

Simplified STS Satellite System Check

This Satellite System check is intended to help stake technology specialists (STS), local facilities management (FM) groups, and Church headquarters to assess the health of the Satellite system, and make repairs and system improvements before they become critical.

The STS should complete the Simplified Checklist once per year, and email the results and any pertinent pictures to the Satellite Support Team for review. The Satellite Support Team will review the checklist and pictures for any problems, and make recommendations to the FM group to correct any issues. In some cases where an issue is present but the cause cannot be determined, the Satellite Support Team will request that the FM group complete an additional, more in-depth checklist. Upon completion of the in-depth checklist by the FM group, they will email the results and photos to the Satellite Support Team for review. After review of the in-depth checklist, the Satellite Support Team will issue a report of its findings and recommended course for correction of any problems.

If the in-depth checklist is not required, the Satellite Support Team will make recommendations to the FM group based upon the review of the Simplified Checklist.

The checklist is organized so that each numbered section contains a titled defining what is being checked, followed by a reporting box and instructions for completing the check. You should complete each item in the checklist by following the directions indicated and recording the results in the Reporting box as the instructions direct.

Many sections also contain sample pictures and are provided as a guide. While the equipment in your system may vary, please ensure that the pictures you return with your checklist follow the same format as the sample pictures.

Additionally, this checklist includes The Satellite Cabinet Information sheet and should be placed in the satellite cabinet providing information about the system that may be needed when calling for support as well as a place for recording information about the system throughout the year. Each year when the system check is completed, the Satellite Cabinet Information sheet should be replaced with the most current information.

When the checklist is completed, email it along with the pictures taken during the system check to SatelliteCheck@ldschurch.org. Any deficiencies found will be reported to the FM group so they can be fixed.

If at any time during the system check you have questions, please contact the Global Help Center (801-240-3454, options 1, 3, 4.)

Satellite Checklist

Name of Person Performing the Check:

Date:

Building Property #:

Before you begin, gather the following equipment:

- Digital Camera
- Thermometer
- Keys to the Satellite cabinet
- Keys for the Satellite Antenna if locked
- A pen or Pencil

1. Equipment is Properly Mounted in Cabinet:

- If the equipment is mounted in a cabinet,
 - Open the front door to the cabinet and take a picture of the equipment
 - Swing the middle section of the cabinet away from the wall,
 - Take a picture of the back side of the equipment in the middle of the cabinet
 - Take a picture of the Backside of the cabinet (this is the section that is mounted to the wall
 - Look in the cabinet, and take a picture of any equipment that is not securely mounted in the cabinet (i.e. loose, dangling or unsecured)
- If the equipment is not mounted in a cabinet, take a picture of the equipment, clearly showing its location and how it is arranged.



Equipment is mounted In Cabinet?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Pictures?	<input type="checkbox"/> Complete	

2. Verify that the coax grounding block inside the rack is properly grounded and installed:

- Inside the Cabinet, Locate the cable that connects to the satellite dish.
- Take a picture of this cable, and any equipment that it connects to before connecting to the receiver
- If a grounding block is installed:
 - Take a picture of the grounding block,
 - Take a picture of the grounding cable attached to the Grounding block
 - Take a picture of any other equipment that is attached to the same ground.



Grounding Block is installed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Block connected is to ground?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Pictures	<input type="checkbox"/> Complete	

3. Check the Cable Connectors

- a. Inside the Rack, take a picture of each type of cable connector within the rack.
Note that it is not necessary to disconnect the cables to do this. They may remain attached to the equipment.

Pictures	<input type="checkbox"/> Complete
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4. Verify that you can locate the Audio backup equipment in the building:

- a. You can locate where to find the equipment necessary for an audio backup: Either an Ej-10, TTAI-B, EJ-R along with the appropriate phone cords, and Mic cable.
- b. After you have located the Equipment, note the model number and storage location on the Satellite Information Sheet
- c. In the box above, write in the part numbers for any audio back up equipment available.

You can locate the backup equipment	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Storage location is noted on the Satellite Information Sheet	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Equipment model number(s)? _____		

5. Check the Receiver Status Light:

On the Front of the Receiver, locate the "Status Light"

- a. The Light may be Green, Red, and Yellow or unlit. No other colors are possible. If the light appears to be another color, assume that it is the color it appears closest to.
- b. Additionally it may be flashing, or solid
- c. If the status light is solid, write "solid" followed by the color of the light in the PIC Column
- d. If the receiver is flashing, the receiver may be flashing in a pattern, or continuously. When flashing in a pattern the light will have a slight pause in the flashes, and then repeat the same number of flashes over again.
 - i. If the receiver is flashing in a pattern,
 - 1. Count the number of flashes, and then in the box above, check the appropriate status
 - 2. If it is flashing, count the number of flashes before the series begins again, and writes the number in the box above.
 - ii. If the status light is flashing constantly:
 - 1. Write "Flashing constantly", in the box above.
- e. If there are multiple receivers, check "multiple receivers" in the box above, and provide the same information about each additional receiver in the white space of the box above

Color:	<input type="checkbox"/> None	<input type="checkbox"/> Red	<input type="checkbox"/> Yellow	<input type="checkbox"/> Green
Status:	<input type="checkbox"/> Solid	<input type="checkbox"/> Flashing		
If flashing, how many times	_____			
Multiple receivers:	<input type="checkbox"/> Yes	<input type="checkbox"/> No		

6. Check the Eb/No:

EB/No is the standard measure of the signal to noise ratio of the signal. While the system can function with low Eb/No numbers, the system will be more susceptible to interference and failure. To obtain the Eb/No level, follow the receiver specific instructions below.

The model number of the receiver is displayed on the front of the receiver, in the top right hand corner.

- a. Unity 552, Unity 550-2, Unity 550-202
 - i. On the front of the receiver:
 - ii. Press the "Enter" button,
 - iii. The Main Menu will appear on the TV set
 - iv. Press the bottom or down button to highlight "carrier settings"
 - v. Press Enter,
 - vi. The "Carrier Settings" Menu will appear
 - vii. Press Down until "Signal Strength Meter" is highlighted
 - viii. Press Enter,
 - ix. A page will appear on the TV,
 - x. If signal is present, the bottom line below the bar will Read Eb/No followed by a number dB
 - xi. Watch the line for 15 seconds, and record the lowest number that appears in the box above
 - xii. If Signal is not present, a dash will appear, record the signal as not present on the box above
- b. Unity 550, Unity 550-103
 - i. Press the left arrow until "Enter for OSD" appears on the LCD screen on the front of the receiver
 - ii. Press enter
 - iii. A menu will appear on the TV set
 - iv. Use the arrows on the receiver, to highlight "carrier status" on the TV set
 - v. Press Enter
 - vi. A new menu will appear, about halfway down the page is a line that starts Current Eb/No
 - vii. Watch the Current Eb/No line for 15 seconds, and record the lowest number that appears in box above
- c. Unity 500
 - i. Press the enter button on the receiver
 - ii. A menu screen will appear on the TV set
 - iii. Highlight carrier stats
 - iv. Press enter
 - v. A new menu will appear, about halfway down the page is a line that starts Current Eb/No
 - vi. Watch the Current Eb/No line for 15 seconds, and record the lowest number that appears in the box above
- d. Multiple Receivers
 - i. If multiple receivers are present, repeat the same procedure for each one, and record the information for each in the box above

Eb/No Level: _____

7. Check that Every Channel has clean audio and picture:

- a. For each modulator installed:
- i. If there is a TV in the Rack:



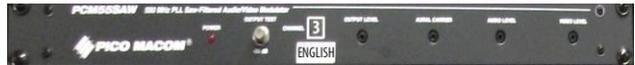
1. Turn the installed TV to the channel indicated,
 2. Watch the picture, and listen to the sound
 3. In the Box above, Write the channel number, and check the appropriate boxes for both audio and video.
 4. If more channels are present in the system than are available in the box above, you may write them on the reverse of this paper.
- ii. If there is not a TV in the Rack,
 1. Turn the installed TV to the channel indicated,
 2. Watch the picture, and listen to the sound
 3. In the Box above, Write the channel number, and check the appropriate boxes for both audio and video.
 4. If more channels are present in the system than are available in the box above, you may write them on the reverse of this paper.

- b. If you are unsure what a modulator is, or looks like, please review the online satellite training videos at the Mhtech.ldschurch.org website

Channel _____	Good Audio?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	Good Video?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Channel _____	Good Audio?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	Good Video?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Channel _____	Good Audio?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	Good Video?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Channel _____	Good Audio?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
	Good Video?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

8. **Verify that all Modulators are labeled with their channel number and language:**

- a. For each modulator installed:
- i. Check the front of the modulator to verify that the modulator is labeled with its channel number and language. (In some cases the modulator may serve multiple purposes, as we connected to a switch or patch panel. In these cases the modulator should be labeled accordingly).
 - ii. If the modulator(s) are labeled, mark “Yes” in the box above.
 - iii. If the modulator(s) are not labeled, label them, then mark “Yes” in the box above
 - iv.



Note: The label should be legible, but does not need to be printed, it may be hand written on masking tape.

All modulators are labeled	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
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9. **Attempt to document any system modifications or deviations from standard plans, and note them in the cabinet.**

Note: Initially you may not be able to determine what system modifications are present, but some will be obvious, and others you will become aware of over time. Do your best.

The circumstances, under which the system is modified, are rare, and should only be made after approval from the FM group responsible for the building. If any modifications are approved, and made they should be noted, along with their purpose, function, who approved them, and in most cases how to get support, on the Satellite Cabinet Information Sheet, which is the last page of this document.

- a. Please be aware, that modification to a system, will limit its ability to function as intended, and may render the system unsupportable by headquarters and the FM group.

Known Modifications are recorded on the Satellite Information Sheet? Yes No

10. **Verify that the help desk number is prominently displayed with the equipment, along with unit number, property number:**

At the end of this document is a sample paper that can be filled out and attached to the interior door of the cabinet to record all of the necessary information about the system. Regardless of whether this sheet is used or not, the following information should be available from within the satellite cabinet including:

- Help Desk Number (800-240-3454)
- The Building Property Number
- Stake or ward Unit numbers for the Units that meet in the building

Satellite Information Sheet is attached to the cabinet? Yes No
Property Number and Unit Number information is listed on the Satellite Information Sheet? Yes No

11. **Verify that raw video jack in the chapel is functional.**

In some newer buildings the system is designed with a raw video feed in the chapel which does not require the use of a VCR or tuner to connect to the Projector.

- a. If there is no Raw video Jack in the chapel select not present in the box above
b. If there is video jack in the chapel, test it by connection the RCA video output from the jack to the Composite video input on the projector
c. Turn the Projector on; use the menu to select the appropriate input.
i. Check the appropriate option in the box above

Raw Video Jack in chapel is functional Yes No Not Present

12. **Temperature of the satellite rack is at or below 85 degrees.**

The satellite equipment is sensitive to heat. High temperatures can cause equipment malfunction, and failure. Using a thermometer, measure the temperature of the room where the satellite equipment is housed.

- a. If the satellite equipment is off when you begin this checklist, turn the equipment on, shut the door to the room, and then wait at least 1 hour before taking a temperature reading.
b. If the equipment is on, when you begin this checklist, you may take the reading at any time.
c. Record the temperature in the box above.

Record the temperature _____

13. Check the LNB Estimated Error (drift)

- a. If the installed receiver is a Unity 552, Unity 550-202, Unity 550-2, check the LNB's drift as follows:
 - i. Press "Enter" on the receiver
 - ii. The main menu will appear on the TV screen
 - iii. Press the down button until "Carrier Settings" is highlighted
 - iv. Press Enter
 - v. Press the down button until "LNB Setup" is highlighted
 - vi. Press Enter
 - vii. At the bottom of the LNB setup menu, there is a line which reads "LNB Estimated Error"
 - viii. Record the LNB drift in the box above
- b. If there is not an Unity 552 receiver installed in the building, Write "Non-552" in the box above

Record LNB Estimated Error _____

14. Have there been any issue with the system over the past year:

If there have been any issue with the system over the past year, the ticket numbers for those should have been recorded on the satellite cabinet information sheet.

- a. If there have been issues, transcribe the ticket numbers from the Satellite Cabinet Information sheet into the box above
- b. If there are no recorded numbers on the Satellite Cabinet Information Sheet, write "none reported" in the box above.

Ticket numbers recorded on the Satellite Information Sheet? <input type="checkbox"/> Yes <input type="checkbox"/> No		
List Ticket Numbers Here		
_____	_____	_____
_____	_____	_____
_____	_____	_____

15. Check the LNB, Is it a standard Brand?

- a. On the LNB at the Dish, attempt to locate the Brand marking for the LNB
- b. If you can locate the LNB brand, enter it in the box above.
- c. If you cannot locate the LNB brand, or are unsure, locate the manufactures markings (usually printed on a high durability sticker), and take a picture. In the box above write "see pic"



16.

LNB Brand _____

Check the Coax Connections:

Each coax cable connection outside of the building represents a chance for the water to enter, and damage the cable to prevent this, each connection point should be waterproofed (weather sealed) with self -vulcanizing rubber (which looks like electrical tape, but is thicker, and has a more rubbery texture). Check that all Coax Cable connections outside the building are weather sealed. They should be wrapped in Self Vulcanizing Rubber, and then Electrical Tape, as shown in the picture at right. Record any connection points that are not sealed in the box above.



- a. Take a picture of all coax connections located outside the building

Coax Connections are in good repair?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Pictures have been taken?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Outdoor Connections are weather sealed?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If No, Record connections that need to be sealed:		
<hr/>		
<hr/>		

17. Check the Coax Cable for cracks and Kinks:

Damages to the Cable can cause signal problems. Record the location of any damaged cables in the box above.

Outdoor Cable is in good condition, and free of obvious cracks and kinks?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If No, have pictures been taken?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Record the location of any possible cable issues:		
<hr/>		
<hr/>		

18. Conduit Weather Head is installed and functional:

The cables from the building should be installed in a Conduit. Near the Dish that conduit pokes up out of the ground. On the top of that conduit is a weather head which prevents rain and water from entering the conduit where it will degrade the cable overtime.



- a. If damage is present, or the weather head is not installed, take a picture of the weather head, and mark “No” in the box above.
- b. If the weather head is installed, and no Damage is Present, mark “Yes” above.

Conduit Weather head is installed and functional? If No, include picture.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Complete
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19. Grounding Block is installed on the Coax cable and connected to Ground.

To prevent lightning damage, a Grounding block should be installed on the COAX outside of the building. When the grounding block is properly installed, there is a short cable that runs from the LNB to the grounding block, the other end of the grounding block is connected to the long cable that runs into the building and connects to the receiver inside the rack. Finally there will be a small grounding point on the grounding block, This will be connected to the ground with a #6 copper cable (about the diameter of a pen or pencil) .

- a. Trace the Cable from the LNB, doe it go to a grounding block?.
 - i. If the grounding block is present, and installed as described, check “Yes” in the box above
 - ii. If the grounding block is either not present, or not installed as described above, check “No” in the box above, and take pictures clearly showing the deficiencies.

Grounding Block is installed as Described below? If not, include pictures?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Complete
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20. Dish is in Good Condition:

Over time, a satellite dish can age, and begin to break or fall apart.

- a. Inspect the dish for cracks, separations or other signs of damage to the dish.
 - i. If you locate any issues,
 - 1. Check “Yes in the box above
 - 2. Take a picture(s) of the issue(s), and check “complete” in the box above.
 - ii. If no damage is located, check “Yes” in the box above.



Dish appears to be in good repair? If not, take pictures?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Complete
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21. Dish is Free of Debris and Obstructions:

Note: Unless, the removal of debris, and obstructions can be accomplished without the use of tools, it should be reported to and completed by the FM group, Simple task such as the removal of small leaves or branches that can be by hand, may be completed by you, but do not necessarily need to be.

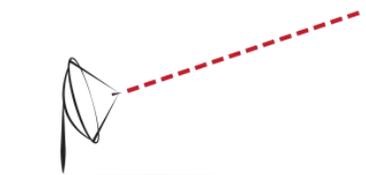
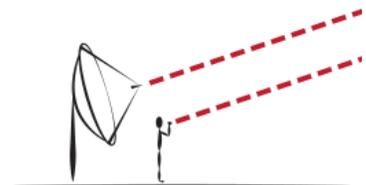
- a. Locate the Dish,
 - i. Check in the dish, and feed horn for any obstructions, or debris that may have fallen into the dish.
 - 1. If obstructions or debris are present, mark "Yes" in the box above.
 - a. If the obstructions can be safely removed, and you are comfortable, remove them, and mark "Yes"
 - b. If for any reason, the debris is not removed, mark "No" in the
 - 2. If obstructions or debris are not present, mark "No" in the box above
 - ii. Check the feed horn for possible insects or wasps
 - 1. If any wasp or insect nests are present, mark "Yes" in the box above.
 - a. If the obstructions can be safely removed, and you are comfortable doing so, remove them, and mark "Yes" in the box above.
 - b. If for any reason, the nests, are not removed, Mark "No" in the box above
 - iii. If any debris, or insects are removed, follow the instructions in Item #6 to obtain the new Eb/No reading, and record it in the box above

At initial inspection, Dish is free of Debris and obstructions?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "No", were the obstructions/debris removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Findhorn is clear of wasps and insects	<input type="checkbox"/> Yes <input type="checkbox"/> No
If "No", were the wasp/insects nests removed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If either debris or insects were removed, Record new Eb/No	_____

22. Take Pictures of the Dish and its View of the Sky

Large objects in the line of sight of the dish, and have an impact on the signal strength of the dish. In order to get an idea of the possible obstructions in and around the dish, please take the following pictures:

- a. Stand at the front of the Dish, looking out at the sky in the same of angle and direction as the dish. As best you are able, take a picture of the sky looking in the same direction, and angle as the dish.
- b. Stand perpendicular to the dish, about 40 feet back, so that you are looking at the side of the dish and take a side picture of the dish, and the sky directly in front of it. Your picture should look similar to the diagram shown to the right.



Pictures taken?	<input type="checkbox"/> Complete
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23. **Replace the Satellite Cabinet Information Sheet in the cabinet.**

- a. Fill out a new Satellite Information Sheet
- b. Unless there are ongoing issues with the system, do ***not*** copy the old Ticket numbers over to the new sheet.
- c. Copy the Eb/No from item #5 to the satellite Information Sheet
- d. Remove the old sheet and place the new one in its place.

Satellite Cabinet Information sheet updated and replaced?

Yes No

24. **Pictures:** In addition to the pictures you may have already taken as part of the Satellite System Check, please take the following pictures

- A front view of the Dish
- And any additional pictures you think may be relevant in documenting the condition



Pictures Complete

Complete

25. **Email** a copy of the completed Checklist, and the associated pictures to: to SatelliteCheck@ldschurch.org.
- a. In the Subject line of the email, enter [Current Year]-Satellite System Check –[insert property number] [Emphasize this more.]

Satellite Cabinet Information Sheet

This sheet is intended to provide the information necessary when reporting, troubleshooting, and reporting problems with the satellite equipment. It should be maintained inside of the satellite cabinet, and updated as required for any changes to the system.

Property Number: _____ Ward or Stake Unity Number: _____

Date of Last System Check ____ / ____ / _____

Eb/No (dB): _____

LNB Drift (MHz): _____

Channel and Language Numbers:

Example: Channel 1 = Creole

Channel __ = _____

Channel __ = _____

If needed, Audio backup Equipment, Model Number(s) _____ can be located in _____

Incident Numbers: Please record the ticket numbers for all calls to the GSC for problems and requests related to the meetinghouse satellite/video system below.

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____