Justification of test data reuse (HL7812)

October 18th, 2022

Comparison

- Model Name: HL7802
- FCC ID: N7NHL7802 IC: 2417C-HL7802
- Supported Frequency bands
  - Cat-M1/NB1: B1, B2, B3, B4, B5, B8, B9, B10, B12, B13, B17, B18, B19, B20, B25, B26, B27, B28, B66
  - 2G: 850, 1900

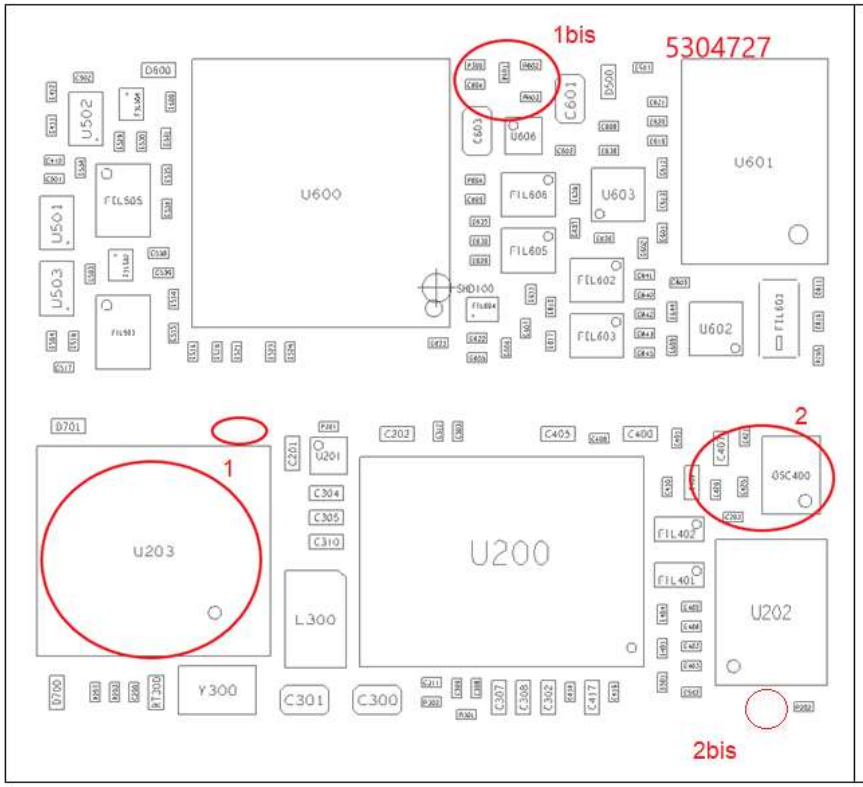
- Model Name: HL7812
- FCC ID: N7NHL78C IC: 2417C-HL78C
- Supported Frequency bands
  - Cat-M1/NB1/NB2: B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B28, B66, B85
  - 2G: 850, 1900
- B8 is covering the range as defined in Part 27 SubPart P
- NB2 is supported through a FW upgrade – no impact

Comparison (continued)

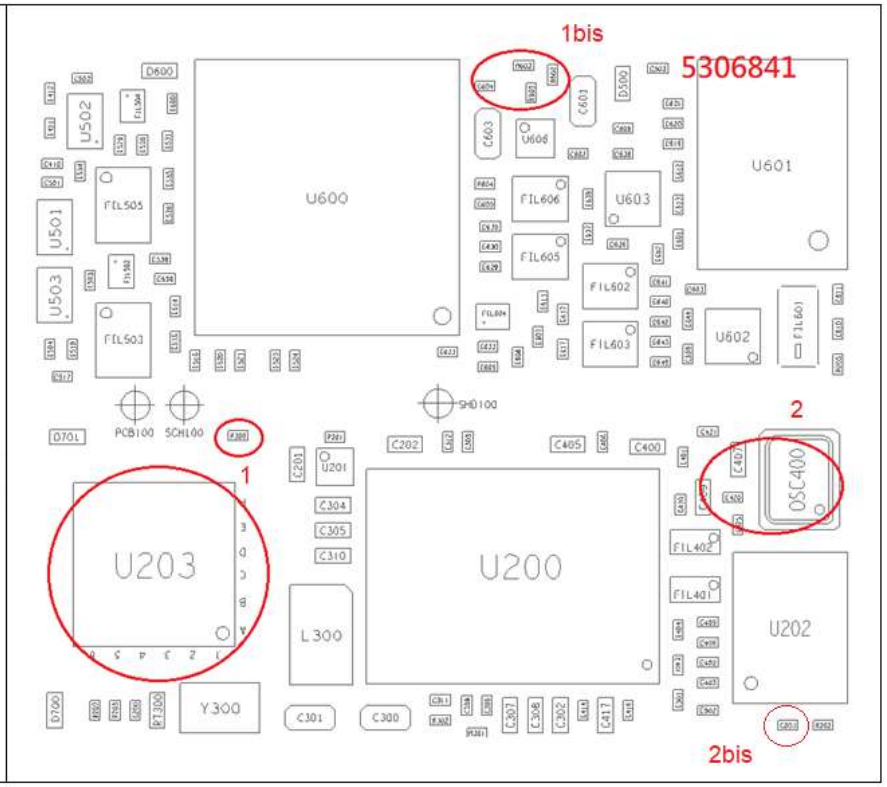
- Both modules have the same form factor, I/O interface, shielding and antenna connectors.
- Schematics:
  - Both modules share the same schematics including BOM
  - Band 8 was already supported in the original product
  - Band 85 is enabled by FW, no change in HW required
- PCB Layout:
  - Both modules use a closely similar PCB, with some passive (resistors/capacitors) as well as the memory (U203) and crystal (OSC400) updated to accommodate those components end-of-life.
  - Performances of the 2 devices are identical

Layout (HL7802/HL7812)

HL7802



HL7812



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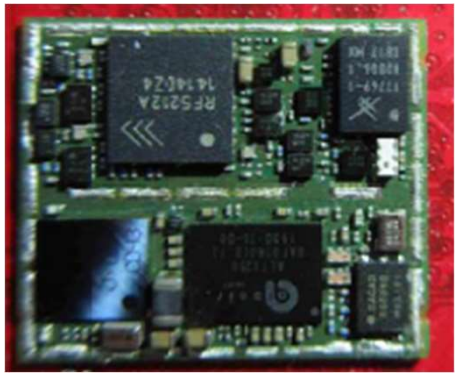
Layout (HL7802/HL7812)



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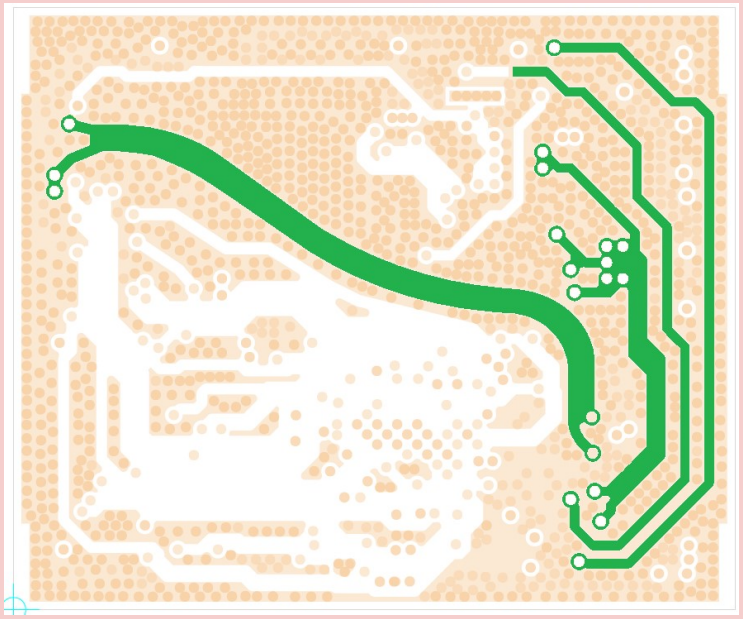
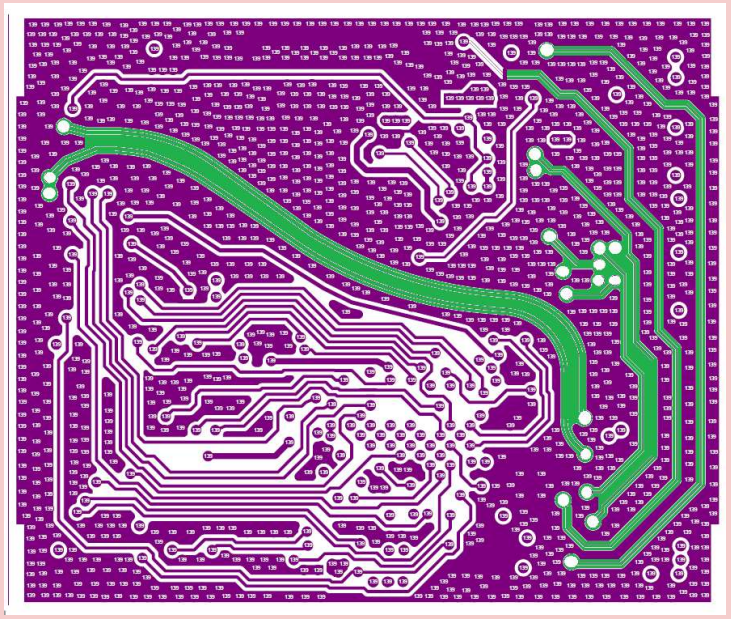
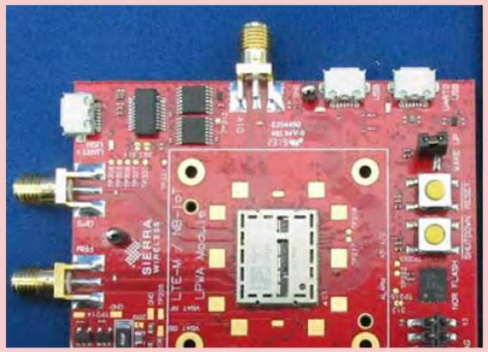
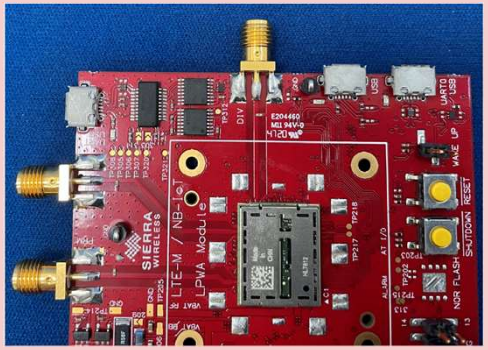
Module RF Trace

- RF Traces for HL7802 and HL7812 are 100% identical

HL7802 RF Trace	HL7812 RF Trace
	

RF Trace design (HL7802/HL7812)

- RF Traces for HL7802 and HL7812 are 100% identical as the development kit used is the same

HL7802 dev kit RF Trace	HL7812 dev kit RF Trace
	

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RF Results

- The components in HL7812 design are identical to HL7802's in terms of characteristics.
- The RF performance of HL7802 and HL7812 are identical with the exception that the HL7812 modules includes additional support for Band 85 (Band 8 was already supported in HL7802 as per 3GPP, not as per FCC Part 27).
  - Worst case testing (based on HL7802 results) was performed on HL7812 and all results are within the max tolerances set forth in the product specification
- All test data of HL7802 per FCC Part 22, 24, 27 and 90 as well as RSS-130, RSS-132, RSS-133 and RSS0139 are valid for the HL7812 module.
- All reports are available in original certification under N7NHL7802 (FCC) and 2417C-HL7802 (ISED)
- Test data for Band 8 and Band 85 are provided as tested against HL7812.
- As such, LTE results from HL7802 can be reused for the FCC/IC certification of HL7812

Thank you

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