Hardware difference between the SCT2400 EVM and the SCT2400 Radio Reference

In the scope of this document the following shall apply:

- SCT2400HDA shall mean the Sicomm SCT2400HDA device (the chip) supplied by CML. EVM shall mean the SCT2400EVM, the evaluation kit for the Sicomm SCT2400HDA supplied by CML.
- Radio Reference shall mean the SCT2400 Radio Reference circuit developed around the SCT2400HDA.
- SCT2400HDA pins are referenced in the text using an upper case letter followed by a number, for example A6. These references can be found on the respective schematics.

A radio can be developed from either the SCT2400 EVM or the Radio Reference. There are slight hardware differences between that two that should be considered. These are described in the following paragraphs.

- The EVM uses only a 5V supply derived directly from the USB connector or from an external 5V power supply, selected by jumpers. This allows a radio to be developed that is tethered to a USB port, a fixed external supply or disposable batteries. To operate with an internal battery suitable voltage regulation and charging circuits, if required, must be provided by the developer. The firmware used in the EVM is available from CML Technical Support on request. This can be programmed into the SCT2400HDA using ST Micros ST Link utility, or similar, and a suitable programmer.

- The Radio Reference provides battery charging using a LM3658SD. The /CHG (charging) indication is connected to A6 and the /PG (power good) indication is connected to A5 on the SCT2400HDA. These pins are not connected on the EVM.

- There are two AT commands supporting internal battery operation; BATLVL and BATVAL. These commands are only available with the Radio Reference firmware and are enabled on the SCT2400HDA. These commands are disabled in the EVM firmware.

- The battery is sampled on the Radio Reference via a potential divider to attenuate the battery voltage by 50% and this attenuated voltage is fed to BAT_DET, PA5 on the SCT2400HDA. PA5 is not connected on the EVM.

- The Radio Reference buffers the red and green LEDS. The red and green LEDs indicate charging and charge complete respectively. When not charging and when the radio is on but not actively transmitting or receiving, the red LED will turn on to indicate if the battery voltage becomes low. These LEDs are also used to indicate the radio Tx/Rx status in both the Radio Reference and the EVM. In the EVM these LEDs are unbuffered.

- The channel switch is a quadrature switch on the EVM. The EVM firmware detects the switch rotation to determine if the channel switch is requesting up or down channel operation. In the Radio Reference, the switches are push buttons and so there is no quadrature sensing. If required, quadrature sensing can be built into an external micro and this micro pulse the

respective +Ch -Ch inputs on the SCT2400HDA as appropriate. The button mapping for the EVM and the Radio Reference can be found in the document, SCT2400 Test Guide and CPS Instructions, page 10. Apart from PTT, the button functions can be remapped using CPS.

- The SCT2400HDA PB8 pin is connected to switch2 in the Radio Reference and the function can be determined from the selection provided in CPS. BOOT0 must be permanently pulled low in the Radio Reference. In the EVM, this key is connected to PB8 and the BOOT0 pin of the SCT2400HDA. This switch has no defined function by default in the EVM.