

Cable & Antenna Measurement Basics - Q&A's

SiteHawk

1. Question: Difference between SK6000 and the SK4500?

- a. The difference is frequency range. The SK-4500 has a frequency range of 1MHz to 4.5 GHz. The SK-6000 has a frequency range of 1MHz to 6 GHz.
- b. Please refer to our Sales sheet online [View Here](#)

2. Question: What is the lowest frequency of operation of the Sitehawk? Can it deal with sub 100MHz?

- a. The lowest frequency for both the SK-4500 and SK-6000 is 1MHz. The old SK-4000 (now obsolete) could go down only to 85 MHz.

3. Question: I've had my SiteHawk for a while now. Are there firmware updates I can do?

- a. Bird periodically releases firmware updates to fix bugs that get reported to us or new features are added. The timetable varies. These updates are posted on our website so just check back every now and then.

4. Question: Can Site Hawk be used remotely over ethernet?

- a. No

5. Question: What's the max power can hawk accepts in reality?

- a. The SiteHawk puts out its own test signal and does not accept any type of external power into its test port. However, it is possible to have a static charge built up on a coaxial line. The best thing to do is bleed the charge off with a load or attenuator. There is a yellow caution label on the SiteHawk warning not to exceed +22 dB, (158mW) or damage will be done to the instrument.

6. Question: Is the Cable Analyzer the same as the VNA ?

- a. Basically, yes, it could be called a single port VNA.

Calibration

1. Question: Does the calibration tool need to be recalibrated periodically in a lab or shop?

- a. Bird recommends annual calibration to verify that it is in tolerance, but we leave that up to the customer and their company's own procedures and practices.

2. Question: Will the calibration correction remember the frequency range so if I change frequencies back and forth will the correction still be valid?

- a. As soon as you change frequencies the Correction is turned off requiring recalibration. However, if the settings are saved in a .cst file (STATUS+CAL), and the calibration had been performed correctly, the calibration for that setup will be restored.

3. Question: If we want to check antenna in cold weather, should we calibrate the test equipment at the operating temperature, or it doesn't matter?

- a. It is best to calibrate at the operating temperature and this would require turning the equipment on and letting it stabilize for 20-30 minutes prior to calibration for best results.

4. Question: How often do you need to calibrate your analyzer?

- a. Calibration is recommended whenever the frequency range is changed and if the distance settings for a DTF sweep is changed.

5. Question: If you set a sweep freq. range and then calibrate - when you recall the sweep, does it retain the calibration?

a. As soon as you change frequencies the Correction is turned off requiring recalibration. However, if the settings are saved in a .cst file (STATUS+CAL), and the calibration had been performed correctly, the calibration for that setup will be restored.

6. Question: What type of RF connector is used on the device? If I want to use an adaptor to a different RF connector type, can I use a 50R load of that connector type to calibrate?

a. The connector is an N(f) connector. A precision open, short, load cal combination or calibration kit is recommended

7. Question: There's 3 ends on the cal-combo unit. What end to use to do the calibration?

a. The SK-CAL-MN-C6 cal combo is a precision short, open, load tool for use in calibration. There is an instructional video here that explains how to do the calibration. [View Video](#)

8. Question: Is it typical for Sweeping tools to go out of calibration after a short time?

a. Normally they do not go out of calibration unless they are mis-handled due to dropping or other types of mis-use.

Software

1. Question: Is there software available for analysis?

a. Yes. We have SiteHawk PC Tool software and is available as a free download from our website. You must save your file in .s1p format to import into the SiteHawk PC Tool.

2. Question: What software is available for producing customer reports?

a. We have SiteHawk PC Tool software and is available as a free download from our website. You must save your file in .s1p format to import into the SiteHawk PC Tool.

3. Question: How often do you supply new firmware or software updates?

a. Bird periodically releases firmware updates to fix bugs that get reported to us or new features are added. The timetable varies. These updates are posted on our website so just check back every now and then.

4. Question: Can you do short distance cable checks? My SCADA system's antennas are roughly 16 -20 ft in length

a. Yes, should not be a problem.

5. Question: Can we sweep a Yaggi antenna inside a building holding it in a jaw or in my hands?

a. You should be able to. Keep the antenna away from metal objects as the radiation patter may be affected.

6. Question: Limit line at -14 on RL does not mimic 1.5:1 in SWR. on my SK400. Is there an update?

a. The SK-4000 will accept up to V1.58. Since the SK-4000 is an obsolete product the firmware is available from our website here: [View Here](#) > Scroll down the page to SK-4000-TC and click on SiteHawk app ver. 1.58

7. Question: Does the sweep damage an active antenna like a GPS antenna?

a. The sweep should not damage a GPS antenna, but it is possible for the SiteHawk to be damaged. The SiteHawk does not want to have anything connected to it with greater than +22 dBm (158mW).

8. Question: What units are VSWR measured in? Ohms?

a. VSWR is expressed as a ratio without units. It is a measurement of how well all the components in a system are matched to 50Ω.

9. Question: Should every cable segment be swept for the entire system?

a. Sweeping every segment will help isolate any problems.

10. Question: Is there a way to test an antenna if it's on a high RF tower that has colocated antennas?

a. The best way to sweep an antenna is to connect to it directly.

11. Question: Do we have an option to label the sweep?

a. When a file is saved you can give it its own name.

12. Question: What are the values to expect with a bad connector?

a. A bad connector will have a high VSWR or Return Loss value.

13. Question: Are there plans to implement measurements thru CPRI?

a. This is something we are looking into it but there is no timetable for any implementation at this time.

14. Question: How do you decide what Db to set your sweeps at on DTF or high pass and low pass?

a. The setting is determined by the component specification in your system.

15. Question: Will the device test through the multicouplers on a trunked system?

a. If a multi-coupler is a 'splitter' then you can't read through them. The cable must be disconnected and tested independently.

16. Question: What is the latest model watt meter? The one my boss has the techs using is model 4431.

a. Bird has many wattmeters and power sensors. Go to BirdRF.com for more information.

17. Question: What is the best way to export the data for a report?

a. The saved files can be transferred to a memory stick or if a Bluetooth PC is available the files can be transferred via Bluetooth.

18. Question: What format are the sweep files. Do you need special software on the computer?

a. Files can be saved as screenshots (png or jpeg). If saved as .s1p format they can be imported into the SiteHawk PC Tool.

19. Question: Can you take measurements with other RF on the tower?

a. Yes, there is 13dB immunity to interfering signals.

20. Question: What does the return loss value represent?

a. Return Loss is the ratio of forward power in a transmission to the power reflected back to the source. For instance, a Return Loss of -14dB means that 96% of your power gets to your antenna and 4% is reflected back to the source. A Return Loss value of -9.5dB means 89% of the power gets to your antenna and 11% is reflected back to the source.

21. Question: Do you need to change the velocity factor for different cables?

a. All coaxial cables have a velocity factor and is supplied by the cable manufacturer. You must have the correct value entered into the SiteHawk for accurate DTF readings.

22. Question: Does Bird make test cables that are phase stable?

a. Yes, we have them such as TC-MNFN-1.5.