bq20zxx General Troubleshooting Checklist (rev. 1.01)

	Checklist	Note
	General Visual Inspection	
	Check for any damaged components	
	Verify actual component value vs. schematic design value	
	Check for any bad solder joints	
	Check for missing or desoldered components	
	Wrong Cell Voltage Measurement	
	Check actual cell voltage at battery cell side vs. VCx pins	May have bad components (the RC filters) if voltage value doesn't match. If initial reported voltage is correct, but then it slowly drifted off. This could be caused by a bad filter cap. Inspect or replace the component.
	If VCELL+/- pins are accessible. Measure the VCELL+/- waveform.	See Fig.1
	If external cell balancing is used, check for any damaged FETs	If one cell is reporting a small voltage, while the cell next to it is report a very high voltage. It is very likely one of the cell balancing FETs is damaged
	If calibration data looks abnormal, than save a copy of .gg or .senc file and re-calibrate voltage.	
	Wrong Current Measurement	
	Measure voltage across sense resistor. I = Vsense/Rsense. Compared the measured current vs. device reported current	Could be a bad IC if measured vs. reported current doesn't match
	If calibration data looks abnormal, than save a copy of .gg or .senc file and re-calibrate CC offset and CC gain.	
	Wrong Temperature Measurement	
	Check thermistor contact/soldering	Open: reporting a very high temperature >120degC (at room) Short: reporting a very small temperature <-30degC (at room)
	Check thermistor waveform on TOUT pin	See Fig.1
	Verify data flash Temp coef vs. device default (if 103AT-2 NTC is used)	
	If non-103AT NTC is used, verify data flash temp coef vs. thermistor coef Calculator	Thermistor Coefficient Calculator for TI Advanced Fuel Gauges: slua398
	If calibration data looks abnormal, than save a copy of .gg or .senc file and re-calibrate temperature	

	No Communication	
	Measure regulator voltages	REG33 = 3.3V REG25 = 2.5V
	If regulators are not on, measure VBAT pin and make sure VBAT is >6V Perform a jump start at PACK+	If device is still not powering up, apply voltage on PACK+ (at least 6V). Send failure PCB to FA if device still fails to power up (could be a bad IC)
	If regulator voltages are correct, but there is no communication. Provide SMBus scope capture to TI for analysis	
	Cannot Write to Flash	
	Check if device is sealed. Can only write to flash is device is unseal	
	Check the data flash "Flash Update Ok Voltage" value. Make sure battery voltage is higher than this parameter setting for flash update	For 2-cell application, the default "Flash Update Ok Voltage" is too high. Apply a charger (i.e. voltage at PACK+), and reduce this parameter value to 6V
	IT related Issue	
	For all IT related issues, please provide: 1. gg file/senc file 2. Log data 3. Test procedure	Refer to SLUA474 for detail

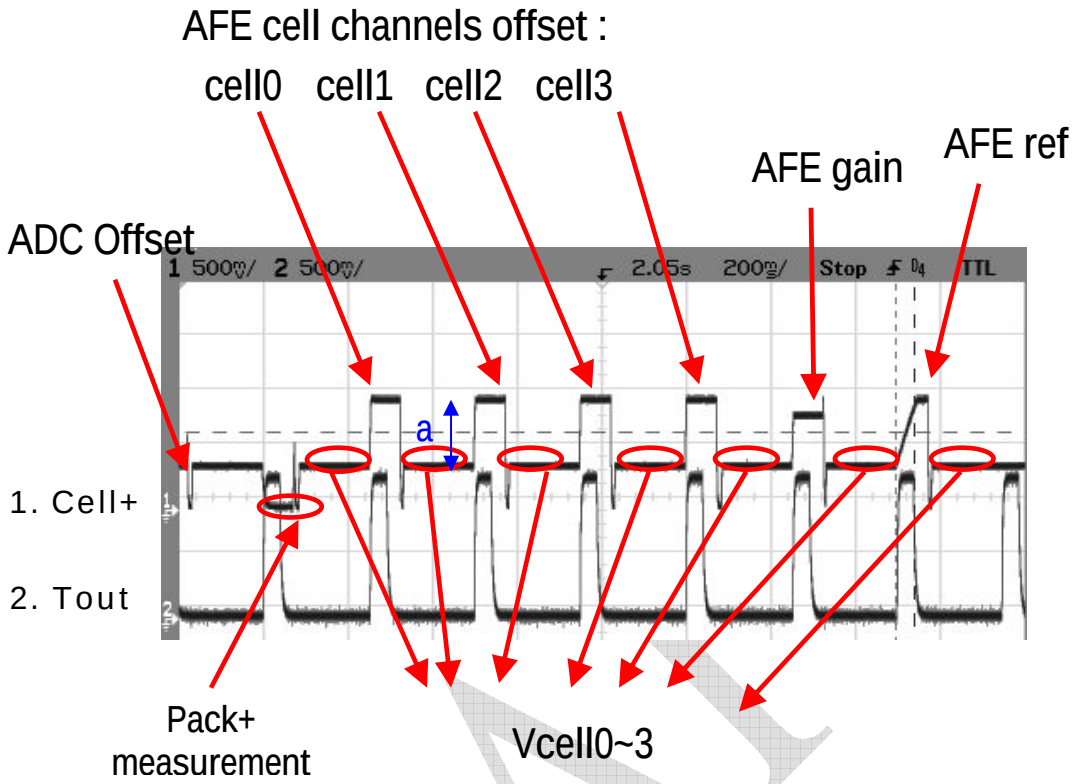

Fig.1: bq20zxx VCELL+ and Tout waveforms. The pulse period is ~250msec.
The VCELL+ signal is inverted – the smaller the Cell Voltage, the higher the VCELL+ amplitude. The delta between Vcell and AFE channel offset (i.e. value a) = the scaled cell voltage = Actual cell voltage * 0.15