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FCC PART 15.Subpart H White Spaces System

Part 2 TEST REPORT

Fixed TVBD Device

Applicant	Meld Technology Inc.
Address	1645 Canary Drive
	Sunnyvale, CA 94087 USA
FCC ID	OKVMT300
Model Number	MT300
Product Description	White Space Fixed TVBD
Date Sample Received	July 2012
Date Tested	July 2012
Tested By	Sushant Kadimdivan
Approved By	Mario de Aranzeta
Report Number	15 SubPt H Part 2 REPORT.doc
Test Results	<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL

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APPROVAL OF TIMCO ENGINEERING, INC.



Testing Certificate # 0955-01

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GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

The test results relate only to the items tested.

Summary

The device under test does:



fulfill the general approval requirements as identified in this test report



not fulfill the general approval requirements as identified in this test report

Attestations

The scope of this document is to report the results of the Fixed TVBD Part 2 Database Interface Certification tests.

There are three (3) components of the White Spaces technology;

- **TV Band devices (Fixed TVBD for Certification).**
- **TV Bands Database**
- **TV Band System,** Made up of Fixed TVBD's database, and layer of interaction between the devices and the databases.

To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025: 2005 requirements.



Testing Certificate # 0955-01

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, FL 32669

Authorized Signatory Name:



Mario de Aranzeta C.E.T.
Compliance Engineer

Date: August 28, 2012

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

GENERAL INFORMATION

EUT Description

General:

The Equipment Under Test (EUT's), are Meld Technology, Inc. model MT300 radios intended for use as Fixed TV Bands devices for the purpose of testing and verifying compliance with Part 15 Subpart H of Title 47 of the Code of Federal Regulations. The MT300 operates as a fixed TVBD transmitter in the UHF band using a VSB modulator that is designed to provide low-power transmission of a DTV compatible signal over a limited area. The radios tested are factory pre-configured UHF radios with an operating frequency range of 512-596 MHz (TV channels 21-34) and 620-698 MHz (TV channels 39-51). The power is pre-configured with a maximum power of 11.5 dBm which meets the limits contained in this report. The radios are designed to comply with the FCC CFR 47 Part 15 subpart H rules. Local and remote device management is provided through a webpage interface and all database transactions are accomplished using a secure shell (SSH) network connection. Professional installation and location configuration of this device is required.

EUT Specification:

Applicable Standard	Part 15 Subpart H TV Band White Space Fixed Device		
EUT Description	simplex(one way), transmit only		
FCC ID	OKVMT300		
Application:	Low Power HD Digital TV transmission		
Operating Frequency	TX: 512-596 MHz, 620-698 MHz		
Number of channels	CH21 to CH34, CH39 to CH51		
Bridged Ethernet Port:	Ethernet Ports IP Subnets Bridge		
Transmit Power(dBm):	11.52 dBm		
EUT Power Source	<input type="checkbox"/> 110–120Vac/50– 60Hz <input checked="" type="checkbox"/> DC Power Stontronics 3A-401WP12 <input type="checkbox"/> Battery Operated Exclusively		
Test Item	<input type="checkbox"/> Prototype	<input type="checkbox"/> Pre-Production	<input checked="" type="checkbox"/> Production
Type of Equipment	<input checked="" type="checkbox"/> Fixed - WGF	<input type="checkbox"/> Mobile – WG1	<input type="checkbox"/> Portable – WG2
	<input type="checkbox"/> Fixed - WSF	<input type="checkbox"/> Mobile – WS1	<input type="checkbox"/> Portable – WS2
Antenna Connector	75 ohm F- connector		
Antenna	U Tek Technology Co. EA-79X-1		
Network Port	RJ 45		
Serial Port	Male RS 232		
Indicators	<input checked="" type="checkbox"/> Power Indicator <input type="checkbox"/> Alarm Indicator		

APPLICANT: Meld Technology, Inc.

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	<input checked="" type="checkbox"/> Transmit Indicator
--	--

Test Facility	Timco Engineering Inc. 849 NW State Road 45 Newberry, FL 32669 USA.
Test Conditions	Temperature: 26°C Relative humidity: 50%
Test Exercise	The EUT was tested in normal operator mode.

EMC EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	Listed 5/10/10	5/10/12
Analyzer Tan Tower Preamplifier	HP	8449B-H02	3008A00372	CAL 10/28/11	10/28/13
Analyzer Tan Tower Quasi-Peak Adapter	HP	85650A	3303A01690	CAL 10/28/11	10/28/13
Analyzer Tan Tower RF Preselector	HP	85685A	3221A01400	CAL 10/28/11	10/28/13
Analyzer Tan Tower Spectrum Analyzer	HP	8566B Opt 462	3138A07786 3144A20661	CAL 10/28/11	10/28/13
Spectrum Analyzer	R&S	ESIB40	100274	3/16/12	3/16/14

TEST PROCEDURES

Database Test: Certification Test Procedures for TV Band (White Spaces) Devices Authorized under Subpart H of the Part 15 Rules, 416721 DO1 White Space Test Procedures v02.

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

TEST CONFIGURATIONS:

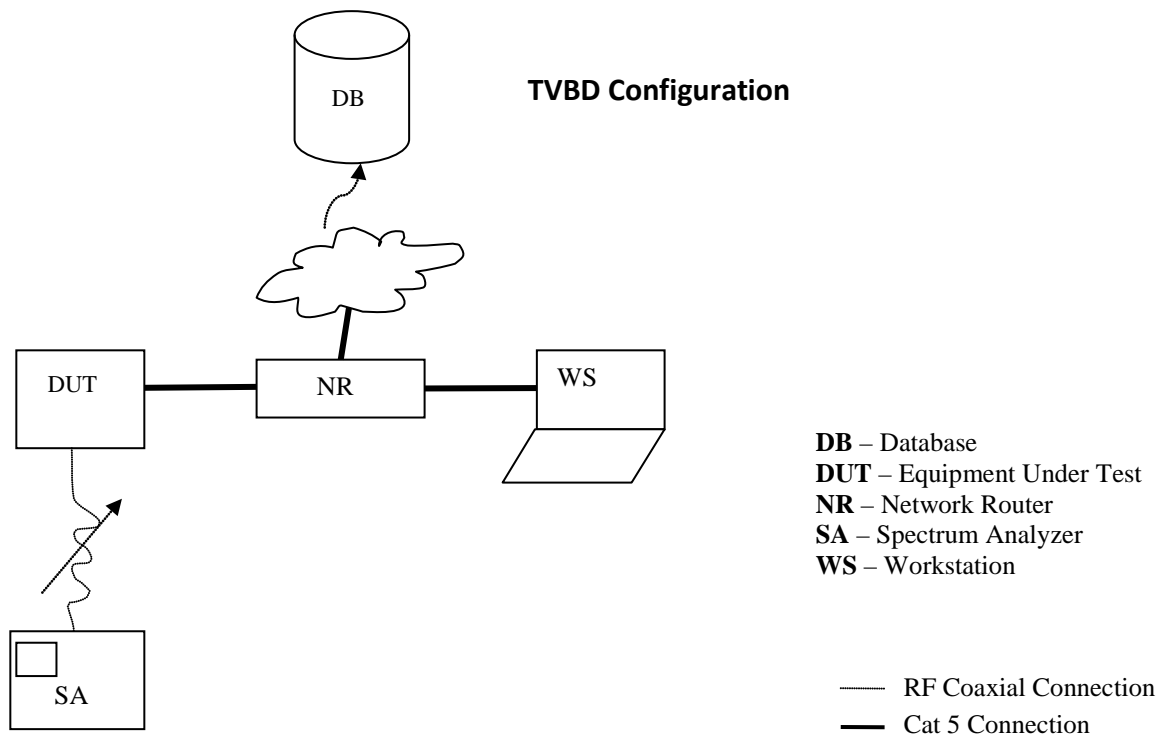


Figure 1

Device and System Operation

This section provides high level description of the White Space test network configuration, Meld Technology Radio, operations/commands; and the White Spaces system as a whole consisting of White Spaces network and White Spaces Database (WSDB). For purposes of this procedure, the device will be controlled via the EUT web interface page. In order to connect the work station to the TVBD, the operator will have to have knowledge of the TVBD static IP address and set the workstation with an IP address within the same subnet range.

Test Network Configuration

The MT300 TVBD is designed as a transmit only device. The MT300 transmits on an available TV White Space channel in the UHF frequency band. The bench test network configuration is shown in Figure 1 above. The elements of the test setup are:

- EUT –Meld Technology MT-300 White Space Radio Serial #115
- NR – standard network router/switch
- WS – workstation (laptop computer) to simulate in-field wireless communication, execute tests and perform monitoring and measurements
- SA – spectrum analyzer
- RF attenuators and cabling

The workstation is physically connected to one of the network router LAN ports via RJ45 and establishes a network connection to the EUT and the internet. The routers WAN port connection is required to be capable of providing Internet access.

The EUT is physically connected to a network router LAN port via its RJ45 network port. All of the device/database tests were executed in normal operational mode. Configuration of EUT is accomplished using product's web interface tool.

As defined in the FCC's White Spaces Final Rules, the EUT only operates and is tested as Fixed TV Band Devices (TVBDs). EUT operates as Fixed TVBD with a direct connection to the Internet. The EUT is provisioned or enrolled prior to testing by a Spectrum Bridge representative. In addition, the EUT must be configured with registration information to register with WSDB. The firmware loaded in the EUT includes the database interface agent that includes the Spectrum Bridge White Space services URL.

The EUT must be configured with complete registration information using the webpage device interface and will not transmit until it registers and receives a valid channel list. When power is applied and the radio establishes an Internet connection; the TVBD sends the registration information to the database via the Internet. The WSDB verifies the TVBD's FCC ID and serial number and upon confirmation, registers the device. The device then requests a channel map for its location. Upon receiving a list of available channels from the database the TVBD will pick an available channel and enable its radio transmitter.

The following tests address the Radios functionality as a Fixed TVBD and compliance with the FCC's TV White Space Database Interface Certification Rules Part 2.

TEST Summary

This document provides test overviews and test results that apply specifically to Fixed TVBD's operating in TV White Spaces on an unlicensed secondary use basis.

Test Result Summary

Test Case	P/F/I
§15.713(f)(3) Fixed TVBD Registration(Successful Registration)	P
§15.713(f)(3) Fixed TVBD Registration(Restricted Co-ordinates)	P
§15.713(f)(3) Fixed TVBD Registration(Incomplete Contact Information)	P
§15.713(f)(3) Fixed TVBD Registration(HAAT/AGL)	P
§15.713(f)(3) Fixed TVBD Registration(FCCID/Serial Number)	P
§15.707(a) Fixed TVBD Relocated	P
§15.711(b)(3)(iii) Fixed & Mode II TVDB Database Update	P
§15.711(b)(3)(i)(ii), §15.713(a)(1) 48 Hour Channel Scheduling	P
§15.707, §15.711(b)(3)(i)(ii)(iv),(c), §15.712 TVBD Channel Availability	P
§15.711(f) Security:	P

P-Pass

F-Fail

I-Inconclusive

N.A.-not applicable/not supported

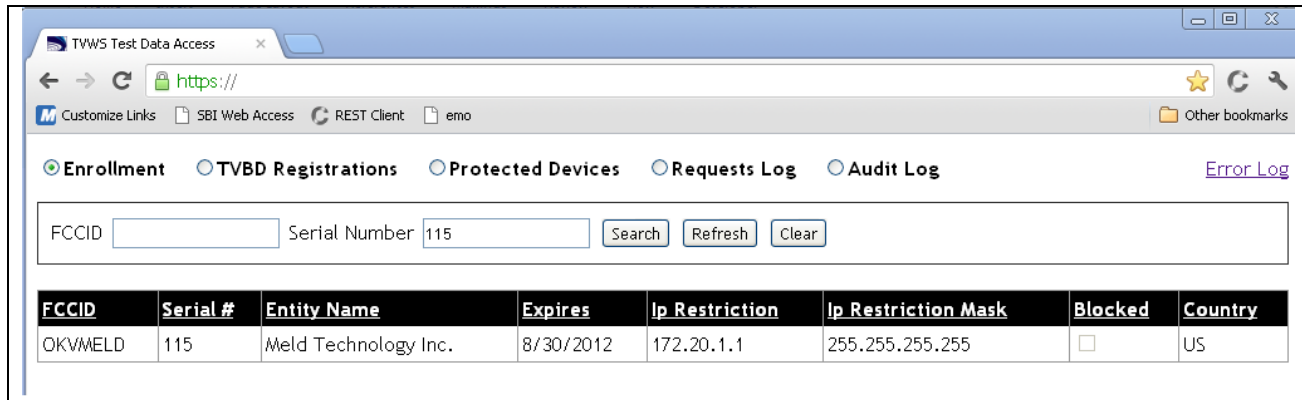
APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

Database Enrollment Information

The following screenshot of the log shows the EUT enrolled in the whitespace database prior to the testing.



TVWS Test Data Access

https://

Customize Links SBI Web Access REST Client emo Other bookmarks

☒ Enrollment
 ☐ TVBD Registrations
 ☐ Protected Devices
 ☐ Requests Log
 ☐ Audit Log
 [Error Log](#)

FCCID Serial Number

FCCID	Serial #	Entity Name	Expires	Ip Restriction	Ip Restriction Mask	Blocked	Country
OKVMELD	115	Meld Technology Inc.	8/30/2012	172.20.1.1	255.255.255.255	<input type="checkbox"/>	US

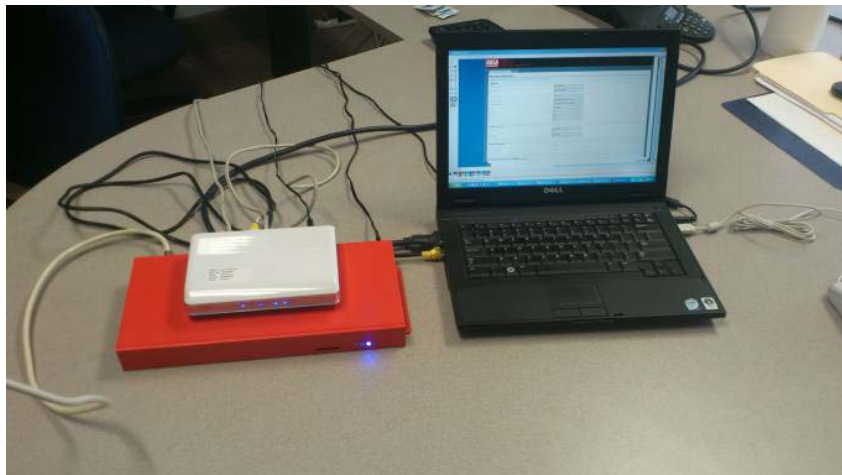
Entity Name: Meld Technology Inc.
Serial No: 115
Temporary FCC ID: OKVMELD

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

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Setup Photo



APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

§15.713(f)(3) Fixed TVBD Registration

a) Successful Registration, 15.713(f)(3)

Test procedure:

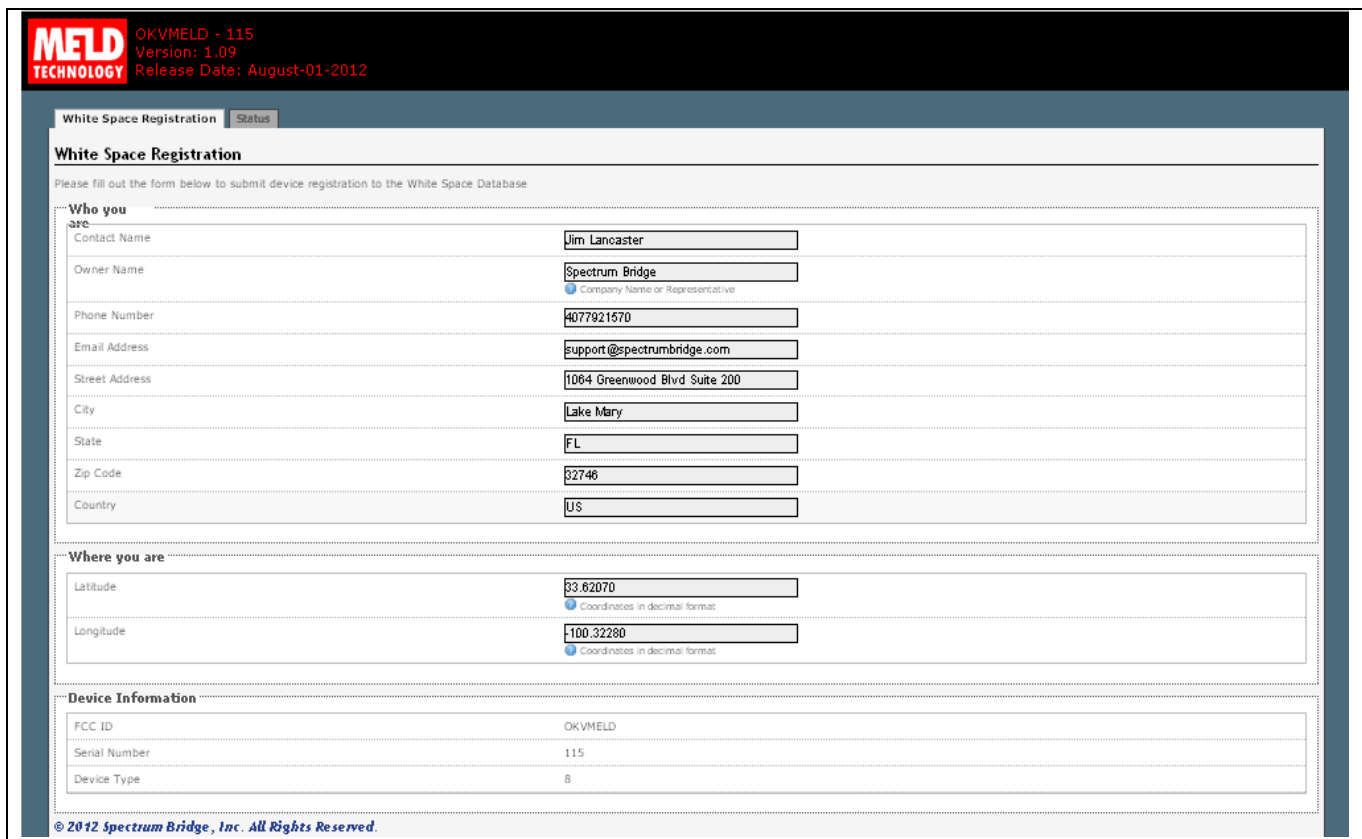
Configure the EUT with the required registration information. Verify the required registration information is sent and stored in the white space data base.

Successful registration should be verified by accessing the WSDB registration interface and also the EUT status information page.

Test pre-conditions:

The FCC ID and the serial # of the radio are programmed in the firmware of the radio and cannot be modified with the EUT configuration web tool. A known acceptable location was put into the radio.

The EUT was configured as follows and the information submitted for registration to the WSDB.



MELD TECHNOLOGY OKVMELD - 115
Version: 1.09
Release Date: August-01-2012

White Space Registration | Status

White Space Registration

Please fill out the form below to submit device registration to the White Space Database

Who you are

Contact Name: Jim Lancaster

Owner Name: Spectrum Bridge
Company Name or Representative

Phone Number: 4077921570

Email Address: support@spectrumbridge.com

Street Address: 1064 Greenwood Blvd Suite 200

City: Lake Mary

State: FL

Zip Code: 32746

Country: US

Where you are

Latitude: 33.82070
Coordinates in decimal format

Longitude: -100.32280
Coordinates in decimal format

Device Information

FCC ID: OKVMELD

Serial Number: 115

Device Type: S

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APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300


REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

Test Results:

The registration request and the response for the successful registration can be seen on the WSDB log below.

Date	Ip	Url	Status	RT (ms)	Data
8/2/2012 10:02:22 AM	98.191.81.133	/33.62070/-100.32280/	Success (0)	390	Response
8/2/2012 10:02:21 AM	98.191.81.133	/OKVMELD/115/	Success (0)	186	Request

The EUT Web Tool status page shown below confirms the successful registration.



OKVMELD - 115
Version: 1.09
Release Date: August-01-2012

White Space Registration
Status

Device Status

Radio Status

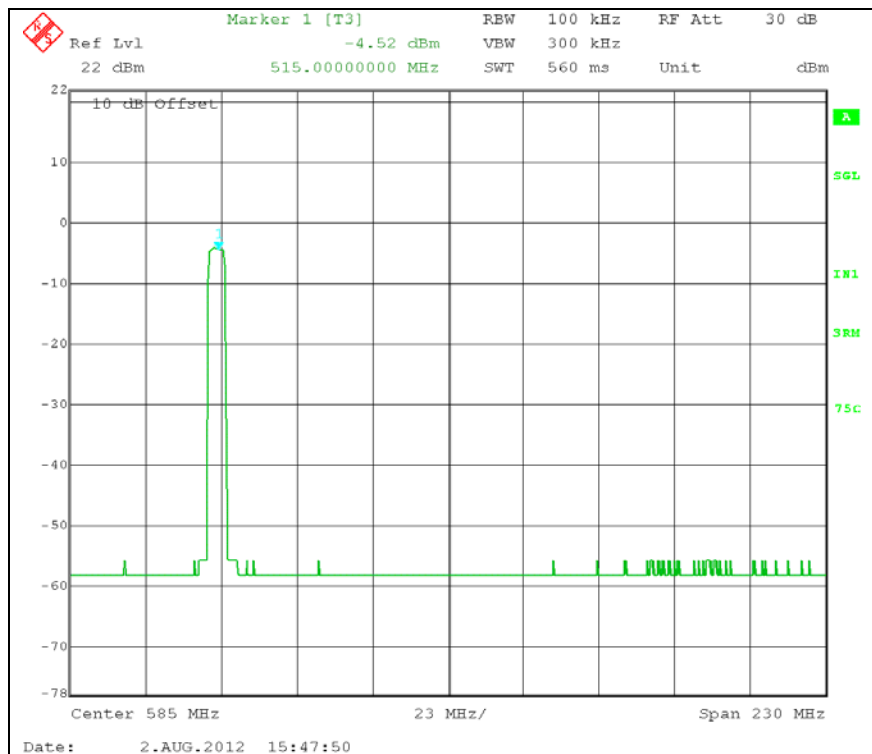
- Operating Channel: 21
- Transmitter status: Enabled

White Space Status

- Registration Status: Success
- Channel Request Status: Success
- Available Channels: 21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,39,40,41,42,43,44,45,46,47,48,49,50,51

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Spectrum Analyzer Plot:



Successful Registration

Result: PASS

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc


b) Unsuccessful Registration, 15.713(f)(3) – Restricted co-ordinates

Test Procedure:

Configure the EUT with restricted co-ordinates (Outside US Regulatory boundaries, example 31.5, -106.9).
Verify the required registration information is sent and stored in the white space data base.
Registration failure should be verified by accessing the WSDB registration interface and also the EUT status web page.

Test Pre-conditions:

A location outside US regulatory boundaries (31.5, -106.9) was entered into the radio and the information submitted for registration to the WSDB.



OKVMELD - 115
Version: 1.09
Release Date: August-01-2012

White Space Registration
Status

White Space Registration

Please fill out the form below to submit device registration to the White Space Database

Who you are

Contact Name	Jim Lancaster
Owner Name	Spectrum Bridge <small>Company Name or Representative</small>
Phone Number	4077921570
Email Address	support@spectrumbridge.com
Street Address	1064 Greenwood Blvd Suite 200
City	Lake Mary
State	FL
Zip Code	32746
Country	US

Where you are

Latitude	31.5 <small>Coordinates in decimal format</small>
Longitude	-106.9 <small>Coordinates in decimal format</small>

Device Information

FCC ID	OKVMELD
Serial Number	115
Device Type	S

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APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

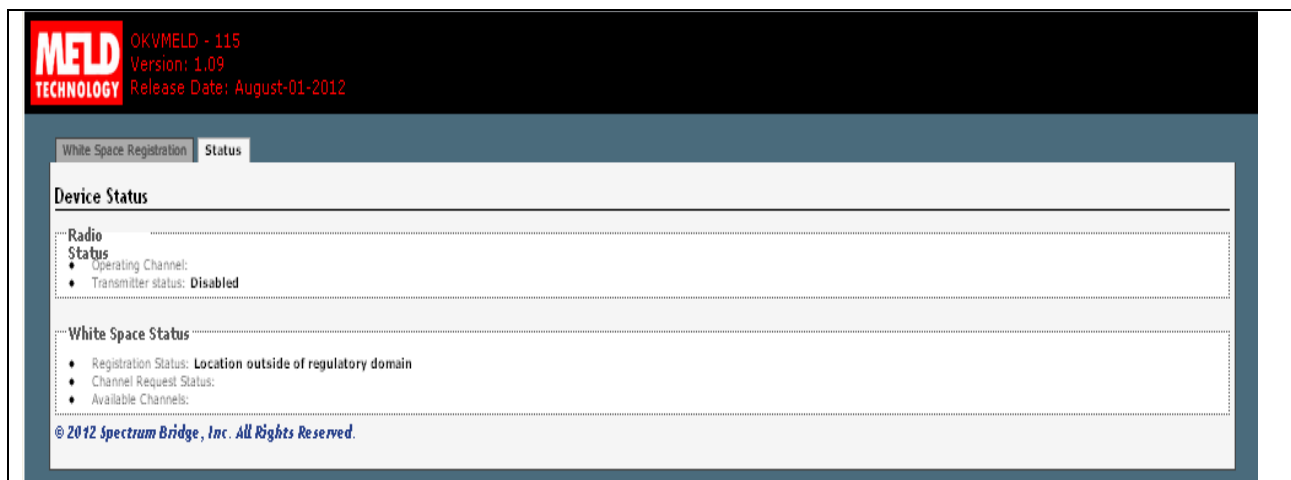
REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

Test Results:

The failed registration with the reason for failure can be seen on the WSDB log below.

Date	Ip	Url	Status	RT (ms)	Data
8/2/2012 9:47:07 AM	98.191.81.133	/OKVMELD/115/	LocatedOutsideRegulatoryDo main (9)	30	Request

The status tab on the EUT Webpage shown below confirms the failed registration.



MELD TECHNOLOGY OKVMELD - 115
Version: 1.09
Release Date: August-01-2012

White Space Registration **Status**

Device Status

Radio Status

- Operating Channel:
- Transmitter status: **Disabled**

White Space Status

- Registration Status: **Location outside of regulatory domain**
- Channel Request Status:
- Available Channels:

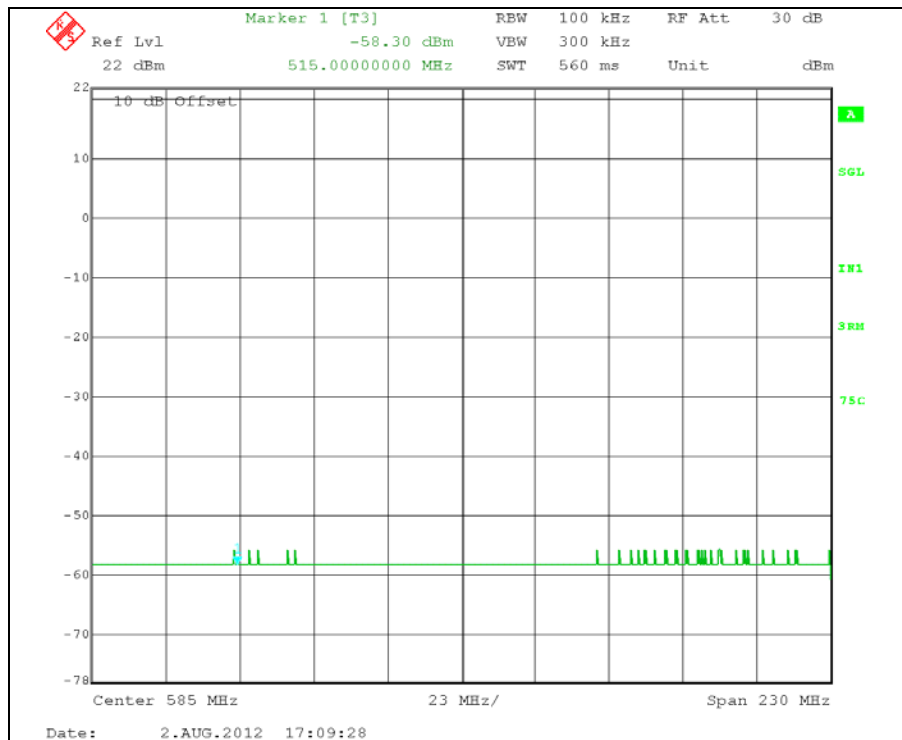
© 2012 Spectrum Bridge, Inc. All Rights Reserved.

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

Spectrum Analyzer plot:



Unsuccessful Registration, no tx

Result: PASS

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

c) Unsuccessful Registration, 15.713(f)(3) – Incomplete Contact Information

Test Procedure:

Configure the EUT with Incomplete Information (e.g. Contact information). Verify the required registration information is sent and stored in the white space data base.

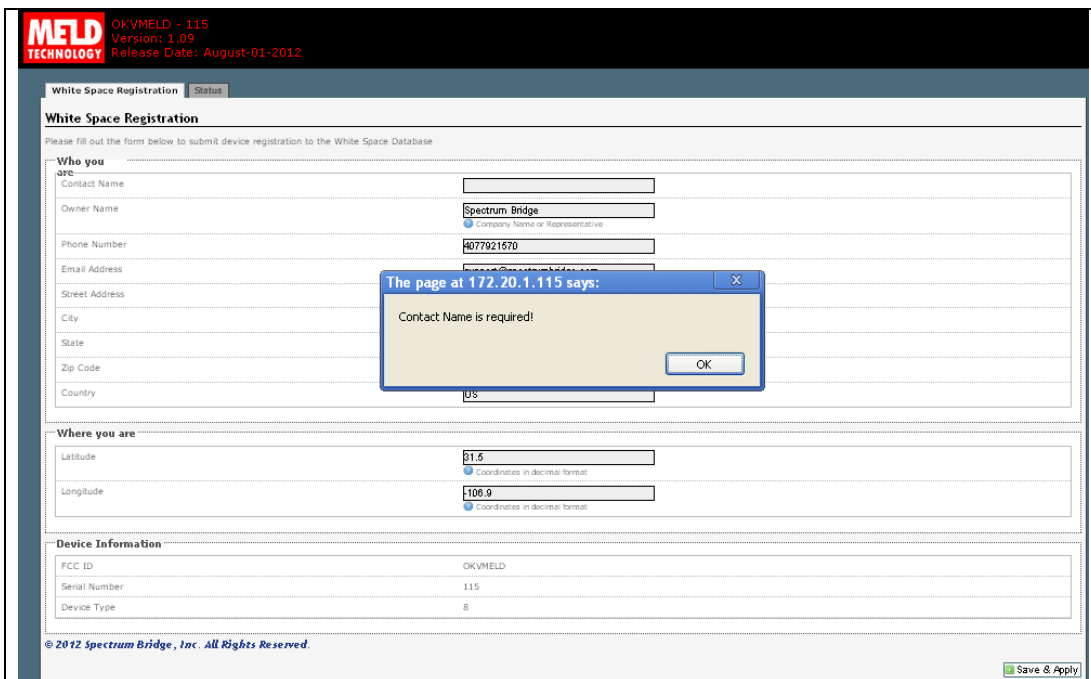
Registration failure should be verified by accessing the WSDB registration interface and also the EUT status web page.

Test Pre-conditions:

The 'Contact Name' Information field should be left blank.

Test Results:

The EUT web page tool prohibits sending incomplete information for registration. The error "Contact name is required" pops up when registration is attempted with contact name field blank. Registration process cannot be attempted with any contact information field left blank.



The screenshot shows the 'White Space Registration' form. The 'Who you are' section has fields for Contact Name (blank), Owner Name (Spectrum Bridge), Phone Number (4077921670), Email Address, Street Address, City, State, Zip Code, and Country (US). The 'Where you are' section has Latitude (31.5) and Longitude (-108.9). The 'Device Information' section has FCC ID (OKVMELD), Serial Number (115), and Device Type (8). An error message box is displayed over the form, stating 'The page at 172.20.1.115 says: Contact Name is required!' with an 'OK' button. The bottom of the form includes a copyright notice '© 2012 Spectrum Bridge, Inc. All Rights Reserved.' and a 'Save & Apply' button.

Result: PASS

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

d) Unsuccessful Registration, 15.713(f)(3) – HAAT > 250m, Antenna Height AGL> 30m

Test Procedure:

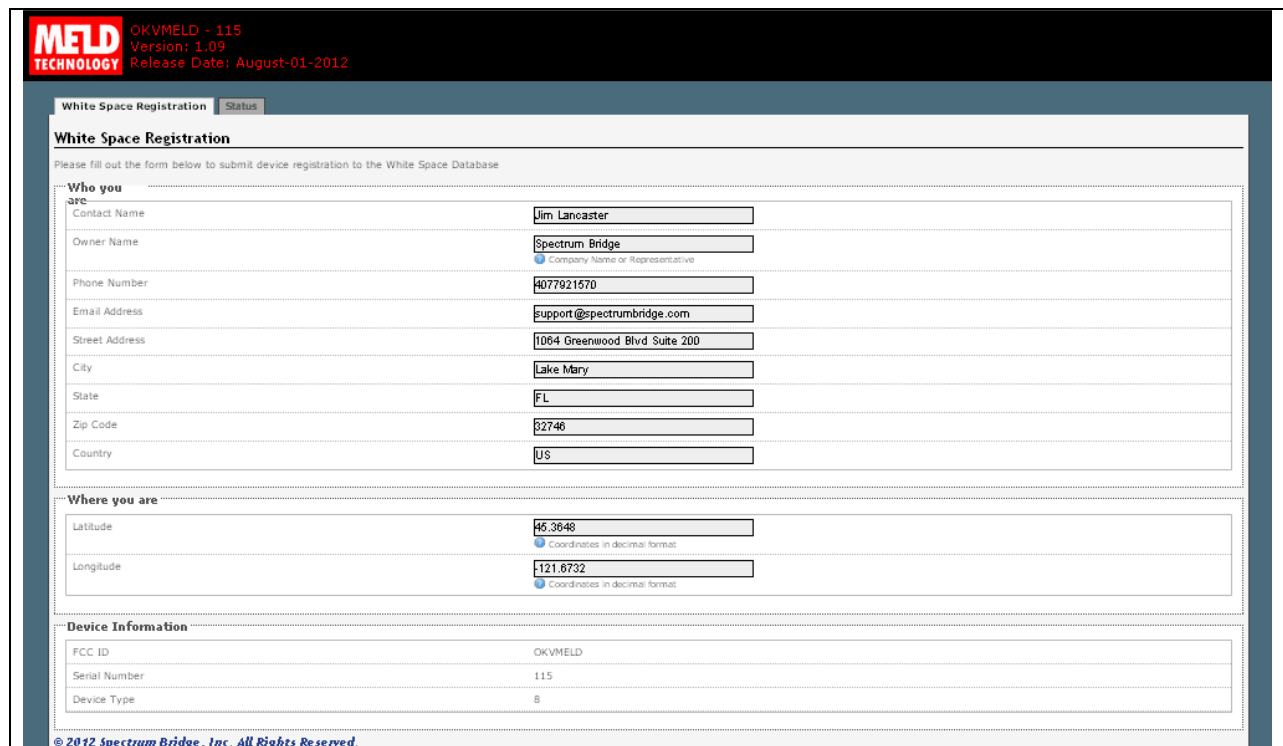
Configure the EUT with such that HAAT>250m. Verify the required registration information is sent and stored in the white space data base.

Registration failure should be verified by accessing the WSDB registration interface and also the EUT status web page.

Test Pre-conditions:

The HAAT/Antenna height AGL is pre programmed into the firmware and cannot be changed.

A location with a HAAT> 250 m (Derived from location, invalid HAAT example - Mt. Hood 45.3648, - 121.6732) was entered into the radio and the information submitted for registration to the WSDB.



MELD TECHNOLOGY OKVMELD - 115
Version: 1.09
Release Date: August-01-2012

White Space Registration Status

White Space Registration

Please fill out the form below to submit device registration to the White Space Database

Who you are

Contact Name	Jim Lancaster
Owner Name	Spectrum Bridge <small>Company Name or Representative</small>
Phone Number	4077921570
Email Address	support@spectrumbridge.com
Street Address	1064 Greenwood Blvd Suite 200
City	Lake Mary
State	FL
Zip Code	32746
Country	US

Where you are

Latitude	45.3648 <small>Coordinates in decimal format</small>
Longitude	-121.6732 <small>Coordinates in decimal format</small>

Device Information

FCC ID	OKVMELD
Serial Number	115
Device Type	8

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APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

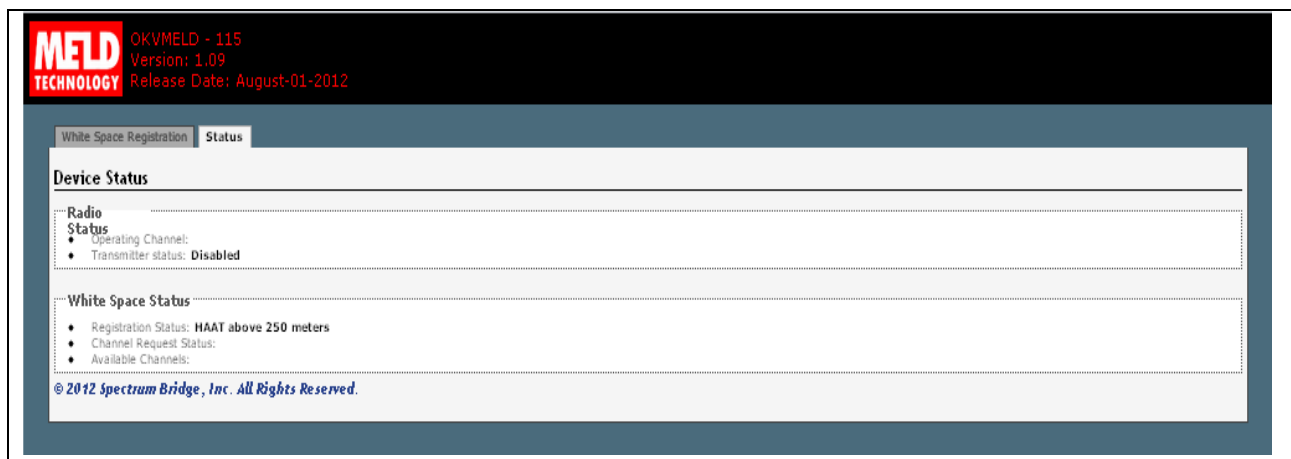
REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

Test Results:

The failed registration with the reason for failure can be seen on the WSDB log below.

Date	Ip	Url	Status	RT (ms)	Data
8/2/2012 9:55:50 AM	98.191.81.133	/OKVMELD/115/	HaatAbove250m (11)	313	Request

The status tab on the EUT Webpage shown below confirms the failed registration.



The screenshot shows the 'Status' tab of the OKVMELD - 115 webpage. The header includes the MELD TECHNOLOGY logo and version information: OKVMELD - 115, Version: 1.09, Release Date: August-01-2012. The main content area is divided into two sections: 'Radio Status' and 'White Space Status'. The 'Radio Status' section shows 'Operating Channel:' and 'Transmitter status: Disabled'. The 'White Space Status' section shows 'Registration Status: HAAT above 250 meters', 'Channel Request Status:', and 'Available Channels:'. The footer includes the copyright notice: © 2012 Spectrum Bridge, Inc. All Rights Reserved.

Result: PASS

e) Unsuccessful Registration, 15.713(f)(3) – FCC ID, Serial Number

FCC ID and the Serial Number is a part of the EUT firmware and cannot be changed.

§15.707(a) Fixed TVBD Relocated

Confirm that the database will not provide a channel list for a Fixed TVBD at a location other than that registered.

Test Procedure:

- ✓ Configure the fixed device with a location that will yield an authorized channel list. Verify proper channel operation using a spectrum analyzer and the device management interface.
- ✓ Reconfigure (change) the configured location of the fixed device. Power cycle the device.
- ✓ Verify that the fixed device receives a channel map request exception, and does not transmit using white space frequencies using a spectrum analyzer and the device management interface.

Test Data:

The radio is not capable of separating the registration and channel request commands, so a simulator was used to verify this test. Spectrum Bridge has worked with the radio vendor to implement and test the interface between the radio device and Spectrum Bridge's FCC certified TVWS database

When the channel request is sent through the simulator as a type 8 device (fixed) channel list is not granted by the database and an error 14 code is sent. But when the channel request is sent as a type 3 device, the channel list is granted as type 3 devices validate only FCCID and serial number.

Request Builder
Get
Post
Put
Options
Head
Delete
Headers

https:
Request

Responses

200 GET https:

Date: Thu, 02 Aug 2012 15:04:36 GMT
X-Powered-By: ASP.NET
SBI-Version: 3
Content-Length: 0
Server: Microsoft-IIS/7.5
Cache-Control: private
SBI-Status: 14

200 GET https:

Date: Thu, 02 Aug 2012 15:03:40 GMT
X-Powered-By: ASP.NET
SBI-Version: 3
Content-Length: 334
Server: Microsoft-IIS/7.5
Content-Type: application/xml; charset=utf-8
Cache-Control: private
SBI-Status: 0
<ChannelResponse xmlns="http: " xmlns:i="http://www.w3.org/2001/XMLSchema-instance">
<ChannelCount>26</ChannelCount>
<ChannelList>21,22,23,24,26,27,28,29,30,31,32,33,34,35,39,40,41,42,43,44,46,47,48,49,50,51</ChannelList>
<RefreshIn>48</RefreshIn>
</ChannelResponse>

TVDB Log for request sent as Type 8 device:

Date	Ip	Url	Status	RT (ms)	Data
8/2/2012 11:04:36 AM	98.191.81.133	/19.8251/-155.4581/	RequestDoesNotMatchRegistration (14)	93	8/2/2012 11:04:36 AM

TVDB Log for request sent as Type 3 device:

Date	Ip	Url	Status	RT (ms)	Data
8/2/2012 11:06:05 AM	98.191.81.133	/33.62070/100.32280/	Success (0)	330	Response

Result: PASS

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

§15.711(b)(3)(iii) Fixed & Mode II TVDB Database Update

Test Procedure:

Using a programmable router or similar network device, block the access to the database URL or IP address from the TVBD. Confirm that the TVBD shuts down by 11:59 PM on the following day.

- ✓ Configure the fixed or Mode II device with a location that will yield an authorized channel list. Verify proper channel operation using a spectrum analyzer and the device management interface.
- ✓ Restrict the access to the database.
- ✓ Verify that the device does not transmit using white space frequencies after 11:59 PM the following day. Verify using a spectrum analyzer and the device management interface.

Test Results:

The device is configured to turn off not more than 24 Hrs after it last successfully received a valid channel list. This meets the requirement **“Confirm that the TVBD shuts down by 11:59 PM on the following day”** and the worst case being we start transmitting 11:59 PM on the current day.

The device was initially powered up and it successfully registered with the database at approximately 3:37 PM. The device received a channel list and started transmitting on channel 21. The connection to the database was then blocked, while maintaining regular access to the internet.

☐ Enrollment
 ☐ TVBD Registrations
 ☐ Protected Devices
 ☒ Requests Log
 ☐ Audit Log

[Error](#)

Date from

to

FCCID

Serial Number

Url

Status

Search

Refresh

Clear

1

2

3

4

5

6

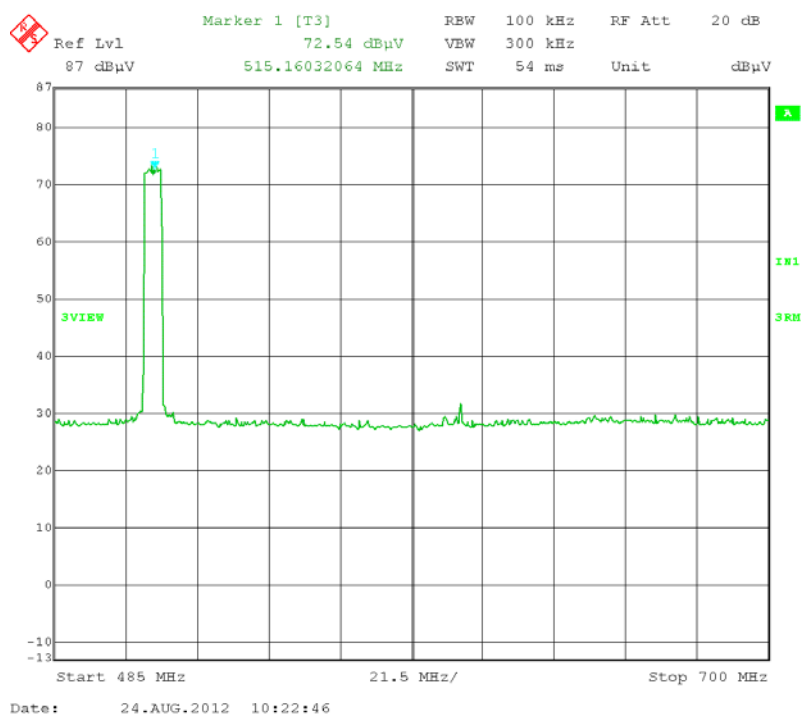
7

8

9

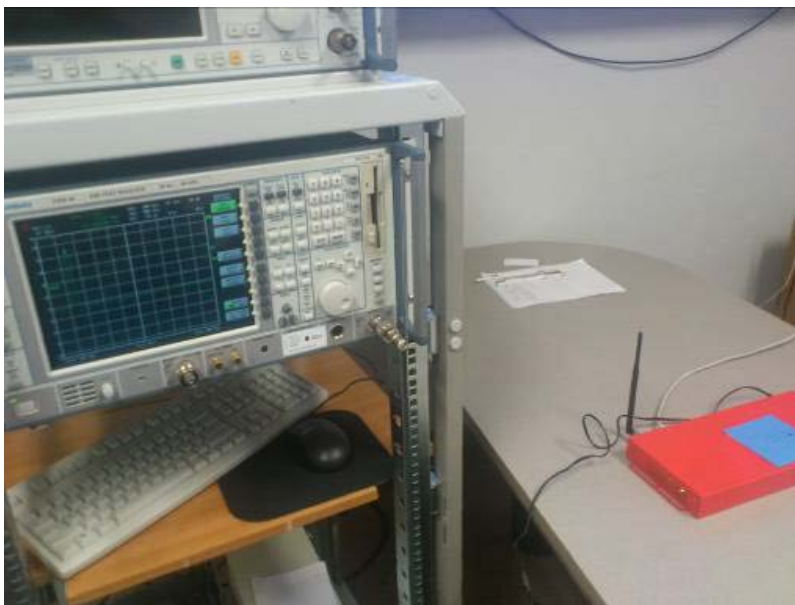
10

Date	Ip	Url	Status	RT (ms)	Data
8/23/2012 3:37:33 PM	98.191.81.133	33.62070/-100.32280/	Success (0)	393	Respon
8/23/2012 3:37:33 PM	98.191.81.133		Success (0)	343	Reques
8/23/2012 3:11:53 PM	98.191.81.133	33.62070/-100.32280/	Success (0)	436	Respon
8/23/2012 3:11:52 PM	98.191.81.133		Success (0)	203	Reques
8/23/2012 2:54:38 PM	98.191.81.133		Success (0)	390	Respon
8/23/2012 2:54:37 PM	98.191.81.133		Success (0)	203	Reques
8/23/2012 2:48:21 PM	98.191.81.133		Success (0)	403	Respon
8/23/2012 2:48:20 PM	98.191.81.133		Success (0)	186	Reques
8/23/2012 2:44:07 PM	98.191.81.133		Success (0)	406	Respon
8/23/2012 2:44:06 PM	98.191.81.133		Success (0)	390	Reques
8/23/2012 1:51:28 PM	98.191.81.133	/	Success (0)	436	Respon
8/23/2012 1:07:33 PM	98.191.81.133		Success (0)	373	Respon
8/23/2012 1:07:32 PM	98.191.81.133		Success (0)	186	Reques



Device transmitting at CH21

(An antenna connected to the analyzer was used to monitor the transmission)

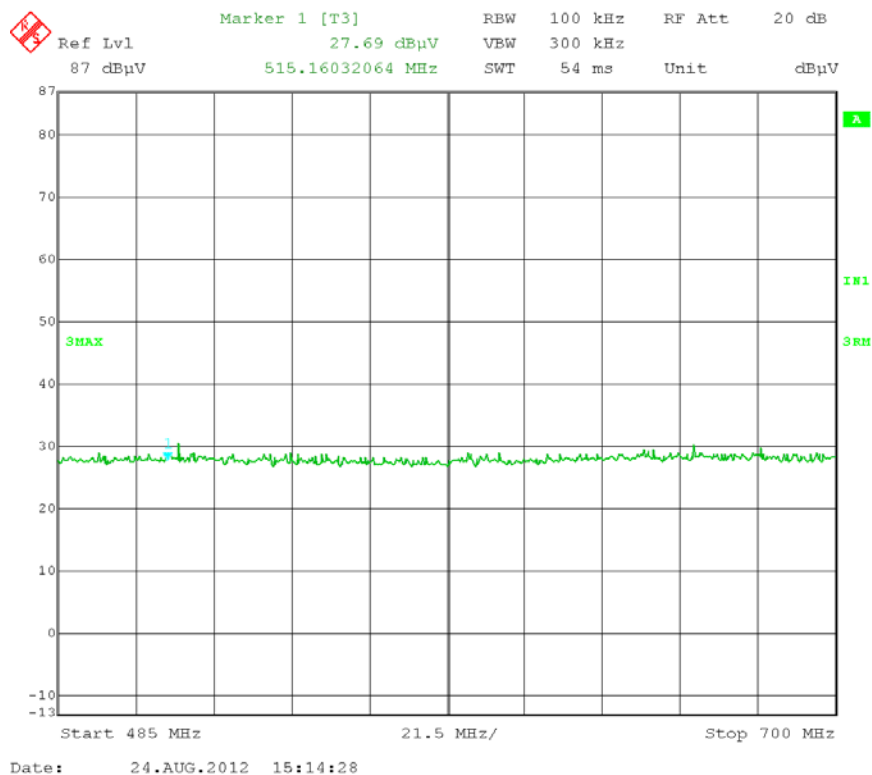


APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

The device stopped transmitting at approximately 3:20 PM the next day. The following spectrum analyzer plot was captured to make sure the transmission had stopped.



Result: PASS

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

§15.711(b)(3)(i)(ii), §15.713(a)(1) 48 Hour Channel Scheduling

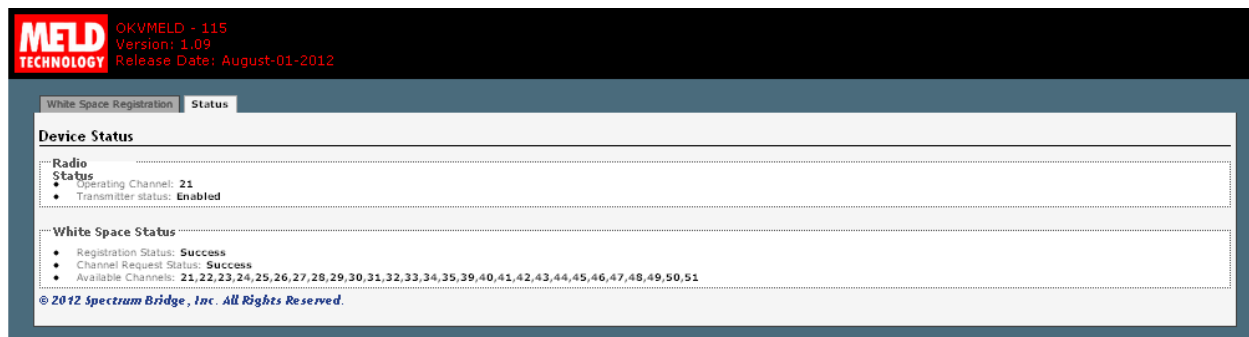
Use the database interface to register protection for a low-power auxiliary device for the same location and channel on which the TVDB (EUT) has selected and is operating. The registered protection for the low-power auxiliary device should be scheduled for protection within the next 48 hour period.

Test Procedure:

- ✓ Configure the TVBD (EUT) such that it can access the database.
- ✓ Verify that EUT requests and receives a valid channel list. Verify the EUT is using an authorized channel using a spectrum analyzer and the device management interface.
- ✓ Use the database interface to register protection for a low-power auxiliary device for the same location and channel on which the TVDB (EUT) has selected and is operating. The registered protection for the low-power auxiliary device should be scheduled for protection within the next 48 hour period.
- ✓ Verify that the EUT requests and receives a new channel list at the scheduled time of the registered low-power channel protection is to take effect.
- ✓ Verify the new channel map does not contain the channel previously protected when the low-power auxiliary device was registered.
- ✓ Verify the EUT is operating on a different channel from what was previously used and subsequently reserved using a spectrum analyzer and the device management interface.

Test Data:

The device was registered (at 1:32 PM) and verified that a valid channel list was received. The device transmits on the lowest available channel number. Here the device was transmitting on channel 21.



MELD TECHNOLOGY OKVMELD - 115
Version: 1.09
Release Date: August-01-2012

White Space Registration Status

Device Status

Radio Status

- Operating Channel: 21
- Transmitter status: Enabled

White Space Status

- Registration Status: Success
- Channel Request Status: Success
- Available Channels: 21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,39,40,41,42,43,44,45,46,47,48,49,50,51

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TVBD Log:

Date	Ip	Url	Status	RT (ms)	Data
8/2/2012 1:32:51 PM	98.191.81.133	/33.62070/-100.32280/	Success (0)	310	Response

APPLICANT: Meld Technology, Inc.

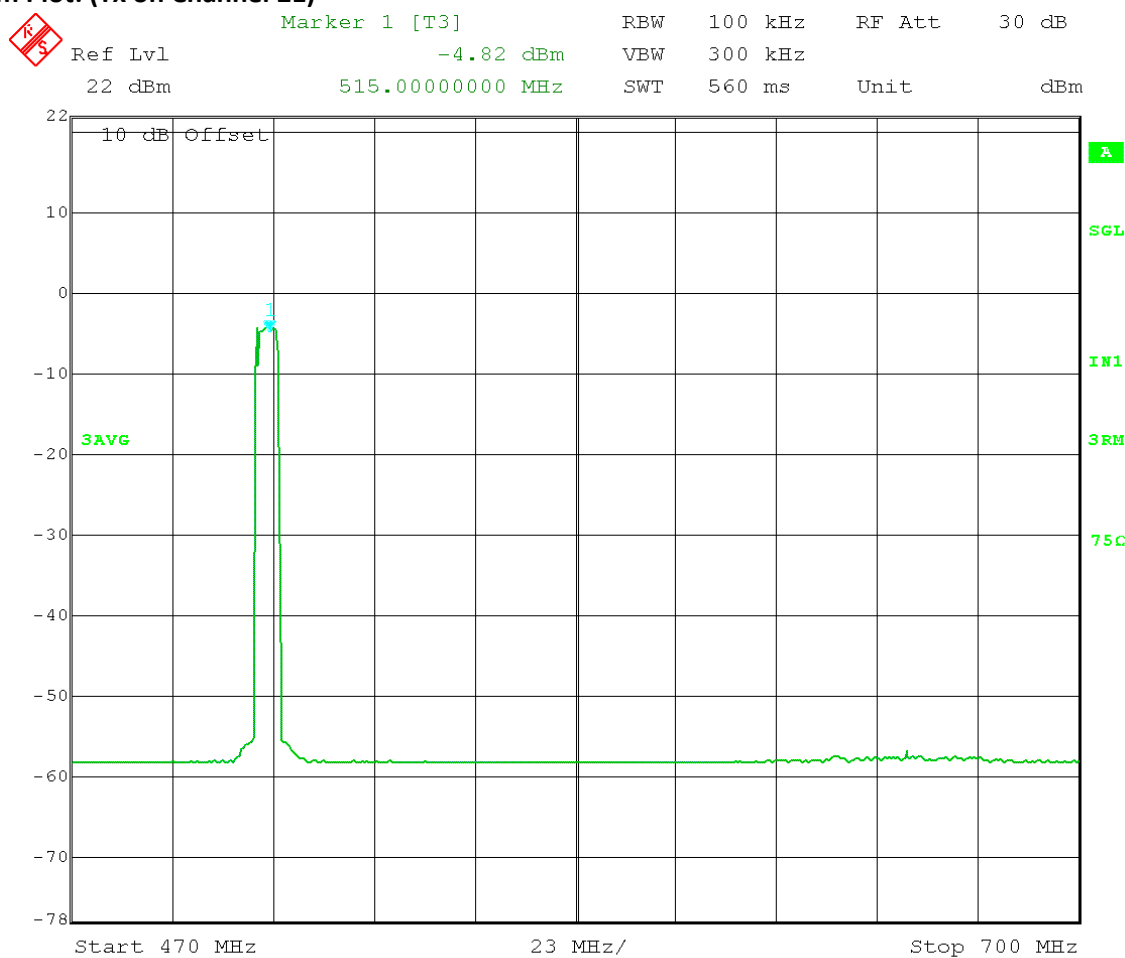
FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

The refresh time was verified by clicking on 'response' hyperlink on the WSDB website. The channel list refresh time is indicated to be 48 Hours.

```
<?xml version="1.0" encoding="utf-16"?>
<ChannelResponse xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://
www.w3.org/2001/XMLSchema-instance">
  <ChannelCount>28</ChannelCount>
  <ChannelList>21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,39,40,41,42,43,44,45,46,47,4
8,49,50,51</ChannelList>
  <RefreshIn>48</RefreshIn></ChannelResponse>
```

Spectrum Plot: (Tx on Channel 21)



Date: 2.AUG.2012 14:46:00

Using the database interface here <http://whitespaces-test.spectrumbridge.com> a low-power auxiliary device was registered for the same location and channel on which the TVDB (EUT) has selected and is operating. The registered protection for the low-power auxiliary device was scheduled for 3 PM.

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

Entity Information

Entity Type	Low Power Auxiliary Stations
Channel Numbers	21
Transmitter Call Sign	LP001

Usage Schedule

Usage	One Time Event
Time Zone	(UTC-05:00) Eastern Time (US & Canada)
Event Starts	8/2/2012 3:00:00 PM
Event Ends	8/2/2012 3:30:00 PM

Contact Information

Name of Entity Owner	Timco
Contact Name	Timco
Country	US
Address	Newberry
City	Newberry
State	FL
Postal Code	32669
Contact Phone	3523453456
Contact Email	info@sbi.com

Location(s)

Point: 33.6207 -100.3228

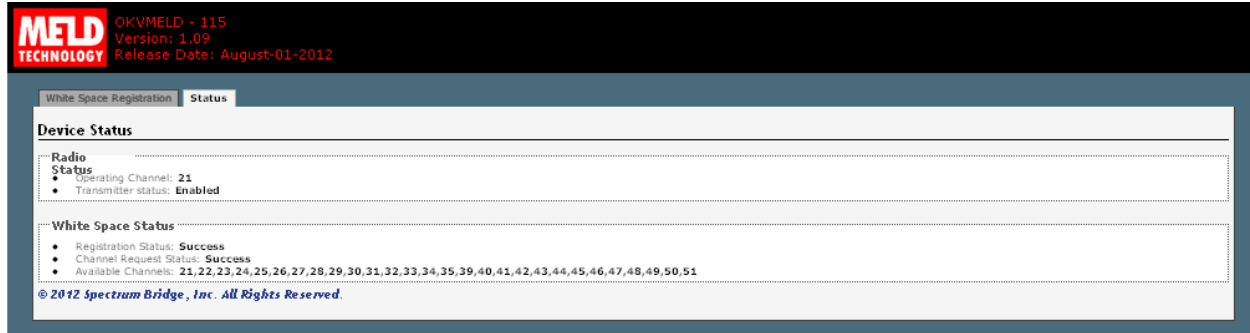
Auxiliary Device Enrollment

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

After the auxiliary device has been registered, the 'channel refresh' time changes to 1 hour. The TVBD is still transmitting on channel 21:



Date	Ip	Url	Status	RT (ms)	Data
8/2/2012 1:51:27 PM	98.191.81.133		Success (0)	326	Response

```
<?xml version="1.0" encoding="utf-16"?>
<ChannelResponse xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ChannelCount>28</ChannelCount>
  <ChannelList>21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,39,40,41,4
2,43,44,45,46,47,48,49,50,51</ChannelList>
  <RefreshIn>1</RefreshIn>
</ChannelResponse>
```

Channel Availability after registration of Low Power Auxiliary Device

With the next channel request, the TVBD receives the updated channel list which excludes CH21 and it switches to CH22.

MELD
TECHNOLOGY

OKVMELD - 115
Version: 1.09
Release Date: August-01-2012

White Space Registration

Status

Device Status

Radio Status

- Operating Channel: 22
- Transmitter status: Enabled

White Space Status

- Registration Status: Success
- Channel Request Status: Success
- Available Channels: 22,23,24,25,26,27,28,29,30,31,32,33,34,35,39,40,41,42,43,44,45,46,47,48,49,50,51

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Date	Ip	Url	Status	RT (ms)	Data
8/2/2012 2:01:33 PM	98.191.81.133	/33.62070/-100.32280	Success (0)	326	Response

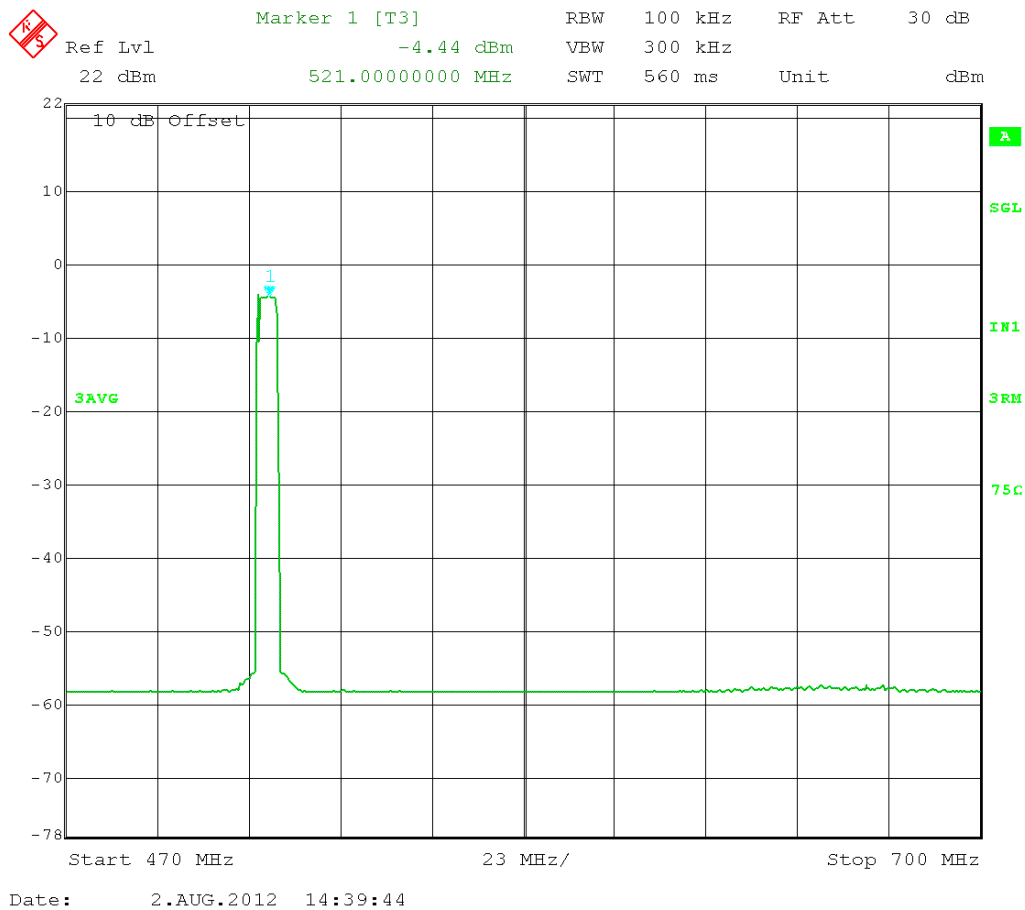
```
<?xml version="1.0" encoding="utf-16"?>
<ChannelResponse xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ChannelCount>27</ChannelCount>
  <ChannelList>22,23,24,25,26,27,28,29,30,31,32,33,34,35,39,40,41,42,43,44,45,46,47,48,49,50,51</ChannelList>
  <RefreshIn>48</RefreshIn>
</ChannelResponse>
```

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

Spectrum Plot: (Tx on CH 22)



Results:

After receiving the updated channel listing the TVBD switched to operating on Channel 22 and this was verified by observing the spectrum analyzer.

§15.707, §15.711(b)(3)(i)(ii)(iv),(c), §15.712 TVBD Channel Availability

Confirm that the channel list provided by the database conforms with those allowable to the class of TVBD under test. Confirm that the TVBD is operating on a channel from the list at authorized power and cannot be made to operate on an unauthorized channel.

Test Procedure:

- 1) Register the TVBD with valid location information.
Verify that the channel list provided by the WSDB conforms to the device type of the TVBD under test.
- 2) All Device types
 - ✓ Configure and register the devices location (34 04 43 N, 107 37 05 W) such that the database returns a channel list that does not allow operation on any channel.
 - ✓ Use a spectrum analyzer to verify that the EUT does not transmit on any white space channel.
 - ✓ Verify that the EUT does not transmit on any channel until it successfully registers and receives a channel list

Test pre condition 1: The device channel request is tested according to mode II device type 40 mW in this example.

MELD
TECHNOLOGY

OKVMELD - 115
 Version: 1.09
 Release Date: August-01-2012

White Space Registration
Status

White Space Registration

Please fill out the form below to submit device registration to the White Space Database

Who you are

arc

Contact Name	Jim Lancaster
Owner Name	Spectrum Bridge
Phone Number	4077921570
Email Address	support@spectrumbridge.com
Street Address	1064 Greenwood Blvd Suite 200
City	Lake Mary
State	FL
Zip Code	32746
Country	US

Where you are

Latitude	33.62070
Longitude	-100.32280

Device Information

FCC ID	OKVMELD
Serial Number	115
Device Type	8

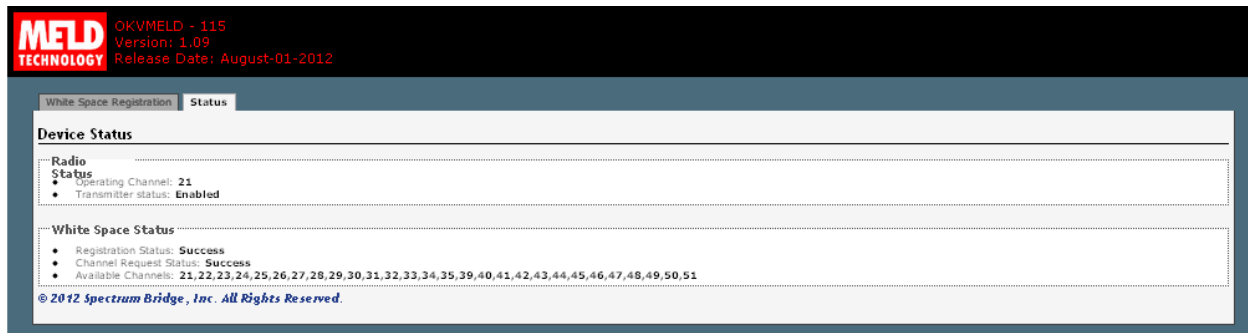
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APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

Test Result 1:



MTD TECHNOLOGY OKVMELD - 115
Version: 1.09
Release Date: August-01-2012

White Space Registration Status

Device Status

Radio Status

- Operating Channel: 21
- Transmitter status: Enabled

White Space Status

- Registration Status: Success
- Channel Request Status: Success
- Available Channels: 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51

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WSDB log:

Date	Ip	Url	Status	RT (ms)	Data
8/2/2012 1:32:51 PM	98.191.81.133	/33.62070/-100.32280	Success (0)	310	Response


```
<?xml version="1.0" encoding="utf-16"?>
<ChannelResponse xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:xsi="http://
www.w3.org/2001/XMLSchema-instance">
  <ChannelCount>28</ChannelCount>
  <ChannelList>21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,39,40,41,42,43,44,45,46,47,4
8,49,50,51</ChannelList>
  <RefreshIn>48</RefreshIn> </ChannelResponse>
```

Test Result 1:

The database identifies the device type correctly and the channel list provided does not include channel 2-20

Test Precondition 2:

A Registration request is sent for a location with no known available channels. Eg: (34.078611, -107.61805)



OKVMELD - 115
Version: 1.09
Release Date: August-01-2012

White Space Registration
Status

White Space Registration

Please fill out the form below to submit device registration to the White Space Database

Who you are

Contact Name	Jim Lancaster
Owner Name	Spectrum Bridge <small>Company Name or Representative</small>
Phone Number	4077921570
Email Address	support@spectrumbridge.com
Street Address	1064 Greenwood Blvd Suite 200
City	Lake Mary
State	FL
Zip Code	32746
Country	US

Where you are

Latitude	34.078611 <small>Coordinates in decimal format</small>
Longitude	-107.61805 <small>Coordinates in decimal format</small>


Device Information

FCC ID	OKVMELD
Serial Number	115
Device Type	8

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Test Result 2:

An empty channel list is received and the transmitter is disabled.



OKVMELD - 115
Version: 1.09
Release Date: August-01-2012

White Space Registration
Status

Device Status

Radio Status

- Operating Channel: 21
- Transmitter status: Disabled

White Space Status

- Registration Status: Success
- Channel Request Status: Success
- Available Channels:

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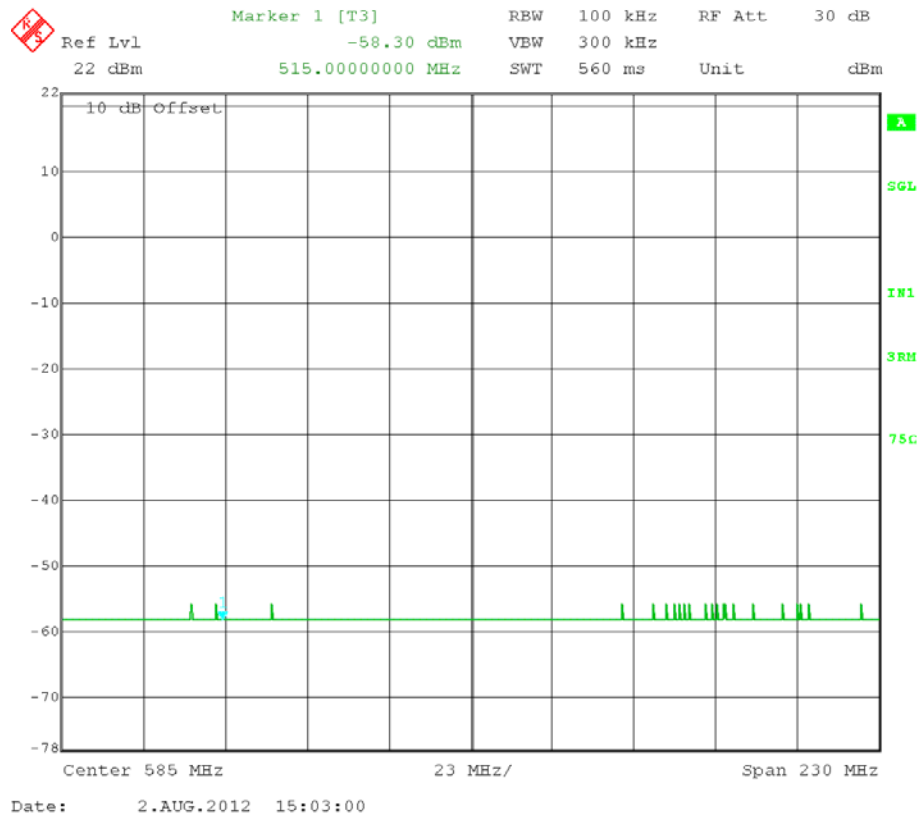
Date	Ip	Url	Status	RT (ms)	Data
8/2/2012 3:11:05 PM	98.191.81.133	/34.078611/-107.61805	Success (0)	76	Response

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

```
<?xml version="1.0" encoding="utf-16"?>
<ChannelResponse xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:
xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ChannelCount>0</ChannelCount>
  <ChannelList/>
  <RefreshIn>48</RefreshIn>
</ChannelResponse>
```



Results: The radio did not/does not transmit until it receives a valid channel list.

APPLICANT: Meld Technology, Inc.

FCC ID: OKVMT300

REPORT: s/SPECTRUM BRIDGE/1695BUT12/1695BUT12 15 Sub Pt H RPT Part 2.doc

§15.711(f) Security:

Please see the attached document, TVBD Secure Communications.pdf