



July 31, 2012

Via Electronic Filing

Electronic Licensing System
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Re: Cassidian Communications Experimental License File No. 0388-EX-PL-2012, attachment1

Dear Sir/Madame:

This document is submitted as part of Cassidian Communications Experimental License File No. 0388-EX-PL-2012 to address the following Form 442 requirements.

1. The complete program of research and experimentation proposed including description of equipment and theory of operation.
2. The specific objectives sought to be accomplished.
3. How the program of experimentation has a reasonable promise of contribution to the development, extension, expansion or utilization of the radio art, or is along line not already investigated

1. The complete program of research and experimentation proposed including description of equipment and theory of operation.

With the impending creation of FirstNet¹ as the administrator of the National Public Safety Broadband Network (NPSBN) and the dedication of Band 14 spectrum (700 MHz) to public safety broadband use, Cassidian Communications ("Cassidian") as a manufacturer of public safety (PS) mission critical user devices is in the process of developing Band 14 Long Term Evolution (LTE) User Equipment (UE) for use by Public Safety Entity (PSE) users.

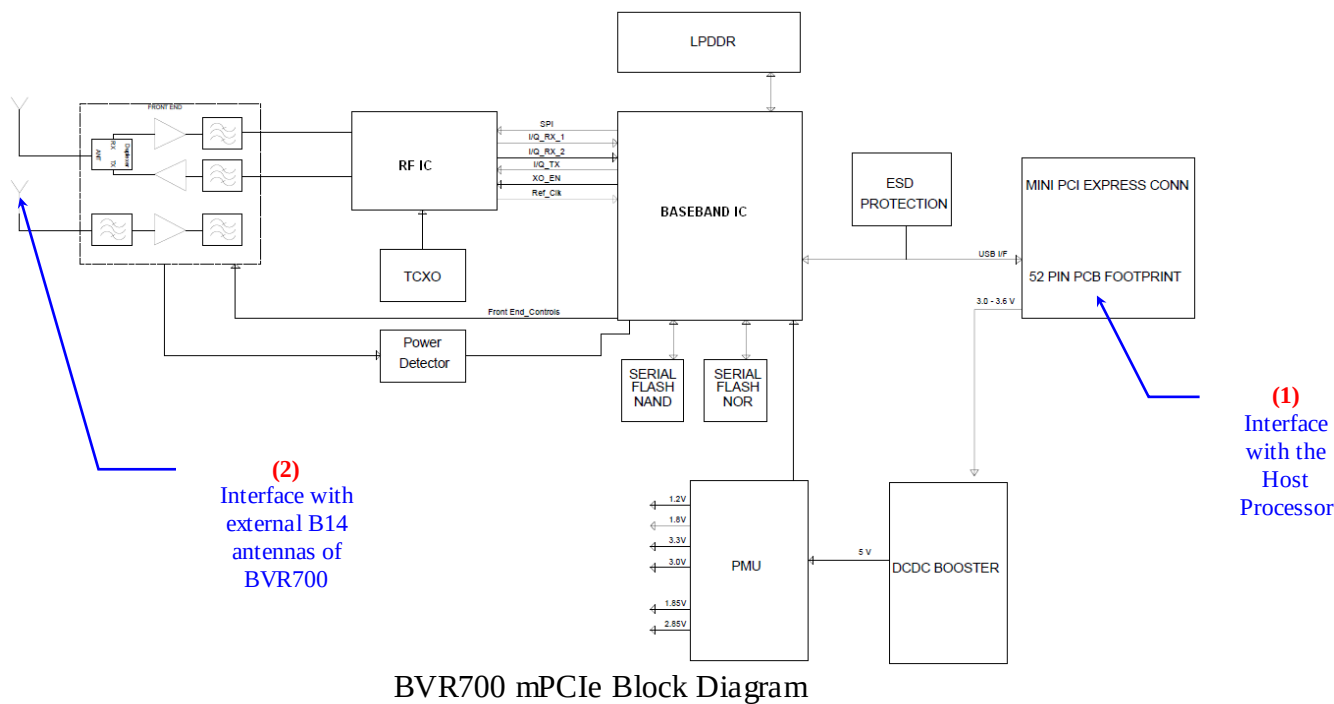
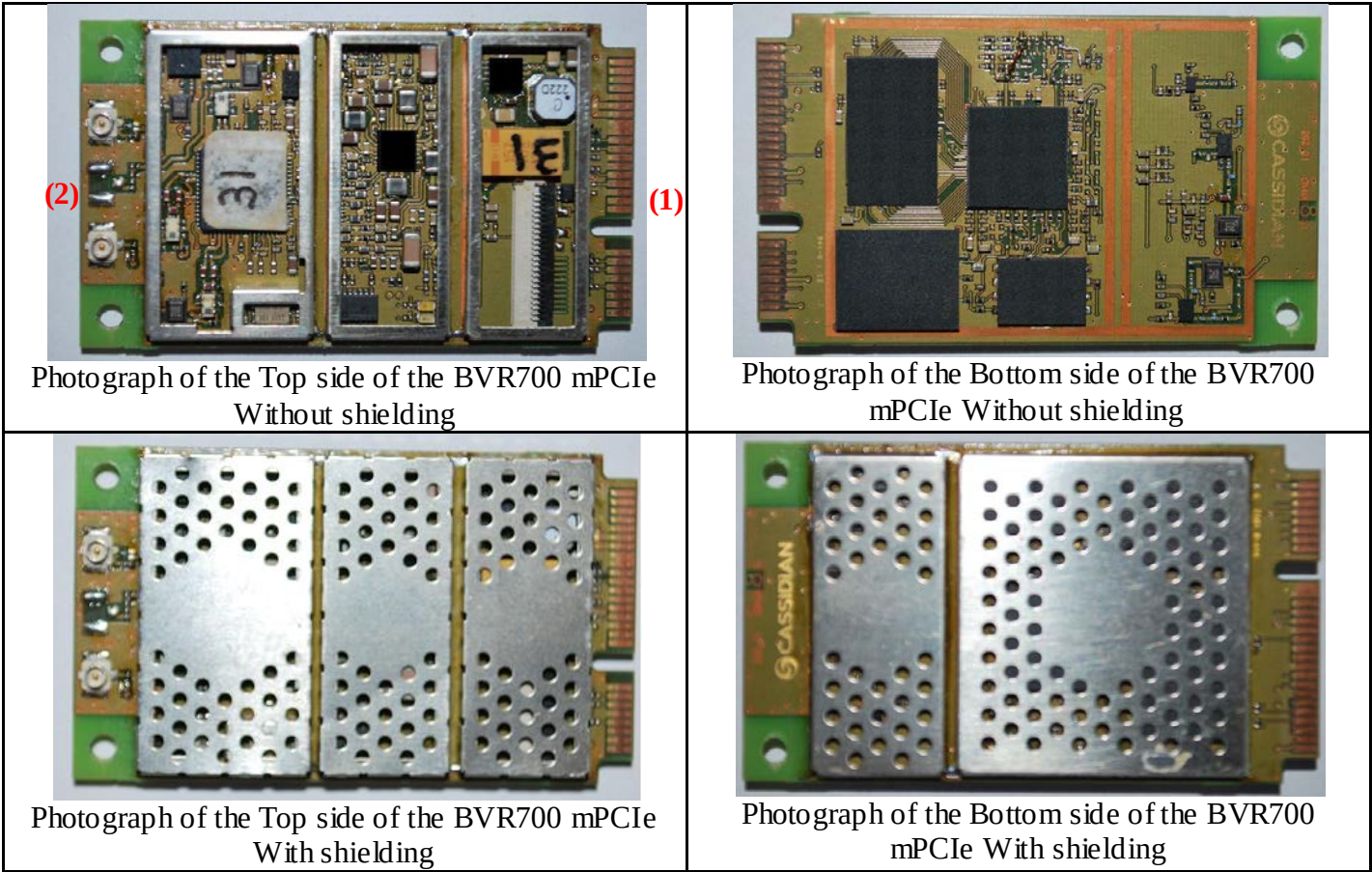
The purpose of this experimental deployment of prototype UEs in the Pinellas County and Tampa Bay, Florida, areas is to allow public safety users to evaluate a proposed Cassidian Band 14 UE implementation and to provide PS user feedback important to Cassidian to continue the development of the UE for ultimate deployment in the NPSBN as eventually determined by FirstNet.

The experiment will consist of selected Pinellas County and City of Tampa PS users operating and evaluating the performance of the Cassidian BVR700 LTE Band 14 capable device. The device will be performing on an experimental licensed trial network owned and operated by Pinellas County Government and AT&T in Pinellas County and Tampa, Florida².

¹ Public Law 112-96

² OET Special Temporary Authority Report, Pinellas County STA_WF9XTC

The following figures illustrate the Cassidian BVR700 mPCIe card:



The Cassidian BVR700 UE device is a 700 MHz Band 14 capable mini-PCI Express (miniature Peripheral Component Interconnect Express or mPCIe computer expansion bus interface) data modem that can be installed in standard mPCIe peripheral slots in a variety of computing devices (i.e. personal computers, tablet computers, mPCIe capable routers/switches, etc.).

Referring to the block diagram the BVR700 mPCIe includes:

- ❑ 52-pin mPCIe connector interface providing interface with:
 - UICC (USIM interface)
 - Main power supply (3.0 to 3.6V)
 - High speed USB2.0 link for data & control
- ❑ Power Management Unit (PMU) designed to supply the operating voltages to the LTE RF and Baseband integrated circuits and other peripheral components such as the UICC (SIM Card). Supply is provided through a DC-DC booster converter.
 - Typical supply voltage of the mPCIe is from 3.0 to 3.6 VDC
- ❑ The Baseband IC is a 3GPP LTE compliant SDR processor supporting LTE CAT-3 throughputs.
 - The IC implements two receive chains and a single transmit chain and operates the entire LTE protocol stack from the PHY to the NAS layer.
 - Interface with the host processor acting as the master processor is USB2.0 (controller and PHY being integrated in the chip already).
 - The LTE Baseband IC also configures, controls and communicates with the RF IC through a SPI interface. In addition, it controls the Power Amplifier (PA) through dedicated outputs.
- ❑ The RFIC is a RF transceiver and the companion chip of the LTE Baseband IC.
 - It supports the 3GPP-defined LTE Band 14 (788-798MHz Uplink / 758-768MHz Downlink) and the two targeted 5 and 10MHz channel bandwidths.
 - The chip is based on a Zero-IF architecture and integrates VCO, PLL, loop filters, and the driver for the PA among others.
 - Other peripheral RF components are part of the RF Front-End.
- ❑ The RF Front-End is specific to the 3GPP LTE Band 14.
 - It includes RF balance for matching purposes, SAW-duplexer filters for TX and RX bands filtering, Low Noise Amplifiers for each receive chains and the PA stage for the transmit chain.
- ❑ Other peripheral components are:
 - LPDDR (Low Power Double-Data Rate SDRAM) for software storage.
 - Serial Flash memories for the LTE software stack and boot.
 - 26MHz TCXO feeding the chips for the system reference clock.
 - Slow clock oscillator for low power booting and proper timing during idle modes.

2. The specific objectives sought to be accomplished.

PSE users will be evaluating the Cassidian BVR700 UE device for:

- UE data uplink and downlink throughput performance
- UE device user experience (i.e. ease of access to web based databases, e-mail, etc., via the BVR700)
- UE device configuration management (i.e. device profile, user profile, device management, etc.)
- UE device security management and configuration (i.e. encryption capabilities)
- UE device location reporting capability (i.e. GPS coordinates reporting)
- UE device physical configuration (i.e. ruggedness)

3. How the program of experimentation has a reasonable promise of contribution to the development, extension, expansion or utilization of the radio art, or is along line not already investigated

This experimental 700 MHz UE user evaluation is to further the ability of Cassidian to design and develop NPSBN user devices that meet the requirements and expectations of PSE users. PSE users have only been shown the potential of “4G” operation through exposure to evolving commercial networks and available consumer UE devices. PSE users wish to personally and independently evaluate and experience UE operation in current PS 700 MHz spectrum to ensure the performance and user experience equals that in commercial networks. PSE users desire to witness and understand the management and operation of a “real” PS 700 MHz device.

About Cassidian Communications

A pioneer in mission critical communications, Cassidian Communications, an EADS North America company, offers a comprehensive portfolio of proven solutions, including TIA-102/Project 25 digital land mobile radio, next-generation 9-1-1 call center applications and notification solutions, as well as a full suite of managed services. Cassidian has significant experience in all aspects of mission critical communications, having designed and deployed more than 200 digital land mobile radio networks in over 68 countries, including 45 of the most sophisticated and technologically-complex nationwide land mobile radio networks in the world. Cassidian Communications has also deployed more than 3,900 call center and 1,000 notification systems, serving over 200M U.S. residents in 27 of the 30 most populous U.S. cities.

A member of the EADS North America family, Cassidian Communications is part of a global leader in aerospace, defense, and related services. EADS North America, headquartered in Herndon, Va., offers a broad array of advanced solutions to meet U.S. military and commercial requirements, including fixed- and rotary-wing aircraft, homeland security systems, public safety communications, defense electronics and avionics, and threat detection systems. The EADS North America operation includes companies and divisions located in 32 cities and 17 states; contributes more than \$12 billion to the U.S. economy annually; and supports over 220,000 American jobs through its network of suppliers