



# LS RESEARCH, LLC

Wireless Product Development

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To: FCC and Industry Canada

This letter is a request for a Permissive Change to add a new model: TiWi-BLE to the existing FCC and Industry Canada filing having FCC ID: TFB-TIWI1-01 and IC: 5969A-TIWI101.

The new Model TiWi-BLE uses the exact same hardware as the previous Model: TiWi-R1 and TiWi-R2. The new model is a pin for pin exact replacement and will still support the same modulation and data rates for regular Bluetooth and Wireless LAN as in the original filing. As a result of the same RF hardware we are requesting it be added as a model to the existing modular approval.

The difference between the older model and the new TiWi-BLE model are as follows:

1. TiWi-BLE uses the WL1271L radio transceiver and the TiWi-R1 uses the WL1271
2. The WL1271L has software support for Bluetooth Low Energy
3. TiWi-BLE has a software modification that allows for use of the latest Bluetooth 4.0 Protocol
4. The new BLE protocol is not considered to be a FHSS device but rather a DSSS as it has different frequency range and also uses few channels (40).
5. The BLE protocol is not backwards compatible to original TiWi-R1 and TiWi-R2 models. As a result the change is only for the new TiWi-BLE model.

Because the change is purely in the software and protocol and not the hardware, it is our request that this new model be added to the existing product certifications.

Sincerely,

William Steinike

President of LS Research

# WL127x vs. WL127xL

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# WL127xL vs WL127x

- 127xL has RTPed in October 2010
- **BLE (BT4.0) Support Added in 127xL**
  - BLE Dual Mode supported
  - Supports BLE Master and Slave roles according to the BLE specifications
  - Supports all BLE device categories
  - BLE AFH support
  - Point to Multipoint
- **BT3.0 Support Added in 127xL**
  - BT3.0 features supported:
    - EPC (Enhanced Power Control)
    - HCI Read Encryption Key Size command
  - Remark regarding BT3.0+HS (AMP) : As TI HW solution is fully BT HS ready TI would be able to provide solution when market interest arises. Enabling BT HS will be done through SW upgrade.
- 127xL is same spec and SW backward compatible in all other aspects (WLAN, FM, top level)

# WL127xL vs WL127x

- **FW fixes moved from SP to ROM of 127xL**
  - FW fixes specified in the WL1271 SP 2.38 RN document
  - 1271L SP (BT init script) is smaller and more robust
  - Customers should use updated BT SP when using 127xL
- **SDIO Signal Integrity Improvement**
- **TI shifting volume to 127xL** and recommends to utilize this P/N for all new products – either BLE or non BLE. This will increase flexibility and enable supply continuity by streamline longer term manufacturing to 127xL version.