Quick Card

# SCU-1800 Forward Channel Plan (only Sweep insertion points)

The following procedures will show how to program the SCU-1800 using only sweep insertion points in the guard band of QAM carriers in a typical CATV system

NOTE: It is possible that Sweep insertion points may cause pre and post errors due to sweep insertion into Guard Band.

Always verify in Channel Check for BER errors

## Prerequisite

Please Review SCU-1800 Getting Started Guide

## **System Requirements**

SCU-1800 48V DC supply 10/100 BaseT Ethernet connection with static IP ONX-620/630

# SCU-1800 Sweep Settings

- Set the Forward Telemetry Frequency
  - Choose an area of the forward spectrum not occupied.
  - Typical placement is at 51 MHz, 52 MHz, 74.2 MHZ, 90MHz
  - Must be 1 MHz from any other carrier.

## Set the Forward Telemetry Level

- Set the level the same as QAM level in spectrum analyzer
- Verify Level at head end forward TP or Fiber node TP
- Set Sweep insertion level 10 to 13 dB below QAM level. (this should insure no interference to the adjacent QAM carrier)
- See Figure 1,2 and 3



Figure 1: Telemetry and sweep point



Figure 2: Sweep Settings



Figure 3: Forward Telemetry Placement and Level test point

## • SCU-1800 Example Channel Plan

• The graphic below will show a typical channel plan with three different areas to build sweep points



	$\leftarrow \   \rightarrow \   G$	<b></b>	O 🔒 https	:://10.0.0.107/#		
Sten 1. Plan name	🌣 Most Visited 💊 Getting Started					
Step 1. I lan name	VIAVI	Settings	Forward Sweep	Single User Reverse Sweep		
Enter plan name then OK	Forward Sweep Select		New Forward Sweep Plan Step 1: Plan Name			
•	New Forward Sweep Plan					
	Forward Sweep Plan Import		Plan Name:	Sweep Points OK		

Figure 5: Forward Plan name

	New Forward Sweep Plan Step 2: Import Channel Plan				
Step 2 Skip this step					
	Browse No file selected.				
	Import Channel Plan Skip				

Figure 6: Skip this step

# Step 3

٠

Set start and stop frequencies.		New Forward Step 3: Add any a	Sweep Plan additional sweep points.		Press the b button	ack	
- 54 to 72 6 mhz		Plan Name: Sweep Point				Back	
Press add Points		Sweep Points List					
-108 to 576 6 mhz		Type 0	Frequency (MHz) -	Span (MHz) 🔅	Level (dBmV)	Info 🗘	
Press add Points		Sweep Point	54.000		30		
		Sweep Point	60.000		30		
Skip over OFDM carrier'		Sweep Point	66.000		30		
		Sweep Point	72.000		30		
<ul> <li>Add aa single Sweep</li> </ul>		Point Count: 4			(	Delete Selection	
injection at 768		Use level from	channel plan build				
Press the back button		Define Active Can Note: These carriers are not	riers in system which will b generated by the SCU but will be measured	e used as sweep p by the field instrument	oints		
Note: if using OFDM as sweep reference then set start frequency and band width and level to 6 dBmV	Start and Stop	Add Individual Active Channels to be used as sweep points Note: These are active carriers that are to be used as measured sweep points by the field instrument but were not included in the channel plan import. Channel Type Center Frequency (MHz) Channel Bandwidth Level (dBmV) Digital  Channel Channel Bandwidth Level (dBmV) Add Channel					
May need to delete 138 and 612 for leakage tag	Add single carrier	Define carriers to be injected by the SCU-1800         Note: These are pulsed seveep points: generated by the SCU-1800 in uncocupied spectrum         Add Multiple Sweep Injection Points:         Note: The function inserts: a siveep point at the start frequency given and will inject a siveep point every XX MHz defined by the Sweep Carrier Spacing up to an on function of the spacing boundary. This function utilizes a 500mtz given back spacing and will only insert siveep point, where there is at least 500kHz analizable from any previously defined carrier or siveep point.         Walie Prequency: Range:       4 MHZ in the Guard band         42 - 1218 MHz       1 - 8 MHz         Start Prequency (MHz)       Stop Prequency (MHz)         Start Prequency (MHz)       Stop Prequency (MHz)         Start Prequency (MHz)       Stop Prequency (MHz)         Add Individual Sweep Injection Points         Note: These are pulsed severe points pulsed to the 5CU-1900. Recommended to have 500mtz available spacing on the stop ont					
		Center Frequency (MHz) 768		and the same where is a shallow	, share it in any longe		
						Add Point	

Figure 7: Adding Sweep insertion points



Figure 8: Activate Sweep Plan

**Note**: When the sweep plan is running the forward telemetry can be **verified** in the forward spectrum in live max trace.



## Figure 8: Start Sweep

levels •

- Testing the forward Sweep
  - Using the test point in the headend and setting the configure on the meter verify Telemetry • and sweep level



Review step 3 to insure the correct Guard band frequencies

10.0

MER (dB)

Stop

ADJ CH A 0.1

dB Channel

Freq (MHz) Level (dBmV)

Channel Search

Display

- Testing the forward Sweep
  - Using the test point in the headend and setting the configure on the meter test the forward sweep with ONX

#### Successful Sweep

Forward Absolute and Referenced Sweep Max Min on Referenced sweep < .8 typical

Sweep Configure Sweep	Forward Sweep	A Forward Sweep			
Changes will restart test	Absolute Referenced Alignment	Absolute Referenced Alignment			
SDA 5500 Telemetry Frequency 51.000 MHz	Reference: NONE Cascade Number: 0	PASS Reference: nodePort1 Cascade Number: 0			
SDA 5510 Telemetry Frequency 52.000 MHz	Fwd TPC:         20.0 d8 Tilt Comp. :         0.0 d8           Fwd Telemetry :         17.7 dBmV            A:         54.000 MHz         10.0 dBmV	Fwd TPC:         20.0 dB Tilt Comp. :         0.0 dB           Fwd Telemetry :         17.7 dBmV			
Reverse Sweep User Mode Multi User	B: 768.000 MHz 8.7 dBmV Min/Max Δ: 1.3 dB Δ: 714.000 MHz -1.3 dB	10: 768.000 MHz 0.0 dB Min/Max Δ : 0.7 dB Δ: 714.000 MHz -0.1 dB			
Enable Sweep Limit	12.0	2.0			
Digital carrier bandwidth 6.000 MHz	10.0	0.0			
Sweep Limit 2.0 dB	8.0	2.0			
Cascade Limit Multiplier 0.20	1.0 (B)mi/	4.0			
Max Cascade Number	54.000 MHz 768.000	57.000 MHz 753.000			
	Zoom Pan Marker Horizontal	Zoom Pan Marker Horizontal			
Settings from Dune	A A A A A Configure Display Stores Display	a a a Configure Display Seeup Mode Step			

Figure 10: Sweep Configure Screen

Figure 12: Successful Forward sweep!

## Addendum

Use Channel check to verify no BER errors and DQI level less than 10

## Note :

If BER errors occur, then lower the sweep insertion levels. Attenuate externally if needed.

Review step 3 to insure the correct Guard band frequencies