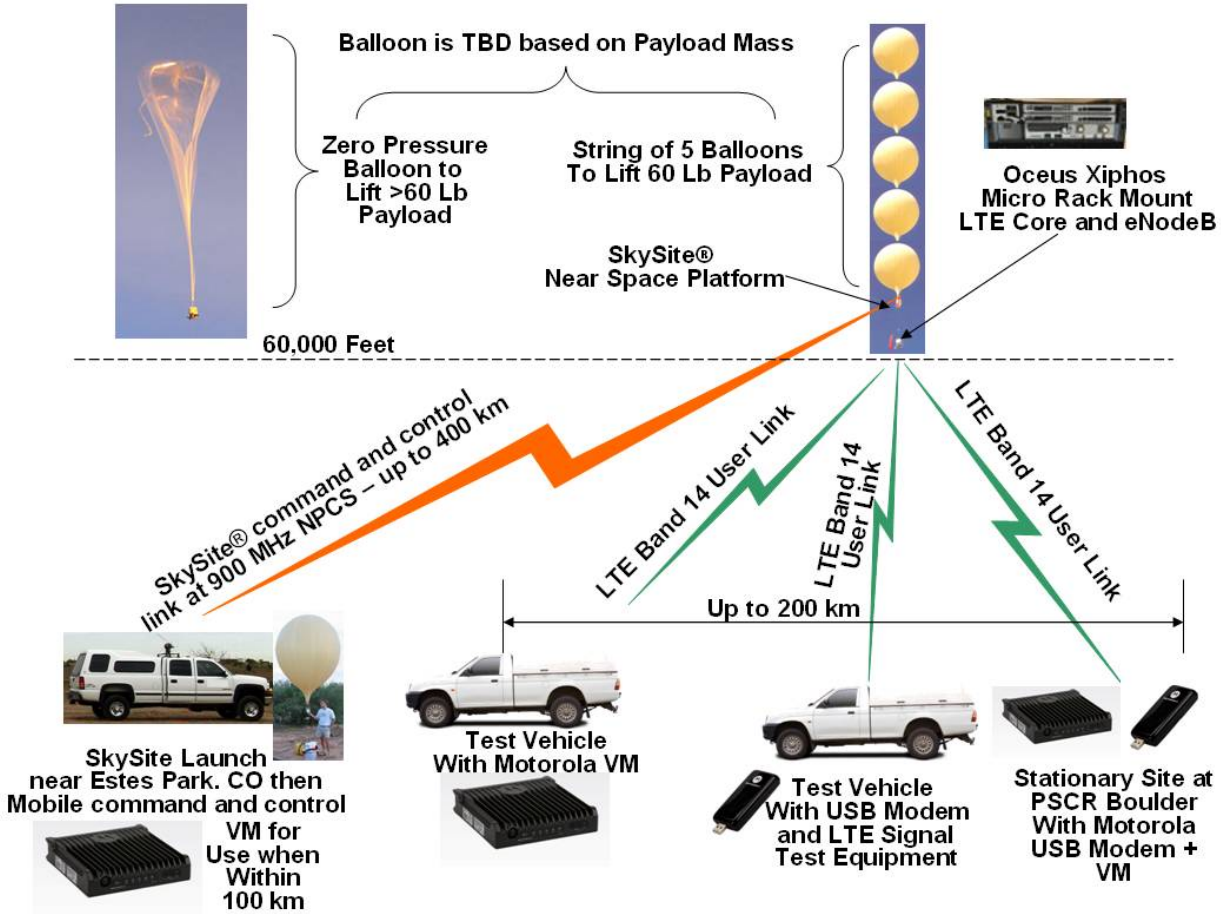
Response to Question 5 of STA Form (Purpose of Operation)

A series of high altitude balloon craft will carry LTE-based transceivers and float at altitudes between 65,000 and 90,000 feet. The flight altitude will be adjusted based on the winds at the float altitude. Once at altitude, the LTE transceiver will allow land-based LTE user equipment to establish test data sessions. The LTE transceiver will be enabled from the ground and will be active during ascent through it reaches the appropriate altitude. Mobile test trucks will gather certain information from the test flights. A schematic of the proposed tests is identified below. The tests are configured to prevent any uncontrolled transmission. After each test flight, the SkySite® platform will be released from the balloon craft and it will float to the ground for recovery. The payload control system used for the trials will be the same control system that Space Data has used in more than 25,000 SkySite platform flights to date. The SkySite altitude and position will be recorded approximately every four seconds for use in later link budget analysis.



Basic Demonstration Architecture

Space Data's proprietary NPCS 900 MHz data link (which will utilize NPCS 900 MHz spectrum licensed to Space Data) from the SkySite® Platform to the ground station will provide the ability to control the LTE transmitter over a wide area (out to 300 miles from the test truck). There will be no backhaul link from the LTE system on the SkySite® Platform as the Oceaus Networks Xiphos core will be flown as well.

The LTE transceiver equipment is provided by Oceus Networks, Inc. ("Oceus"). The transmitting equipment is an Ericsson RBS 6000 series Radio Unit (RUS 01 B14) which has been Type Certified by the Commission under ID TA8AKRC11895-1. Space Data is coordinating with the Public Safety Communications Research (PSCR) center in Boulder Colorado to perform any additional testing that PSCR requests. The small system used for these demonstrations consists of the following Ericsson components: Radio Unit (RUS 01 B14) and Digital Unit LTE (DUL). These components together effectively form an LTE eNodeB. The LTE core will be implemented by Oceus on a mini-ITX based computing platform. In order to reduce weight, only the components listed above will be flown and the rack mounts and power distribution system typical in a Xiphos system will be replaced with batteries and a graphite composite structure. The battery pack design will ensure the voltage delivered to the components falls within the range already tested in the FCC Type Approval Testing for the RUS. The structure and thermal management system will be designed to maintain the Ericsson components within the temperature ranges they were tested to during FCC Type Approval testing. Furthermore, the active radio components (RUS) internally disable the transmitter if the temperature of the RUS is sensed by the RUS to be outside of its operational temperature range. Other components are mechanical structure and their replacement will not affect the RF performance of the components.

The ground infrastructure includes the equipment, manpower, and logistics of the launch and recovery systems, and the ground station for tracking and controlling the airborne system. The core will be flown on the SkySite® Platform, but can be controlled from the ground via a low data rate ASCII command line interface. More information regarding Oceus' equipment is available at http://oceusnetworks.com/resource-center/datasheets/xiphos .

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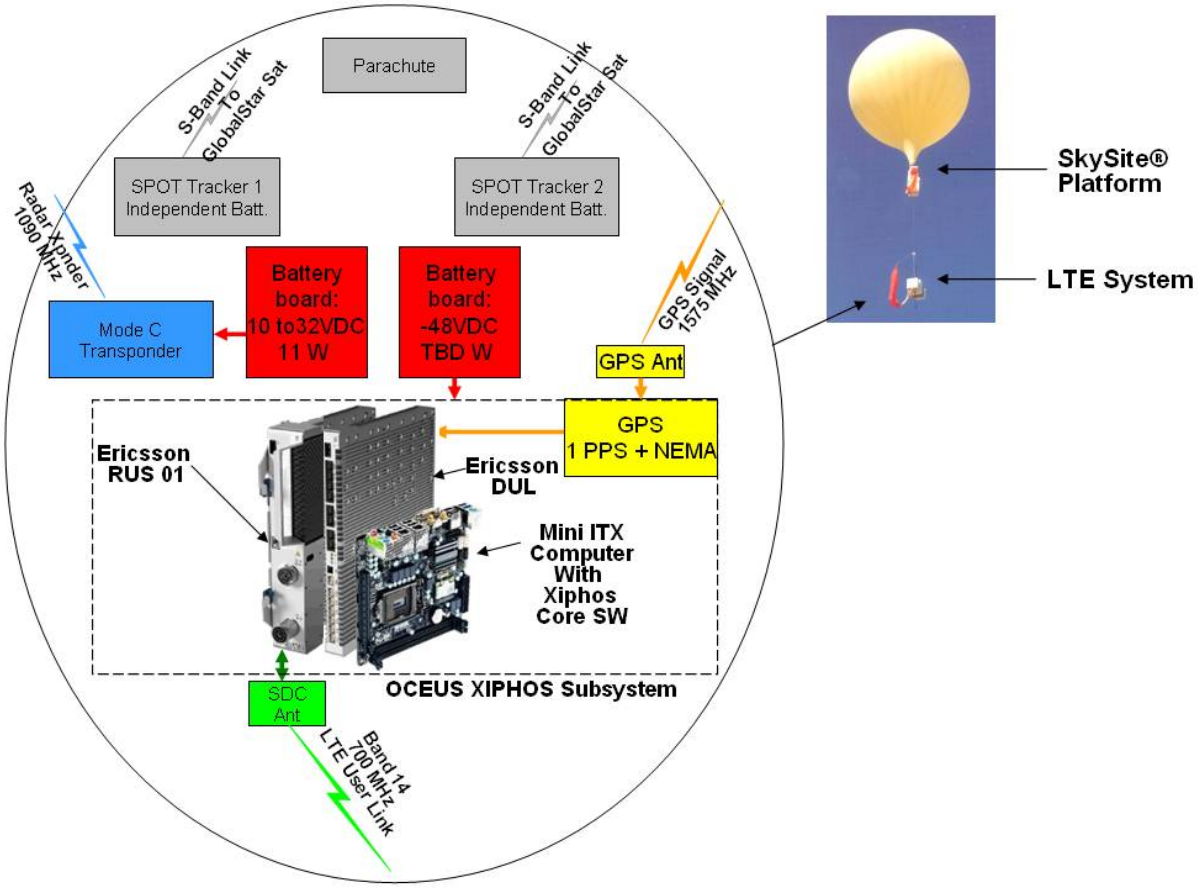
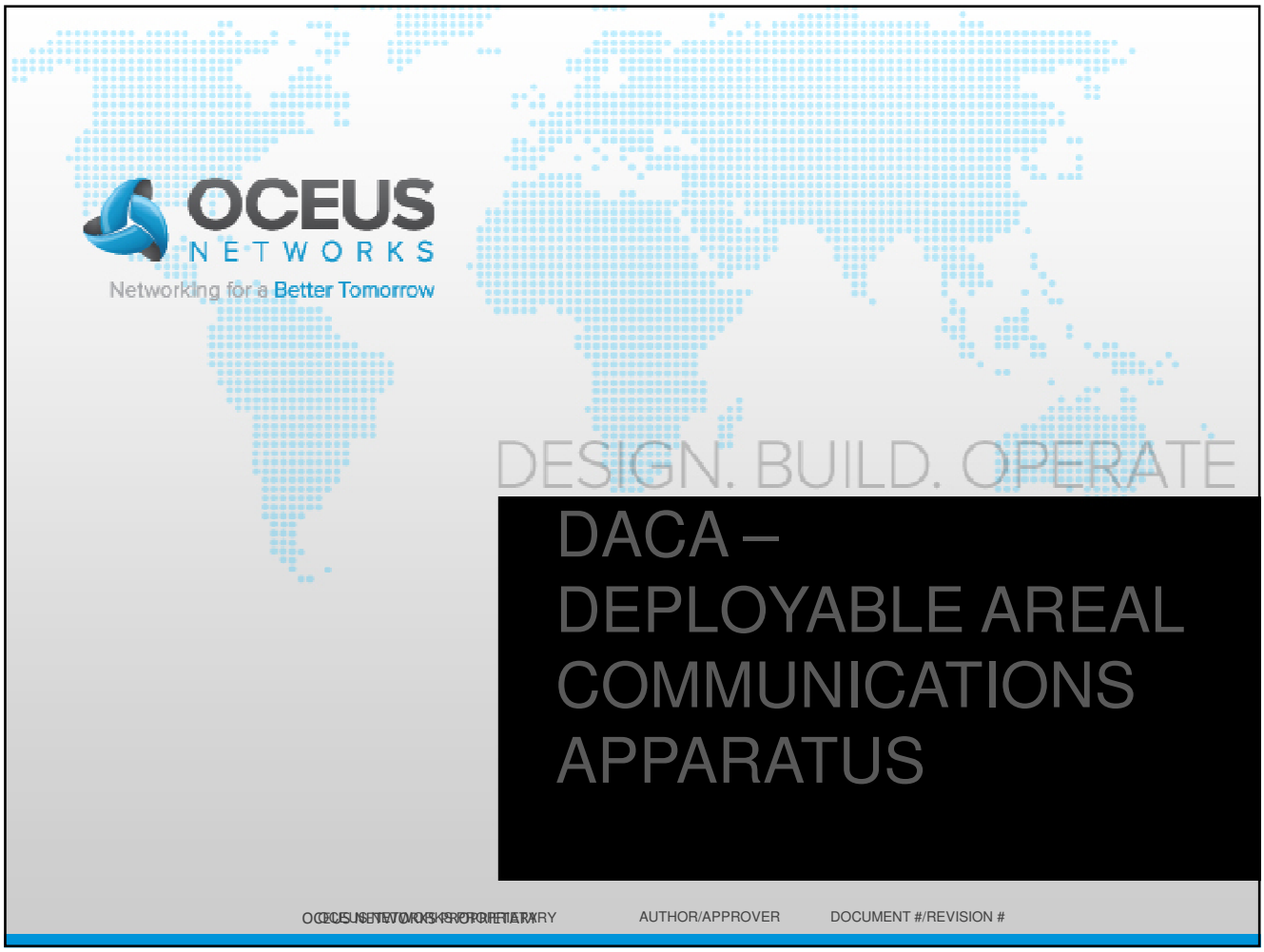


SkySite® LTE Transceiver Payload Architecture

The flight hardware consists of two separate payloads, the SkySite® Platform and the SkySite LTE transceiver. The SkySite platform contains all the mechanical, electronic, and software systems necessary to provide a stable, controlled, high altitude platform for any electronics payload. The SkySite® LTE Payload holds the Xiphos LTE System, power supplies, GPS, electronics, batteries, and antennas needed to perform the functions of an LTE network with a single, very tall tower. In addition, the transceiver payload contains a parachute and integrated trackers for recovery. The SkySite® Platform, which is attached directly below the balloon, tows the SkySite® LTE Payload. A general description of a test flight follows:

> A launch crew arrives at the predetermined launch site at 6 a.m. The balloon is filled (20 minutes) while the SkySite® platform and the SkySite® LTE Paylaod are checked. A demonstration coordinator approves the launch at 6:30 a.m. and the SkySite rises at approximately 900 feet per minute to an altitude of 65,000 feet where it automatically levels off and hovers. RF test trucks will either drive in a radial pattern away from the SkySite or wait in one location as the SkySite® Platform moves. When the SkySite leaves the area or the RF test truck(s) are finished gathering data, a recovery team will command the SkySite® LTE Payload to release from the SkySite® Platform and descend on a

parachute. The SkySite® Platform will be released from the balloon and also descend on a parachute. Both payloads will be refurbished and returned for another test flight. Certain data regarding the flight, including time-stamped signal strength data, receiver sensitivities, and drive truck environment data, will be recorded. In addition, Space Data will record additional data, including time-stamped SkySite® Platform location data, transmit power, and antenna pattern data. This data will be jointly combined for link budget analysis and will be compared and reconciled after each flight.


OCEUS
NETWORKS
Networking for a Better Tomorrow
DESIGN. BUILD. OPERATE
DACA –
DEPLOYABLE AREAL
COMMUNICATIONS
APPARATUS
OCEUS NETWORKS PROPRIETARY
AUTHOR/APPROVER
DOCUMENT #/REVISION #

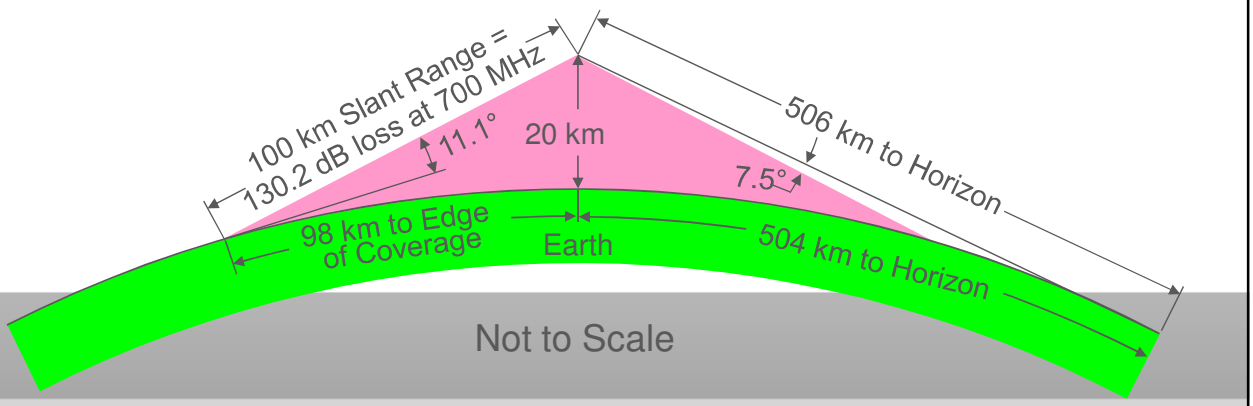
DACA Concept

- DACA – Deployable Aerial Communications Apparatus
- Provide rapid restoral of Public Safety communications by providing a wide area 4G LTE “bubble” during times of emergency.
- Joint effort between Oceus Networks and Space Data Corporation to determine feasibility of DACA.
- System utilizes standard LTE Band 14 equipment from the Oceus Networks Xiphos platform.

LTE SkySite Coverage Geometry

- Coverage Circle size limited by timing and link budget
  - Link budget limited by UE ERP with gain of antenna, LNA at SkySite
  - Protocol timing (max timing advance for LTE = 0.67 us or 100 km round trip)

- At 20 km altitude (65,617 ft) and max. slant range to user of 100 km
  - Delta from nearest to farthest user = 100 - 20 = 80 km
  - Free space path loss is –130.2 dB at 700 MHz
  - Min. user elevation angle is 11.1° equivalent to being 0.2 miles from a 200-foot tower



DACA Testing

- Goals
  1. Determine coverage footprint of Xiphos™ 4G LTE system operating from Space Data SkySite™ airborne balloon platform.
  2. Prove “boomer cell” operation; that Xiphos can close loop and communicate over 100km path distances.
  3. Quantify interference levels from DACA to existing ground based LTE systems operating on the same RF LTE frequency.
  4. Produce a meaningful report to FCC and NIST/PSCR showing DACA operation is practical.

Test Configuration - Colorado

- Launch SkySite from Estes Park approx 0600 hours. Balloon will take approx 1 hour to rise to 60,000 ft. Balloon will slowly drift East operating for ~ 4 hours before battery is exhausted.
- Mobile units using Motorola Solutions VML700 modems will collect data within the Front Range (both within and outside PSCR testbed coverage).
- SpaceData will maintain two mobile uplink vehicles providing continuous control of the payload and LTE transmitter.
- Oceus Networks will provide an “Emergency Stop” phone number should any interference to existing 700 MHz public safety operations be observed.
- Out of Band Emissions testing has been completed at NTIA PSCR to assure no interference to Public Safety narrowband operations will occur.

Timetable

- March 2013
  - Complete system integration in Oceus Networks Plano, TX lab.
- April 2013
  - Perform initial flight tests at Space Data facility in Chandler, AZ.
  - Estimate 1-2 flights @ 4 hours each.
- May 2013
  - Perform live testing in Boulder, CO
  - Estimate 1-2 flights @ 4 hours each.
  - NTIA PSCR will participate in data collection and utilize Boulder PSCR Testbed System to monitor potential interference to existing systems.
- June 2013
  - Test Report generation and discussion.

Only a few short flights are necessary within the three month STA period.

Response to Question 5 of Antenna Registration Form (Height of Antenna):

Space Data's network utilizes an innovative balloon-borne system, a type of stratospheric high altitude platform ("HAP"), which differs from traditional terrestrial, tower-based networks.[1] Space Data's system utilizes inexpensive weather balloons to carry miniature radio base stations to altitudes of between 65,000 and 90,000 feet. These balloon-based platforms are known as SkySite® platforms.

Space Data continuously launches platforms to fill the constellation so that as one platform drifts out of range another platform drifts into range. The weather patterns at the altitude to which SkySite platforms are deployed are generally uniform, allowing Space Data to predict a platform's movement and when to deploy additional platforms, ensuring consistent coverage. An on-board Global Positioning System ("GPS") receiver and associated processing provide tight control of transmit frequency, protocol timing, and transmit power near service area borders. Thus, Space Data's HAP network is highly reliable. The lightweight (less than six pounds) platforms parachute gently back to earth 12 to 24 hours after deployment and are recovered and reused.[2]

The SkySite platforms are so small that the FAA has concluded that Space Data's system is safe and has approved its use in the United States.[3] Exhibit 4 includes a January 29, 2003 letter from the FAA to Space Data indicates the FAA's findings with regard to Space Data's SkySite platforms. While it is expected that in the future LTE equipment may be reduced in mass to meet the requirements of Title 14 of the Code of Federal Regulations (14 CFR) Section 101.1(a)(4), the LTE equipment flown in these trials will weigh more than allowed under 14 CFR 101.1(a)(4). Thus the flights for this trial will be flown in compliance with 14 CFR FAR 101 Subpart D -- Unmanned Free Balloons To the extent necessary, Space Data will acquire any required Federal Aviation Administration ("FAA") flight clearances and will provide the needed flight controllers, technicians, and all logistics for the flights.

[1] The Commission has authorized Space Data to operate its balloon-borne devices as terrestrial base stations on narrowband PCS frequencies. *See Petition for a Declaratory Ruling, a Clarification or, in the Alternative, a Waiver of Certain Narrowband Personal Communications Services (PCS) Rules as they Apply to a High-Altitude Balloon-Based Communications System*, 16 FCC Rcd 16421 (WTB 2001) ("*Space Data Order*").

[2] Additional information regarding the technical operations of Space Data's network of SkySite platforms is set forth in the construction notification for one of Space Data's narrowband PCS licenses, KNKV204. *See* ULS File No. 0001900882 (filed October 13, 2004).

[3] *See Space Data Order*, 16 FCC Rcd at 16427 (noting that Space Data has coordinated with the FAA regarding its balloon launches).

Exhibit 4

U.S. Department
of Transportation
**Federal Aviation
Administration**

800 Independence Ave, SW
Washington, DC 20591

JAN 29 2003

Mr. Charles H. Tracy
Vice President, Flight Operations
Space Data Corporation
P.O. Box 1866
Chandler, AZ 85244-1866

Dear Mr. Tracy:

This is in response to your letter regarding your company's draft concept of operations for unmanned balloons.

We have reviewed and concur with the subject draft; however, we offer the following comments.

Space Data's utilization of a payload weighing less than six-pounds in total weight and three-ounces per square inch density are exempt from the Federal Aviation Administration (FAA) notification. Payload markings and in-flight reporting requirements are pursuant to Title 14 Code of Federal Regulations (14 CFR) Section 101.1(a)(4).

Additionally, the payload as described and being operated is consistent with 14 CFR part 101, and with special consideration to 14 CFR part 101, Section 101.7. This would not require FAA notification, payload markings or any in-flight reporting requirements.

If you have any questions on this matter please contact Kevin Haggerty at (202) 267-9295.

Sincerely,

R. C. Matthews

Reginald C. Matthews
Manager, Airspace and Rules Division