Reliable Transmitter sites

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- Reliability boils down to predictability and consistency
- Shelter
- Alternative power
- Environmental
- Redundancy in air-chains
- Single points of failure
- Remote access

Shelter!

- Creatures of the wild—can be anything from mice, to rats, to snakes, to termites

Termite damage can lead to further problems down the road. This is one more thing to look at in older buildings.

Look out for hidden leaks!

Shelter!

- Block all ingress points for mice, rats, snakes
- Look for water leaks when it’s raining
- When air conditioners are installed, plan for drainage of condensate!

KRKO/KXXA site flood mitigation

Alternative power

- Generating your own power is not easy
- design issues are size and run-time
- Fuel storage is always a difficult problem
- Can your fuel supplier get to your site?


CAUTION
NO SMOKING
STOP ENGINE
COMBUSTIBLE
LIQUID
3
4
1
FIRE

Testing generators

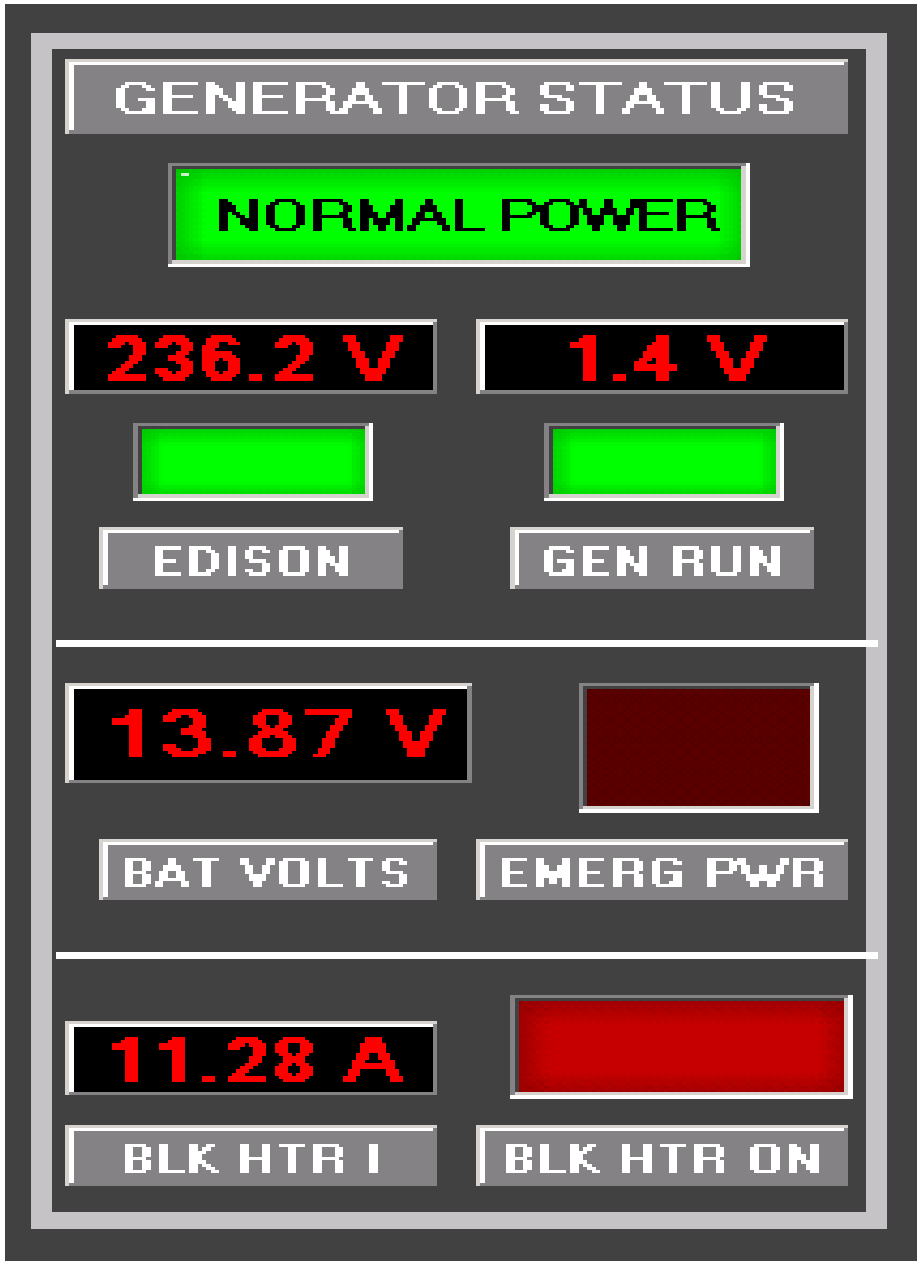
- **normal air-chain should power up and all user-selected configurations should be remembered**
- **UPSs should have no problem running on generator power**
- **IP network equipment restored and automatically connected**

Testing generators

- Many newer generators allow monitoring via serial data
- Monitor the operation of the block heater
- Monitor the battery voltage

Generator monitoring:

It’s a great idea to monitor the health of your generator between uses.



Environmental controls

- presence of microprocessors at transmitter sites makes environmental control much more important than it once was
- Like generators, air conditioners are used to solve one set of problems at a remote site, while bringing their own new set of problems along for the ride
- At a new site, or replacing older A/C units, it’s a great idea to look at units that have remote access.

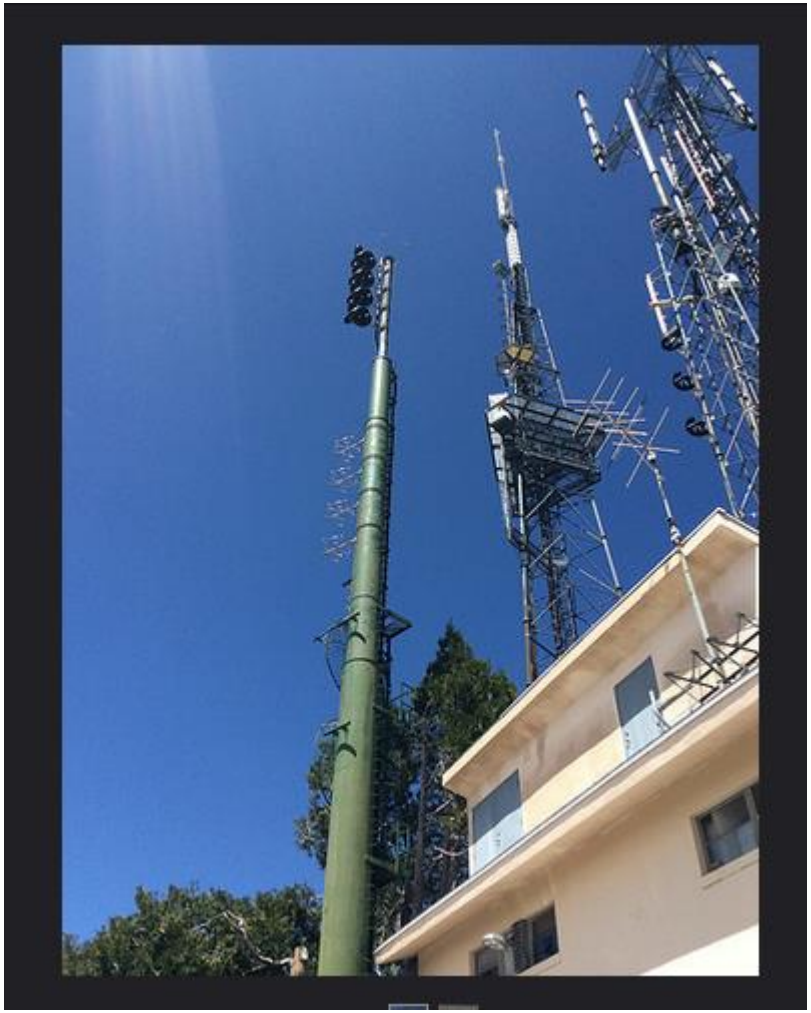
Proactive measurements...

- Measure the room temperature, and separately, the A/C output temperature
- Detect if the A/C unit has been called upon to provide cooling
- Make yourself aware of cooling problems before they get out-of-hand.

Redundancy in air-chains

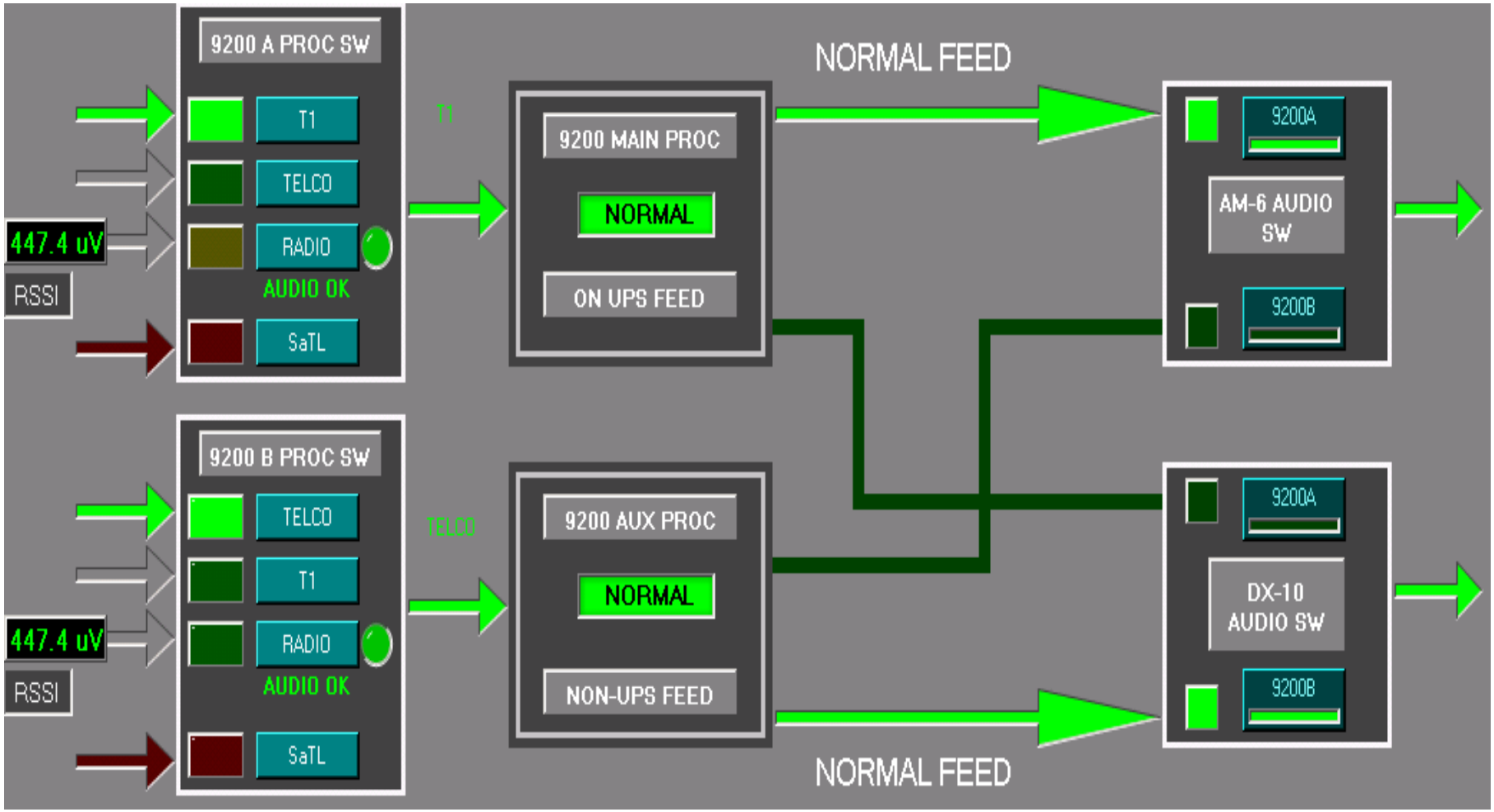
- System redundancy is the key factor in the creation of a reliable transmitter site
- There should be at least two transmitters
- Having access to two antennas is very desirable.
- at least two means of getting program from its origination point to the transmitter site.

Having access to multiple antennas is great, but ideally, they'll be on separate towers as well.



Having at least two means of getting program content from the origination point, up to the transmitter site, is a requirement for a reliable and predictable site. Ideally, one will use wireline, and one will use radio.

Audio matrix at KLAC



Eliminate SPOFs

- Air-chains share same power feed (circuit breaker) or perhaps UPS output
- Air-chains share a distribution amplifier or perhaps an active switcher


3P3-CB1
4P4-CB3


SATS

Subtle single points of failure

- Multiple air-chains that share a distribution amplifier
- Multiple air-chains that share an active switch (i.e., one that needs power to pass signals)

Remote access

- Being able to see what is going on at the transmitter site, while you are somewhere else, is critical
- Using a ’10-dot’ network requires private network access
- Using DSL or wireless IP has its advantages as well

On your own terms!

- Predictability + consistency = Reliability
- no one wants to be called-out in the middle of the night to fix transmitter site problems
- fewer and fewer staff being responsible for more and more remote sites, it’s clear that the minimization of unscheduled, emergency trips is important.

Thanks!

- A complete version of this topic can be found in the February, 2015 edition of *Radio* Magazine.
- Have a great show!