

Applicants Response to TCB Questions

TCB Question 1: Page 6 of the report states that the device was set to operate at the 100dB gain setting, but the power measurements on page 14 show the input signal level at -20dBm and -33dBm for Downlink and Uplink and output level at 40dBm and 27dBm for Downlink and Uplink. The difference between input and output levels is 60dB, not 100dB. Please explain. Testing should be done with input signal levels of -60dBm and -73dBm.

[Response] Originally, it was tested input signal level -59.4 dBm and -72 dBm at 100 dB gain. However, on KDB 935210 what you provided, EUT should be set maximum input rating and maximum gain. So, I checked the output of -20 dBm and -33 dBm at 100 dB gain and EUT showed same output level because of Automatic Level Control function. At that time, I needed to show the output level at maximum input rating -20 dBm / -33 dBm and maximum 100 dB gain. Please refer below;

The repeater has ALC (Automatic Level Control) function. If specified input level is exceeded, **the automatic control of the attenuator** in equipment is carried out, and an output level is kept constant. Even if it exceeds a maximum input level, repeater is keeping ALC by “Excessive Input protection” function while excessive input protection range

Excessive input protection range is provided keeping maximum output power and avoid immediate shutdown by excessive input. When the repeater detects input which exceeds excessive input protection range, auto shutdown is carried out immediately.

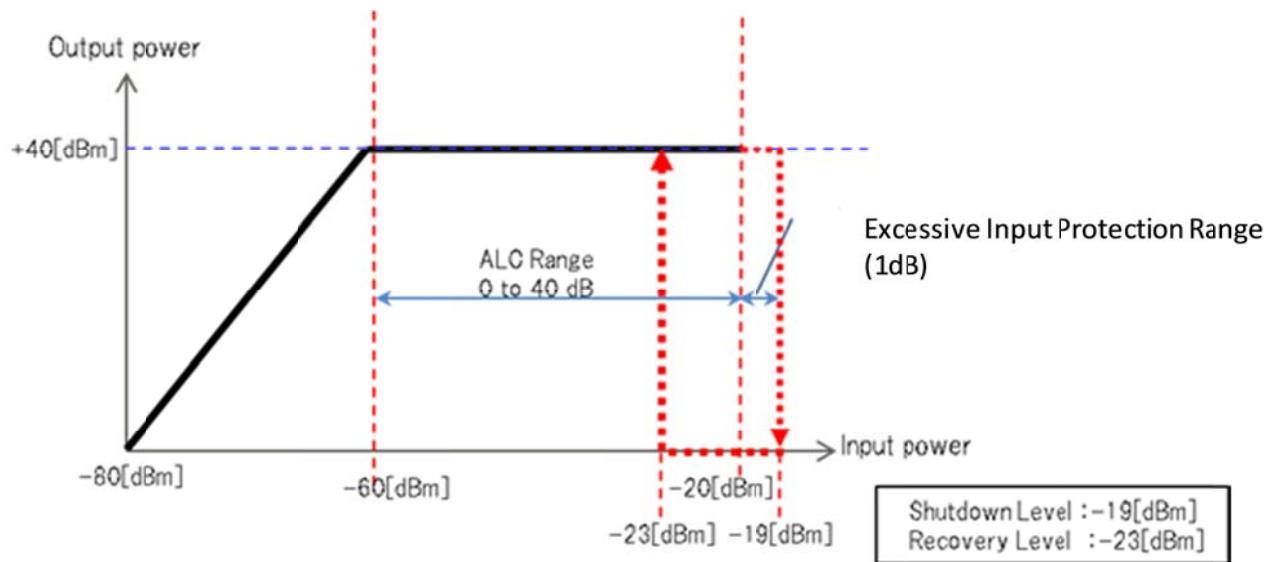


Figure 8 DL ALC/Auto Shutdown/Excessive Input Protection Image @gain 100dB

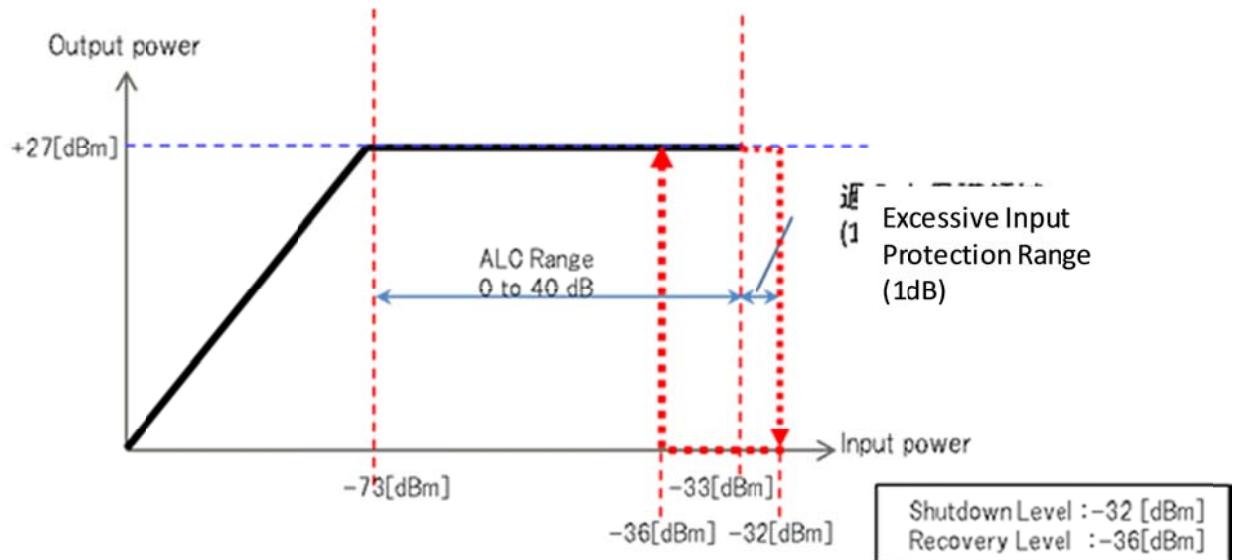


Figure 9 UL ALC/Auto Shutdown/Excessive Input Protection Image @gain 100dB

TCB Question 2: In addition, KDB 935210 states:

Check that the input drive level is at maximum input rating and maximum gain settings for all tests. Check both uplink and downlink input levels. See manual or brochures/technical description for maximum rating.

Confirm device cannot operate in saturation. Are there means to control maximum power and to assure linear operation (use in system configuration may be necessary)? How is saturation or over-modulation prevented for pulsed signal inputs?

Please provide some additional information about how the device gain is set (dynamically or during installation) to ensure the input signal level is not causing saturation and creating additional spurious emissions.

This may require measuring output power while increasing the input signal level to demonstrate that the output level does not saturate. The tune-up procedure describes alarms when input or output levels exceed certain thresholds – what happens when the alarm is set, does the device stop?

[Response] Please refer above “Automatic Level Control function”, the automatic control of the attenuator in equipment is carried out.

It was demonstrated for input signal level -59.4 dBm / -72 dBm at 100 dB gain and -20 dBm / -33 dBm at 100 dB gain. The output level did not saturate.

When alarm is set, the device is shut down.