



# **Wi-Fi Innovation Summit**

## **San Francisco, CA**

April 21, 2015

# Safe Harbor Language

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This presentation contains certain statements that are “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties which may cause actual results to differ materially from the forward-looking statements. Forward-looking statements, such as the statements regarding our expectations with respect to actions by the FCC, future increases in our revenue and profitability and other statements contained in this release regarding matters that are not historical facts, involve predictions.

Any forward-looking statements made in this press release are accurate as of the date made and are not guarantees of future performance. Actual results or developments may differ materially from the expectations expressed or implied in the forward-looking statements, and we undertake no obligation to update any such statements. Additional information on factors that could influence our financial results is included in our filings with the Securities and Exchange Commission, including our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K.

## 1) Globalstar Introduction

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# Globalstar Overview

Globalstar is a leading provider of mobile satellite services with a full product suite supporting both one-way and two-way communications beyond the range of traditional cellular services.

## History & facts

- Founded in 1991 as a partnership between Loral Space and Qualcomm
- Listed NYSE MKT (GSAT) – Enterprise Value ~\$4 billion
- Headquartered in Covington, LA
- Operations and network control in Milpitas, CA and Aussaguel, France
- Sales Offices in USA (Covington), Ireland (Dublin), France (Toulouse), Brazil (Rio de Janeiro), Canada (Ontario) and Panama
- 305 Employees

## Key assets

- Global satellite network
  - New satellite upgrade completed in 2013 (\$1bn investment)
  - ~640 thousand subscribers across the globe
  - 2014 Revenue and Adjusted EBITDA growth of 9% and 47%, respectively, over 2013
- 25.225 MHz of spectrum globally authorized by ITU
- Terrestrial Low Power Service (“TLPS”) NPRM in final stages with FCC







# Globalstar Network

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- Globalstar operates a constellation of low-earth-orbit (LEO) satellites
  - *Constellation orbits at 1,414 km (~850 miles) while Geostationary (GEO) satellites orbit at approximately 22,240 miles*
- While a GEO satellite covers a specific region of the earth's surface, each Globalstar satellite's coverage is moving across the earth's surface
- Advantages of LEOs include:
  - *Virtually no latency*
  - *Lower power requirements for handsets and data terminals*
  - *Network and satellite redundancy*
- Globalstar's current "Bent-Pipe" architecture provides communications through a network of 24 terrestrial gateways around the world
- Architecture offers enhanced voice quality
- "Brains" of the system are located in ground stations, enabling faster and more cost-effective system maintenance and upgrades

# Globalstar's Product Portfolio

Globalstar has a full product suite supporting both one-way and two-way communications beyond the range of traditional cellular services.

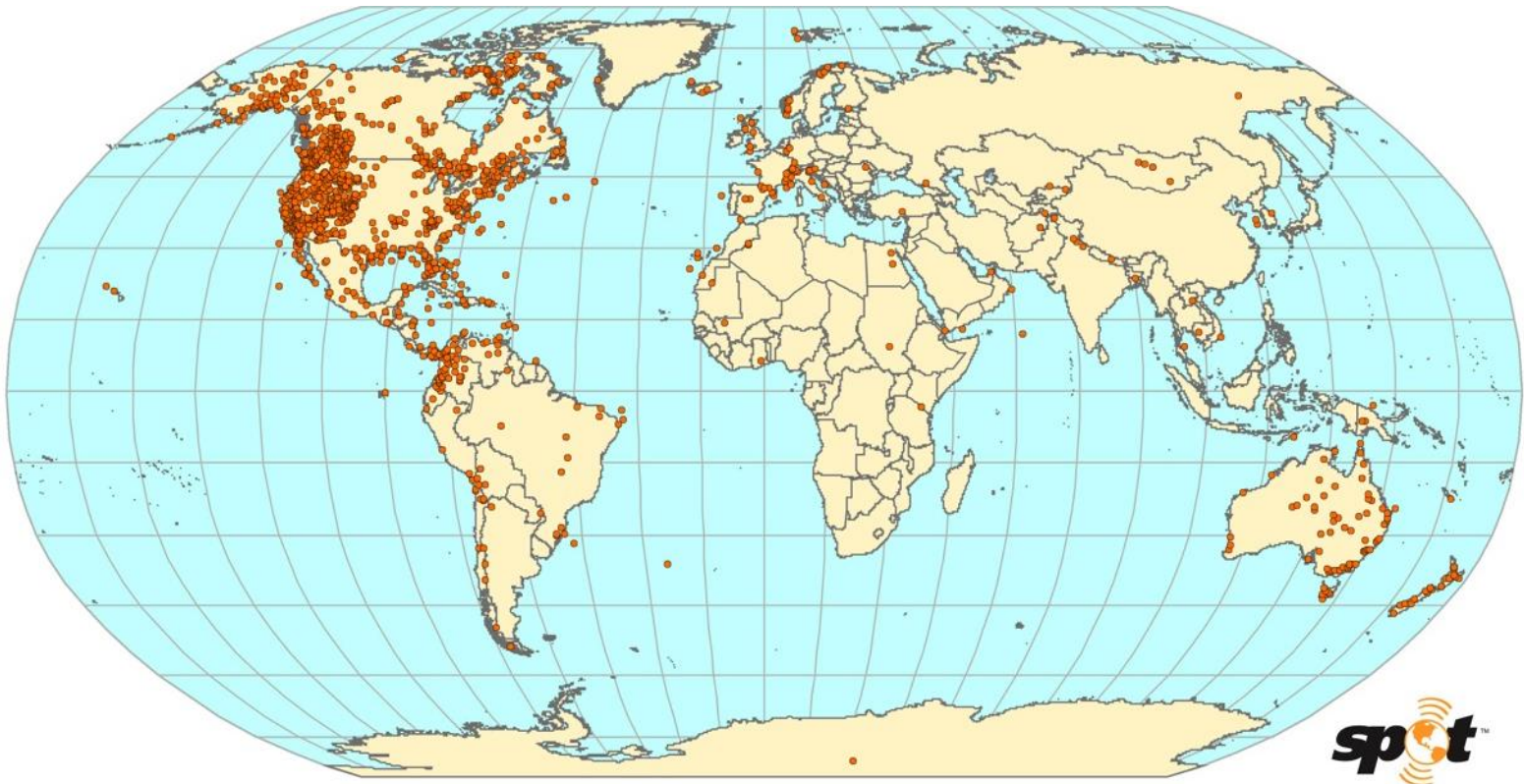
	Duplex		SPOT		Simplex	
	GSP 1700 / SPOT Global Phone	Sat-Fi	SPOT Gen3	SPOT Trace	STX3	SmartOne B
Image						
Features	<ul style="list-style-type: none"> <li>• Portable two-way satellite phone with full voice and data capabilities</li> <li>• While the GSP-1700 targets the commercial market segment, the SPOT Global phone is consumer-focused</li> </ul>	<ul style="list-style-type: none"> <li>• Converts any Wi-Fi enabled device to a satellite phone</li> <li>• Targets boaters, emergency responders, oil &amp; gas workers, miners, ranchers etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Provides one-way location based messaging when off the grid</li> <li>• Battery life 2x SPOT 2 – enhanced customization features – smaller form factor</li> </ul>	<ul style="list-style-type: none"> <li>• Tracks consumer assets anytime, anywhere</li> <li>• Key applications include theft prevention</li> </ul>	<ul style="list-style-type: none"> <li>• World's smallest M2M transmitter</li> <li>• Enables VARs and OEMs to develop smaller, more efficient M2M solutions</li> </ul>	<ul style="list-style-type: none"> <li>• Designed for the intelligent management of powered and non-powered fixed and movable assets</li> <li>• Provides solution for engine runtime reporting and major fault monitoring for portable construction equipment as well as tracking intermediate bulk containers, vehicles and boats</li> </ul>



# SPOT Product Rescues: 3,500!

- Since 2007, Globalstar's SPOT customers have initiated over 3,500 rescues globally, averaging 2 people per rescue
- On average, Globalstar's SPOT customers are initiating 1 rescue everyday somewhere around the world
- No other communications product has achieved the Life Saving Record of SPOT

## SPOT Rescue Map: 3,500 Rescues and Counting



Live SPOT Messages - <https://logintest.findmespot.com/spot-locations/index.jsp>



# Globalstar's Core MSS Market



## No terrestrial network

### Areas outside cellular networks

- Connectivity to **two billion people** who live, work and/or play in areas not covered by cellular service
- Over **150 million adventure trips** taken annually <sup>(1)</sup>
- **75% world's land mass** is without terrestrial cellular coverage <sup>(2)</sup>



## Failure of terrestrial network

### Critical mobile satellite services during disasters

- Provides alternative network access in areas prone to **natural disasters**
- **Provides public safety** with needed connectivity when cellular service is down due to overloaded / failed infrastructure
- Enables basic services, NGOs, **emergency response** and business continuity



## Existing terrestrial network

### Asset tracking / low cost alternative to international roaming

- Provides the ability to **track anything, anywhere, anytime** globally
- Provides **low cost alternative to international roaming** when traveling abroad
  - \$2 – \$3 per minute with traditional cellular companies vs. \$0.12 per minute on Globalstar's unlimited usage plans <sup>(3)</sup>



Source: *Adventure Tourism Market Report* by George Washington University, Adventure Travel Trade Association, Xola Consulting (2010)

(1) *Adventure Tourism Market Report* by George Washington University, Adventure Travel Trade Association, Xola Consulting. Statistic based on survey conducted with participants in Latin America, North America, and Europe (2010).

(2) CIA World Factbook, as of 2010

(3) Based on plan "Evolution III" at \$49.99 / month assuming 400 minutes per month of usage



# Globalstar Sum Of The Parts Value Drivers

## Core MSS operations

- Fully restored satellite network for core MSS operations with a new \$1 billion constellation
- Diverse business lines across consumer, commercial and government markets
- Historically, focus has been on North America – beginning in 2014, operational focus has materially expanded

## U.S. spectrum value

- 1.6 GHz and 2.4 GHz U.S. license
- Targeting Terrestrial Low Power Service (“TLPS”) authority shortly
  - Managed, carrier grade service
  - Increased data speeds and range
  - Leverages existing Wi-Fi infrastructure



## Global spectrum value

- ITU authority for 25.225 MHz – opportunity to free up terrestrial authority worldwide
- Unique globally harmonized position
- Opportunity to deploy terrestrial services including TLPS after U.S. approval – leverages worldwide Wi-Fi standards and devices

## 2) Terrestrial Low Power Service

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## What is TLPS?

- Utilizes a 22 MHz wide channel 14 in 2.4 GHz, including 11.5 MHz on a licensed and 10.5 MHz on an unlicensed basis
- Uniquely can leverage existing Wi-Fi ecosystem

## Where can TLPS be deployed?

- Domestic – Single license covering all of U.S.
- Rest of World – subject to local regulatory requirements

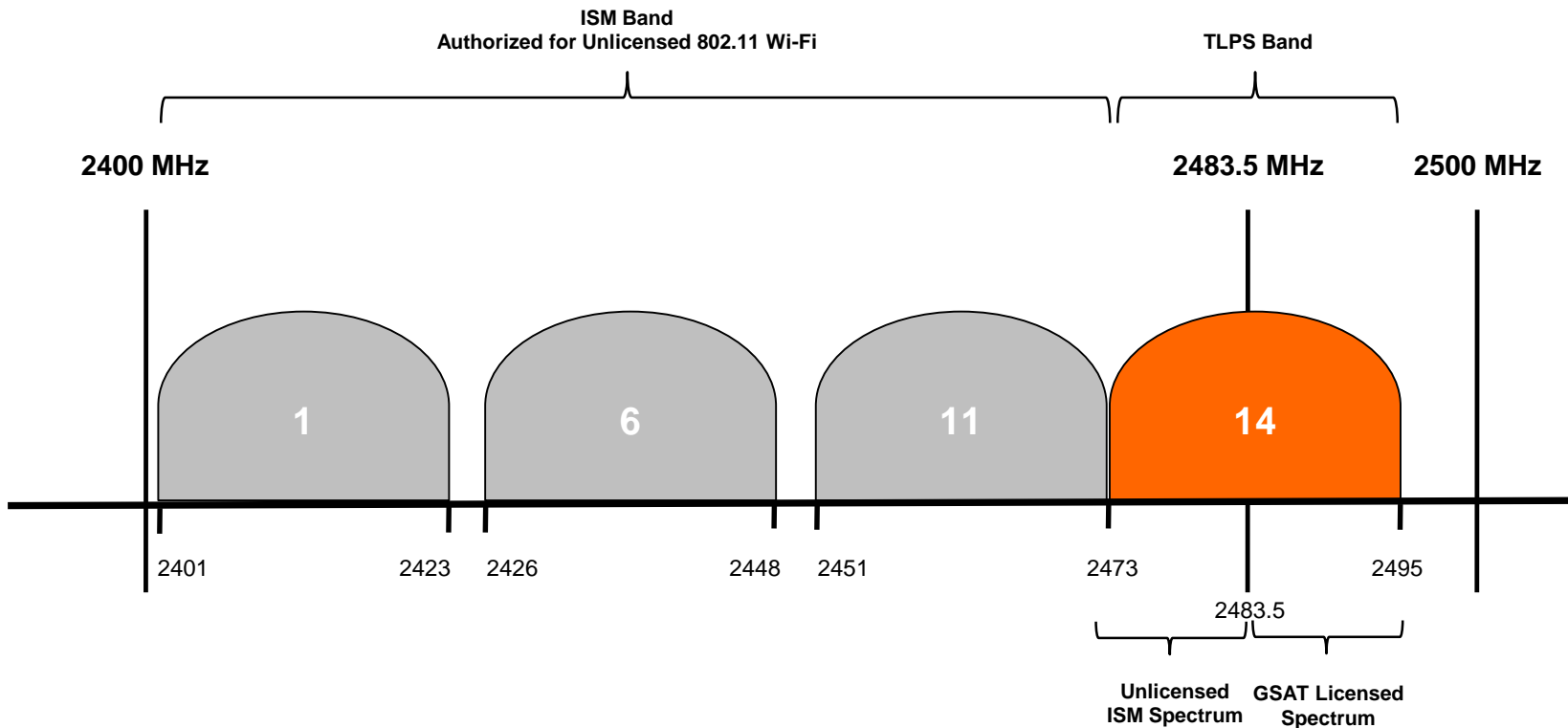
## TLPS technical characteristics

- Clean, quiet spectrum avoids acute co-channel interferences / high noise floor of traditional 2.4 GHz Wi-Fi – most wireless traffic takes place over 3 channels in 2.4 GHz ISM band
- Superior capacity and performance
  - Significantly more effective capacity versus public Wi-Fi
    - Performance differential heightened in dense, metropolitan areas
    - Enhanced security capability
    - Ability to operate a managed, controlled network with Network Operating System (NOS)
- Not limited by high attenuation factor of 5 GHz Wi-Fi

# TLPS Channelization

TLPS offers a more secure, higher performance wireless broadband service than traditional Wi-Fi

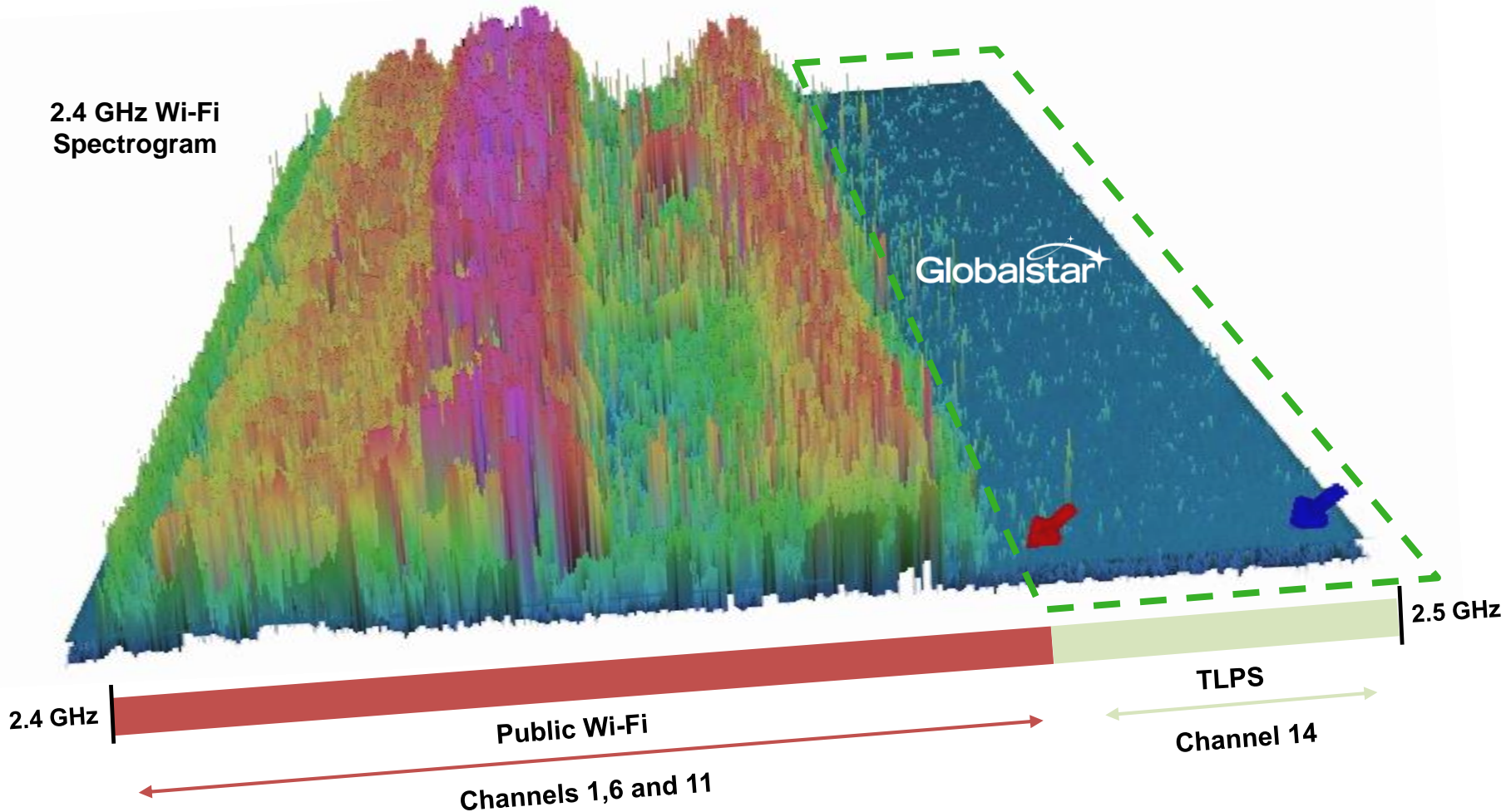
- Today, the vast majority of all Wi-Fi traffic transits over three non-overlapping public channels – 1, 6, and 11 – in the 2.4 GHz ISM Band. TLPS opens a managed, secure and high performance 4<sup>th</sup> channel to an already existing ecosystem and network infrastructure.
- These unique attributes allow for immediate deployment and, thus, immediate consumer benefits



# Why is TLPS Important?

TLPS represents a “clear channel” for licensed Wi-Fi applications

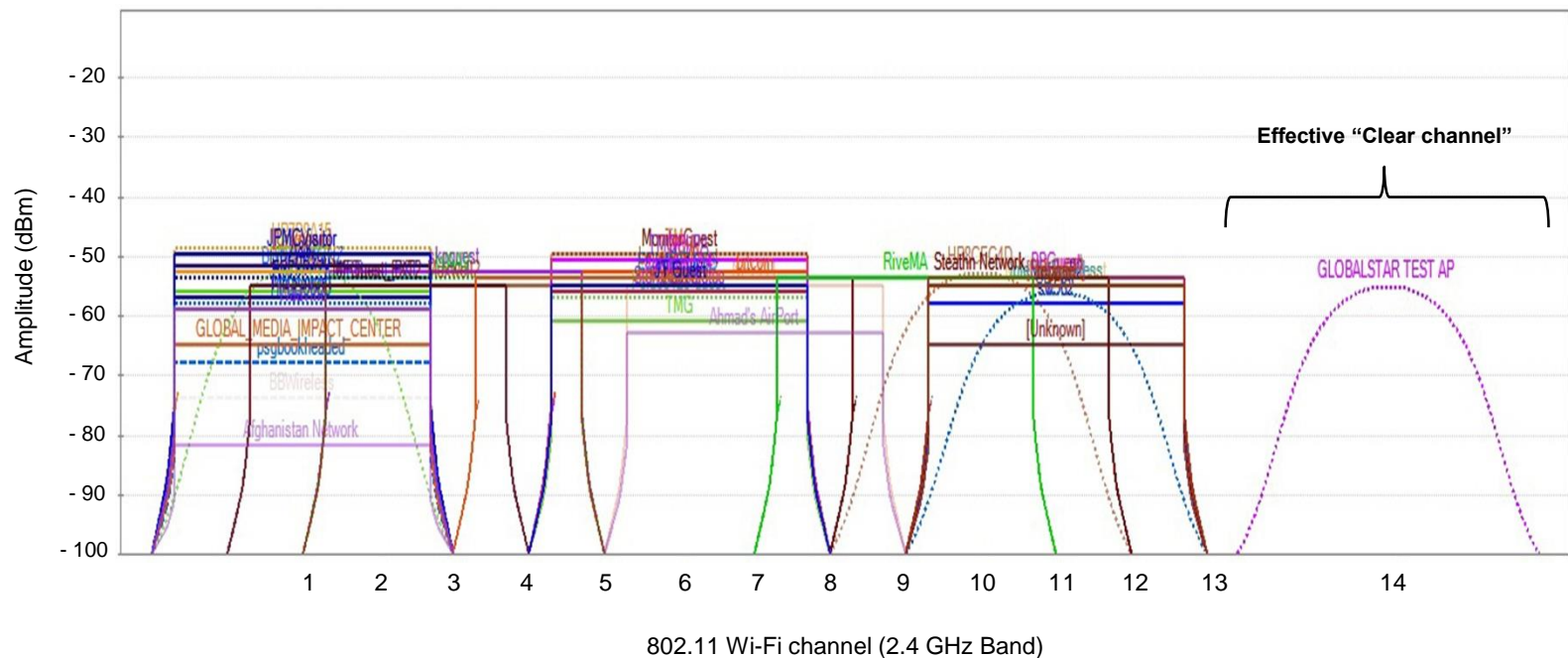
- With millions of uncoordinated access points and devices, public Wi-Fi has reached exhaustion. TLPS will open up a new and sustainable high-performance wireless broadband resource.





# Network Analyzer View of Wi-Fi Channel 14

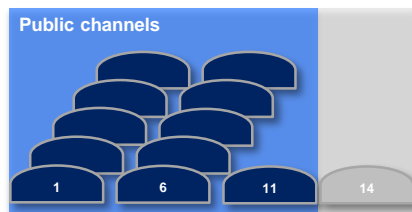
When viewed from a moderate density urban survey location (Cambridge, MA), 130 Wi-Fi APs can be seen by a common 802.11 transceiver. Such high channel crowding is now typical in a majority of metropolitan environments and acts as a fundamental limiting factor for both throughput potential and service quality. channel 14 represents an effective “clear channel,” which offers considerable data speed and range advantages over interference limited public channels.



# A Massive and Immediate Ecosystem

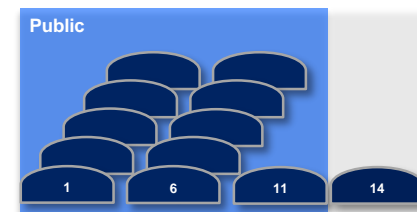
Cost and time to enable TLPS transceiver and infrastructure is de minimis via firmware and software updates – drives reduced time to scale and ease of service rollout

## 2.4 GHz 802.11 Transceiver Level Migration



Existing Hardware Compatibility with  
Public channels 1-11 + channel 14

FIRMWARE  
UPDATE  
→



Full Operational Compatibility with  
Public channels 1-11 + channel 14

## 2.4 GHz 802.11 Device Level Migration

### Existing Devices



Output Power <23  
dBm

OTA Software / Chipset Firmware  
Update



### Existing Carrier Infrastructure

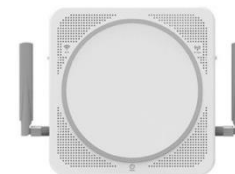


Output Power >23 dBm

Firmware Update / RF Filtration



### New Carrier Infrastructure



Output Power >23 dBm

Integrated Filter / Factory Ready



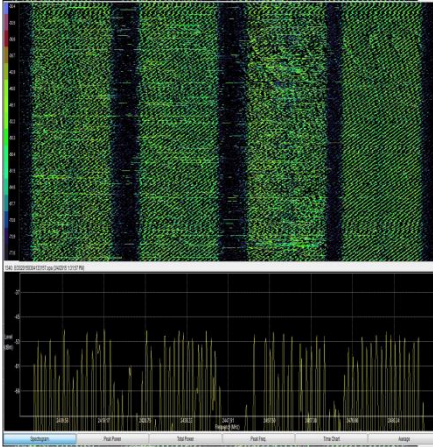
# FCC NPRM Highlights and Timing

## FCC's NPRM Process Overview

Completed	November 13, 2012	Globalstar Files Petition for Rulemaking
	November 30, 2012	FCC Placed Petition on Public Notice
	January 29, 2013	Comment Period for Petition Ended
	November 1, 2013	FCC Unanimously Votes For and Releases NPRM
	February 19, 2014	NPRM Publication in Federal Register
	May 5, 2014	Comment Due Date
	June 4, 2014	Reply Comment Due Date
	<b>March 10, 2015</b>	<b>Successful Completion of TLPS Demonstration at the FCC</b>
Expected Shortly		Process Completion / TLPS Authority

# Globalstar's TLPS demonstration at the FCC

On March 10, 2015, Globalstar completed a TLPS demonstration at the FCC's Technology Experience Center that confirmed the compatibility of TLPS with other unlicensed services. The demonstration further confirmed that adding the TLPS channel to a wireless network at the FCC's headquarters would increase aggregate throughput by approximately 40%.



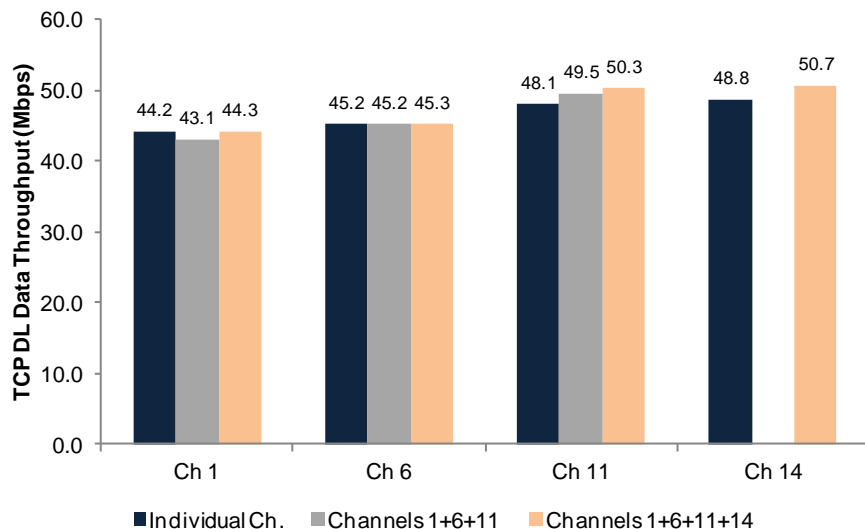
- TLPS operations on channel 14 have no negative impact on Wi-Fi operations within the 2.4 GHz ISM band; indeed, **Wi-Fi consumers are made better off when TLPS is in operation**
- TLPS increased aggregate network capacity by approximately 40%, even in the quiet RF environment present at the FCC Technology Experience Center
- Adding additional access points operating on public Wi-Fi channels did not increase aggregate network capacity
- In one extreme scenario of three fully loaded channel 14 TLPS access points and one channel 11 access point, there was no negative impact to channel 11 operations



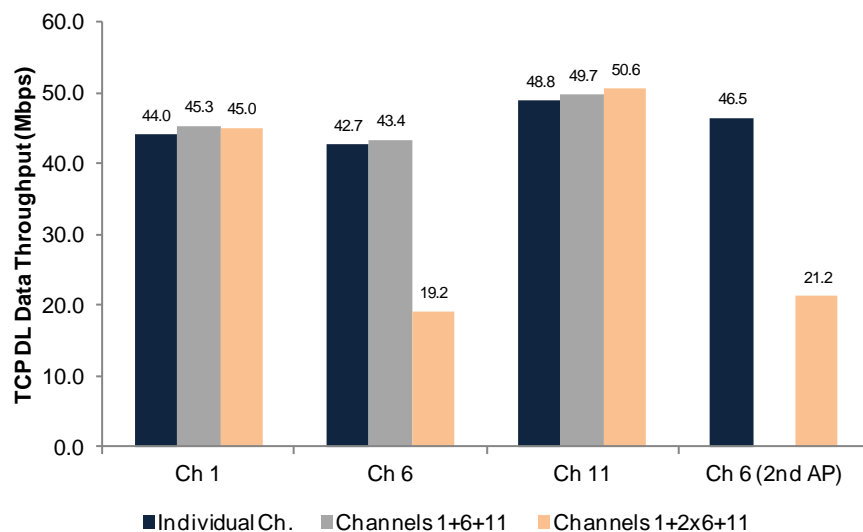
- TLPS operations on channel 14 have no negative impact on Bluetooth operations within the 2.4 GHz ISM band
- Mainstream Bluetooth devices, including computer mice, wireless speakers, and medical monitoring devices, were shown to operate flawlessly within the FCC Technology Experience Center when four Ruckus access points were operating on channels 1, 6, 11 and 14 simultaneously
- A video of Globalstar's Bluetooth demonstration can be found at <http://www.globalstar.com/en/index.php?cid=6202>

# Globalstar Scenarios Show TLPS Has No Negative Impact on Public Wi-Fi

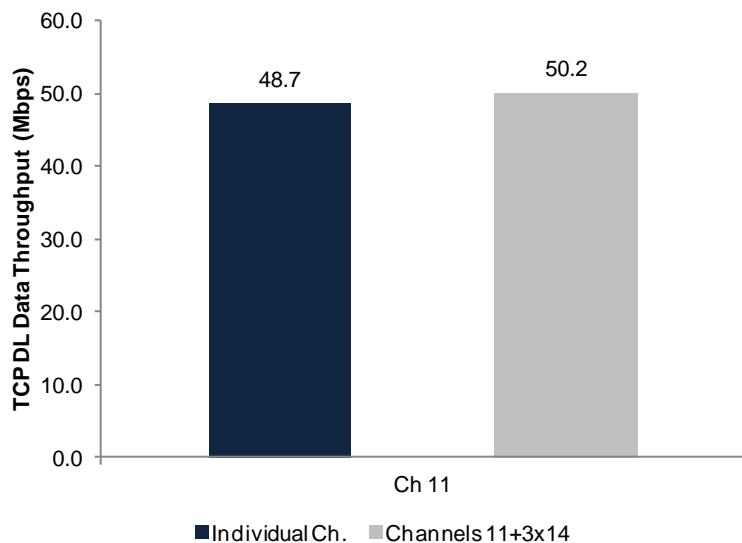
## Scenario 2: 4 APs with TLPS



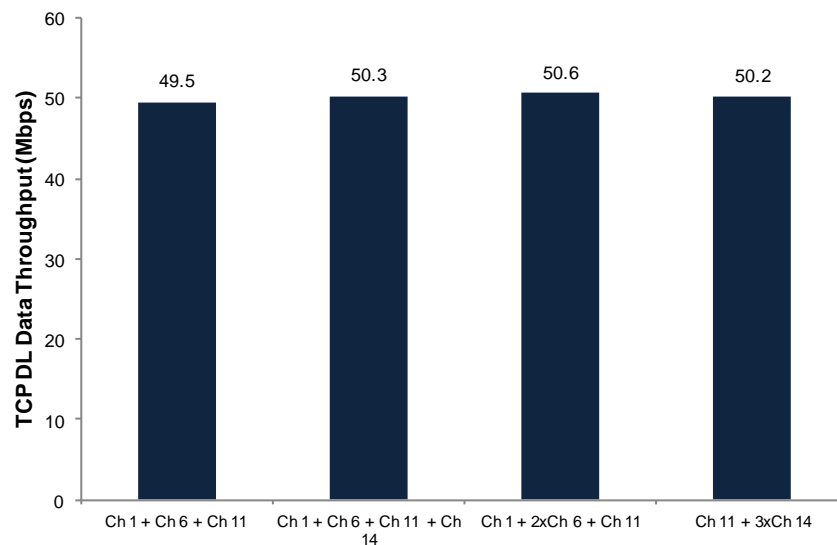
## Scenario 3: 4 APs without TLPS



## Scenario 4: TLPS on Multiple APs

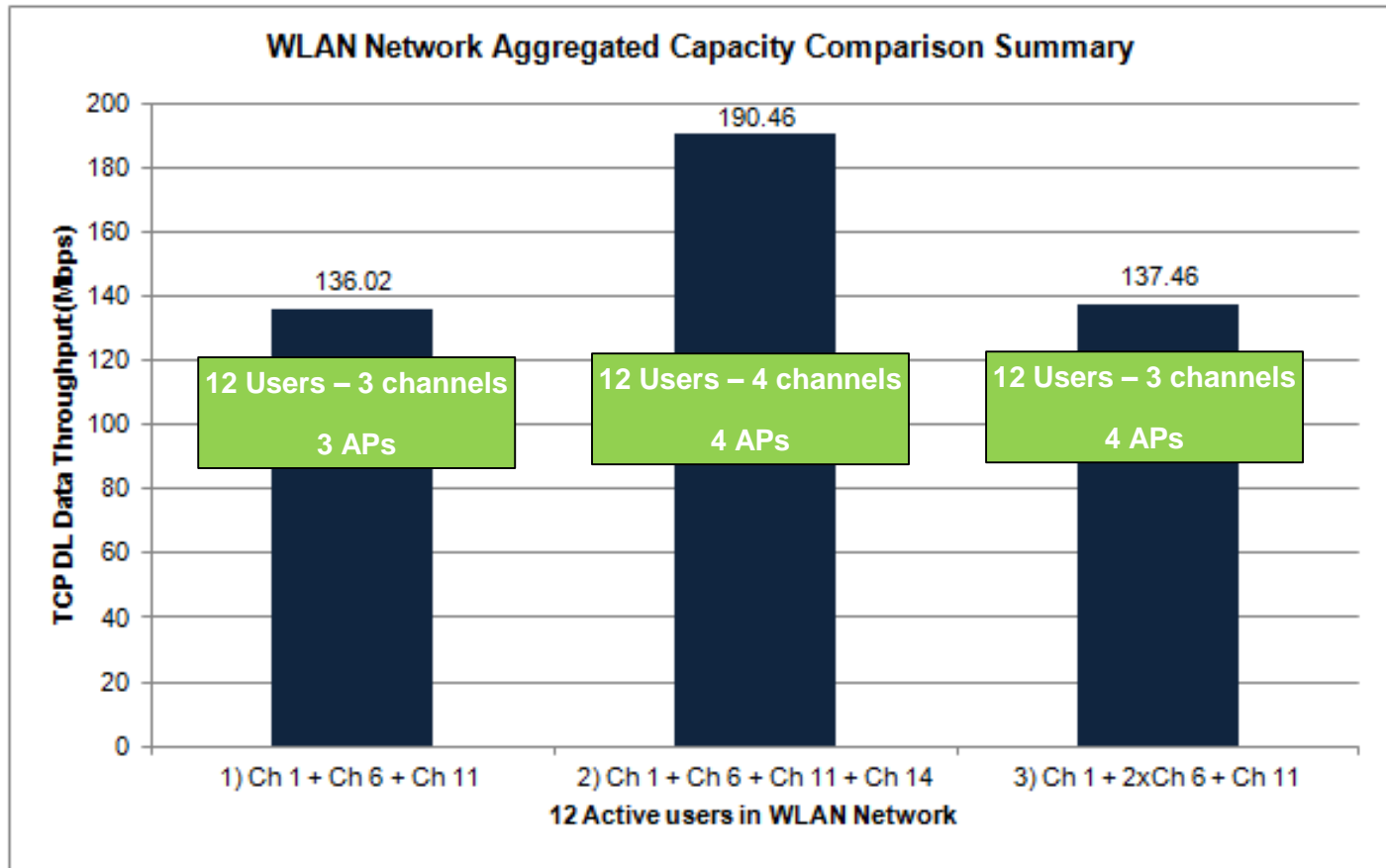


## Channel 11 Summary: 3 Active Users





# Globalstar's TLPS Substantially Increases Overall Network Capacity



- Approximate 40% network capacity increase when TLPS is enabled
- Additional AP on channel 6 did not increase network capacity

# Globalstar's TLPS Represents a Global Opportunity

Globalstar's unique worldwide authority across its S-band permits global deployment of TLPS. Globalstar will seek authorization in other developed and developing countries during 2015.

## Globalstar's TLPS solution

