



SmartScan™ Finding Problems between TAP and the Home

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Finding issues between the TAP and the Home

- Technician needs to perform an adequate set of tests at the TAP to show that the performance is not meeting specification.
 - Proper Levels
 - Peak to Valley
 - Performance of any offending service

SmartScan™ Helps find Issues

SmartScan™ Technology is Patent Pending

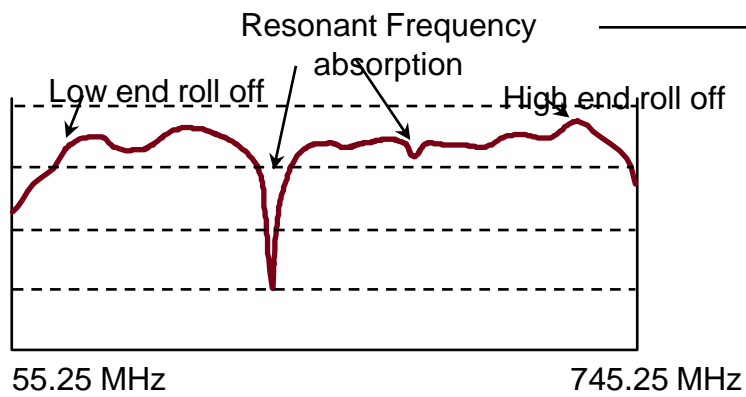
Validate tap performance

Power Levels must be maintained for high frequency losses

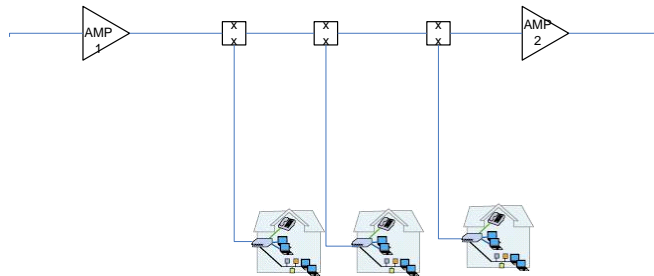
Min analog Video
Ch 2-78 15.6dBmV

Min QAM
Ch 79-158 8.75 dBmV

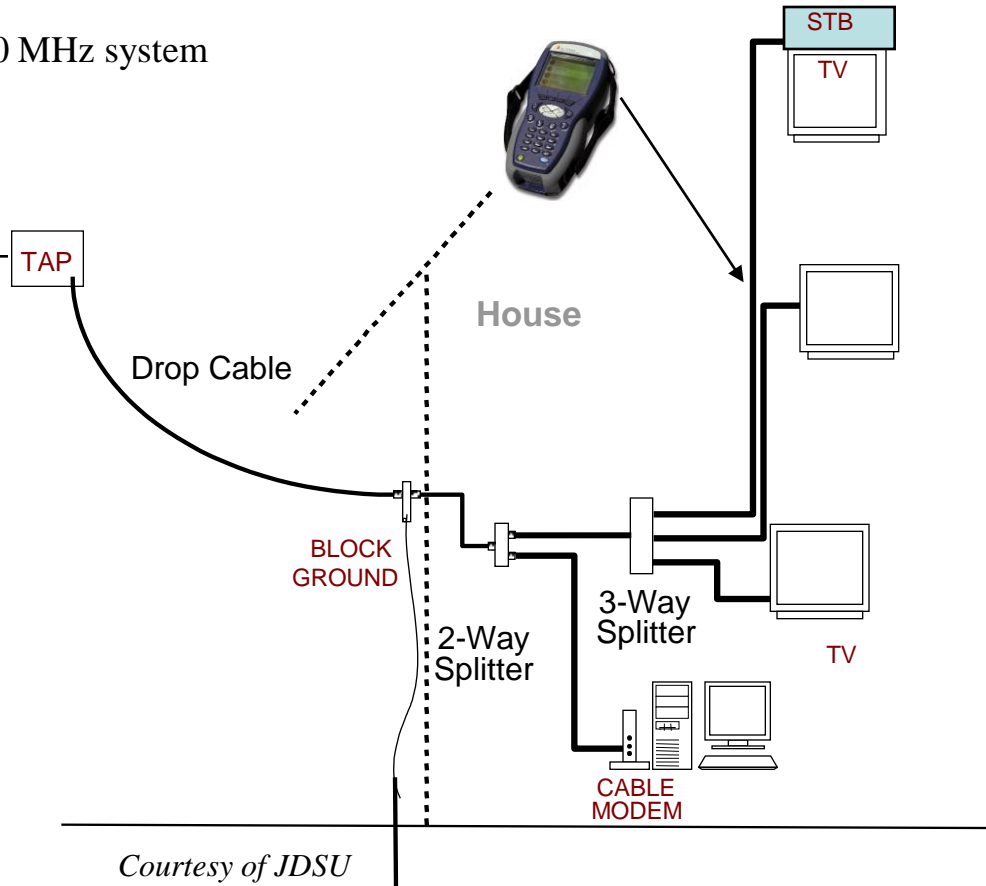
1000 MHz system



Mechanical issues cause customer problems

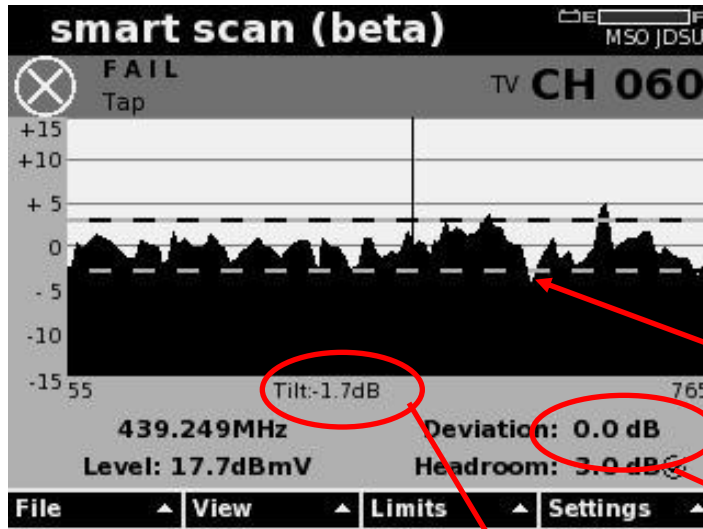


Tilt and power levels change from TAP to TAP



Courtesy of JDSU

SmartScan™ - Finds RF problems at tap



Finds RF response issues that are out of spec

Compares against existing limit set plus peak to valley and max/min tilt

(the peak to valley limit is labeled drop check in the limit set during this beta version)

Automatically Tilt Compensates and Normalizes analog and digital measurements to identify Peak to Valley issues

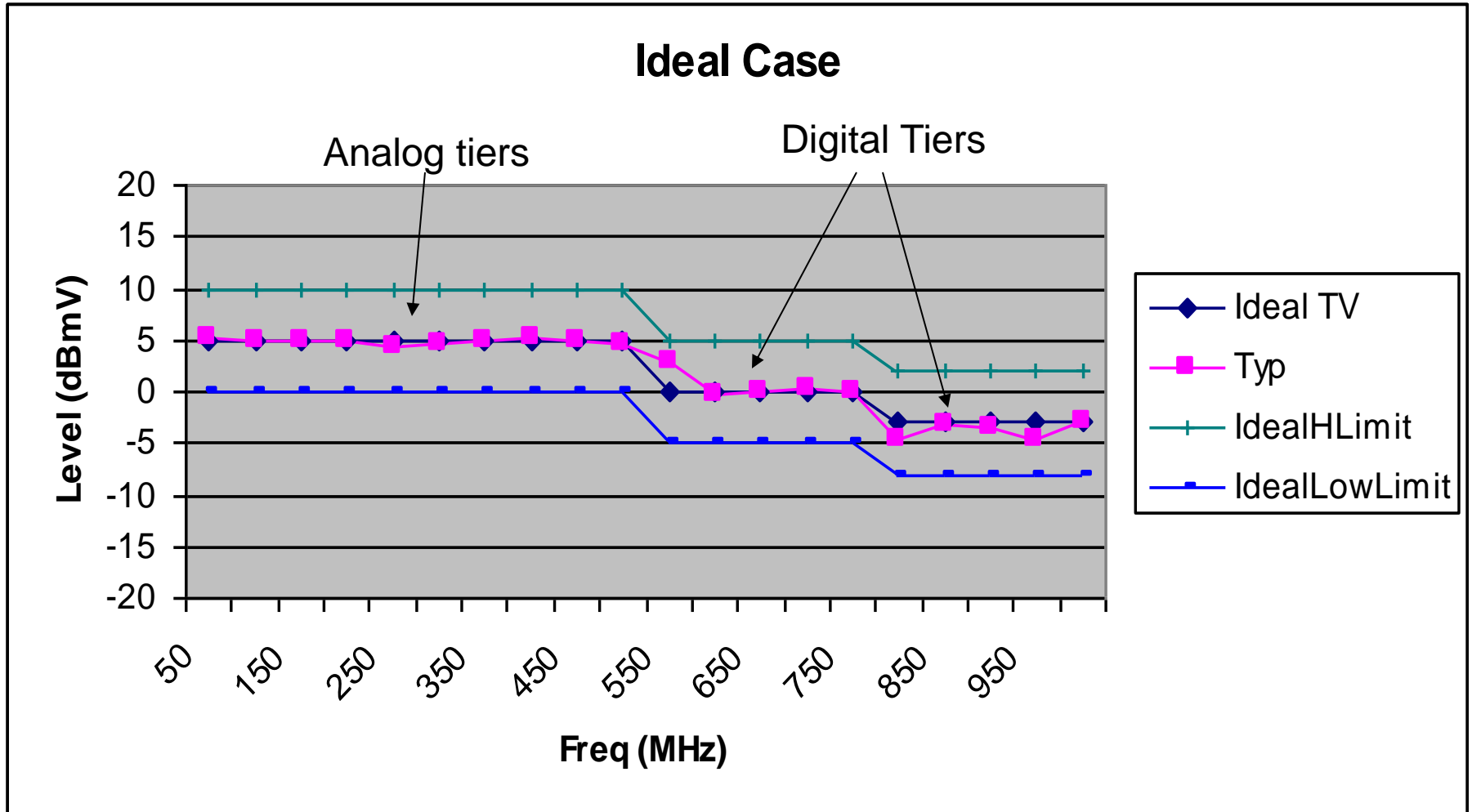
Identifies tilt level at tap

SmartScan will be optional upon final release

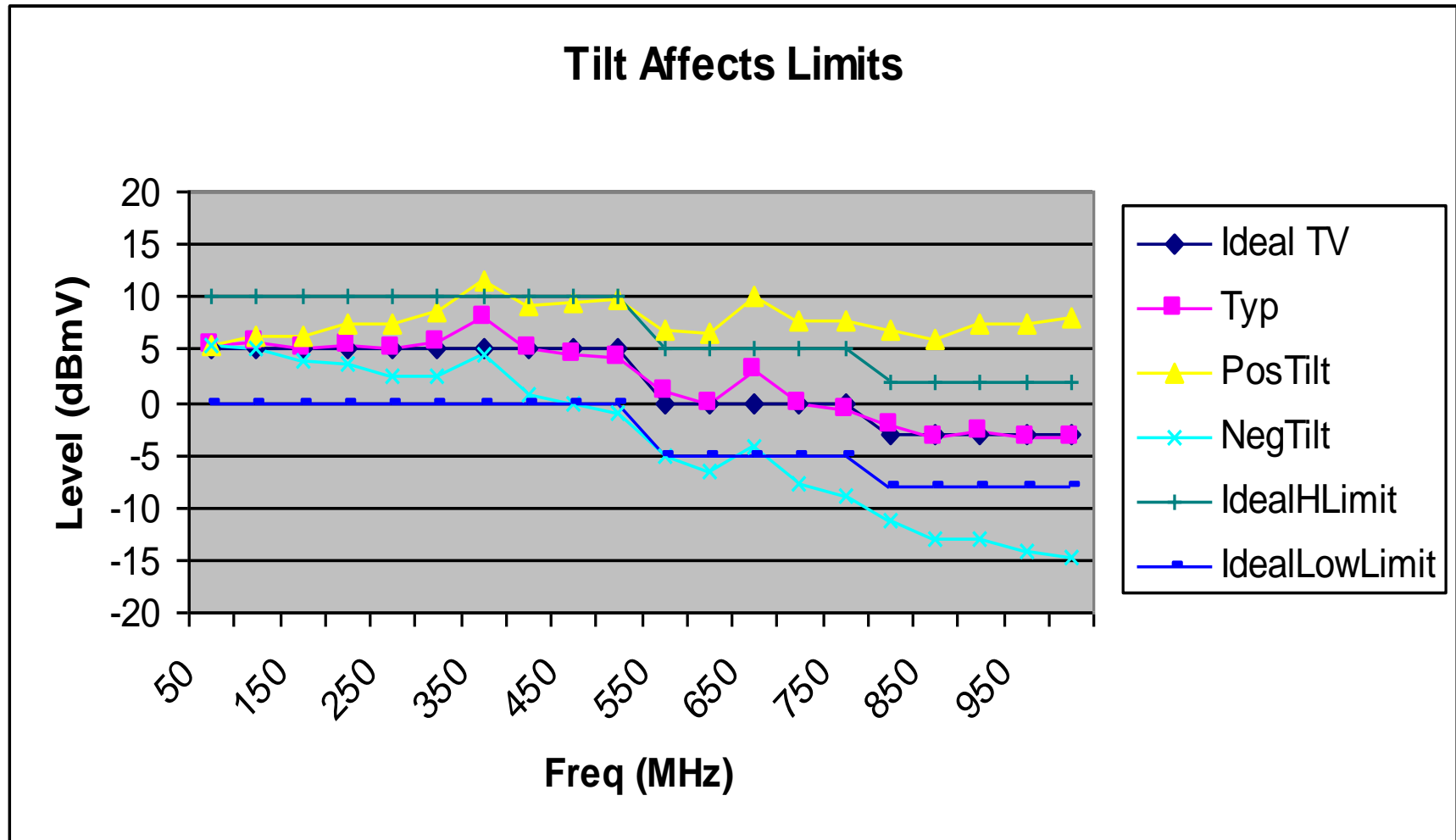
SmartScan Technology is Patent Pending

If systems were flat!

Tight limit bands would be a simple solution



In real systems – tilt happens!



SmartScan™ Eliminates Interpretation issues and solves problems

- Differences in power levels between analog and digital carriers may be difficult to interpret for a technician
- Tilt isn't easily known
 - Techs can't input tilt value to compensate
 - Wider limits allow bad channels to pass
- Adjacent channel comparisons don't find all problems
 - Different digital carriers can be intermixed with analog carriers
 - Roll-off can happen across many channels
- Applying “Freq Bands” is still affected by tilt and allows bad channels to pass

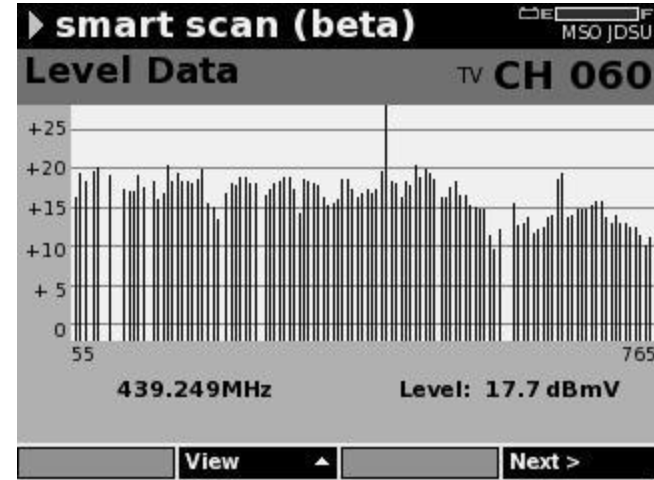
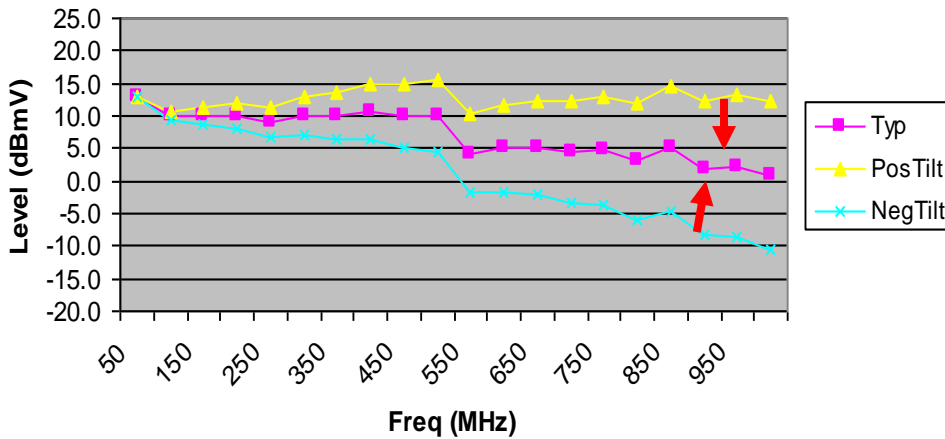
New approach to find issues

- Goal is to find network issues that affect customers
 - Suckouts
 - Bad Channels
 - Bad passives (Tap Plates, 750 MHz splitters, etc)
- Provide Tech with a view that eliminates tilt
- Provide Tech with a view that “compensates” for channel type
- Tighter limit set for tilt and channel compensated view

How do we make this Better?

Step 1: Compensate for Tilt

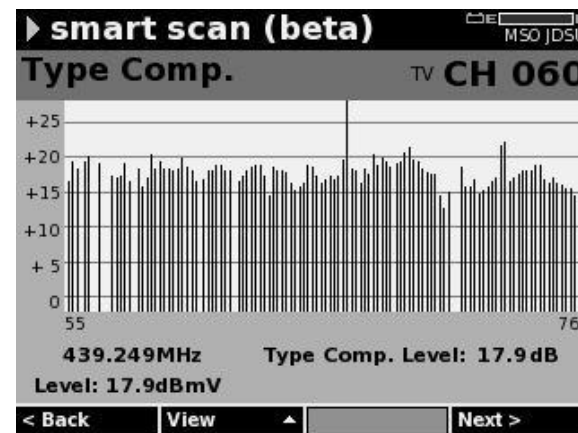
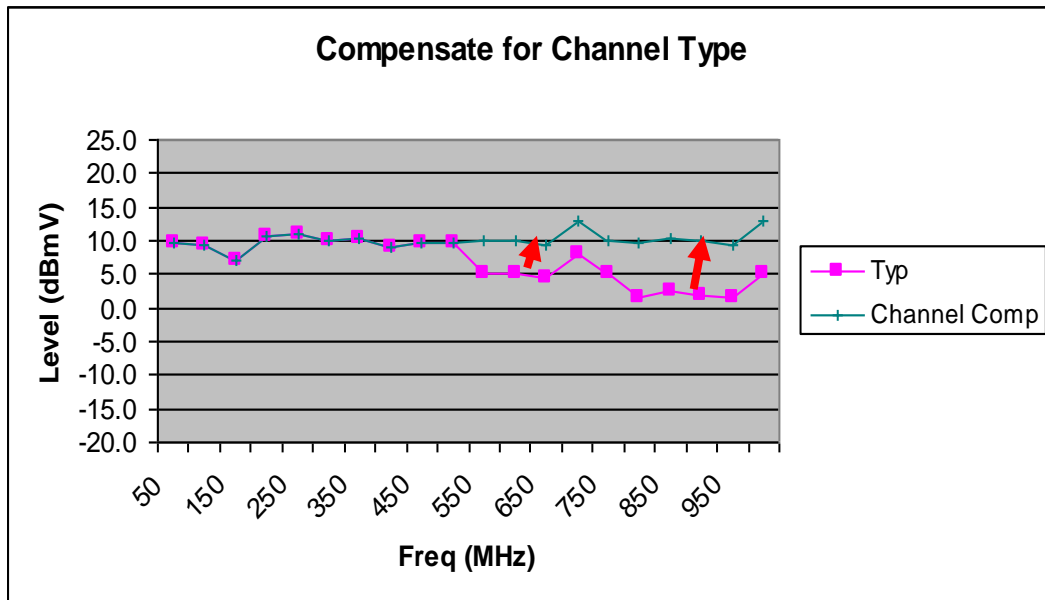
Compensate for Tilt



SmartScan™ Automatically calculates tilt and compensates for system tilt

How do we make this better?

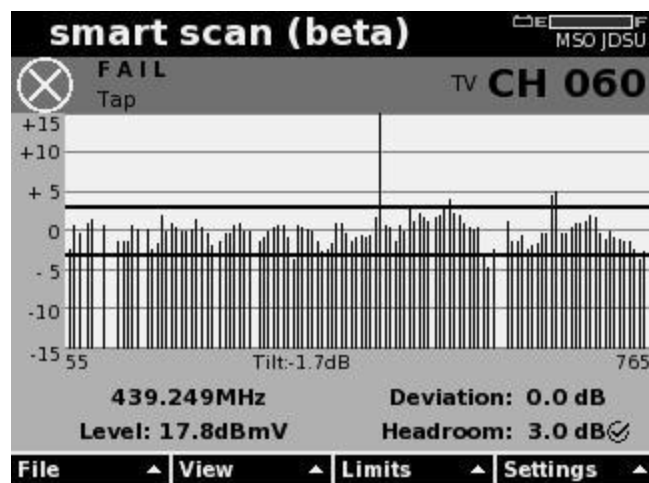
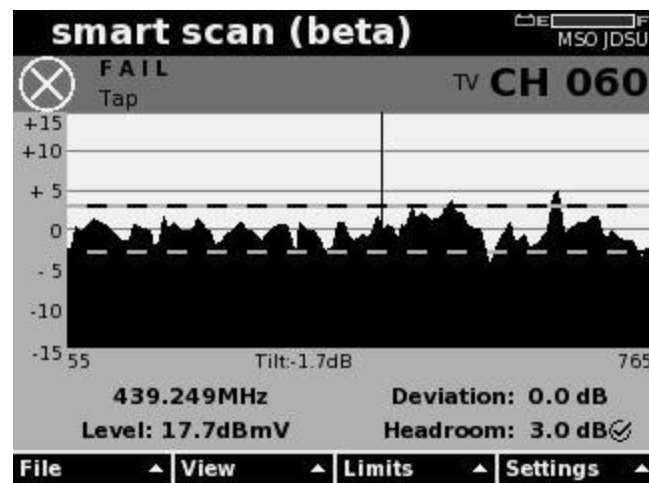
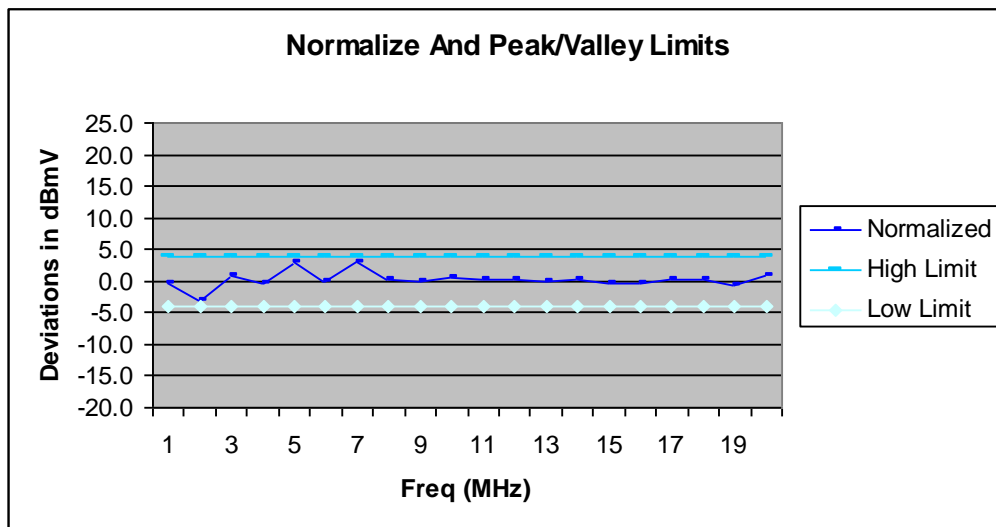
Step 2: Compensate for different channel types



SmartScan™ automatically normalizes carriers based on ch. type trends
e.g. QAM 64 measure -8dB below analog, etc.

How do we make this better?

Step 3: Normalize and provide tighter limit bands



SmartScan™ provides a normalized view so individual channel issues and system problems are easily identified

Other Information

- SmartScan uses all of the enabled carriers in the channel plan just like Full Scan
- SmartScan compares the channels against the active limit set just like Full Scan
- SmartScan adds additional limits of Max Tilt, Min Tilt, and Peak to Valley (labeled as Drop Check in limit settings for now)
- SmartScan (beta) is still in Beta and is not a released item. Feedback is expected on it's performance.
- SmartScan will be chargeable option on some models once it is completed