

Figure 8.19-11: Received channel list for coordinates set in scenario (d). PLMRS/CMRS operations channel 16 at location coordinates 36.1N, 117.9W

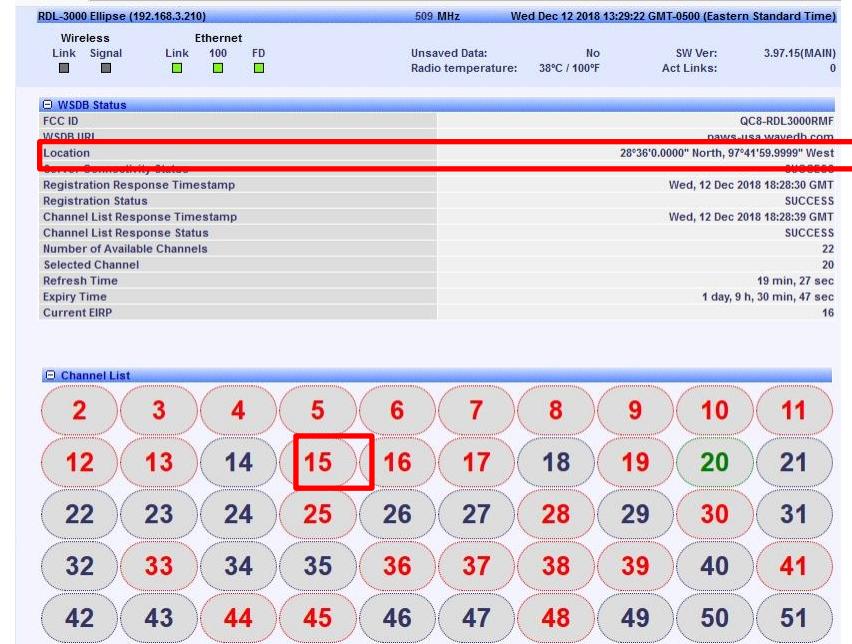


Figure 8.19-12: Received channel list for coordinates set in scenario (e). Offshore radiotelephone on channel 15 at location coordinates 28.6N, 97.1W

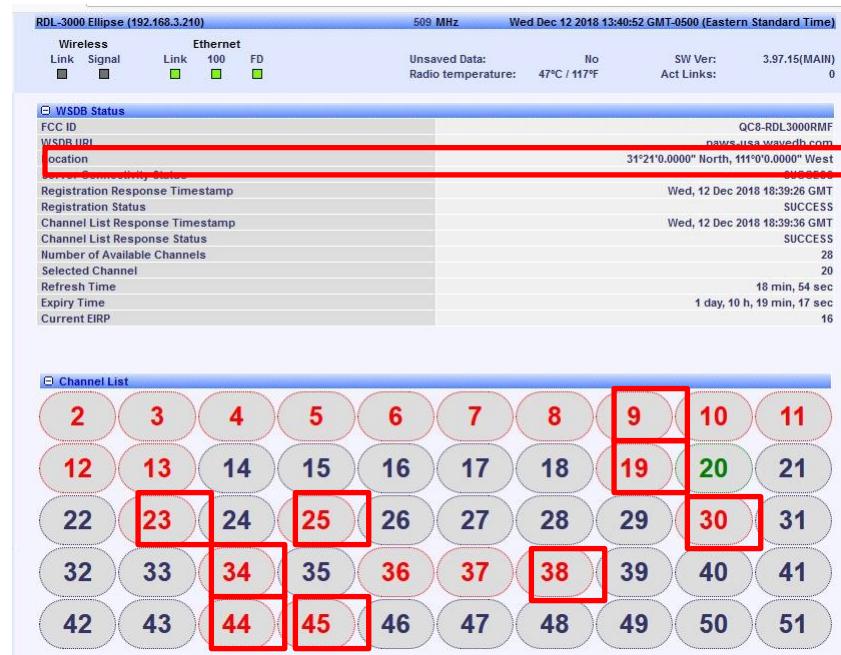


Figure 8.19-13: Received channel list for coordinates set in scenario (g). Mexico border at location coordinates 31.35N, 111.0W

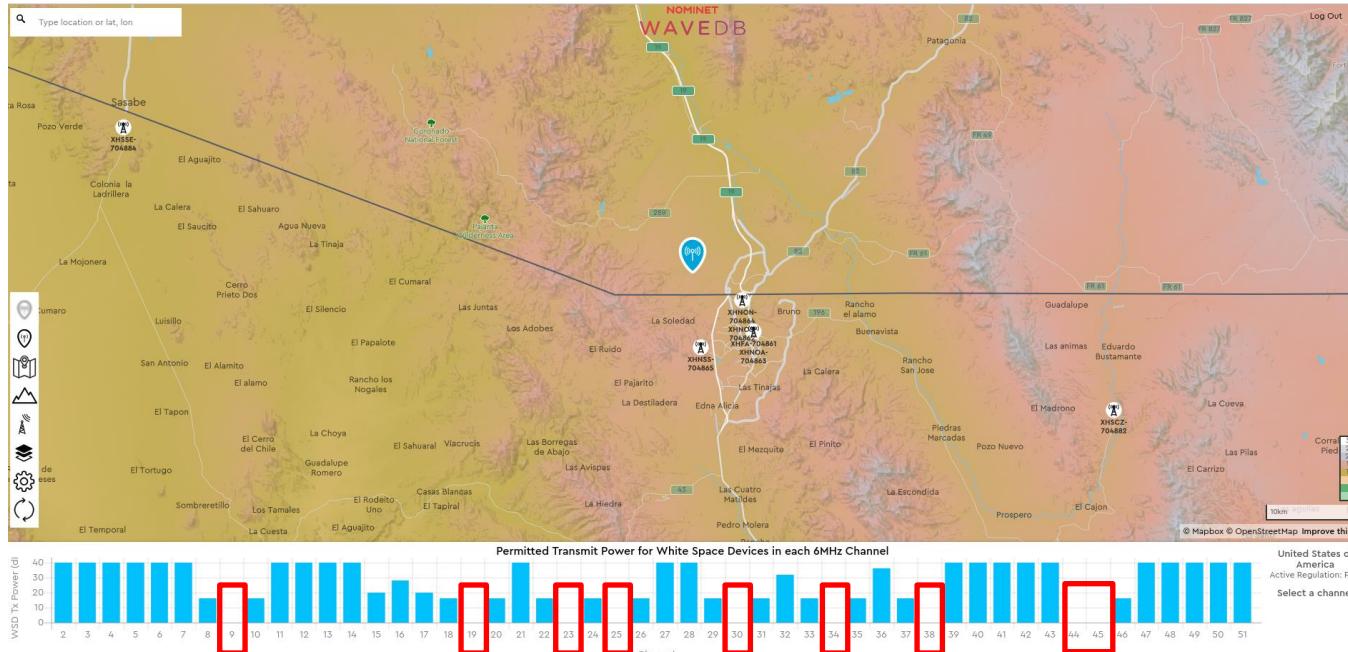


Figure 8.19-14: Channel availability for coordinates set in scenario (g). Mexico border at 31.35N, 111.0W

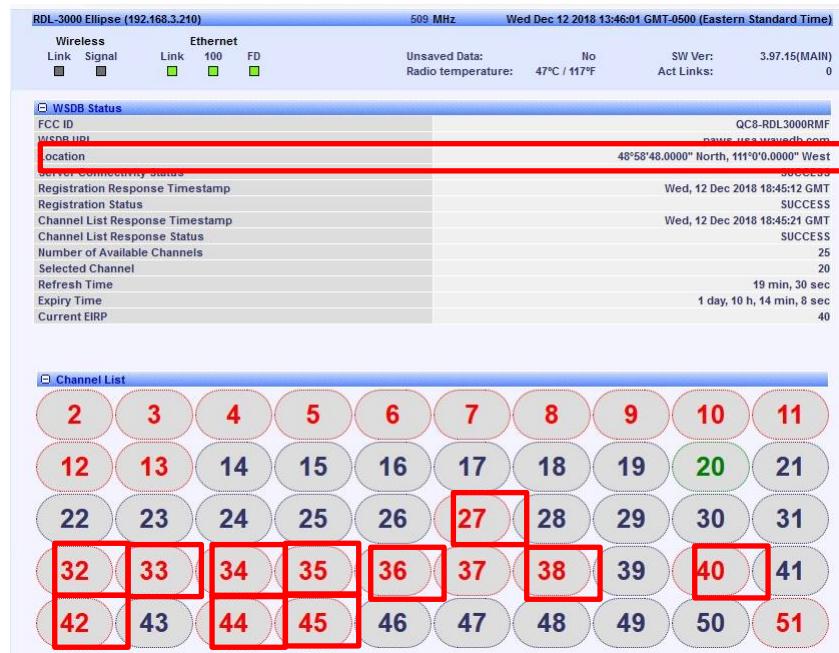


Figure 8.19-15: Received channel list for coordinates set in scenario (g). Canada border at location coordinates 48.98N, 111.0W

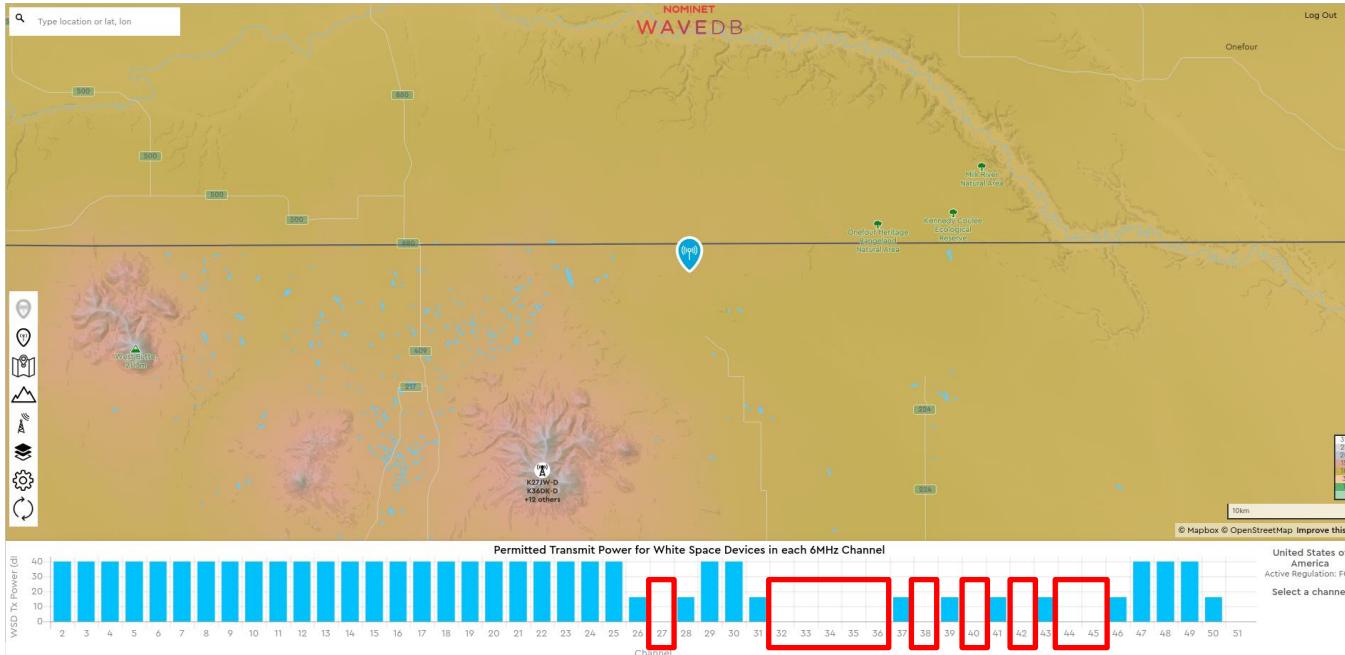


Figure 8.19-16: Channel availability for coordinates set in scenario (g). Canada border at 48.98N, 111.0W

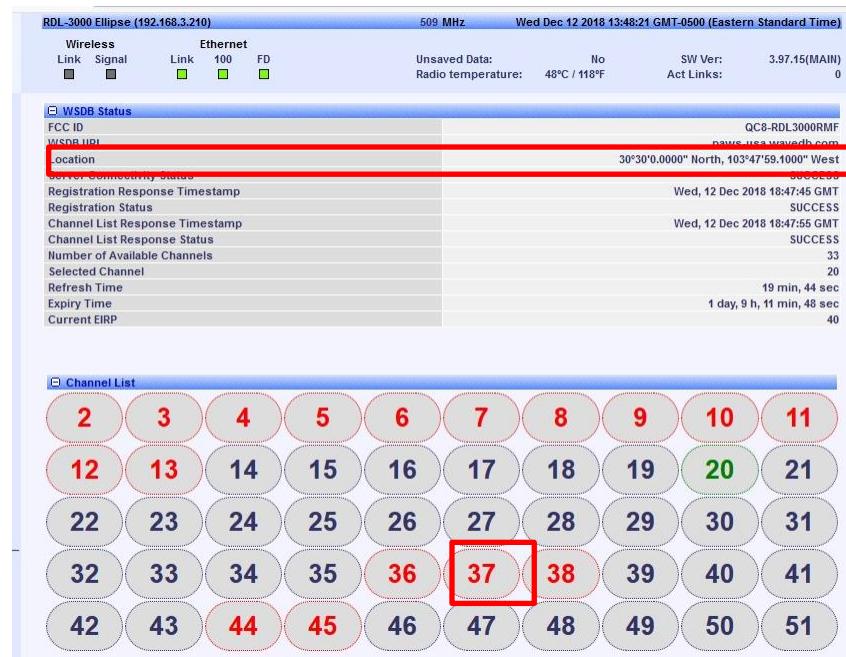


Figure 8.19-17: Received channel list for coordinates set in scenario (h). Radio astronomy services channel 37 at location coordinates 30.5N, 103.8W

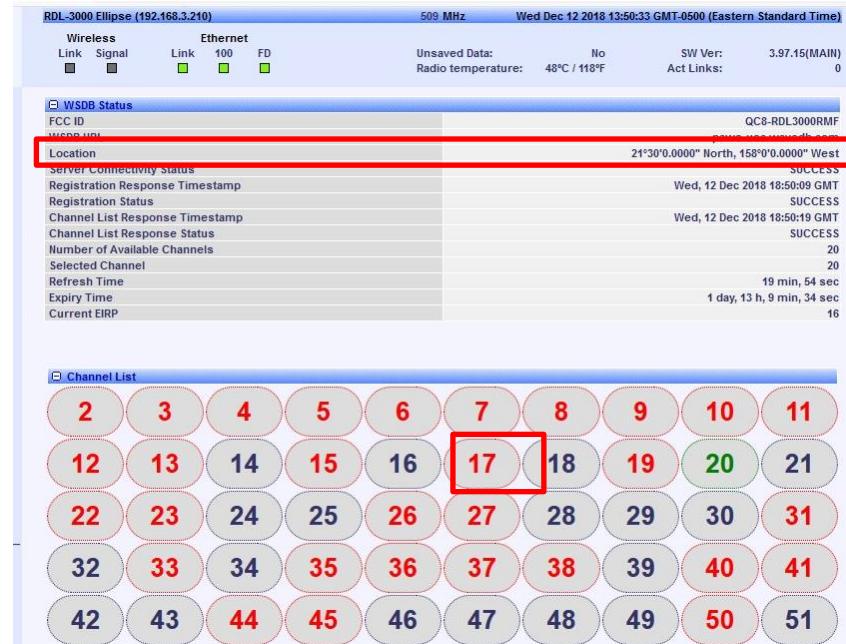


Figure 8.19-18: Received channel list for coordinates set in scenario (k). 488-494 MHz band in Hawaii channel 17 at location coordinates 21.5N, 158.0W

## 8.20 FCC 15.711(c)(2)(ii), (d)(3), 15.715(e) Fixed and Mode II Power level reduction

### 8.20.1 Definitions and limits

Using system management software, make a channel availability request to the database. Using the spectrum analyzer, confirm that the WSD operates at no more than the maximum power level indicated by the database and that the power level cannot be set to a higher level than indicated by the database at that specific location. If the device cannot reduce power, it must cease operation. Testing in accordance with KDB 416721 D01, III (2)(o).

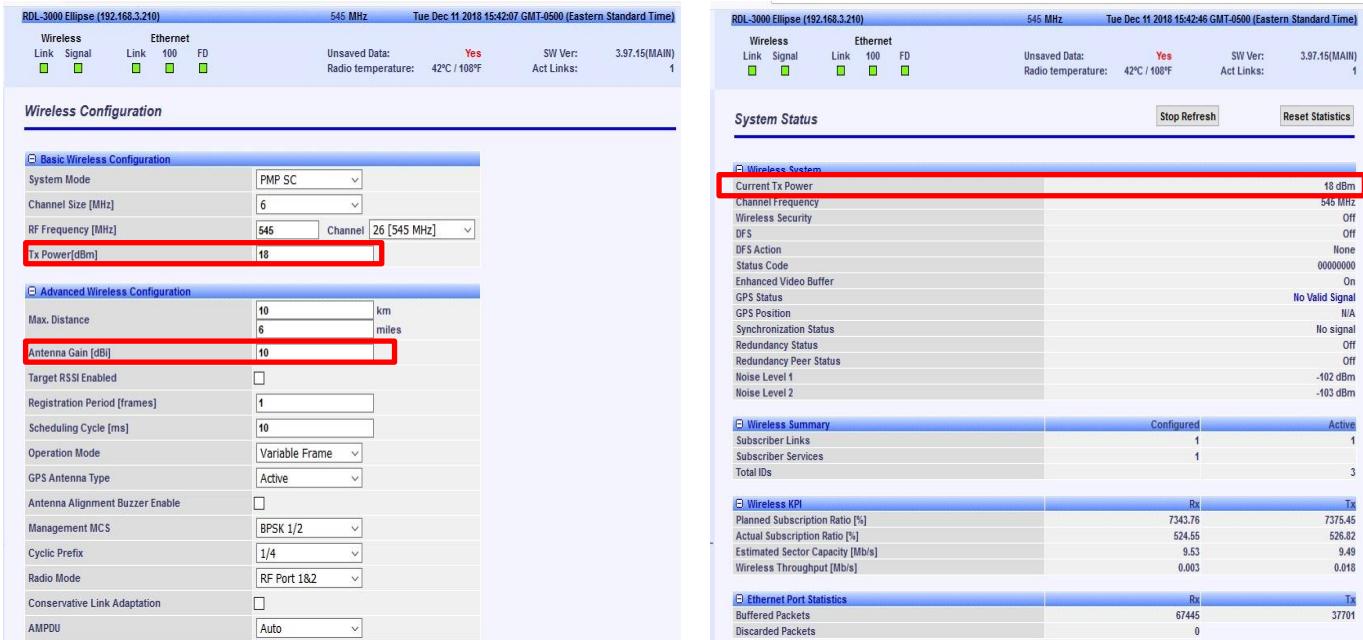
### 8.20.2 Test summary

Test date December 11, 2018

### 8.20.3 Observations, settings and special notes

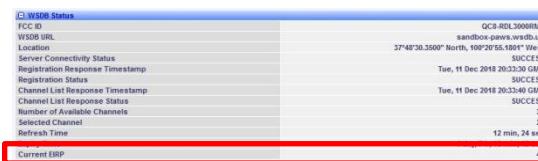
EUT was configured with proper registration information and the successful registration was verified. After receiving channel EIRP limit, EUT Tx power and Antenna gain were modified to exceed the limit. It was verified that the output power was automatically reduced to comply with EIRP restriction for the operation channel used.

### 8.20.4 Test data

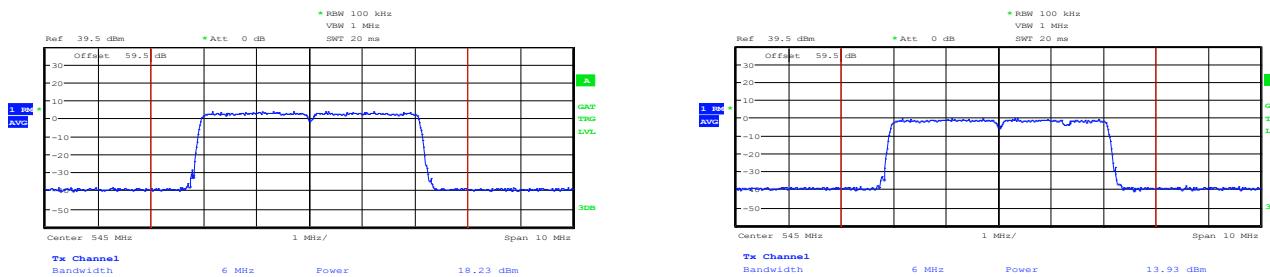


RDL-3000 Ellipse (192.168.3.210)		545 MHz		Tue Dec 11 2018 15:42:07 GMT-0500 (Eastern Standard Time)																																																													
Wireless	Ethernet	Link	Link	Unsaved Data: Yes	SW Ver: 3.97.15(MAIN)																																																												
Link	Signal	Link	100	Radio temperature: 42°C / 108°F	Act Links: 1																																																												
FD																																																																	
Wireless Configuration																																																																	
<table border="1"> <tr> <td colspan="2">Basic Wireless Configuration</td> </tr> <tr> <td>System Mode</td> <td>PMP SC</td> </tr> <tr> <td>Channel Size [MHz]</td> <td>6</td> </tr> <tr> <td>RF Frequency [MHz]</td> <td>545</td> <td>Channel</td> <td>26 [545 MHz]</td> </tr> <tr> <td>Tx Power[dBm]</td> <td>18</td> </tr> </table>						Basic Wireless Configuration		System Mode	PMP SC	Channel Size [MHz]	6	RF Frequency [MHz]	545	Channel	26 [545 MHz]	Tx Power[dBm]	18																																																
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Figure 8.20-1: Tx power and Antenna gain settings to meet EIRP requirement of Base station device at the channel 26. EIRP limit received for this channel is 40 dBm.



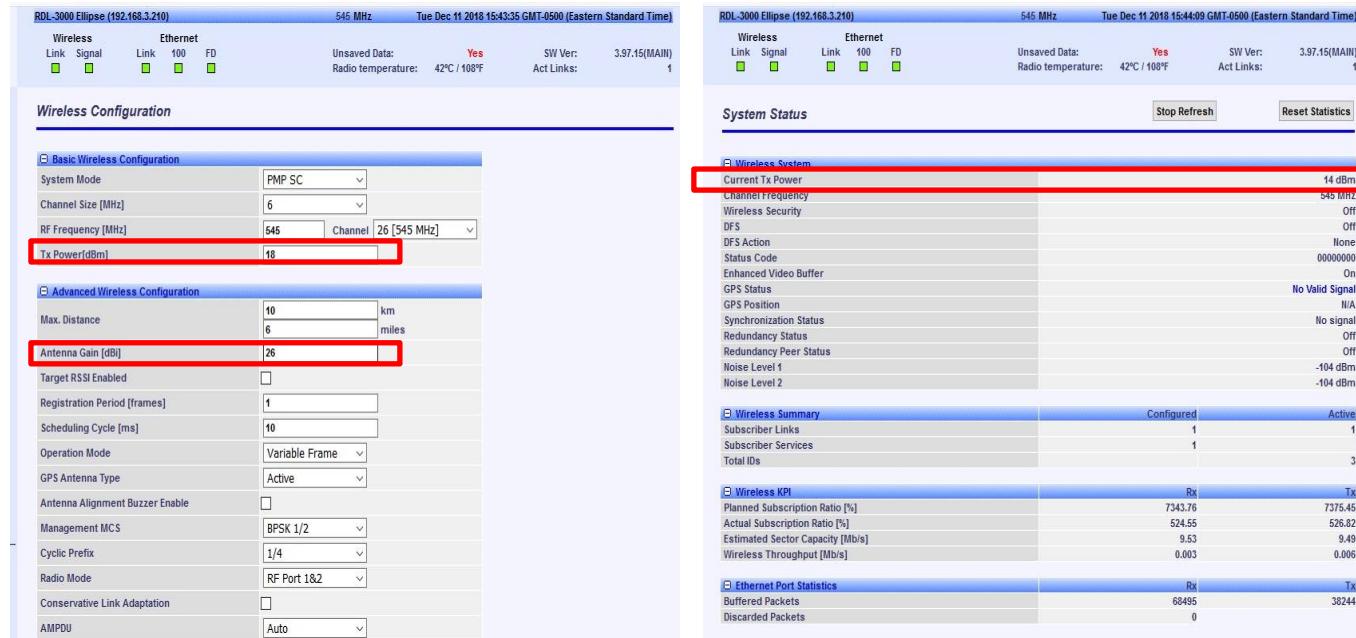
Wireless Status	
FCC ID	2AB2L30000MF
WSDR URL	sandbox.ceva.wsdbs.uk
Location	37°48'30.3500" North, 109°20'56.1800" West
Server Connectivity Status	SUCCESS
Registration Response Timestamp	Tue, 11 Dec 2018 20:33:40 GMT
Registration Status	SUCCESS
Channel List Response Timestamp	Tue, 11 Dec 2018 20:33:40 GMT
Channel List Response Status	SUCCESS
Number of Available Channels	33
Selected Channel	26
Refresh Time	12 min, 24 sec
Current EIRP	40



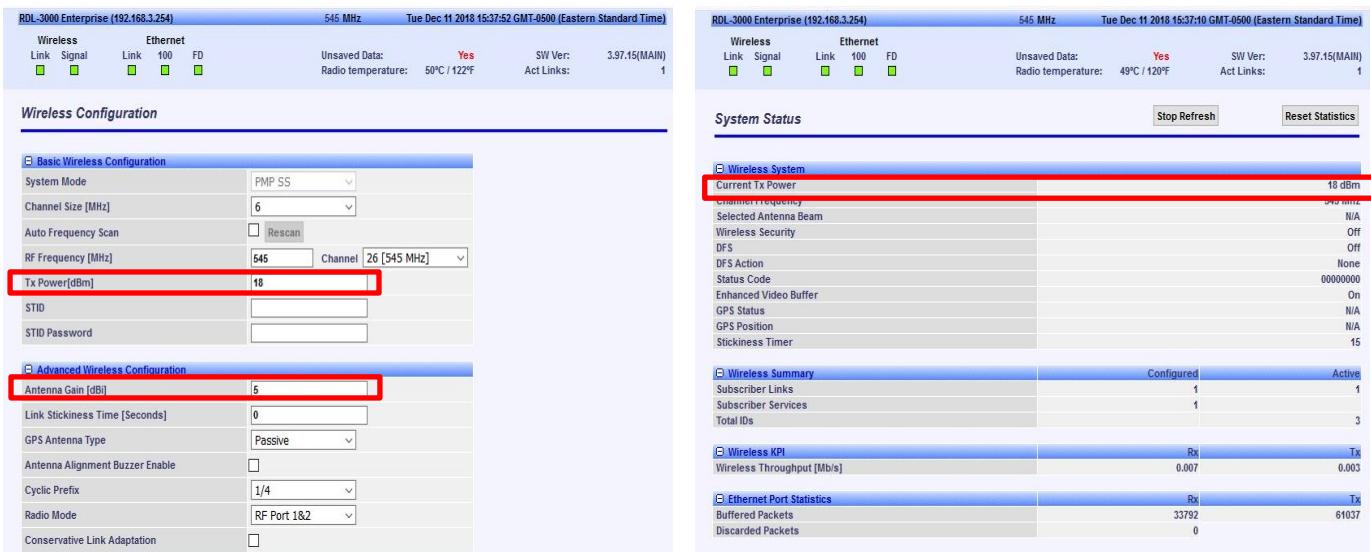
Date: 12.DEC.2018 15:41:50

Date: 12.DEC.2018 15:40:38

**Figure 8.20-2:** Output power of Base station device measurement on the channel 26 after registration and reception of 40 dBm EIRP limit. Output power = EIRP limit – Antenna gain = 40 dBm – 22 dBi = 18 dBm. Then antenna gain was raised to 26 dBi and output power dropped to 14 dBm.



**Figure 8.20-3:** Tx power and Antenna gain settings to exceed EIRP requirement of Base station device at the channel 26. EIRP limit received for this channel is 40 dBm. Output power = EIRP limit – Antenna gain = 40 dBm – 26 dBi = 14 dBm, despite the setting of 18 dBm.



RDL-3000 Enterprise (192.168.3.254)		545 MHz	Tue Dec 11 2018 15:37:52 GMT-0500 (Eastern Standard Time)	
Wireless	Ethernet		Link	Link 100 FD
Link	Signal		Link	Link 100 FD
Unsaved Data: Yes		Radio temperature: 50°C / 122°F	SW Ver:	3.97.15(MAIN) 1
Act Links: 1				

**Wireless Configuration**

<b>Basic Wireless Configuration</b>			
System Mode	PMP SS		
Channel Size [MHz]	6		
Auto Frequency Scan	<input type="checkbox"/> Rescan		
RF Frequency [MHz]	545	Channel	26 [545 MHz]
Tx Power[dBm]	18		
STID			
STID Password			

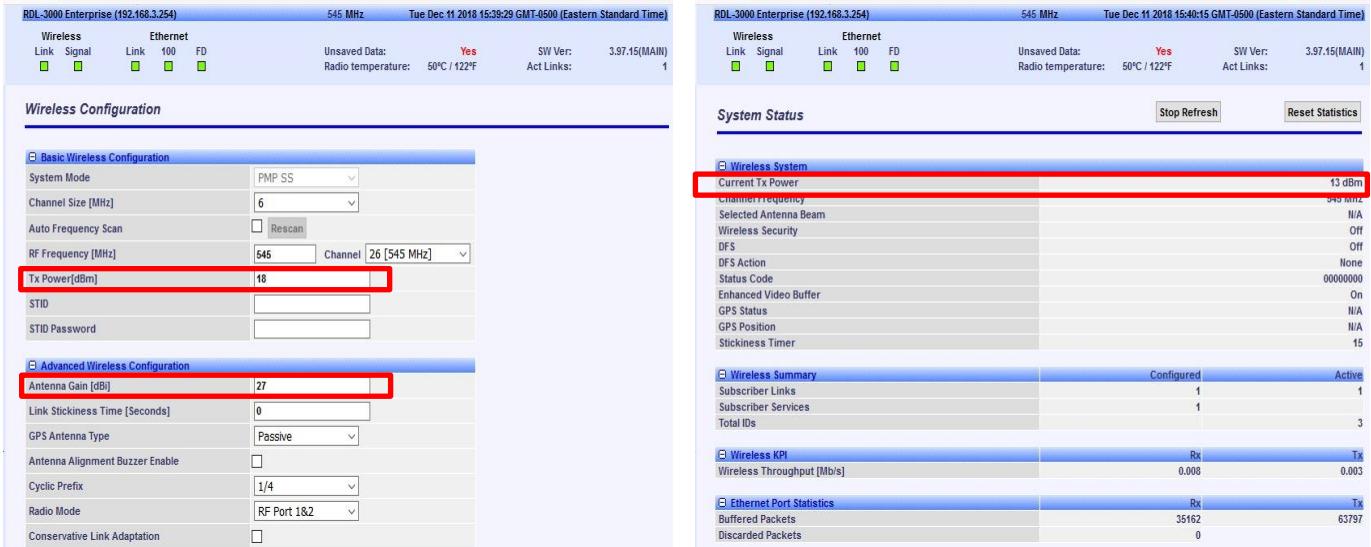
<b>Advanced Wireless Configuration</b>	
Antenna Gain [dBi]	5
Link Stickiness Time [Seconds]	0
GPS Antenna Type	Passive
Antenna Alignment Buzzer Enable	<input type="checkbox"/>
Cyclic Prefix	1/4
Radio Mode	RF Port 1&2
Conservative Link Adaptation	<input type="checkbox"/>

RDL-3000 Enterprise (192.168.3.254)		545 MHz	Tue Dec 11 2018 15:37:10 GMT-0500 (Eastern Standard Time)	
Wireless	Ethernet		Link	Link 100 FD
Link	Signal		Link	Link 100 FD
Unsaved Data: Yes		Radio temperature: 49°C / 120°F	SW Ver:	3.97.15(MAIN) 1
Act Links: 1				

**System Status**

<b>Wireless System</b>		
Current Tx Power	18 dBm	
Channel Frequency	545 MHz	
Selected Antenna Beam	N/A	
Wireless Security	Off	
DFS	Off	
DFS Action	None	
Status Code	00000000	
Enhanced Video Buffer	On	
GPS Status	N/A	
GPS Position	N/A	
Stickiness Timer	15	
<b>Wireless Summary</b>		
Configured	Active	
Subscriber Links	1	
Subscriber Services	1	
Total IDs	3	
<b>Wireless KPI</b>		
Rx	Tx	
Wireless Throughput [Mb/s]	0.007	0.003
<b>Ethernet Port Statistics</b>		
Rx	Tx	
Buffered Packets	33792	61037
Discarded Packets	0	

Figure 8.20-4: Tx power and Antenna gain settings to exceed EIRP requirement of Subscriber device at the channel 36. EIRP limit received for this channel is 26 dBm.



RDL-3000 Enterprise (192.168.3.254)		545 MHz	Tue Dec 11 2018 15:39:29 GMT-0500 (Eastern Standard Time)	
Wireless	Ethernet		Link	Link 100 FD
Link	Signal		Link	Link 100 FD
Unsaved Data: Yes		Radio temperature: 50°C / 122°F	SW Ver:	3.97.15(MAIN) 1
Act Links: 1				

**Wireless Configuration**

<b>Basic Wireless Configuration</b>			
System Mode	PMP SS		
Channel Size [MHz]	6		
Auto Frequency Scan	<input type="checkbox"/> Rescan		
RF Frequency [MHz]	545	Channel	26 [545 MHz]
Tx Power[dBm]	18		
STID			
STID Password			

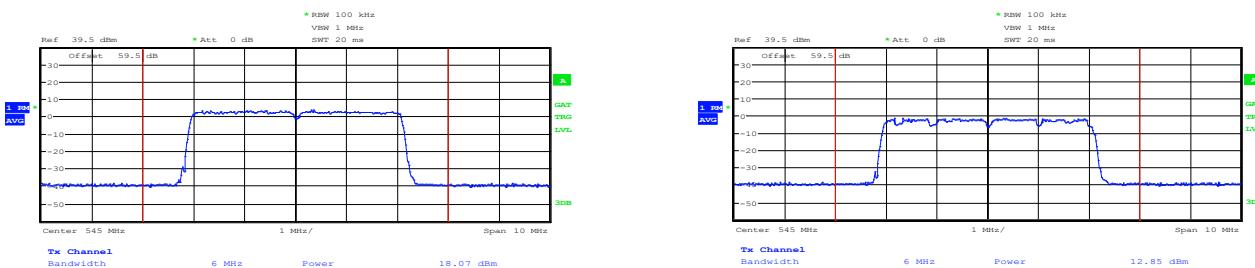
<b>Advanced Wireless Configuration</b>	
Antenna Gain [dBi]	27
Link Stickiness Time [Seconds]	0
GPS Antenna Type	Passive
Antenna Alignment Buzzer Enable	<input type="checkbox"/>
Cyclic Prefix	1/4
Radio Mode	RF Port 1&2
Conservative Link Adaptation	<input type="checkbox"/>

RDL-3000 Enterprise (192.168.3.254)		545 MHz	Tue Dec 11 2018 15:40:15 GMT-0500 (Eastern Standard Time)	
Wireless	Ethernet		Link	Link 100 FD
Link	Signal		Link	Link 100 FD
Unsaved Data: Yes		Radio temperature: 50°C / 122°F	SW Ver:	3.97.15(MAIN) 1
Act Links: 1				

**System Status**

<b>Wireless System</b>		
Current Tx Power	13 dBm	
Channel Frequency	545 MHz	
Selected Antenna Beam	N/A	
Wireless Security	Off	
DFS	Off	
DFS Action	None	
Status Code	00000000	
Enhanced Video Buffer	On	
GPS Status	N/A	
GPS Position	N/A	
Stickiness Timer	15	
<b>Wireless Summary</b>		
Configured	Active	
Subscriber Links	1	
Subscriber Services	1	
Total IDs	3	
<b>Wireless KPI</b>		
Rx	Tx	
Wireless Throughput [Mb/s]	0.008	0.003
<b>Ethernet Port Statistics</b>		
Rx	Tx	
Buffered Packets	35162	63797
Discarded Packets	0	

Figure 8.20-5: Tx power and Antenna gain settings to meet EIRP requirement of Subscriber device at the channel 36. EIRP limit received for this channel is 26 dBm. Output power = EIRP limit – Antenna gain = 40 dBm – 27 dBi = 13 dBm, despite the setting of 18 dBm.



Date: 12.DEC.2018 15:44:49

Date: 12.DEC.2018 15:45:24

**Figure 8.20-6: Output power of Subscriber station device measurement on the channel 26 after registration and reception of 40 dBm EIRP limit. Output power = EIRP limit – Antenna gain = 40 dBm – 5 dBi= 35 dBm, setting was 18 dBm and measurement was 18 dBm. Then antenna gain was raised to 27 dBi and output power dropped to 13 dBm.**

## 8.21 FCC 15.711(j) Security

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### 8.21.1 Definitions and limits

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White space devices shall incorporate adequate security measures to ensure that they are capable of communicating for purposes of obtaining lists of available channels only with databases operated by administrators authorized by the Commission, and to ensure that communications between white space devices and databases are secure to prevent corruption or unauthorized interception of data. This requirement applies to communications of channel availability and other spectrum access information between the databases and fixed and Mode II devices (it is not necessary for white space devices to apply security coding to channel availability and channel access information where they are not the originating or terminating device and that they simply pass through).

### 8.21.2 Test summary

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Test date      December 12, 2018

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### 8.21.3 Observations, settings and special notes

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Please see the attached document: RDL-3000-RMF Secure Communications.

## Section 9. Block diagrams of test set-ups

### 9.1 Test setup diagram

