of MHz without phase hits or microphonics?

Features:
- Superb phase noise
- Wide band
- Rugged design
- Ideal for ODU/Base station applications

4200 to 4600MHz of **Screaming Hot Bandwidth** in a half-inch package

Running 128QAM and starving for bits? You need the phase noise that only APA’s Physics Based Technology can provide. Fundamental Mode operation, 400MHz of continuous bandwidth, best-in-class phase noise within the 4 to 5 GHz band AND linear tuning that won’t wreck your loop dynamics. Fully characterized over the industrial temperature range, phase hit free and 100% factory tested ensures every bit you send is “in the clear”.
SAY NO TO THE DRO!

Spending hundreds of dollars on fifty year old technology? Come on, get rid of that expensive paperweight! APA Wireless Surface Mount CRO’s offer:

- Lower cost
- Smaller size and weight
- No mechanical tune screw
- Greater tuning bandwidth
- Consistently pure performance up to 6GHz
From the Highest Frequency, Lowest Phase Noise
**Fundamental** CRO’s to Wide Bandwidth Octave units,
**APA** has your Signal Source covered!

Toss the multiplier!
6GHz Fundamental CRO
0.5 ~ 4.5V Vtune
-111dBc/Hz @ 10KHz

**STRETCH** your Bandwidth
with a 2 - 4GHz VCO
Internal Production Controls

- Real-time barcode tracking for complete production and quality history
- Quarterly Metrics Reviews
- Custom Quality Reports
- Electronically Maintained Quality System Documentation
- Real-time Material Review (MRPII) tracking system
- Automated testing capabilities
- Statistical Process Control/Pareto Analysis
- Engineering is ISO 9001:2015 Certified
- Assembly is AS9100:2009 Rev. C Certified
- Military Certification Mil 45208/J-STD-100
- IPC-610 Class 3 Inspection
Juki Pick & Place Assembly Area
Auto-Trim Robot Room
Auto-Trim Software
APA Wireless Summary
SIGNAL SOURCE /VCO-CRO/ PLL SYNTHESIZER SPECIALISTS

Looking for Fundamental Based High Frequency, Low Phase Noise, Wide-band, Ultra Low Jitter solutions to integrate successfully into your RF design? APA Wireless offers Total Engineering Support/Assistance that far exceeds our competitors in helping you attain your system performance goals. Custom designs are our specialty, as we are proud to be a Sole Source Provider on numerous Military Contracts and High-Speed Commercial Communications products.

APA Wireless Technologies is an ISO 9001:2015 Certified developer and manufacturer Voltage Controlled Oscillators, Coaxial Resonator Oscillators, PLL Synthesizers, and Ultra Low Jitter Clock Sources. APA evolved out of a group of companies that have an established 45-year track record in technical innovation and manufacturing excellence. Our products are used globally-Serving the commercial, industrial and military marketplaces.