401 9th Street, NW
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Washington, DC 20004
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July 20, 2010

Via Electronic Filing

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Room TW-A325
Washington, DC 20554

Re: ***Ex Parte Notice***

GN Docket Nos. 09-51
GN Docket No. 09-137
ET Docket No. 10-123
WT Docket No. 04-356
WT Docket No. 07-195

Dear Ms. Dortch:

On July 19, 2010, John Kneuer, former Assistant Secretary for Communications and Information and Administrator of the National Telecommunications and Information Administration, Eric Hagerson of T-Mobile USA, Inc., and the undersigned, met with Commissioner Meredith Baker, Charles Mathias, and Henry Greenidge regarding government efforts to identify additional federal spectrum for reallocation for commercial wireless purposes.

During the meeting, T-Mobile shared the results of a spectrum scan it undertook in the 1755-1850 MHz band in strategic locations across the country. The findings of this exercise reveal that the 1755-1780 MHz band appears to be a promising prospect for reallocation and T-Mobile would like the FCC and NTIA to continue to investigate this optimal pairing with the AWS-3 band. T-Mobile representatives made clear that while the 1755-1780 MHz pairing is optimal, the company is also open to considering pairing AWS-3 with the 1675-1710 MHz band.

Pursuant to Section 1.1206 of the Commission's rules, an electronic copy of this letter and accompanying presentation is being filed for inclusion in the above-referenced dockets.

Sincerely,

/s/ Kathleen O'Brien Ham

Kathleen O'Brien Ham
Vice President, Federal Regulatory Affairs
T-Mobile USA, Inc.

cc: Meredith Baker
Charles Mathias
Henry Greenidge

Federal Communications Commission

Commissioner Meredith Attwell Baker

July 19, 2010

stick together®

T-Mobile®

Agenda

- Overview
  - Background on Spectrum Scanning Project
  - Known System Types: 1755-1780 MHz
  - Relocation Options
  - Conclusions
- Detailed Analysis
  - Understanding the Data
  - Market by Market Review

Overview

Background

- T-Mobile supports the reallocation of federal spectrum.
- T-Mobile believes 1755-1780 MHz would be an optimal pairing for AWS-III.
- The Spectrum Scanning Project
  - Undertaken to gain a better understanding of current activity in and above 1755-1780 MHz.
  - Identification of potential clearing challenges.
- Market Selection
  - Four markets were chosen because of their proximity to satellite uplinks identified in the DOD IMT 2000 Report.
  - Four additional major metropolitan markets were scanned to provide data on band usage in areas of high population concentration where other federal operations were more likely.

Known System Types: 1755-1780 MHz

Current Dedicated to Federal Users

- Point to Point Microwave
  - Possessed by numerous agencies, e.g., Department of Interior.
  - Fixed locations, limited geographically.
- United States and Possessions
  - Possessed by several agencies, e.g., Department of Justice.
  - Generally used for short distance activities.
  - Can operate anywhere in the U.S. and its territories.
- Aeronautical Land Mobile
- DOD Satellite Uplinks
  - 22 known uplinks identified in DOD IMT 2000 report.
  - 20 channels available.
- Complementary Systems Relocating in 1755-1780 MHz Band
  - 201 identified for relocation as part of AWS-1 efforts.
  - 116 identified systems already relocated.

Relocation Options

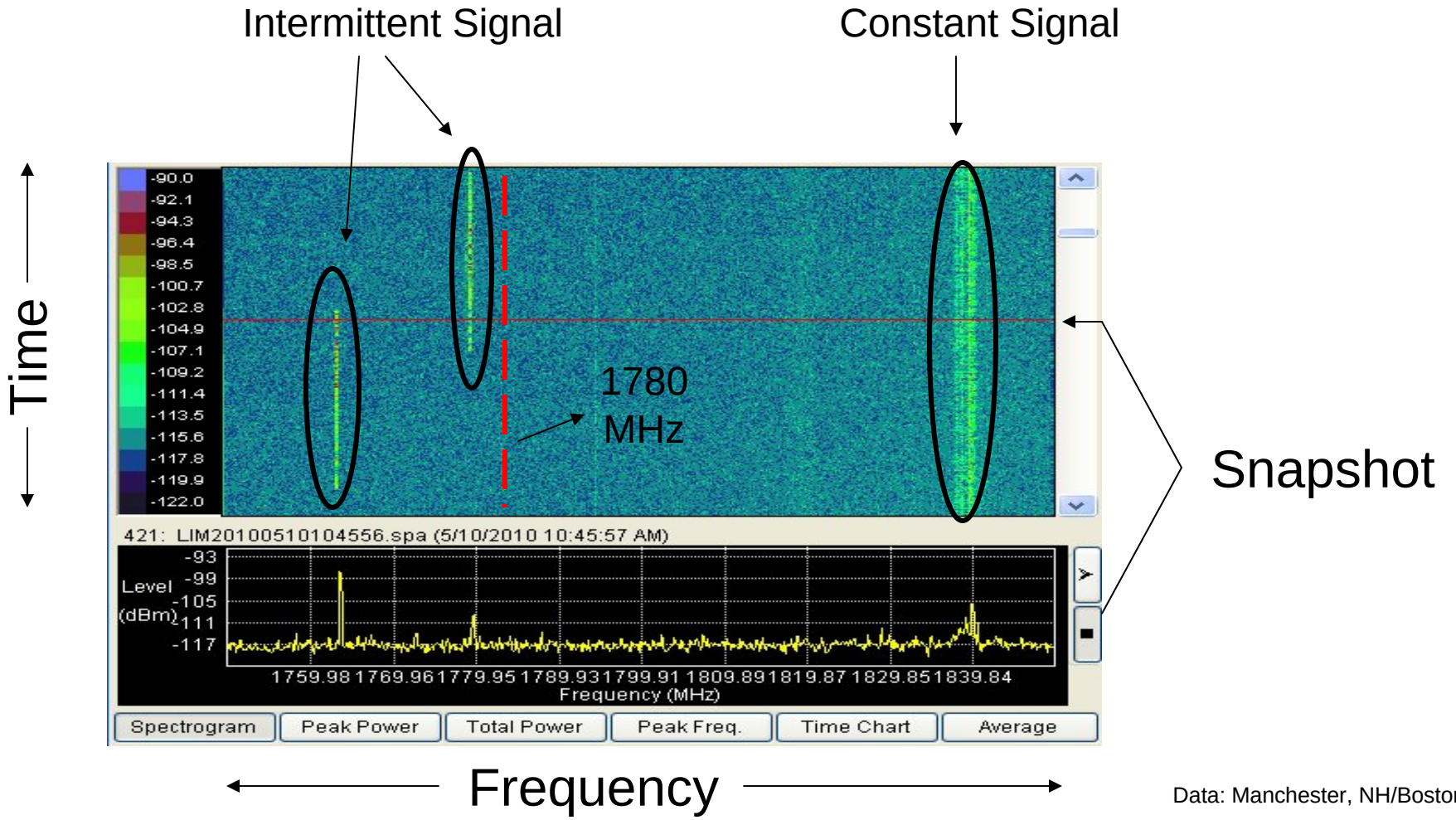
- CSEA
  - Provides for funding for relocation.
  - Money should made available for upfront planning and preparation from existing funds once spectrum has been designated for reallocation.
  - Equitable interpretation of law suggests that reasonable upgrades associated with new equipment should be permitted.
- Relocate to new equipment and new frequencies
  - NTIA will need to assign new frequencies.
  - There are several other federal exclusive bands.
  - Move from analog to digital will create spectral efficiencies.
- Relocate to new transmissions media
  - Fiber based systems.
- CSEA Envisions Coordination
  - Allows for shared use between federal agencies and licensees as the former works to relocate out of the band.

Conclusions

- Majority of activity was above 1780 MHz.
- Failed to see the power levels for satellite uplinks as per DOD 2001 Report.
- Much of the activity in 1755-1780 MHz was bursty and intermittent.
- Frequency hopping observed.
  - Modern microwave hopper systems are sophisticated and controllable.
- Given new technologies, relocation from the 1755-1780 MHz band should be feasible.
- 1755-1780 MHz does not appear to be anymore more challenging than clearing the AWS-1 block.
- NTIA and the FCC should continue efforts on reallocation of the 1755-1780 band.

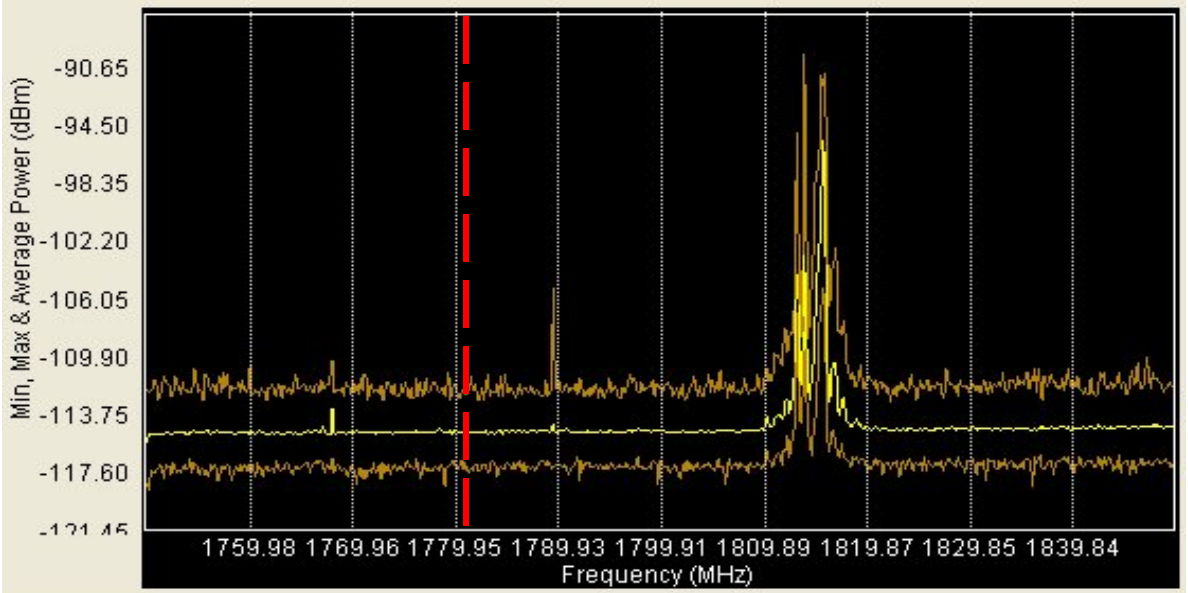
Detailed Analysis

Understanding the Data - Spectrogram



Data: Manchester, NH/Boston, MA

Understanding the Data - Average Plot



First File	LIM20100511082853.spa	5/11/2010 8:28:54 AM
Last File	LIM20100511085034.spa	5/11/2010 8:50:35 AM
Elapsed Time	(234 files)	00:21:41
Maximum Peak Power	LIM20100511082853.spa	-89.952
Minimum Peak Power	LIM20100511084754.spa	-99.536
Average Peak Power		-94.304

Spectrogram | Peak Power | Total Power | Peak Freq. | Time Chart | Average

Power Levels:

Maximum

Average

Minimum

Data: Chicago, IL; O'Hare Airport

Market by Market Review

Seattle

- Seattle, WA
- Tacoma, WA

Bay Area California

- Santa Clara, WA
- Sunnyvale, CA

Boston

- Manchester, NH
- Nashua, NH

Colorado Springs

- Colorado Springs, CO

Chicago

- Rosemont, IL
- Chicago, IL

Houston

- Houston, TX
- Galveston, TX

Washington, DC

- Washington, DC
- Woodbridge, VA

Miami

- Miami, FL
- Margate, FL

Seattle, WA

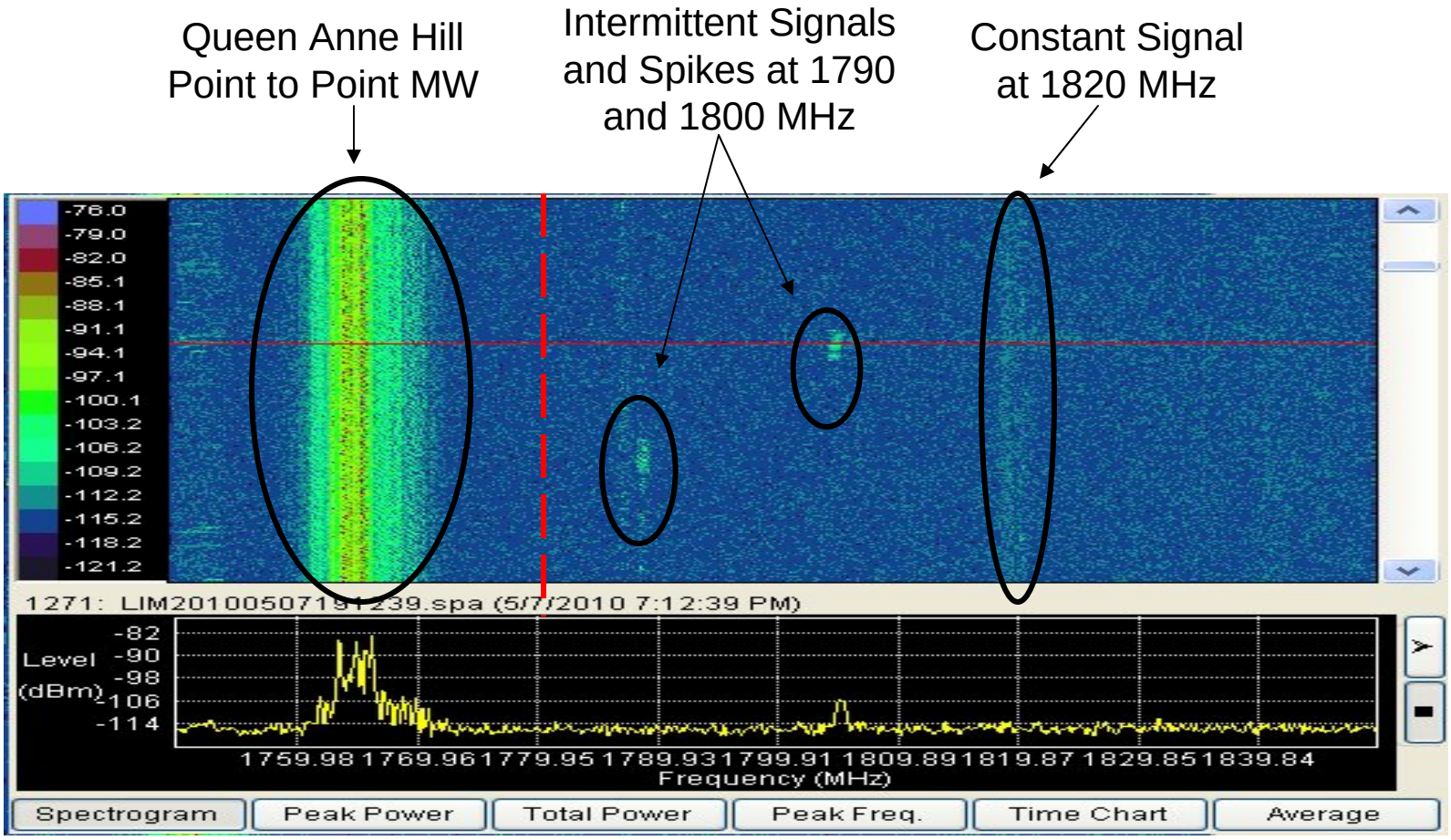
Parameters

- 1501 17th AVE, Seattle, WA 98122 (12 story building)
- Collection period 5/4/201-5/10/2010 (58K files)

Findings

- Constant signal at 1764 MHz with 3-4 MHz bandwidth, source from the general direction of Queen Anne Hill (believed to be point to point microwave).
- Low level narrow band spikes around 1790 MHz, with less than 1 MHz bandwidth throughout the collection period, with periodic short duration transmissions at higher power.
- Intermittent signal at 1800 MHz during first day of testing then only sporadic after that.
- Relatively Constant signal at 1820 MHz, different signal levels (probably point to point).
- Other random spikes with no regular trends observed in band.

Seattle, WA



May 7, 2010 07:02 PM – 07:30 PM

Seattle (Tacoma, WA)

Parameters

- 4301 South Pine Street, Tacoma, WA 98409, (5 story building)
- Collection period 5/4/2010-5/10/2010 (21K files)
- Line of sight to McCord Air Force Base

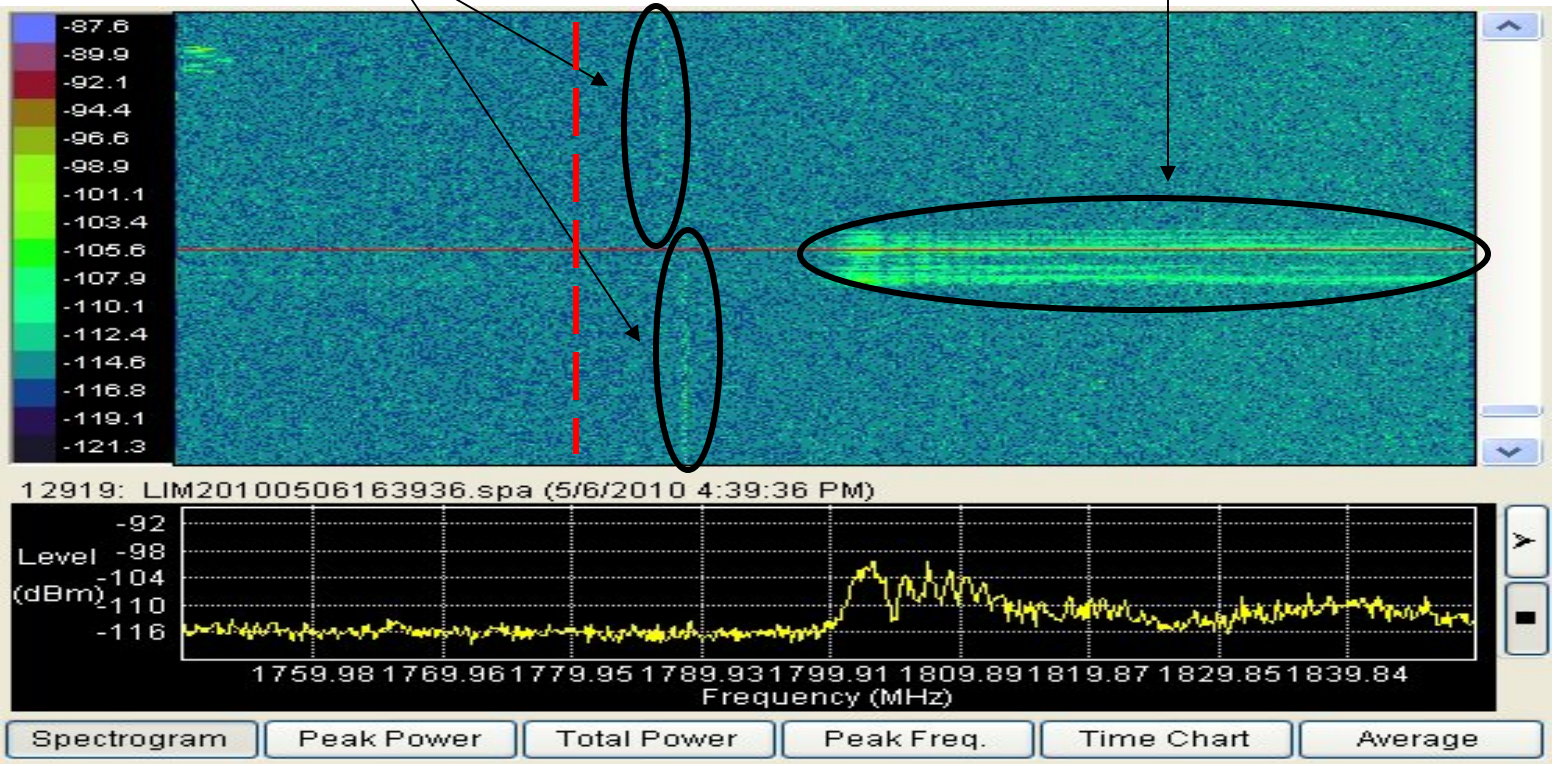
Findings

- Low level narrow band spikes around 1790 MHz throughout the collection period, appears to be same activity observed in Seattle.
- Intermittent wide band bursts above 1800 MHz.
- Short term transmissions around 1830 MHz.
- Very low level periodic threads at 1830 & 1842 MHz throughout the collection period.

Seattle (Tacoma, WA)

Low Level Spikes
at 1790 MHz

Intermittent Wide Band Bursts



May 6, 2010 04:18 PM – 04:58 PM

Bay Area California (Santa Clara, CA)

Parameters

- 2700 Mission College Blvd, Santa Clara, CA 95054 (13 story building)
- Collection periods 5/6/2010-5/12/2010 and 5/20/2010-5/24/2010 (64K files)
- 3.5 miles from Onizuka Air Station - Satellite Uplink

Findings

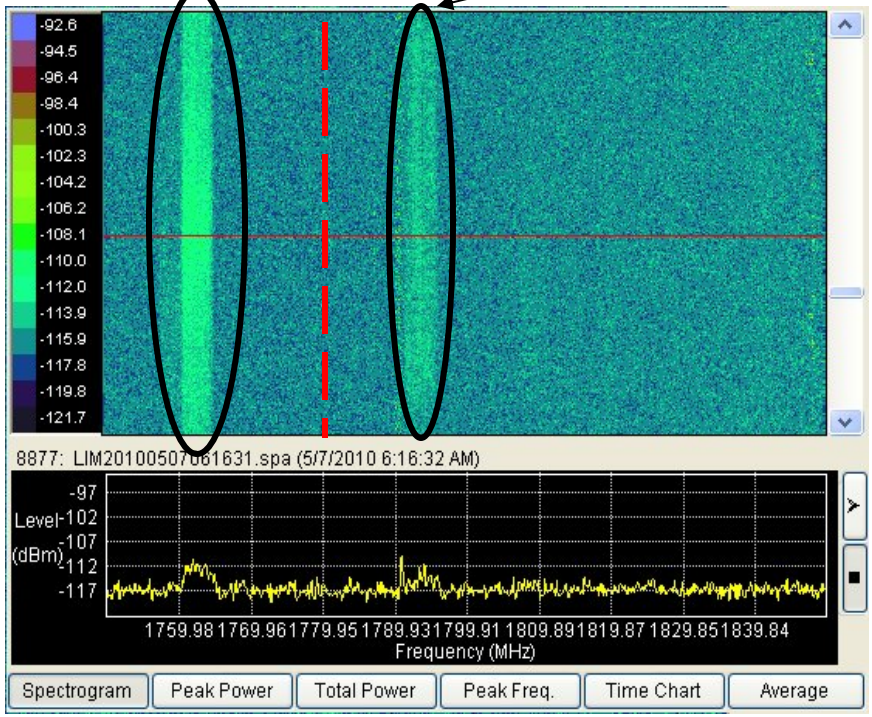
- Regular but not constant low level 4 MHz carriers at 1762-3 MHz (believed to be satellite uplink) and 1793 MHz.
- Intermittent transmissions at multiple points between 1787 and 1792 MHz during the collection period.
- Periodic transmission at 1800 and 1815 MHz with 2 MHz bandwidth.
- Relatively constant narrow band signal at 1848.5 MHz.

Bay Area California (Santa Clara, CA)

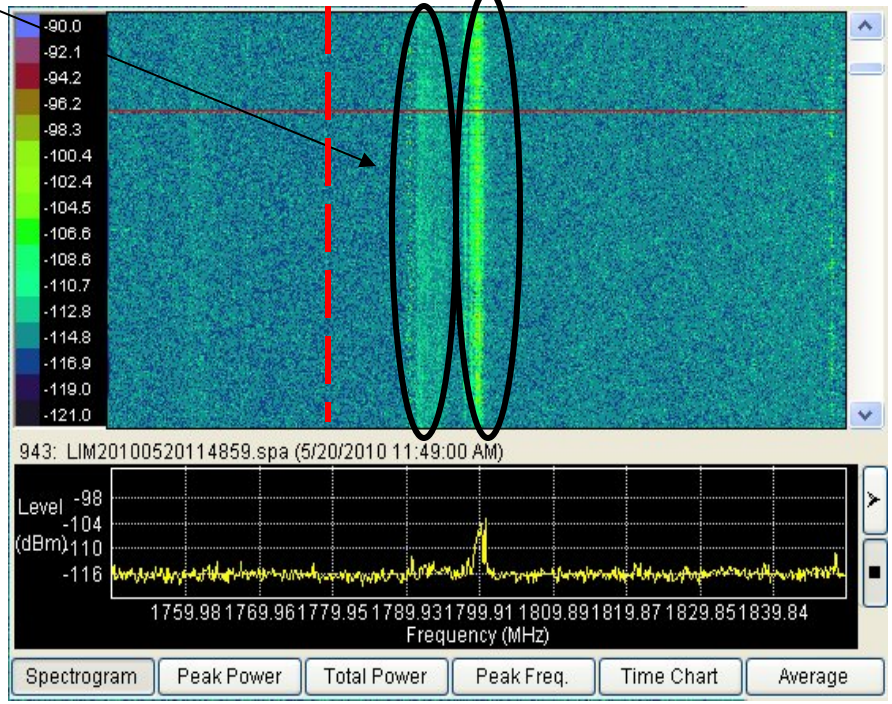
Regular 1762-3 MHz Transmission

Regular 1793 MHz Transmission

Periodic 1800 MHz Transmission



May 7, 2010 06:05 AM – 06:26 AM



May 20, 2010 11:42 AM - 12:03 PM

Bay Area California (Sunnyvale, CA)

Parameters

- 625 Ellis Street, Mountain View, CA 94043 (3 story building)
- Collection periods 5/6/2010-5/12/2010 and 5/20/2010-5/24/2010 (64K files)
- Directly outside Onizuka Air Station - Satellite Uplink

Findings

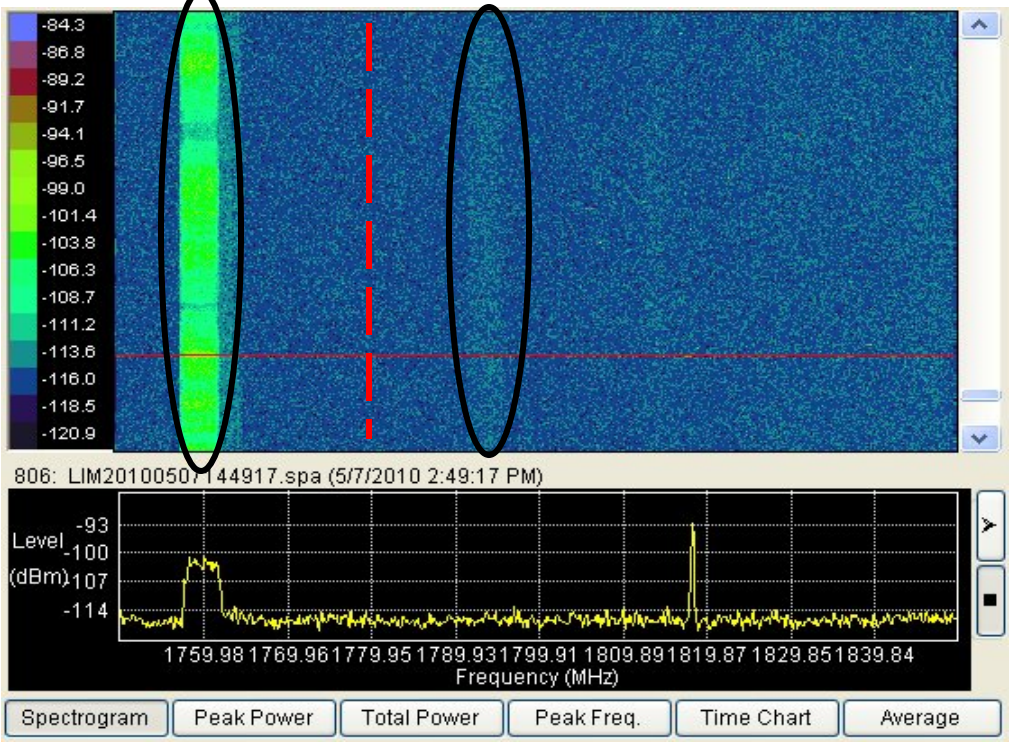
- Constant 4 MHz around 1762-3 MHz (probably same system seen at Santa Clara scan).
- Regular but not constant low level 4 MHz carrier of varying signal strength at 1793 MHz.
- Regular but varying amplitude and consistency narrow band signal at 1848.5 MHz.
- Possible hopping signal across 1805-1850 MHz band present during all collection data.
- Low level narrow band bursts between 1765 MHz and 1800 MHz.

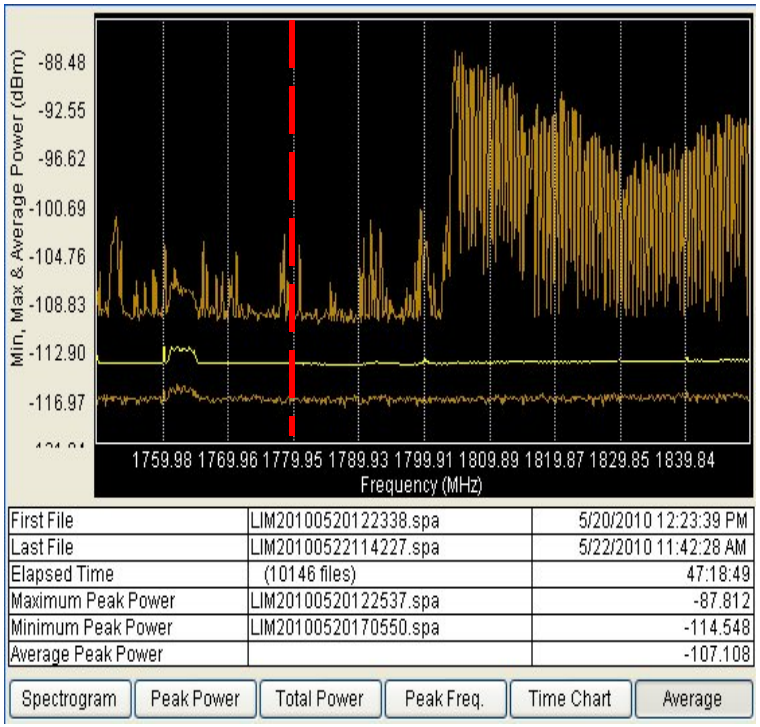
Bay Area California (Sunnyvale, CA)

Regular 1762 MHz Transmission

Regular 1793 MHz Transmission

Constant Frequency Hopping From 1805-1850 MHz





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Last File	LIM20100522114227.spa	5/22/2010 11:42:28 AM
Elapsed Time	(10146 files)	47:18:49
Maximum Peak Power	LIM20100520122537.spa	-87.812
Minimum Peak Power	LIM20100520170550.spa	-114.548
Average Peak Power		-107.108

May 7, 2010 02:36 PM – 02:52 PM

Boston (Manchester, NH)

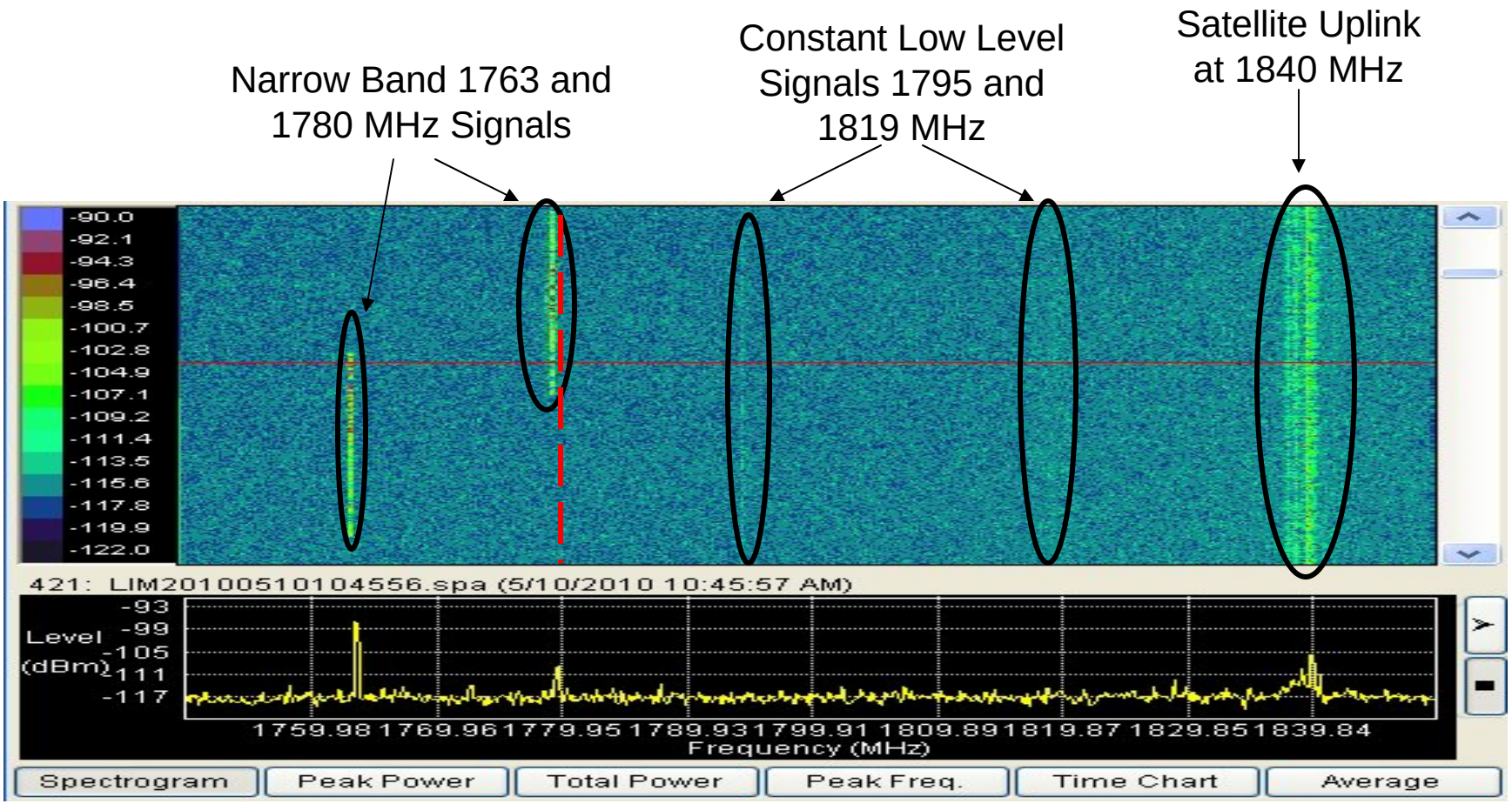
Parameters

- 1750 Elm Street, Manchester, NH 03104 (18 story building)
- Collection period 5/10/2010-5/17/2010 (27.5K files)
- 10 miles from New Boston Air Station - Satellite Uplink

Findings

- Suspected satellite uplink at 1840 MHz coming from Boston Station (confirmed with drive by). Can be seen from Manchester and Nashua.
- Many narrow band threads present throughout the collection period across the full test span of 1750-1850 MHz. Strongest level and most consistent usage observed at following frequencies:
  - 1760.0, 1763.7, 1779.8, 1783.8, 1796, 1800, 1807.8, 1811.6 MHz
- Relatively constant low level signal at 1795 MHz (narrow band).
- Relatively constant low level signal at 1819 MHz (1-2 MHz).

Boston (Manchester, NH)



May 10, 2010 10:35 AM - 10:57 AM

Boston (Nashua, NH)

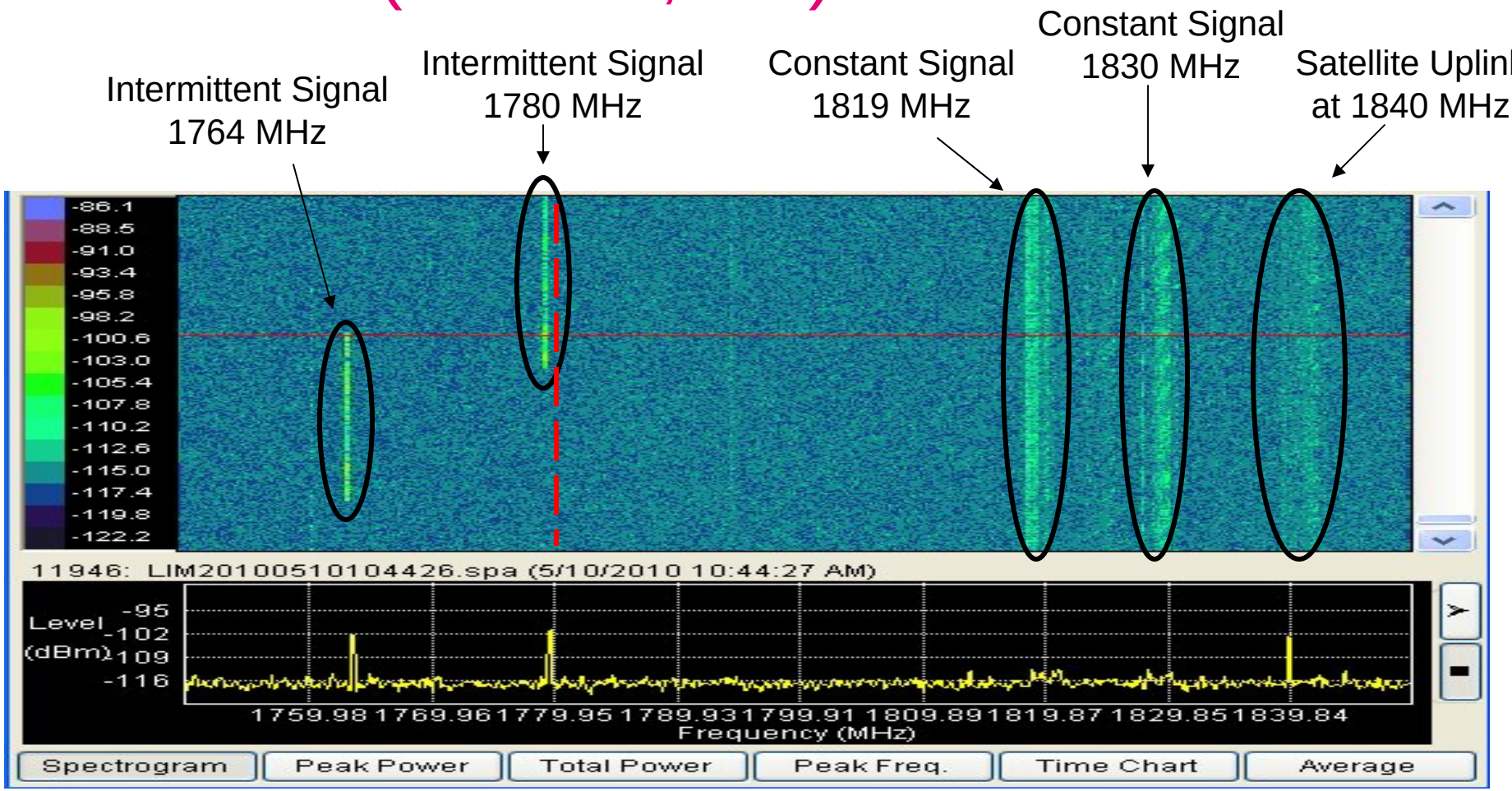
Parameters

- Address: 172 Kinsley Street, Nashua, NH 03060 (12 Story building)
- Collection period 5/9/2010 – 5/15/2010 (50k files collected)
- 15 miles from New Boston Air Station - Satellite Uplink

Findings

- Suspected satellite uplink at 1840 MHz appears to be coming from New Boston Station but much at a lower level than observed in Manchester.
- Constant signal at 1819 MHz with 2 MHz bandwidth present throughout the collection period (probably point to point system).
- Constant signal at 1830 MHz with 1 MHz bandwidth present throughout the collection period (probably point to point system).
- Similar narrow band peaks to Manchester.

Boston (Nashua, NH)



May 10, 2010 10:35 AM – 11:00 AM

Colorado Springs, CO

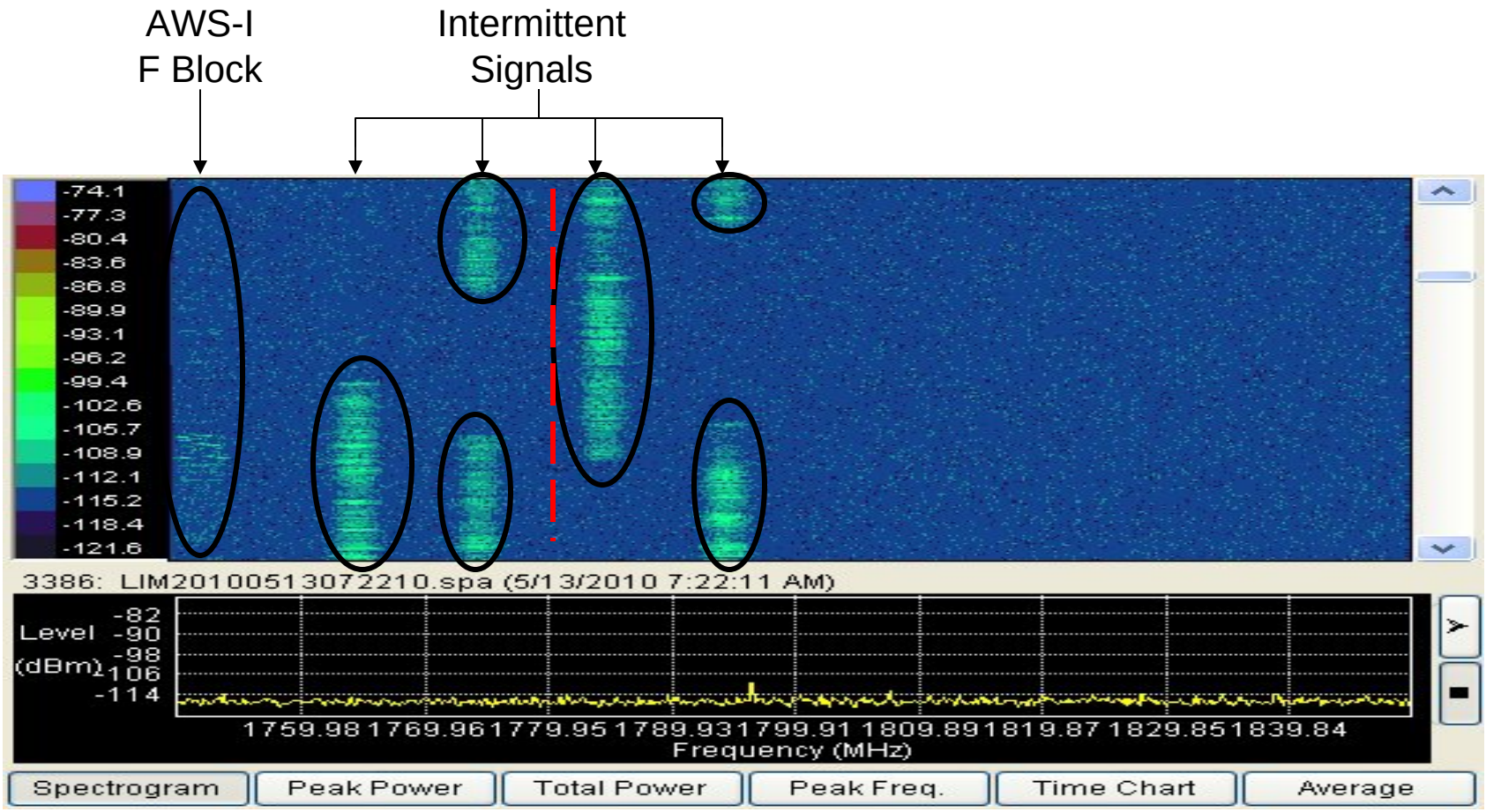
Parameters

- Address: 1719 E Bijou St, Colorado Springs, CO 80909 (11 story building)
- Collection period 5/11/2010 – 5/18/2010 (18.5K files)
- 15 miles from Schriever Air Force Base - Satellite Uplink

Findings

- Four separate 2 MHz carrier equally spaced 1765, 1775, 1785 and1795 MHz present at various times throughout the collection period.
- 5th 2 MHz carrier seen briefly at end of collection period at 1815 MHz.
- Narrow band spike at 1791.8 MHz for short durations present periodically throughout collection period.
- Signals appear to originate from downtown Colorado Springs.

Colorado Springs, CO



May 13, 2010 07:05 AM – 07:37 AM

Chicago, IL (Rosemont, IL)

Parameters

- Address 6501 N Manheim Rd, Rosemont, IL 60018 (11 story building)
- Collection period 5/11/2010 – 5/12/2010 (14k files)

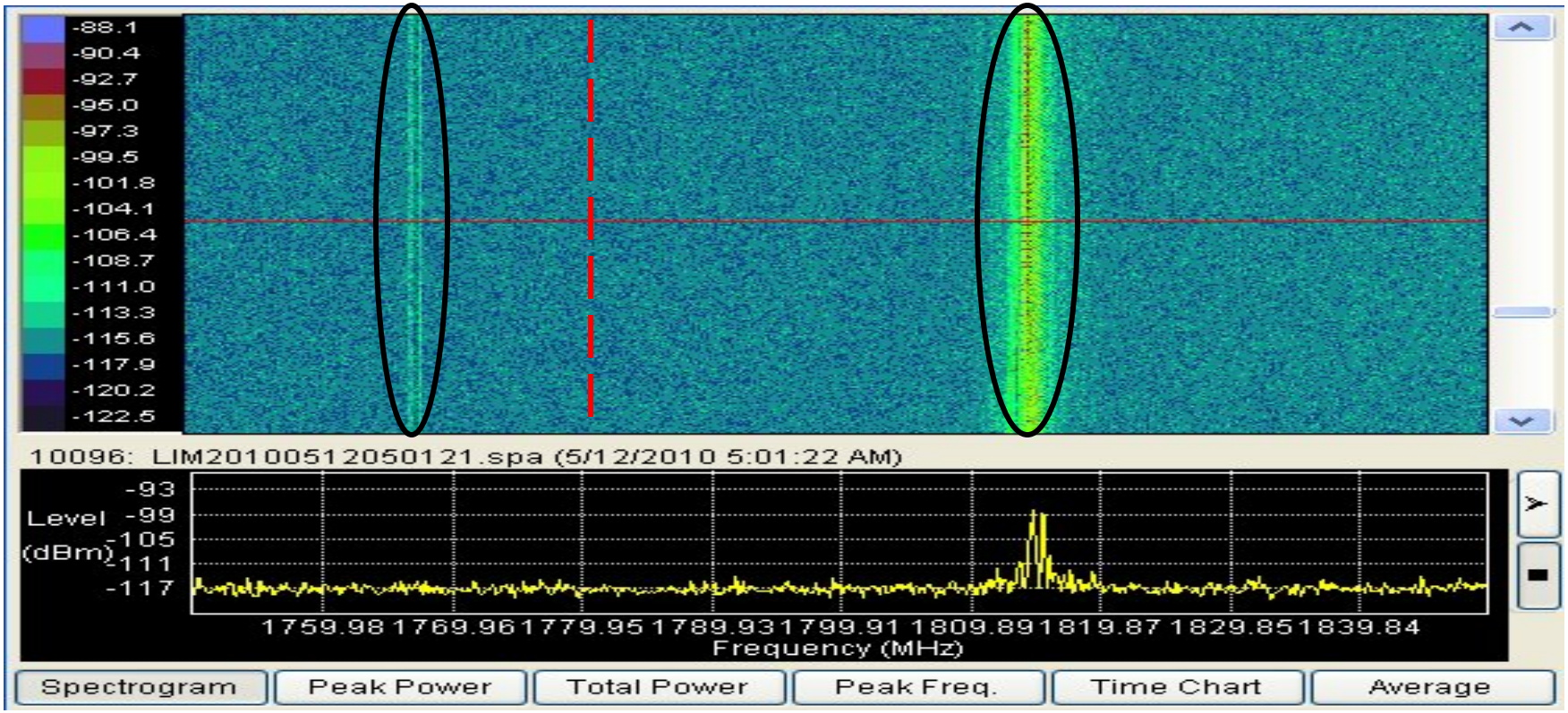
Findings

- Constant low level, narrow band signal at 1768 MHz is visible during the entire collection period
- Strong wide band signal at 1814 MHz coming from the direction of O'Hare airport. Suspected FAA activity.

Chicago, IL

Constant Low
Level 1768 MHz

Wide Band Signal
1814 MHz



May 12, 2010 04:47 AM - 05:13 AM

Chicago, IL

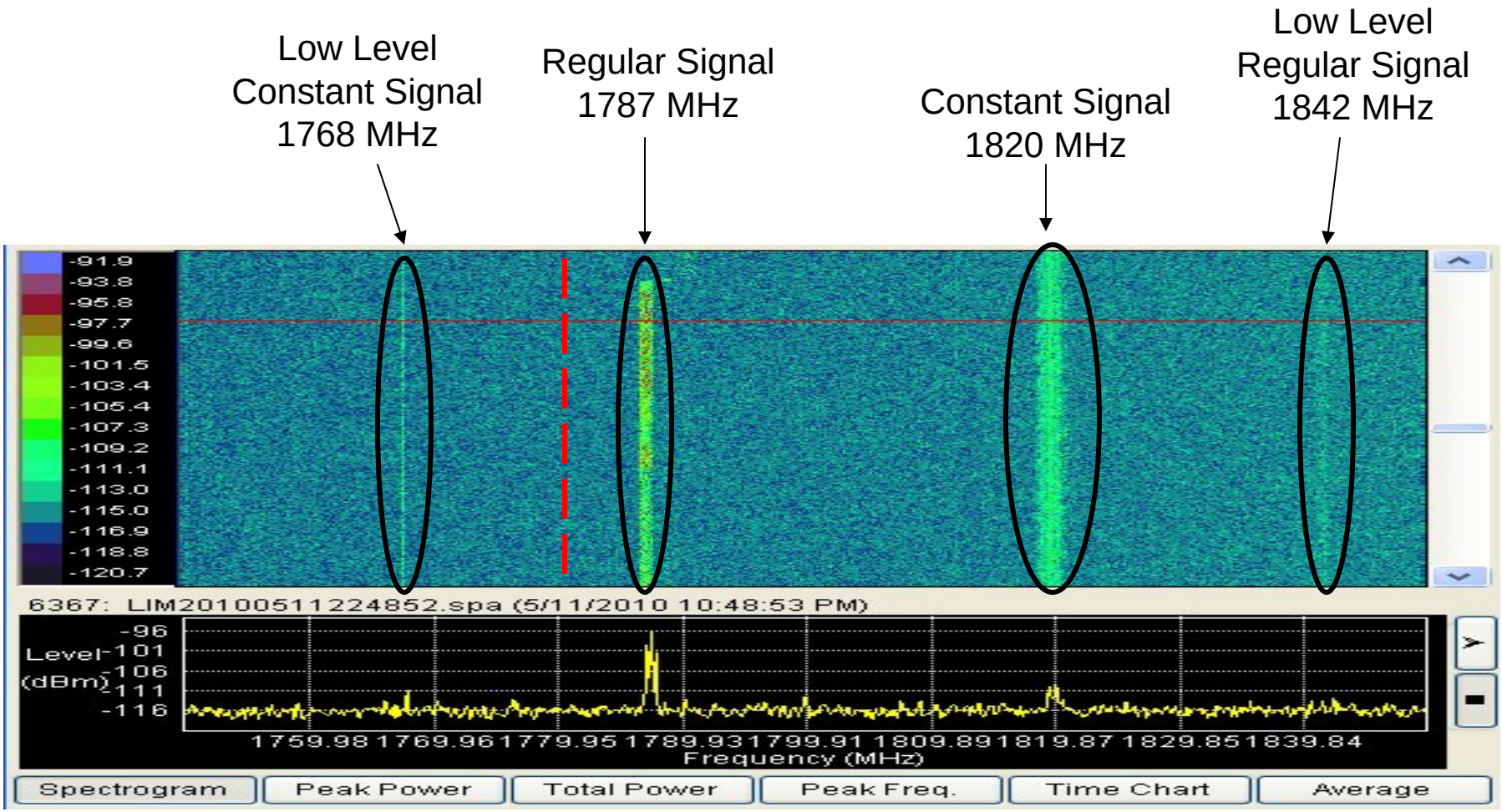
Parameters

- Address: 600 S Michigan, Chicago, IL (13 story building)
- Collection period 5/11/2010 – 5/18/2010 (70k files)

Findings

- Constant low level, narrow band signal at 1768 MHz is present during most of the collection period. Signal correlates to results from Rosemont scan.
- Regular signal at 1787 MHz (suspected point to point microwave).
- Constant signal at 1820 MHz, 2-3 MHz wide, for the entire collection period.
- Low level signal at 1842 MHz, 1 MHz wide, present through most of the collection period.

Chicago, IL



May 11, 2010 10:43 PM – 11:06 PM

Houston, TX

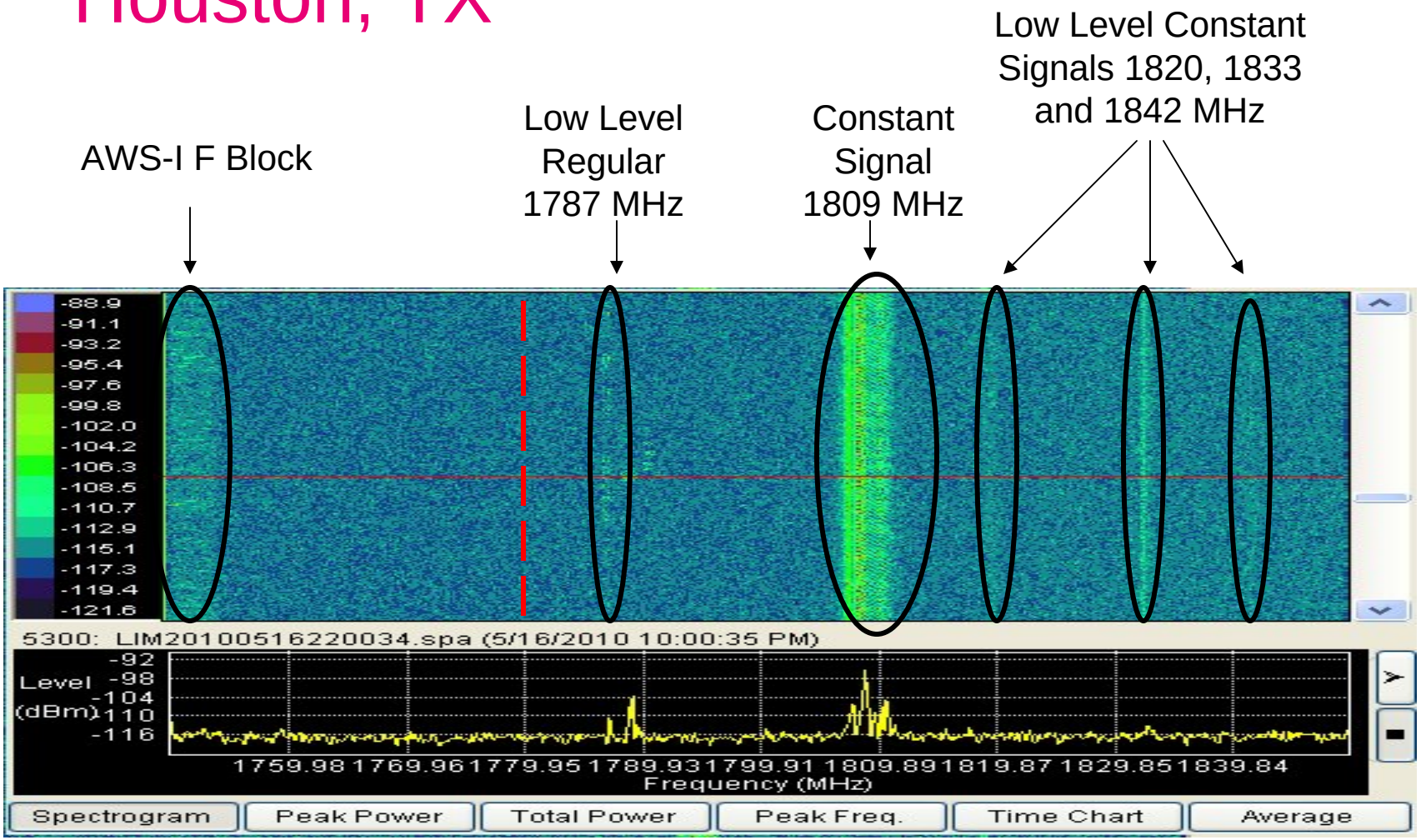
Parameters

- Address: 11490 Westheimer Rd, Houston, TX (15 story building)
- Collection period 5/14/2010 – 5/17/2010 (23k files)

Findings

- Constant high amplitude carrier at 1809 MHz with 3 MHz bandwidth.
- Low level signal constant at 1787.45 MHz throughout most of the collection period.
- Other constant signals present at 1820, 1833, 1842 MHz throughout the collection period.

Houston, TX



May 16, 2010 09:48 PM – 10:12 PM

Houston (Galveston, TX)

Parameters

- Address: 7310 Seawall Blvd, Galveston, TX (12 story building)
- Collection period 5/13/2010 – 5/19/2010 (40k files)

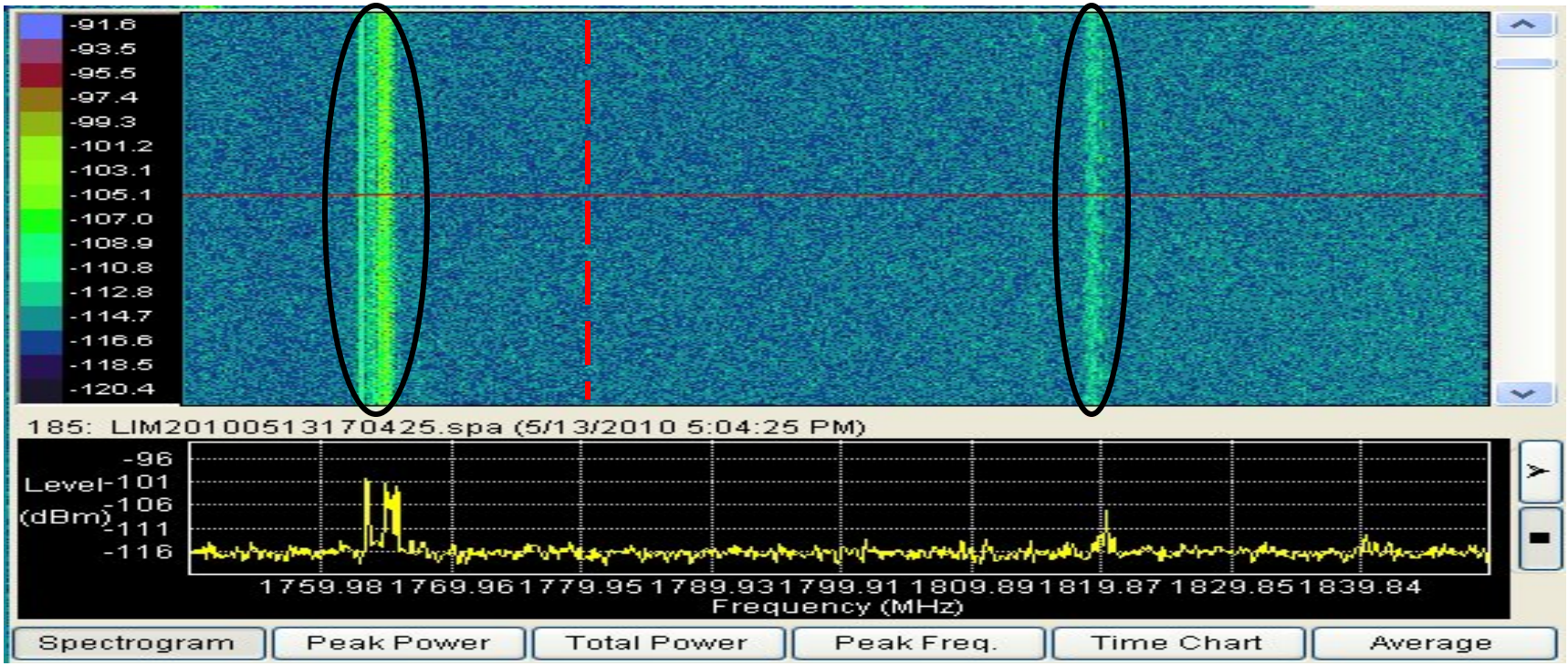
Findings

- Constant wide band signal at 1765 MHz coming from the northeast with 3 MHz bandwidth and 5-6 separate carriers or peaks.
- Constant signal at 1819.6 MHz with 1 MHz bandwidth.
- Other periodic transmissions at 1810-1830 MHz with 1 MHz bandwidth.

Houston (Galveston, TX)

Constant Signal
1765 MHz

Constant Signal
1820 MHz



May 13, 2010 04:55 PM – 05:15 PM

Washington DC

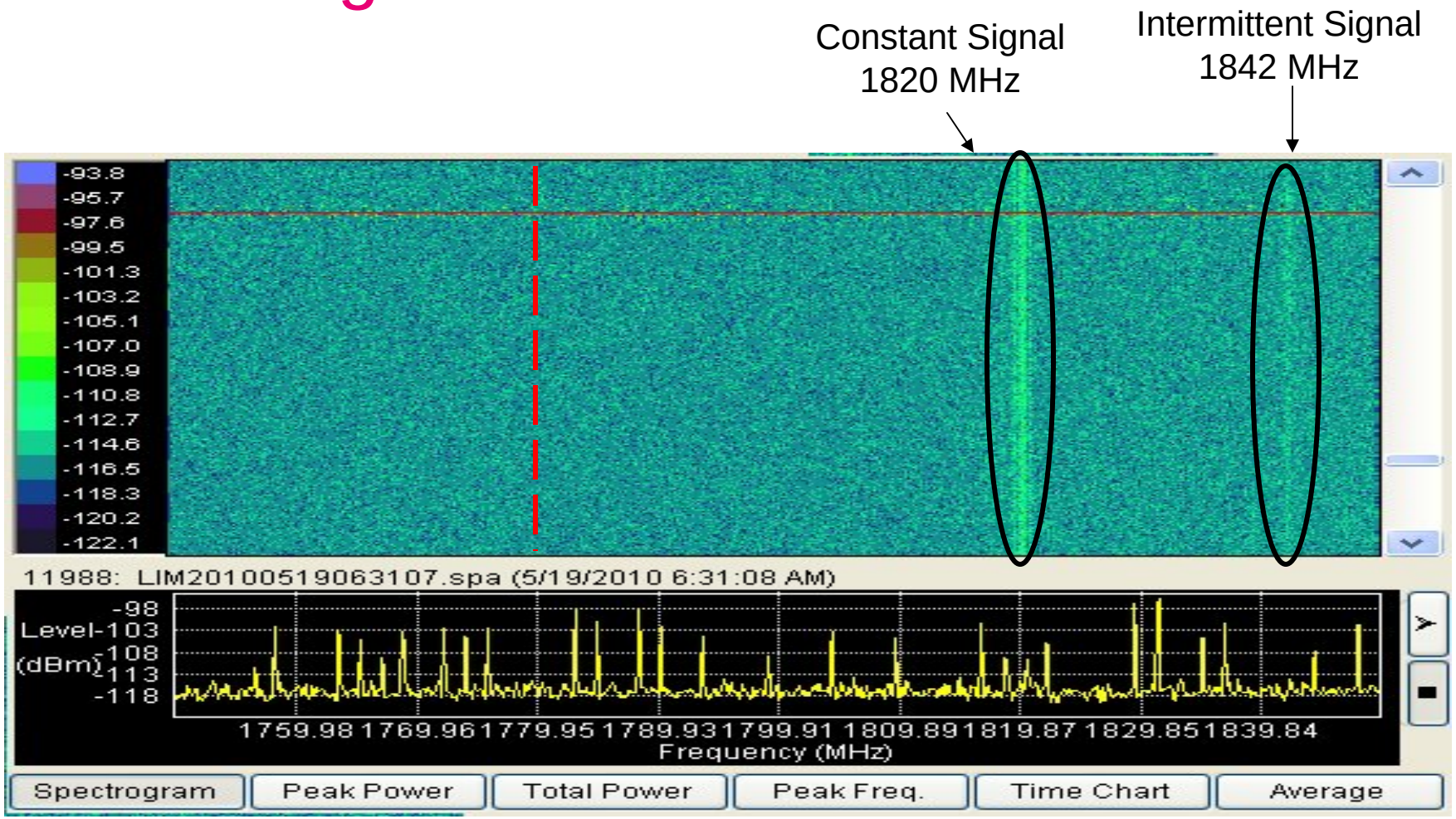
Parameters

- Address: 801 Rhode Island AVE, WA DC (12 story building)
- Collection period 5/17/2010 – 5/24/2010 (68k files)
- 35 miles from Blossom Point - Satellite Uplink

Findings

- Constant signal at 1820.3 MHz, 200-300 KHz wide carrier, present entire period at low level.
- Signal present at 1819.6 MHz throughout collection period with 1 MHz bandwidth.
- Narrow band spike at 1818.6 MHz visible throughout the period, regular but not constant.
- Narrow band spike at 1842 MHz visible during most of the period.

Washington DC



May 19, 2010 06:27 AM – 06:50 AM

Washington DC (Woodbridge, VA)

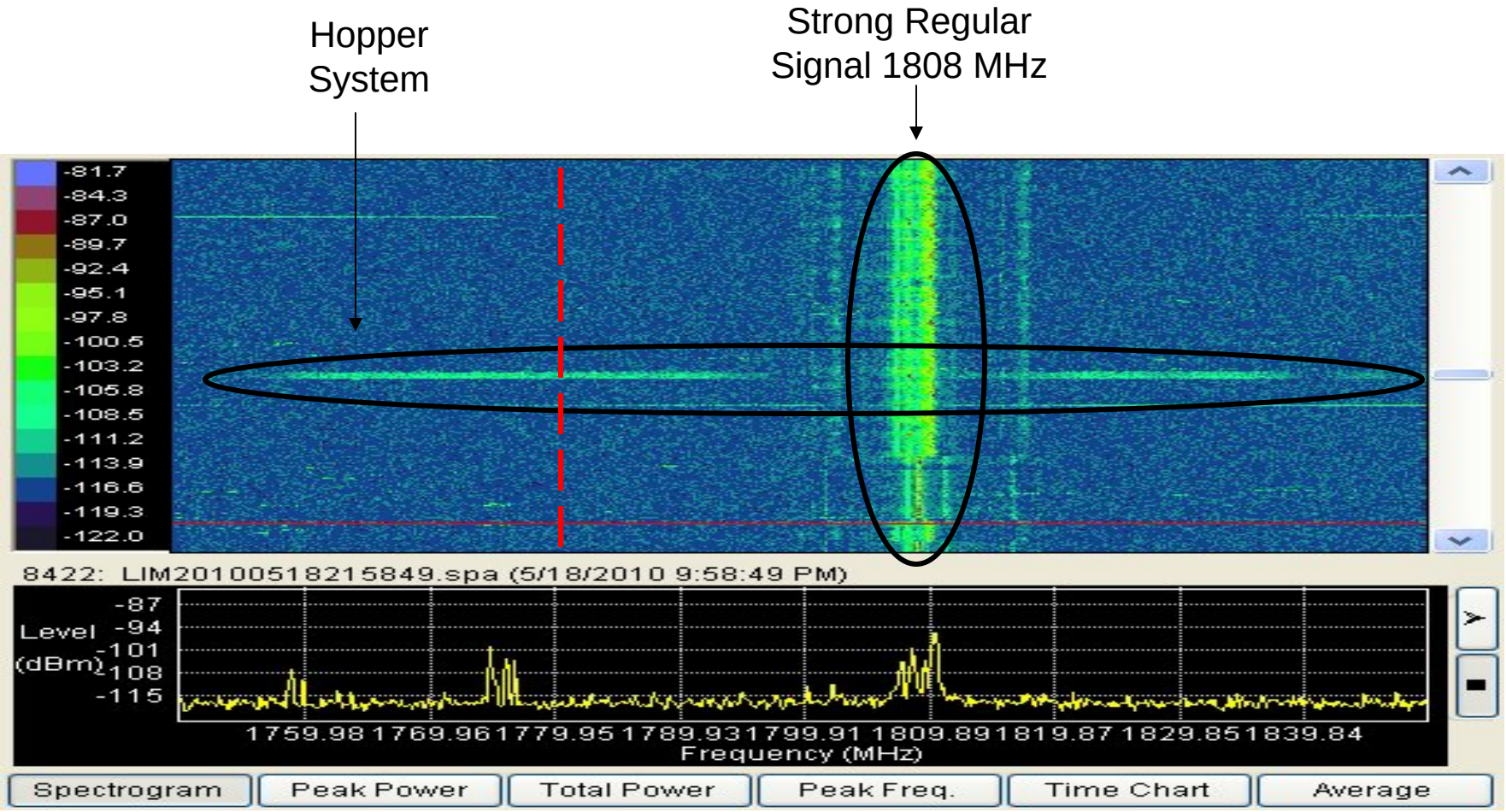
Parameters

- 14619 Potomac Mills RD, Woodbridge, VA (9 story building)
- Collection period 5/17/2010 – 5/24/2010 (39k files)
- 19 miles from Blossom Point - Satellite Uplink

Findings

- Constant signals rarely appearing in consecutive sweeps but repeating throughout the entire collection period. Possibly some kind of random hopping signal transmission covering virtually the entire band.
- Very strong narrow band signal at 1782.2 MHz, 100-200 KHz wide, appears every 12 hours for approximately 1 hour with relatively constant presence.
- Very strong transmissions at 1808 MHz, 4-5 MHz wide, with several peaks during the collection period lasting for 40 and 70 minutes.

Washington DC (Woodbridge, VA)



May 18, 2010 09:39 PM – 10:00 PM

Miami, FL

Parameters

- Address: 5617 NW 7th Street, Miami, FL 33126 (13 story building)
- Collection period 5/22/2010 – 5/25/2010 (15.5k files)

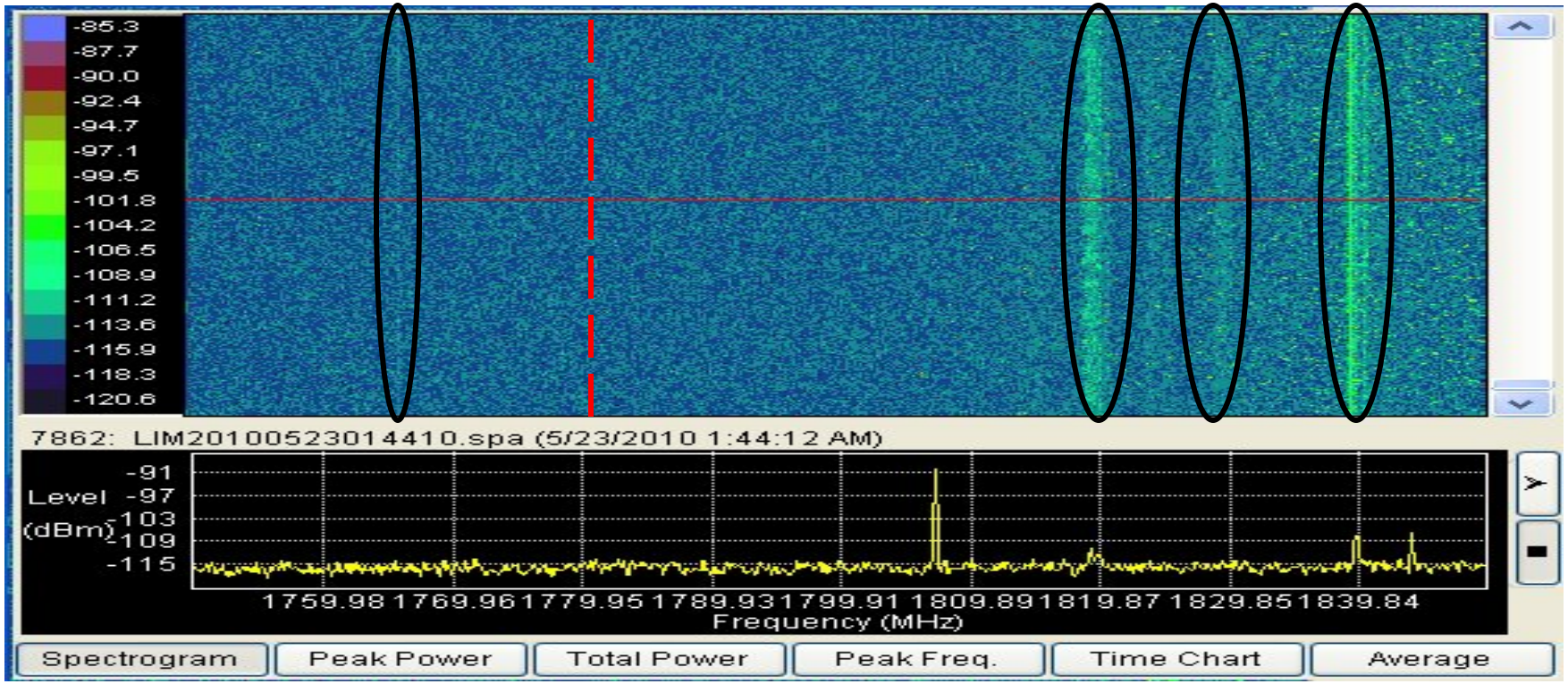
Findings

- Intermittent but regular signal at 1765.6 MHz
- Constant low level signal at 1766.3 MHz.
- Constant signal at 1820 MHz.
- Constant signal at 1825.2 MHz.
- Constant signal at 1840 MHz, 1 MHz wide.

Miami, FL

Constant Low Level Signal 1766 MHz

Constant Signals 1820, 1825 and 1840 MHz



May 23, 2010 01:32 AM – 01:58 AM

Miami (Margate, FL)

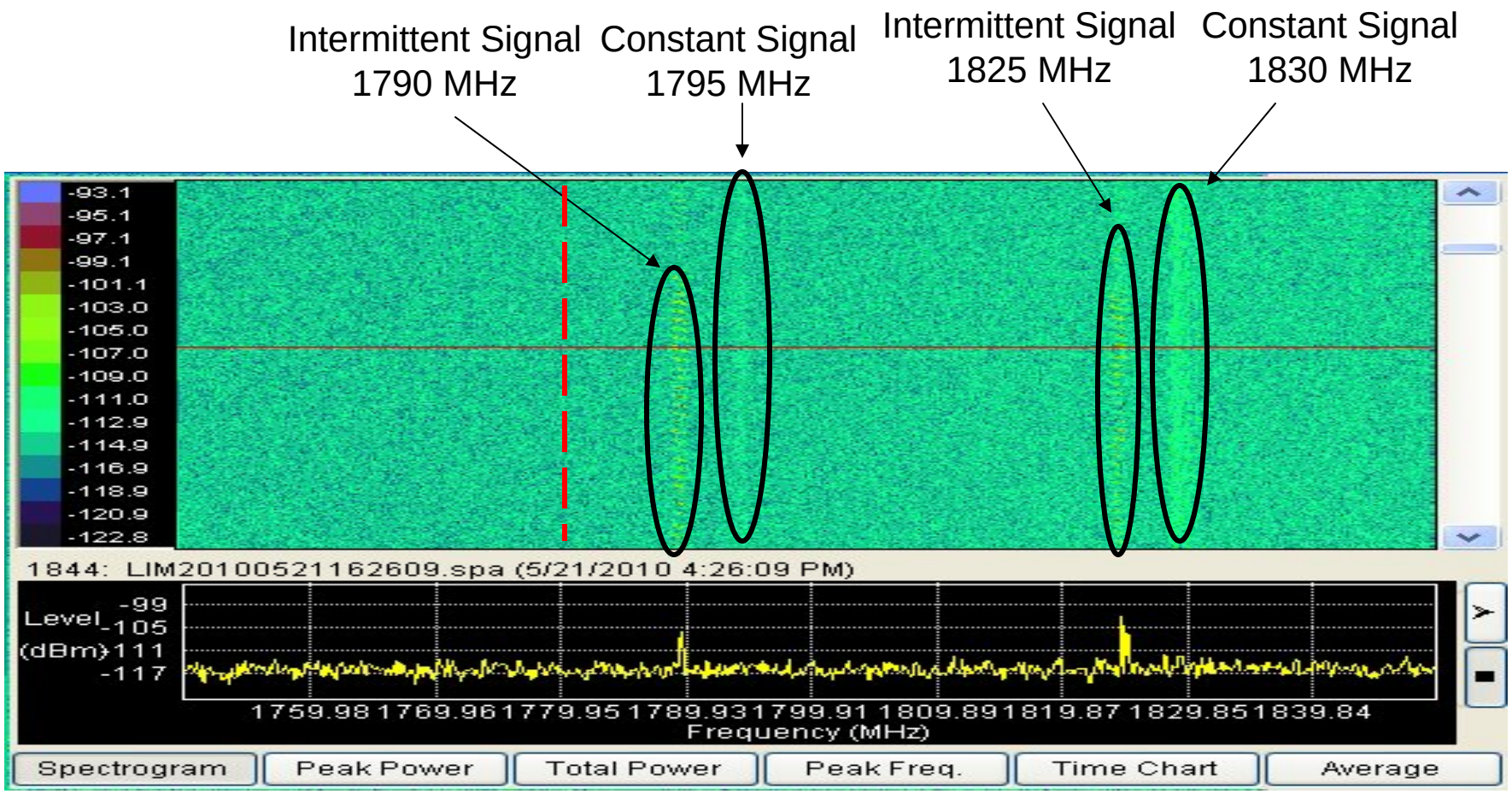
Parameters

- Address: 3535 Brokenwood Dr, Coral Springs, FL 33065 (10 story building)
- Collection period 5/20/2010 – 5/25/2010 (89k files)

Findings

- Constant signal at 1830 MHz with 2 MHz bandwidth.
- Intermittent but regular signal at 1765.6 MHz (similar to Miami).
- Constant low level signal at 1766.3 MHz (similar to Miami).
- Constant signal at 1795 MHz.
- Constant signal at 1820 MHz (similar to Miami).
- Constant signal at 1840 MHz1, MHz wide (similar to Miami).

Miami (Margate, FL)



May 21, 2010 04:18 PM – 04:36 PM