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Website: [www.timcoengr.com](http://www.timcoengr.com)

**FCC PART 15.247 & IC RSS-247**  
**2.4 GHz DTS**  
**TEST REPORT**

<b>Applicant</b>	ADHERIUM (NZ) LTD.
<b>Address</b>	Level 2, 204 Quay Street Auckland 1010 NEW ZEALAND
<b>FCC ID</b>	<b>PN2-SYM1</b>
<b>IC</b>	<b>20509-SYM1</b>
<b>Model Number</b>	NF0092
<b>Product Description</b>	WIRELESS DATA LOGGER FOR INHALED MEDICATION
<b>Date Sample Received</b>	4/15/2016
<b>Final Test Date</b>	4/28/2016
<b>Tested By</b>	Cory Leverett
<b>Approved By</b>	Tim Royer

Report Number	Version Number	Description	Issue Date
655AUT16TestReport	Rev1	Initial Issue	4/29/2016
655AUT16TestReport	Rev2	Updated Conducted Power Description On Page 11	4/29/2016

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL  
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**

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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 and was chosen by the customer.
- Not fulfill the general approval requirements as identified in this test report

## Attestations

This equipment has been tested in accordance with the standards identified in this test report. 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.

I attest that the necessary measurements were made at:

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

Authorized Signatory Name:



---

**Cory Leverett**  
**Engineering Project Manager**

**Date:** 4/29/2016

Applicant: ADHERIUM (NZ) LTD.  
FCC ID: PN2-SYM1  
IC: 20509-SYM1  
Report: 655AUT16TestReport\_Rev1

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## GENERAL INFORMATION

### EUT Specification

Regulatory Standards	FCC Title 47 CFR Part 15.247 IC RSS-247 Issue 1 IC RSS-GEN Issue 4		
<b>FCC ID</b>	<b>PN2-SYM1</b>		
<b>IC</b>	<b>20509-SYM1</b>		
Model	NF0092		
EUT Description	WIRELESS DATA LOGGER FOR INHALED MEDICATION		
Modulation Type	Bluetooth LE (GFSK 1 Mbps)		
Operating Frequency	TX: 2402 – 2480 MHz	RX: 2402 – 2480 MHz	
EUT Power Source	<input type="checkbox"/> 110–120Vac/50– 60Hz		
	<input type="checkbox"/> DC Power		
	<input checked="" type="checkbox"/> Battery Operated		
Test Item	<input type="checkbox"/> Prototype	<input checked="" type="checkbox"/> Pre-Production	<input type="checkbox"/> Production
Type of Equipment	<input type="checkbox"/> Fixed	<input type="checkbox"/> Mobile	<input checked="" type="checkbox"/> Portable
Antenna Connector	None (Temp Connector Provided for testing)		
Antenna	Internal PCB Trace Antenna gain 0 dBi		
Test Conditions	Temperature: 24-26°C Relative humidity: 50-65%		
Measurement Standard	ANSI C63.10-2013 (Measurement Procedures) FCC Rule Part 15.31, 15.33, 15.35 RSS-GEN Issue 4		
Test Exercise	The EUT was tested in fully modulated continuous transmission mode		

### Test Supporting Equipment

Device	Manufacturer	Model	S/N	Supplied By	Used For
NA					

## RESULTS SUMMARY

FCC Rule Part No.	IC Standard Ref.	Requirement	Test Item	Result
15.215 (c)	RSS-GEN 6.6	Occupied Bandwidth	99% Bandwidth	Pass
15.247(a)(e)	RSS-247 § 5.2	Digital Transmission Systems	6 dB Bandwidth	Pass
			Power Spectral Density	Pass
15.247(b)	RSS-247 § 5.4	Transmitter Output Power and Equivalent Isotropically Radiated Power	Peak Power Output (ERP)	Pass
			Antenna Gain (EIRP)	Pass
15.247(d)	RSS-247 § 5.5	Unwanted Emissions	Bandedge	Pass
			Radiated Spurious	Pass

### Notes:

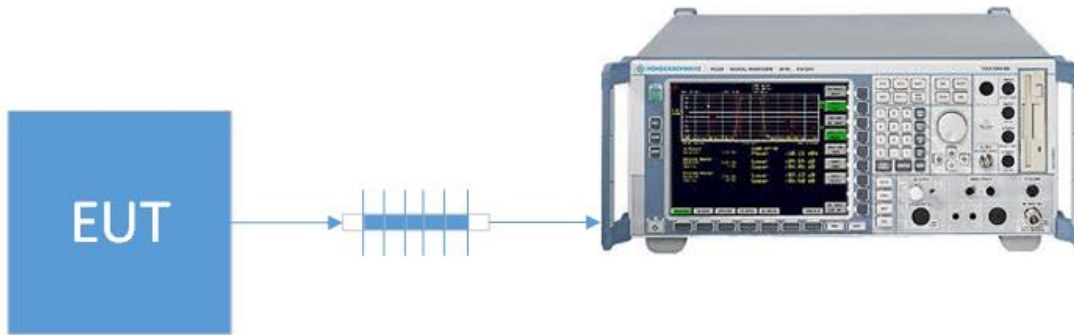
## DTS BANDWIDTH

**Rules Part No.:** FCC 15.247 (a)(2) , IC RSS 247 § 5.2.1

**Requirements:** The minimum 6 dB bandwidth shall be 500 kHz.

**Test Method:** ANSI C63.10 § 11.8.1 DTS Bandwidth Option 1

**Setup:**



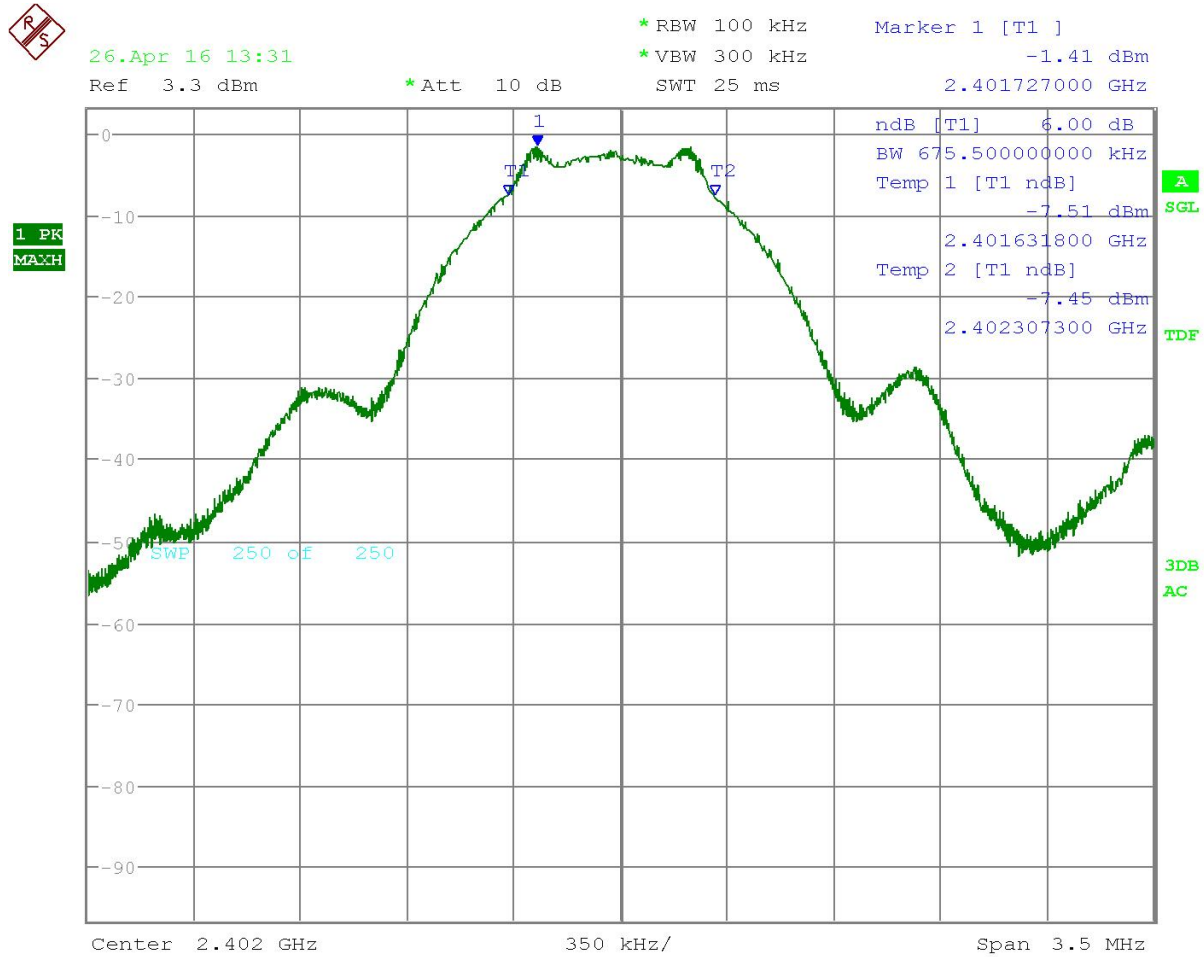
**Test Data:** 6 dB Occupied Bandwidth Measurement Table

Tuned Frequency (MHz)	6 dB BW (KHz)	Limit (KHz)	Margin (KHz)
2402	675.5	≥ 500	175.5
2442	671.3	≥ 500	171.3
2480	674.8	≥ 500	174.8

**RESULTS:** Meets Requirements

# DTS BANDWIDTH

Test Data: 6dB Bandwidth Plot Low End of Band



Date: 26.APR.2016 13:31:44

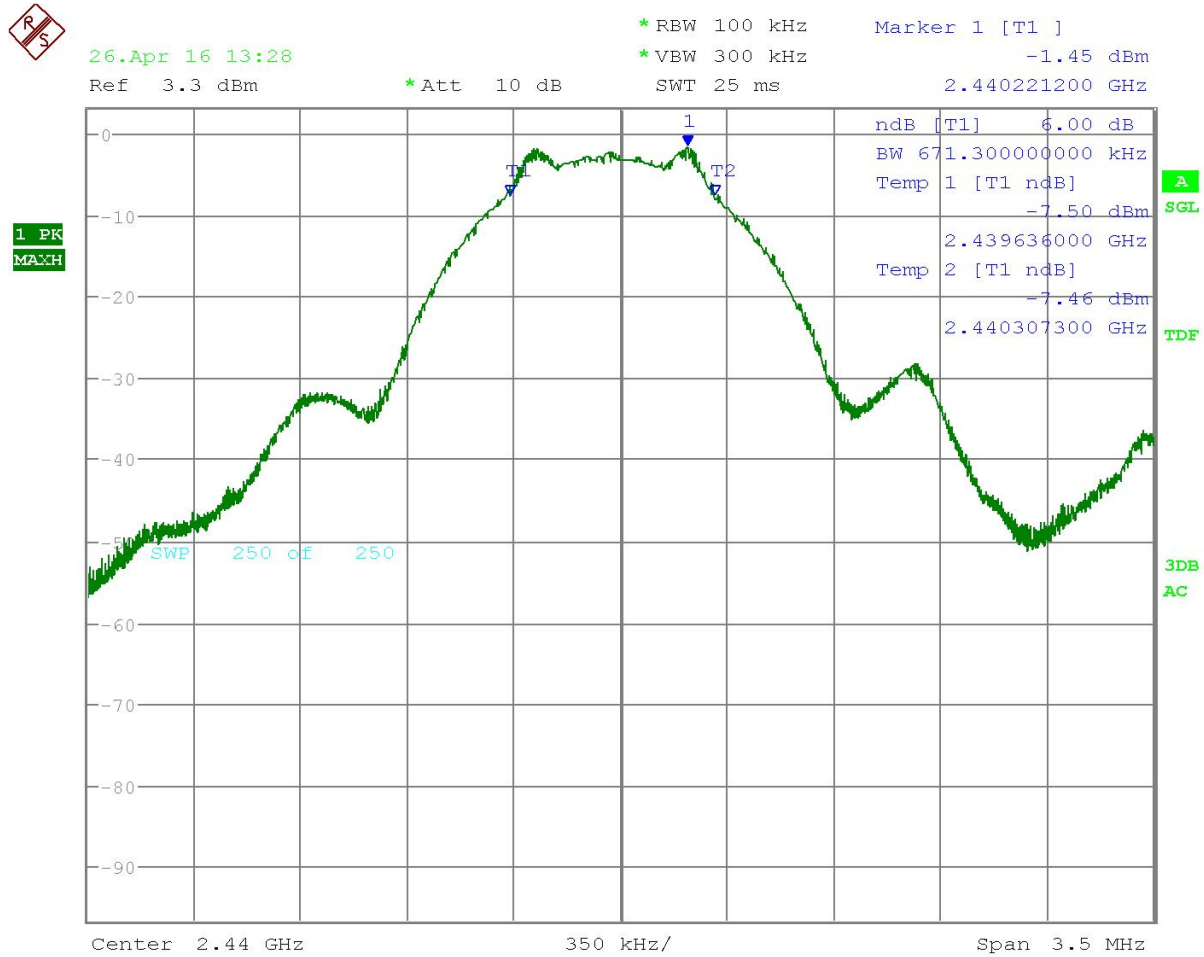
**RESULTS: Meets Requirements**

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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# DTS BANDWIDTH

Test Data: **6dB Bandwidth Plot Middle of Band**



Date: 26.APR.2016 13:28:39

## RESULTS: Meets Requirements

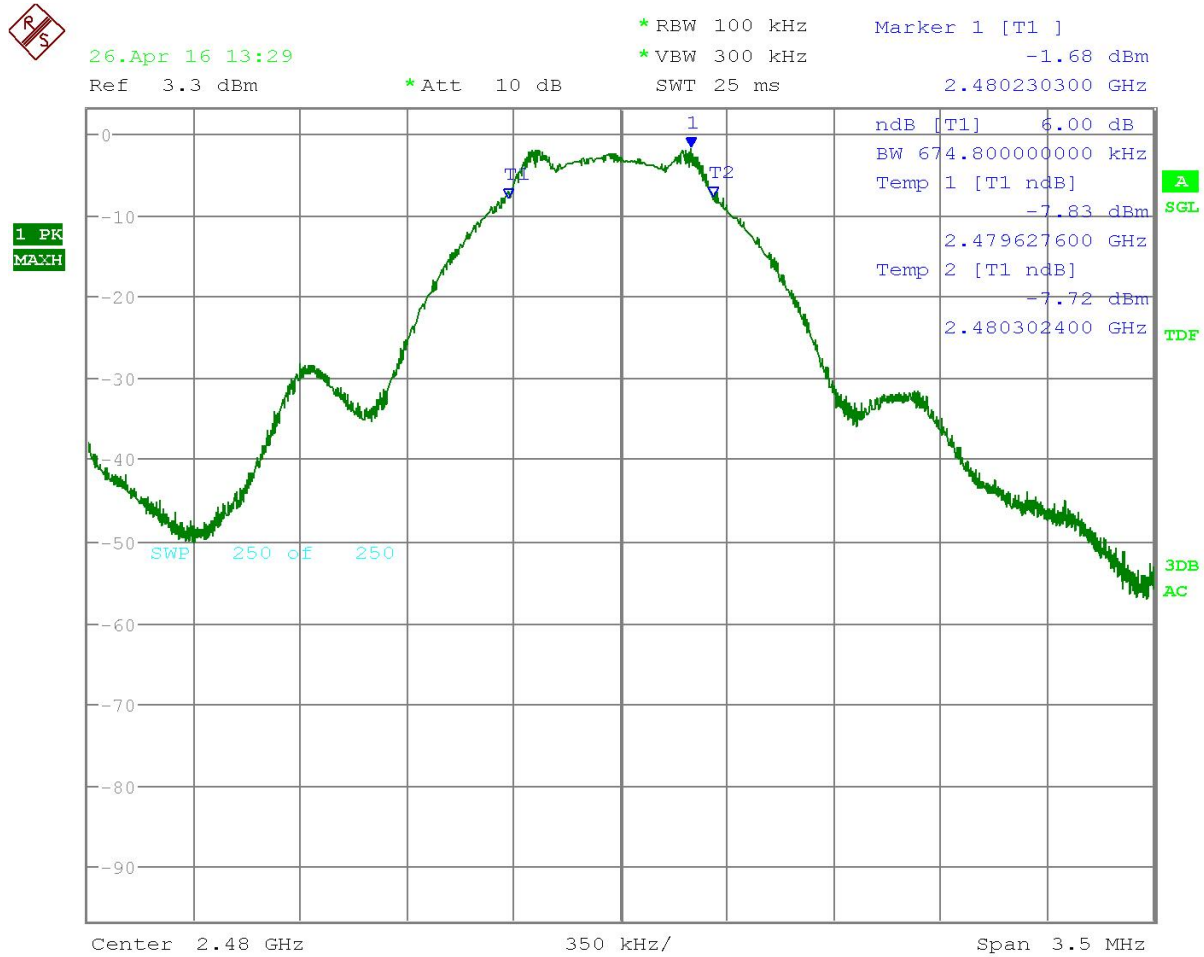
Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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# DTS BANDWIDTH

Test Data: 6dB Bandwidth Plot High end of Band



Date: 26.APR.2016 13:29:38

**RESULTS: Meets Requirements**

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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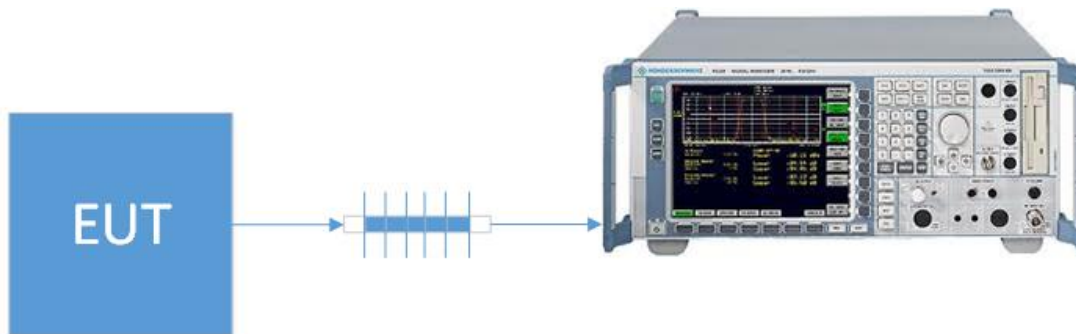
## PEAK POWER OUTPUT

**Rules Part No.:** FCC 15.247(b) (3) (4), IC RSS 247 § 5.4.4

**Requirements:** Maximum Conducted Peak Power Output shall not exceed 1 Watt  
Also the Peak Power Output shall not exceed 4 Watts EIRP

**Test Method:** ANSI C63.10 § 11.2 Power Limits, definitions, and device configuration  
ANSI C63.10 § 11.9.1.1 Fundamental Output Power  $RBW \geq DTS$  Bandwidth  
ANSI C63.10 § Annex G Relationship among Field Strength and ERP/EIRP

### Setup:



## PEAK POWER OUTPUT

Test Data: **Peak Conducted Power Output Measurement Table**

Peak Conducted Power Output Measurement				
Tuned Frequency (MHz)	P <sub>Conducted</sub> (dBm)	P <sub>Conducted</sub> (W)	Limit (W)	Margin (W)
2402	-0.90	0.00081	1.00	0.99919
2442	-0.98	0.00080	1.00	0.99920
2480	-1.12	0.00077	1.00	0.99923

**ERP to EIRP Conversion formula:  $EIRP = ERP + 2.15 \text{ dB}$**

Peak EIRP Power Output Calculation				
Tuned Frequency (MHz)	P <sub>Conducted</sub> (dBm)	EIRP (W)	Limit (W)	Margin (W)
2402	-0.9	0.00133	4.00	3.99867
2442	-0.98	0.00131	4.00	3.99869
2480	-1.12	0.00127	4.00	3.99873

**RESULTS: Meets Requirements**

# PEAK POWER OUTPUT

Test Data: Peak Power Output Plot Low End of Band



26.Apr 16 11:55

\*RBW 2 MHz

Marker 1 [T1]

\*VBW 5 MHz

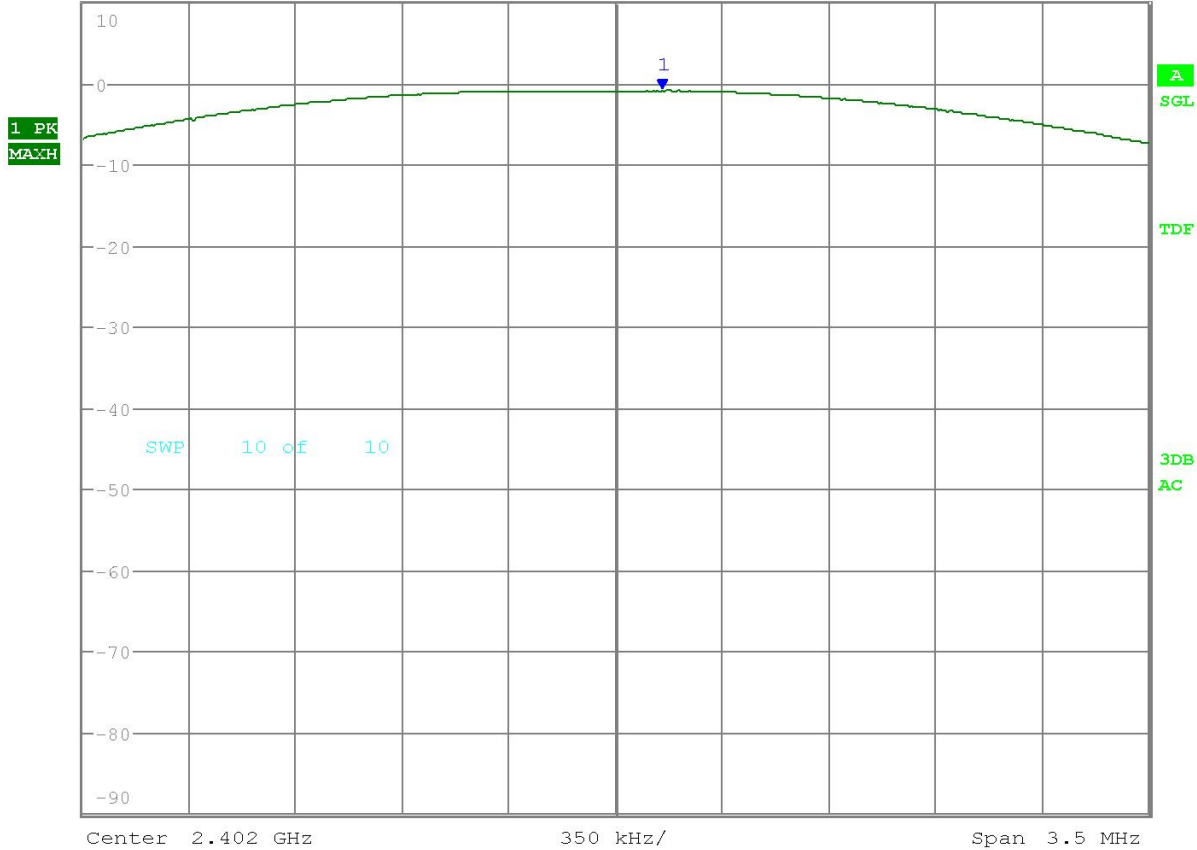
-0.90 dBm

Ref 10 dBm

\*Att 30 dB

SWT 85 ms

2.402154000 GHz



Date: 26.APR.2016 11:55:50

**RESULTS: Meets Requirements**

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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# PEAK POWER OUTPUT

Test Data: Peak Power Output Plot Middle of Band



26.Apr 16 11:56

\*RBW 2 MHz

Marker 1 [T1 ]

\*VBW 5 MHz

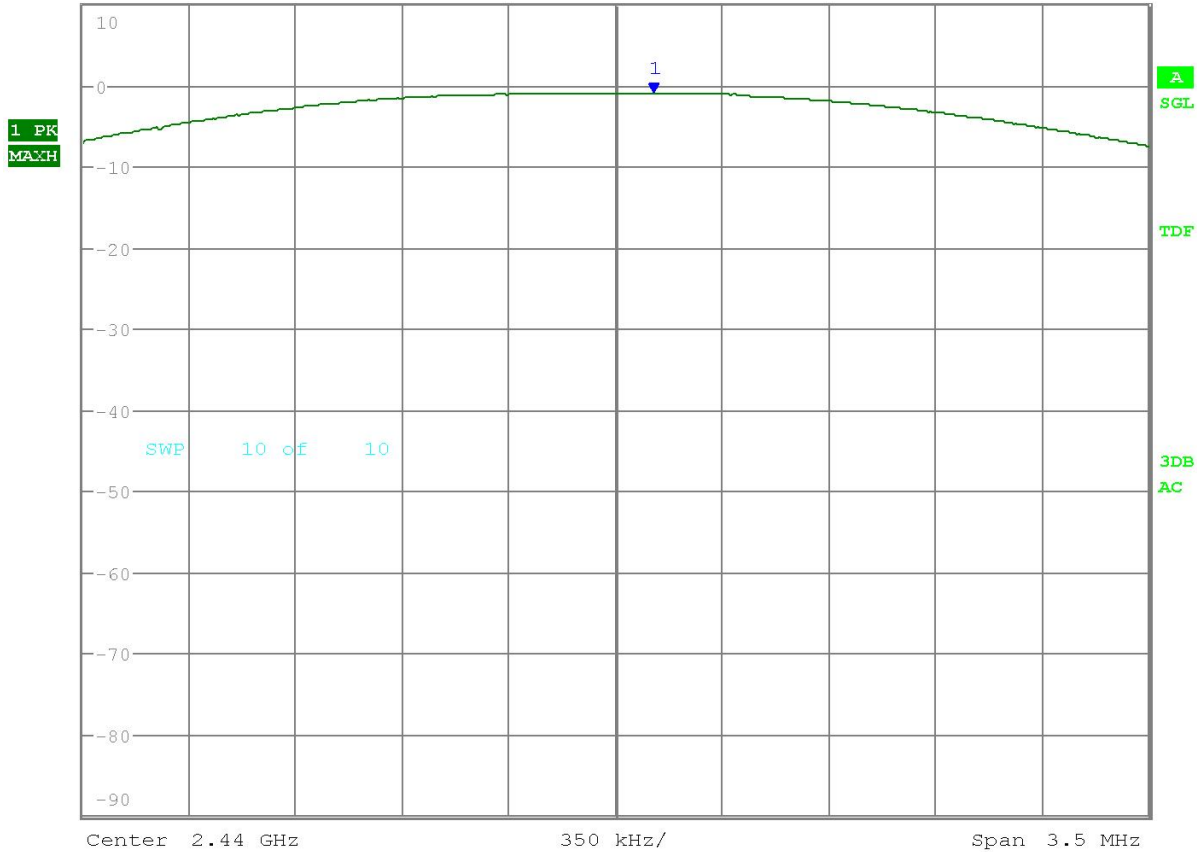
-0.98 dBm

Ref 10 dBm

\*Att 30 dB

SWT 85 ms

2.440121450 GHz



Date: 26.APR.2016 11:56:39

**RESULTS: Meets Requirements**

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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# PEAK POWER OUTPUT

Test Data: Peak Power Output High End of Band



26.Apr 16 11:55

Ref 10 dBm

\*Att 30 dB

\*RBW 2 MHz

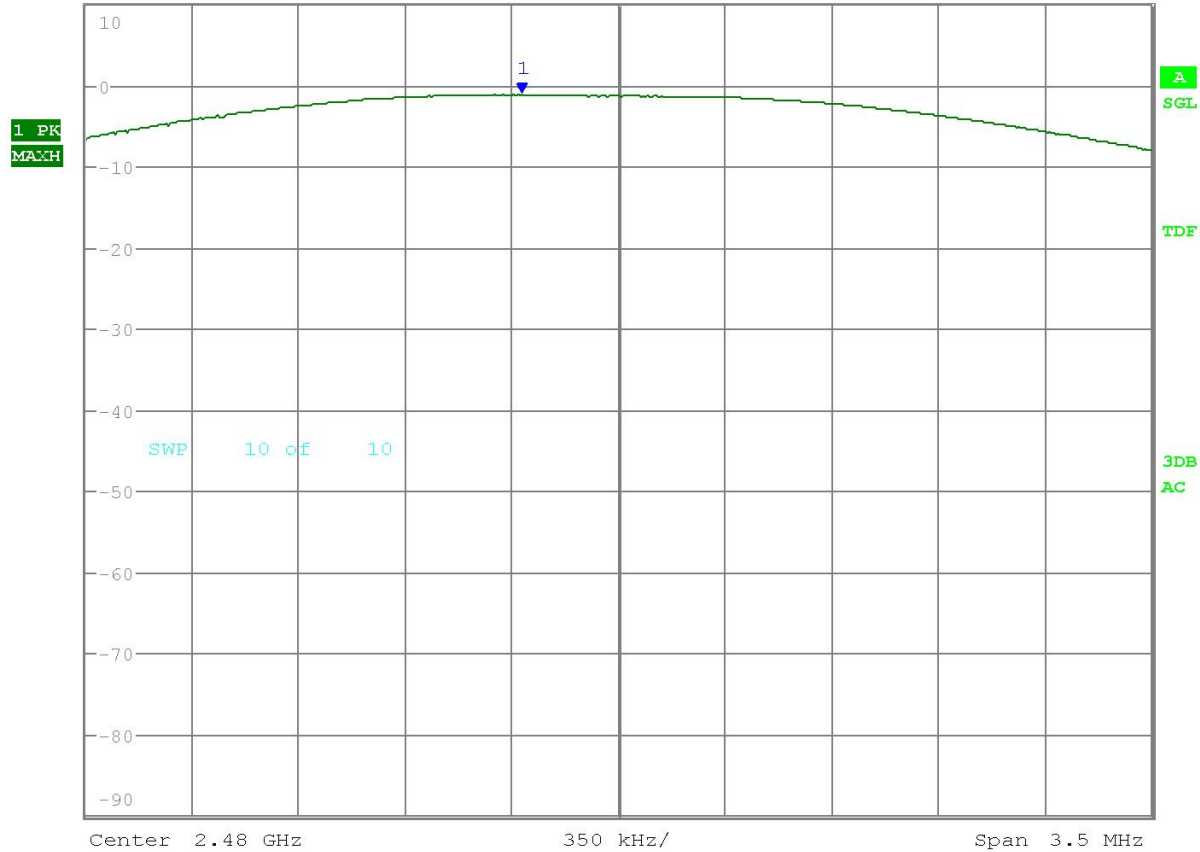
\*VBW 5 MHz

SWT 85 ms

Marker 1 [T1]

-1.12 dBm

2.479680275 GHz



Date: 26.APR.2016 11:55:16

**RESULTS: Meets Requirements**

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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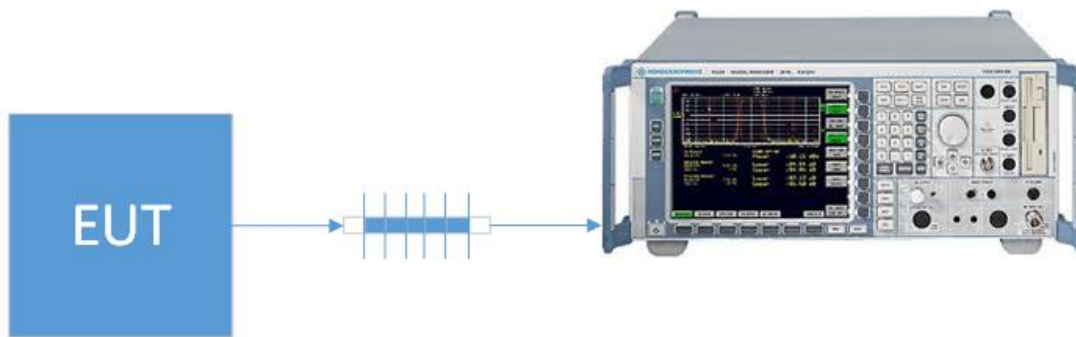
## POWER SPECTRAL DENSITY

**Rules Part No.:** FCC 15.247(e), IC RSS 247 § 5.2.2

**Requirements:** The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

**Test Method:** ANSI C63.10 § 11.2 Power Limits, definitions, and device configuration  
ANSI C63.10 § 11.10.2 Maximum PSD in the fundamental- Method PKPSD

**Setup:**



## POWER SPECTRAL DENSITY

Test Data:            Power Spectral Density Measurement Table

Peak Conducted Power Spectral Density			
Tuned Frequency (MHz)	Level (dBm/3KHz)	Limit (dBm/3KHz)	Margin (dB)
2402	-13.45	8.00	21.45
2442	-12.81	8.00	20.81
2480	-13.42	8.00	21.42

**RESULTS: Meets Requirements**



# POWER SPECTRAL DENSITY

Test Data: Power Spectral Density Plot Low End of Band



26.Apr 16 13:40

\*RBW 3 kHz

Marker 1 [T1]

\*VBW 10 kHz

-13.45 dBm

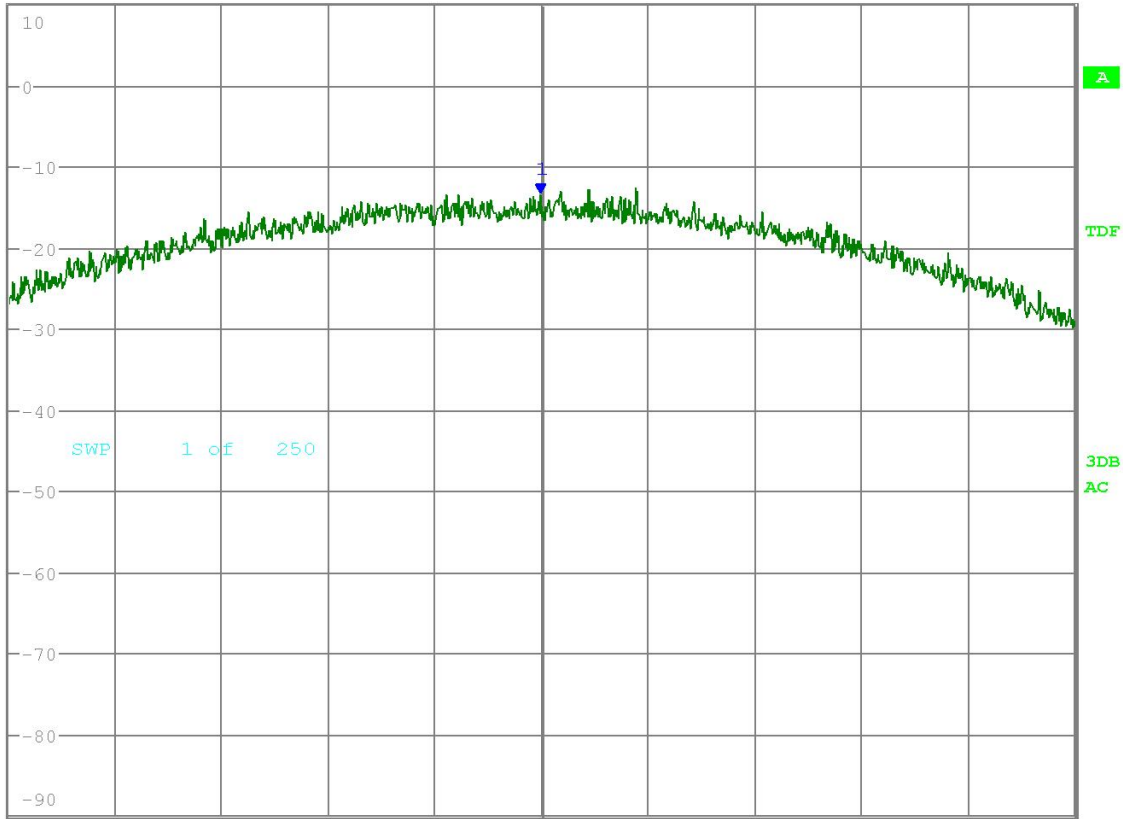
Ref 10 dBm

\*Att 10 dB

SWT 115 ms

2.401998380 GHz

1 PK  
MAXH



Center 2.402 GHz

101.25 kHz/

Span 1.0125 MHz

Date: 26.APR.2016 13:40:46

**RESULTS: Meets Requirements**

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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# POWER SPECTRAL DENSITY

**Test Data: Power Spectral Density Plot Middle of Band**



26.Apr 16 13:44

\*RBW 3 kHz

Marker 1 [T1]

\*VBW 10 kHz

-12.81 dBm

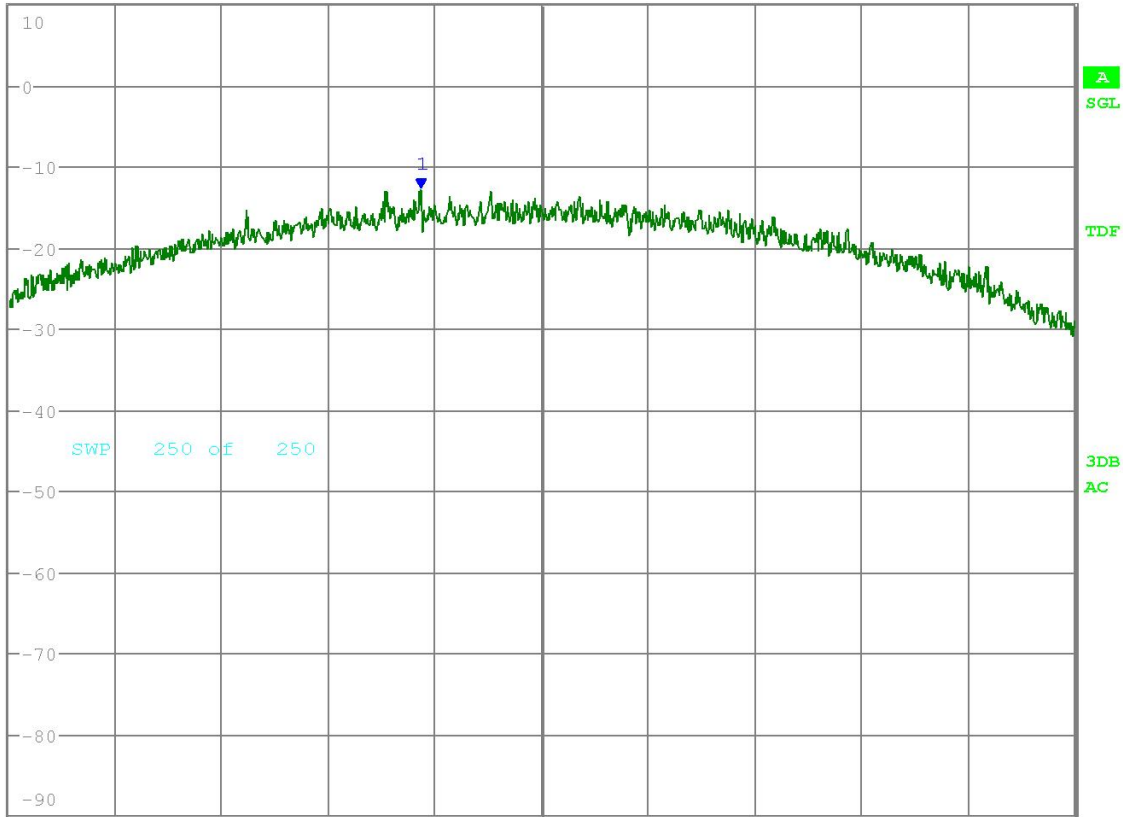
Ref 10 dBm

\*Att 10 dB

SWT 115 ms

2.439884575 GHz

1 PK  
MAGCH



Center 2.44 GHz

101.25 kHz/

Span 1.0125 MHz

Date: 26.APR.2016 13:44:14

**RESULTS: Meets Requirements**

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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# POWER SPECTRAL DENSITY

## Test Data: Power Spectral Density Plot High End of Band



26.Apr 16 13:45

\*RBW 3 kHz

Marker 1 [T1]

\*VBW 10 kHz

-13.42 dBm

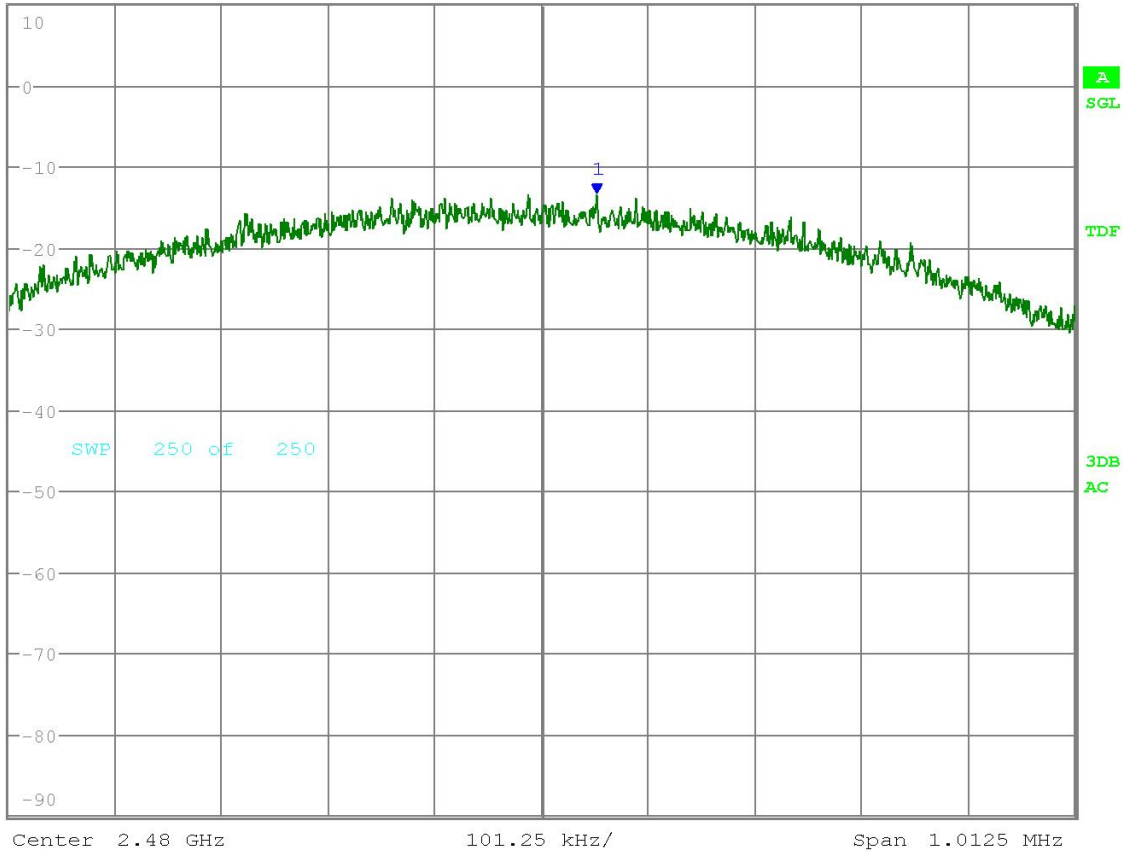
Ref 10 dBm

\*Att 10 dB

SWT 115 ms

2.480052245 GHz

1 PK  
MAGCH



Date: 26.APR.2016 13:45:04

### RESULTS: Meets Requirements

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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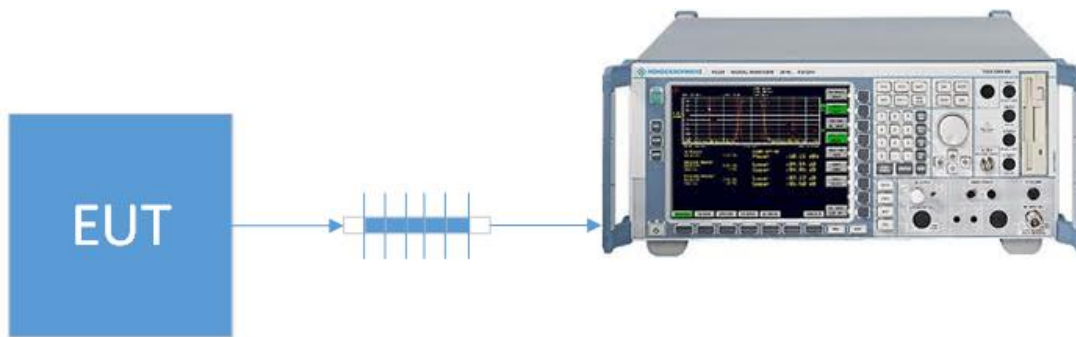
## OCCUPIED BANDWIDTH

**Rules Part No.:** FCC 15.215 (c), IC RSS GEN § 6.6

**Requirements:** The 20 dB Bandwidth shall remain inside the band of operation.  
The 99% Bandwidth is for reporting only.

**Test Method:** ANSI C63.10 § 6.9.2 Occupied Bandwidth- Relative procedure  
ANSI C63.10 § 6.9.3 Occupied Bandwidth- 99% Power Bandwidth procedure

**Setup:**



**Test Data:** Occupied Bandwidth Measurement Table

Tuned Frequency (MHz)	99% BW (MHz)
2402	1.055
2442	1.057
2480	1.058

**RESULTS: Meets Requirements**

# OCCUPIED BANDWIDTH

Test Data: 99% Bandwidth Plot Low End of Band



26.Apr 16 13:25

Ref 3.3 dBm

\*Att 10 dB

\*RBW 30 kHz

\*VBW 100 kHz

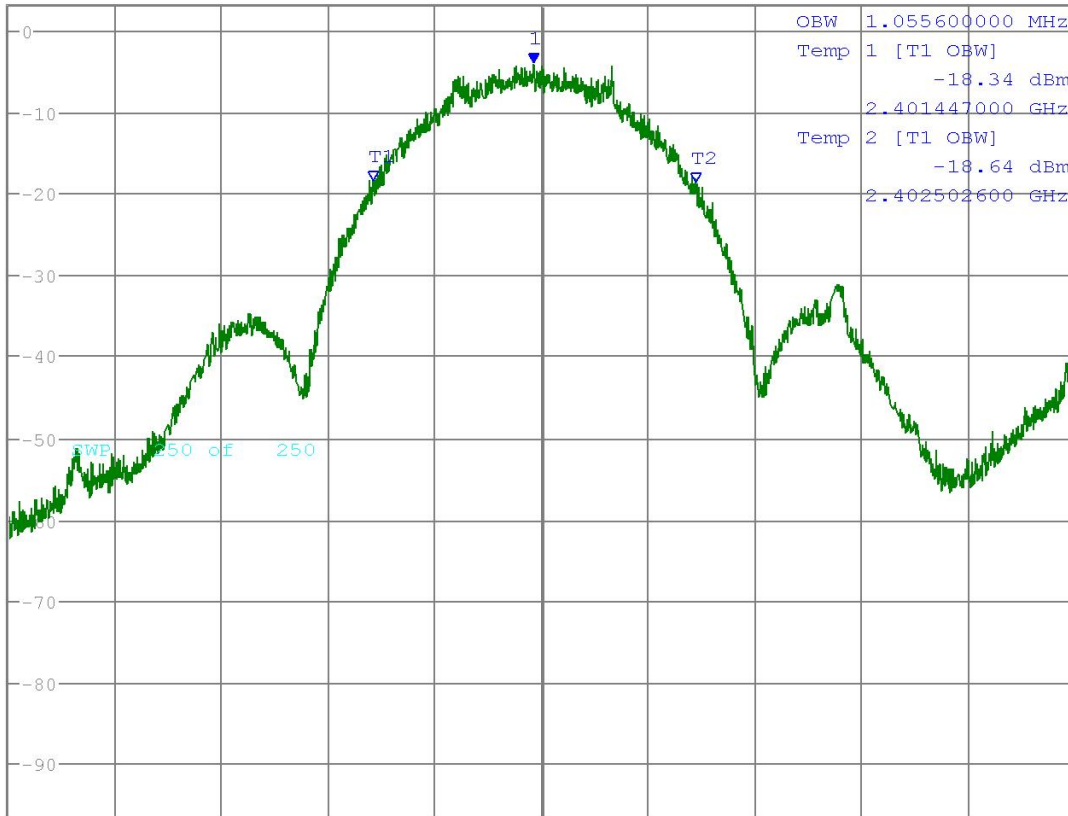
SWT 25 ms

Marker 1 [T1 ]

-3.94 dBm

2.401972000 GHz

1 PK  
MATCH



Center 2.402 GHz

350 kHz/

Span 3.5 MHz

Date: 26.APR.2016 13:25:19

**RESULTS: Meets Requirements**

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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# OCCUPIED BANDWIDTH

Test Data: 99% Bandwidth Plot Middle of Band



26.Apr 16 13:26

Ref 3.3 dBm

\*Att 10 dB

\*RBW 30 kHz

\*VBW 100 kHz

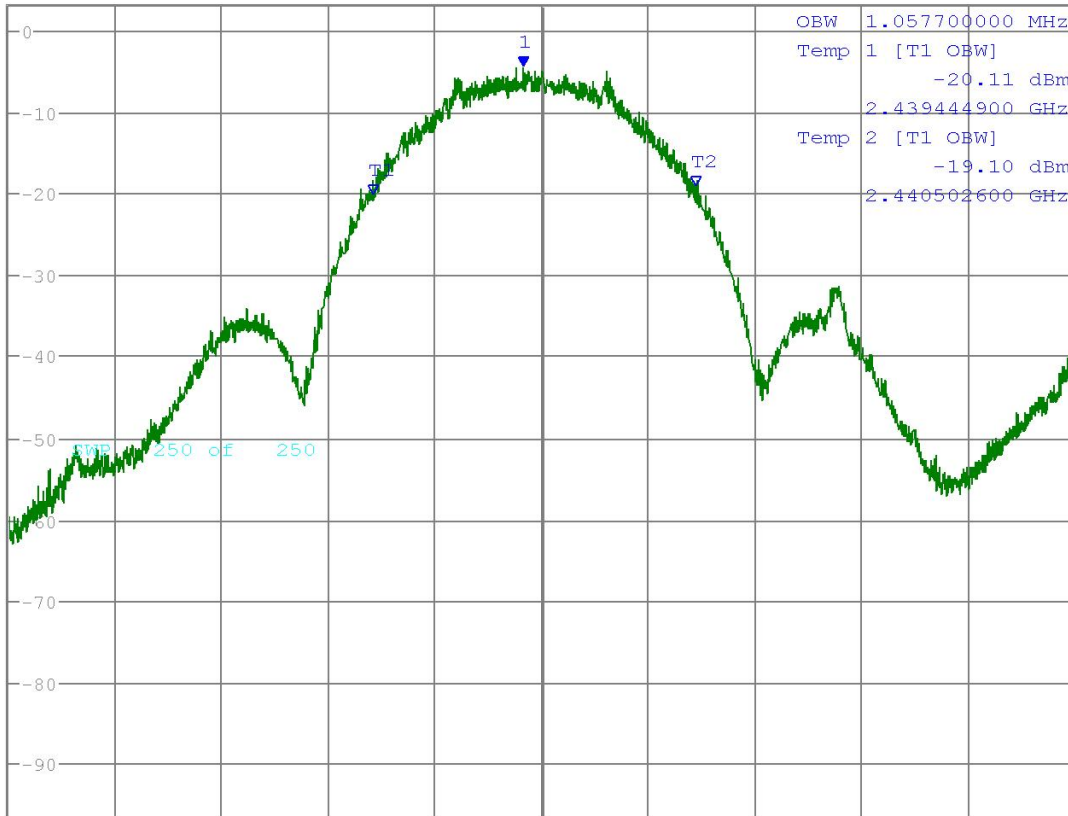
SWT 25 ms

Marker 1 [T1 ]

-4.26 dBm

2.439938400 GHz

1 PK  
MATCH



Center 2.44 GHz

350 kHz/

Span 3.5 MHz

Date: 26.APR.2016 13:26:33

**RESULTS: Meets Requirements**

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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# OCCUPIED BANDWIDTH

Test Data: 99% Bandwidth Plot High end of Band



26.Apr 16 13:24

Ref 3.3 dBm

\*Att 10 dB

\*RBW 30 kHz

\*VBW 100 kHz

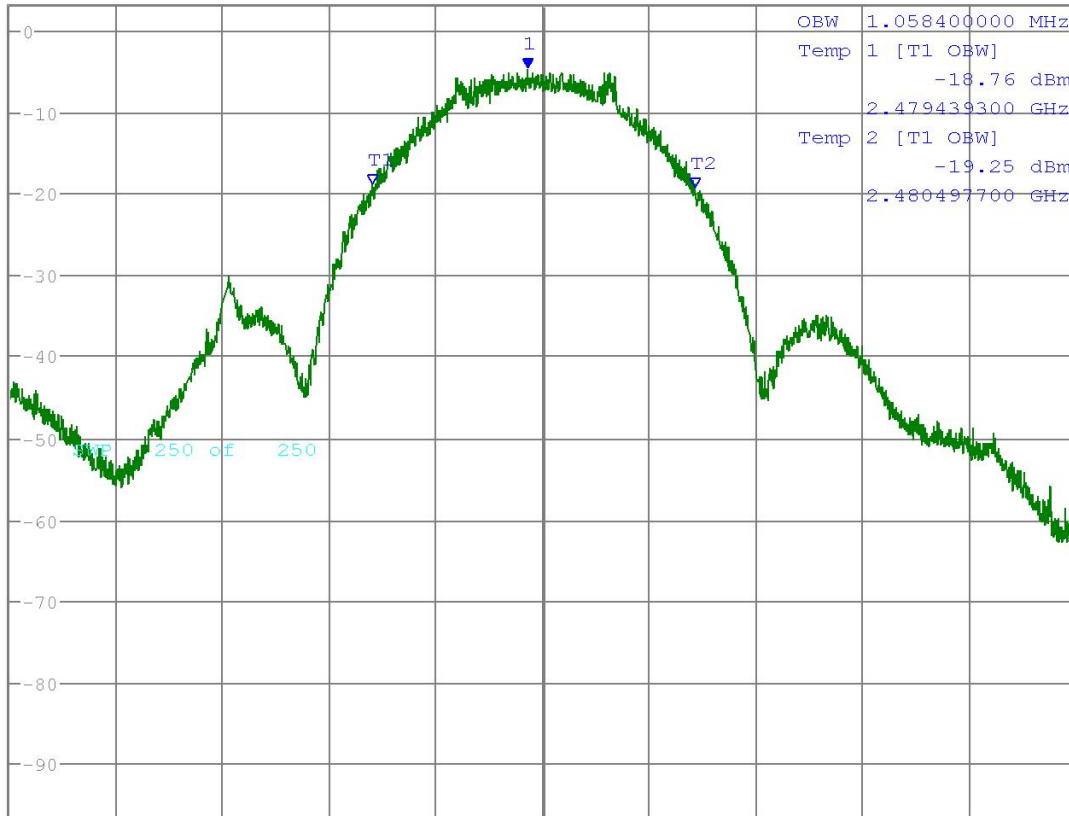
SWT 25 ms

Marker 1 [T1 ]

-4.54 dBm

2.479951000 GHz

1 PK  
MATCH



Center 2.48 GHz

350 kHz/

Span 3.5 MHz

Date: 26.APR.2016 13:24:05

**RESULTS: Meets Requirements**

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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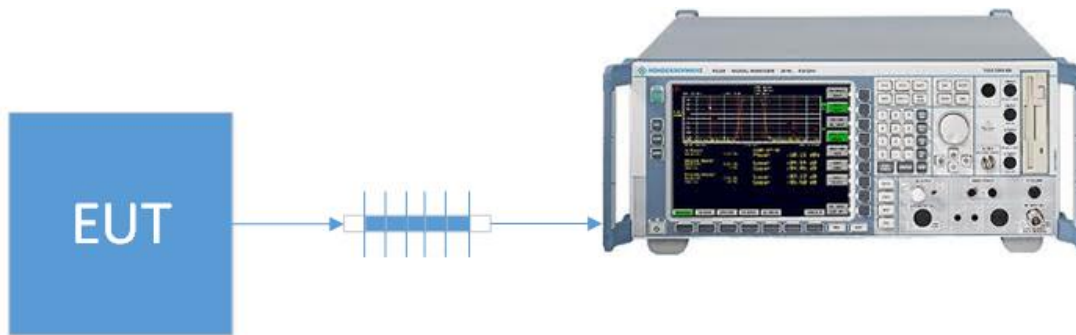
## BANDEDGE

**Rule Part No.:** FCC 15.247(d), IC RSS 247 § 5.5

**Requirements:** Emissions must be at least 20dB down from the highest emission level Within the authorized band as measured with a 100 kHz RBW.

**Test Method:** ANSI C63.10 § 6.10.4 Authorized band-edge relative method (non-restricted)  
ANSI C63.10 § 6.10.6 Marker Delta Method (restricted band edge)

### Setup:



**Test Data:** Bandedge Measurement Table

Upper Adjacent Restricted Bandedge Marker Delta Method Calculation					
Peak/ Average	Field Strength of Carrier (dBuV/m)	Emission Level Below Carrier (dB)	Field Strength of Emission (dBuV/m)	Emission Limit (dBuV/m)	Margin (dB)
Peak	97.39	53.50	43.89	74	30.11
Average	96.25	53.50	42.75	54	11.25

Lower Authorized Band Edge Measurement			
Tuned Frequency (MHz)	Band Edge Level (dBc)	Limit (dBc)	Margin (dB)
2402	50.01	≥20	30.01

**Results Meet Requirements**

Applicant: ADHERIUM (NZ) LTD.  
FCC ID: PN2-SYM1  
IC: 20509-SYM1  
Report: 655AUT16TestReport\_Rev1

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# BANDEDGE

## Test Data: Upper Adjacent Restricted Band Edge Plot



26.Apr 16 14:01

Ref 10 dBm

\*Att 10 dB

\*RBW 100 kHz

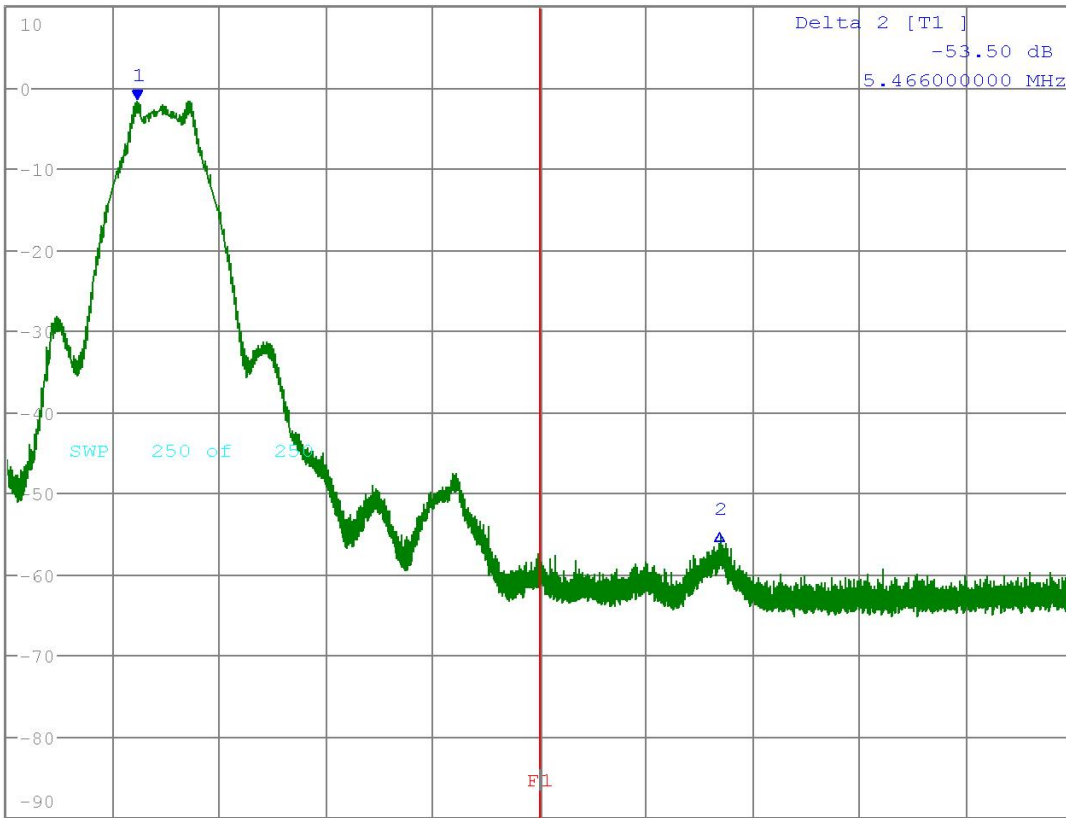
\*VBW 300 kHz

SWT 85 ms

Marker 1 [T1]

-1.58 dBm

2.479724000 GHz



Center 2.4835 GHz

1 MHz/

Span 10 MHz

Date: 26.APR.2016 14:01:13

### RESULTS: Meets Requirements

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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# BANDEDGE

## Test Data: Lower Authorized Band Edge Plot



26.Apr 16 14:21

Ref 10 dBm

\*Att 10 dB

\*RBW 100 kHz

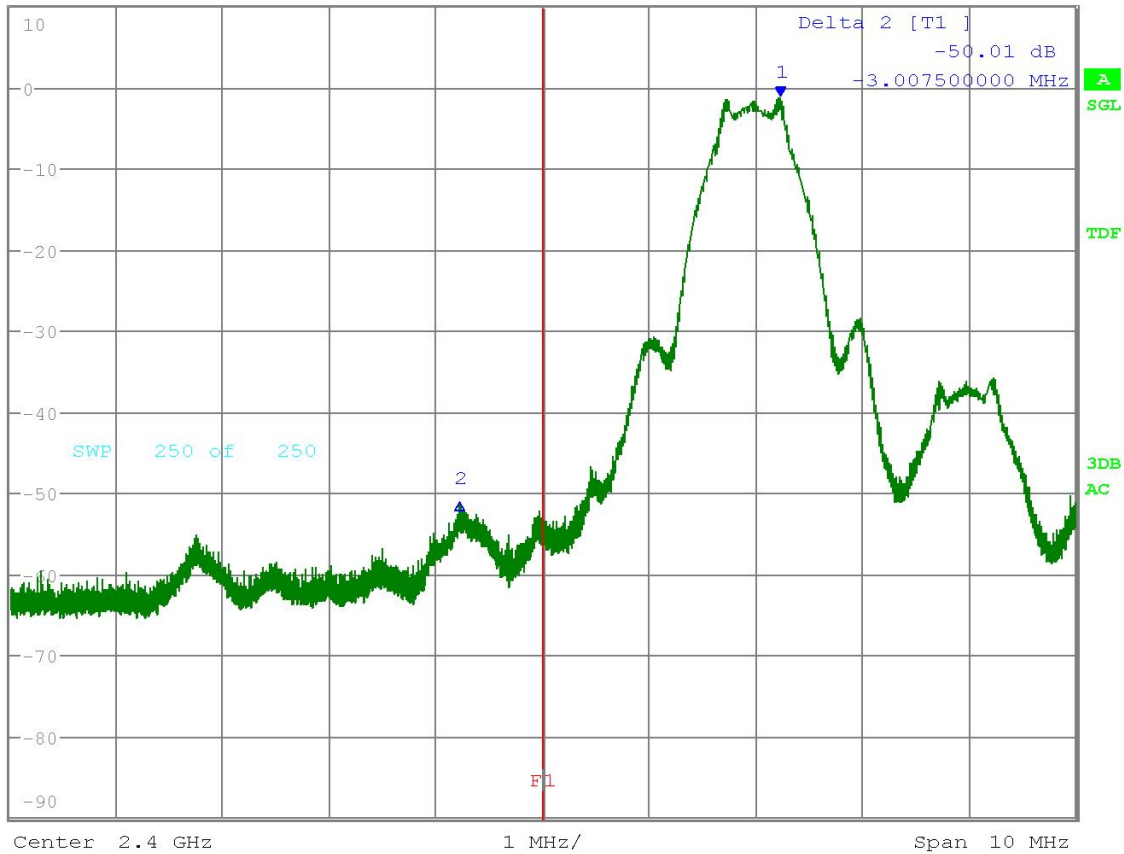
\*VBW 300 kHz

SWT 85 ms

Marker 1 [T1]

-1.14 dBm

2.402220000 GHz



Date: 26.APR.2016 14:21:47

### RESULTS: Meets Requirements

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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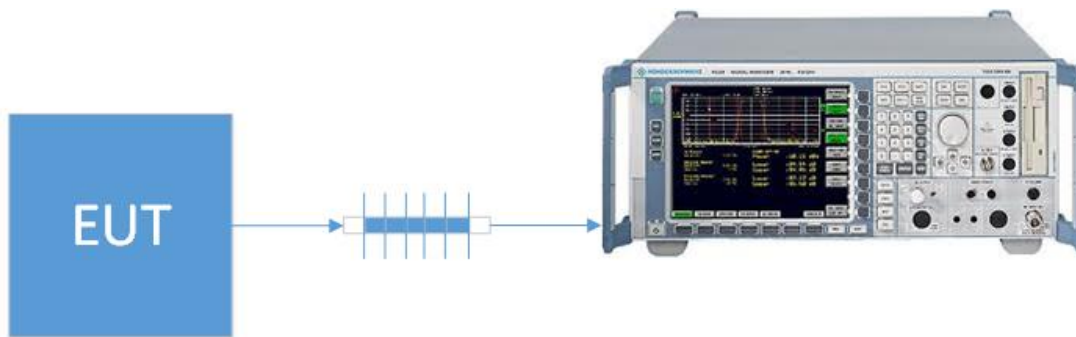
## ANTENNA CONDUCTED SPURIOUS EMISSIONS

**Rules Part No.:** FCC part 15.247 (d) & 15.209, IC RSS 247 § 5.5 & RSS GEN § 8.9

**Requirements:** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below

**Test Method:** ANSI C63.10 § 11.11.1 General Information  
ANSI C63.10 § 11.11.2 Reference level measurement  
ANSI C63.10 § 11.11.3 Emission level measurement

### Setup:



Test Data: Antenna Conducted Spurious Emissions Measurement Table

Tuned Freq (MHz)	Reference Level (dBm)	Emission Freq (MHz)	Read Level (dBm)	Level Below Carrier (dBc)	Limit (dBc)	Margin (dB)
2402	-1.44	84.93	-61.63	60.19	20	40.2
		4804.26	-57.77	56.33	20	36.3
		7206.37	-54.62	53.18	20	33.2
2440		124.88	-57.06	55.62	20	35.6
		2372.18	-60.35	58.91	20	38.9
		2502.03	-54.79	53.35	20	33.4
2480		164.83	-55.83	54.39	20	34.4
		2352.21	-71.53	70.09	20	50.1
		2512.01	-59.44	58.00	20	38.0

### Results Met Requirements

Applicant: ADHERIUM (NZ) LTD.  
FCC ID: PN2-SYM1  
IC: 20509-SYM1  
Report: 655AUT16TestReport\_Rev1

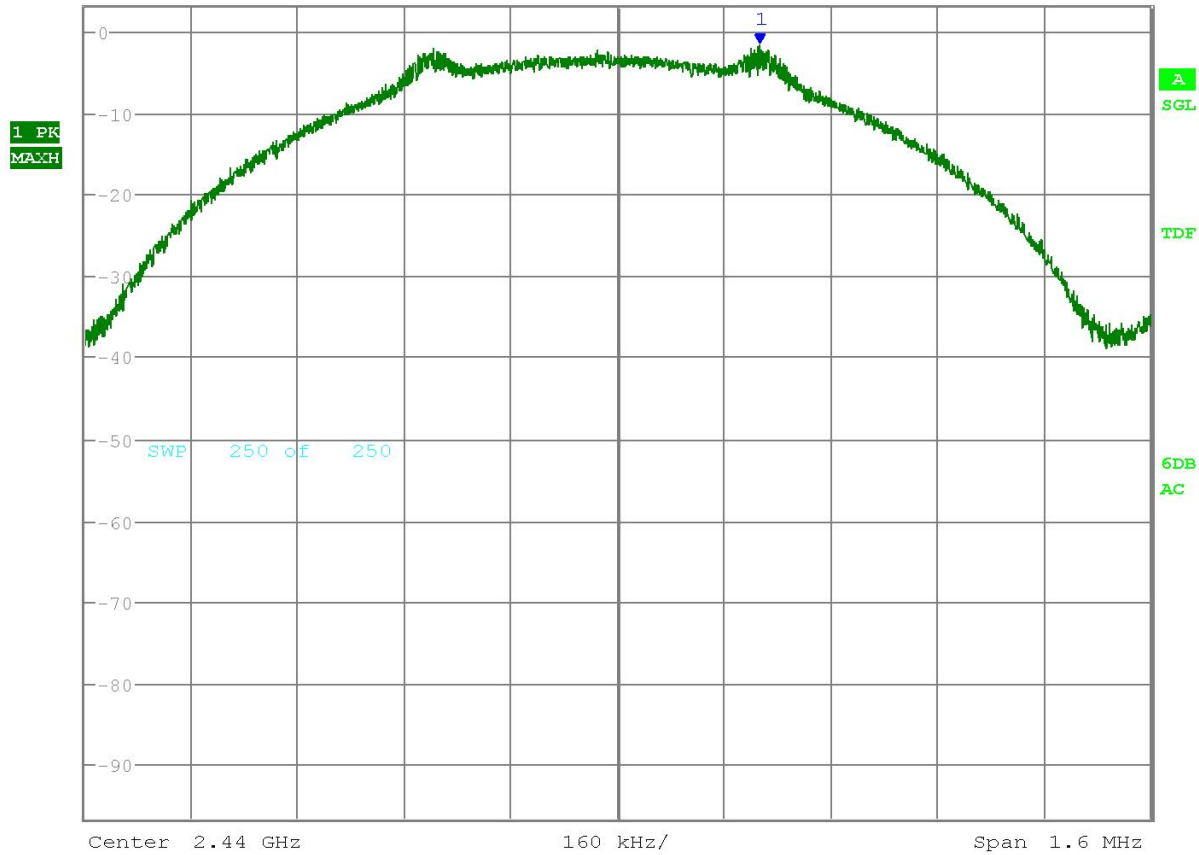
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# ANTENNA CONDUCTED SPURIOUS EMISSIONS

Test Data: 100 KHz Reference Level Plot



26.Apr 16 14:32  
 Ref 3.3 dBm \*Att 10 dB \*RBW 100 kHz \*VBW 300 kHz Marker 1 [T1 ]  
 SWT 25 ms -1.44 dBm  
 2.440212480 GHz



Date: 26.APR.2016 14:32:26

## RESULTS: Meets Requirements

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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# ANTENNA CONDUCTED SPURIOUS EMISSIONS

Test Data: Low End of Band 30 MHz – 25 GHz Plot



26.Apr 16 14:41

Ref 3.3 dBm

\*Att 0 dB

\*RBW 100 kHz

\*VBW 300 kHz

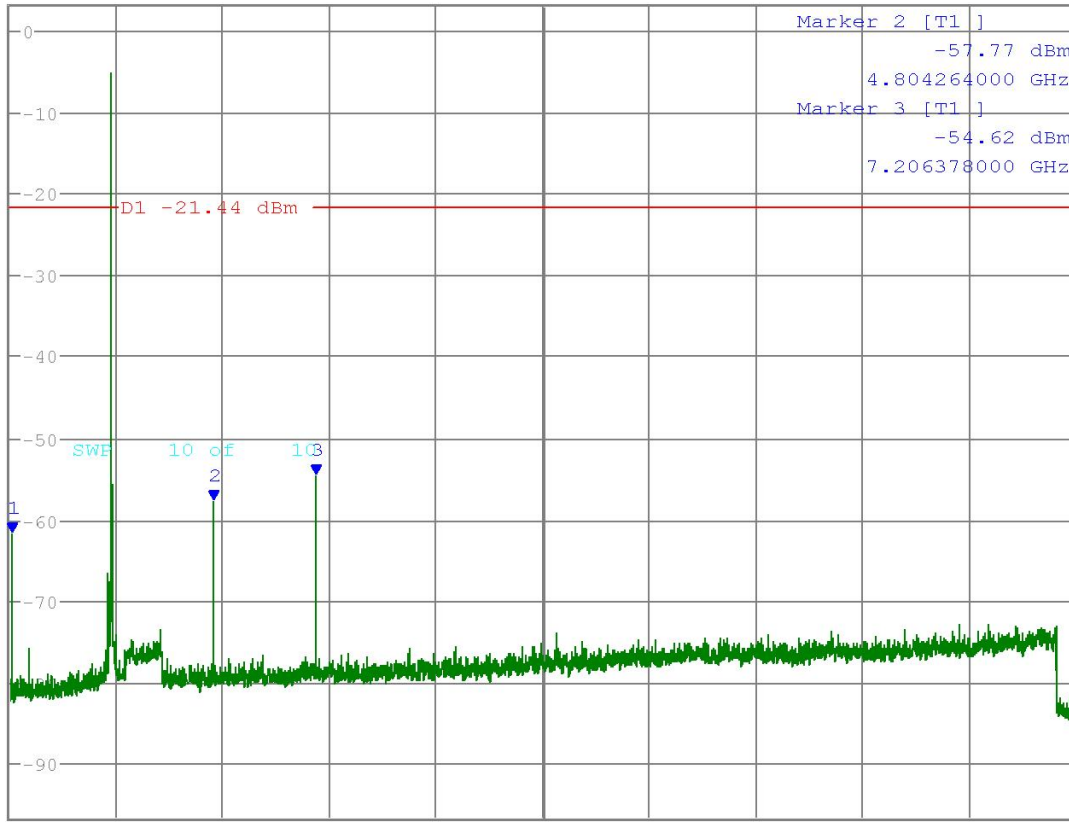
SWT 6 s

Marker 1 [T1 ]

-61.63 dBm

84.934000000 MHz

1 PK  
MAXH



Start 30 MHz

2.497 GHz/

Stop 25 GHz

Date: 26.APR.2016 14:41:01

## RESULTS: Meets Requirements

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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# ANTENNA CONDUCTED SPURIOUS EMISSIONS

Test Data: Middle of Band 30 MHz – 25 GHz Plot



26.Apr 16 14:43

Ref 3.3 dBm

\*Att 0 dB

\*RBW 100 kHz

\*VBW 300 kHz

SWT 6 s

Marker 1 [T1 ]

-57.06 dBm

124.886000000 MHz

Marker 2 [T1 ]

-60.35 dBm

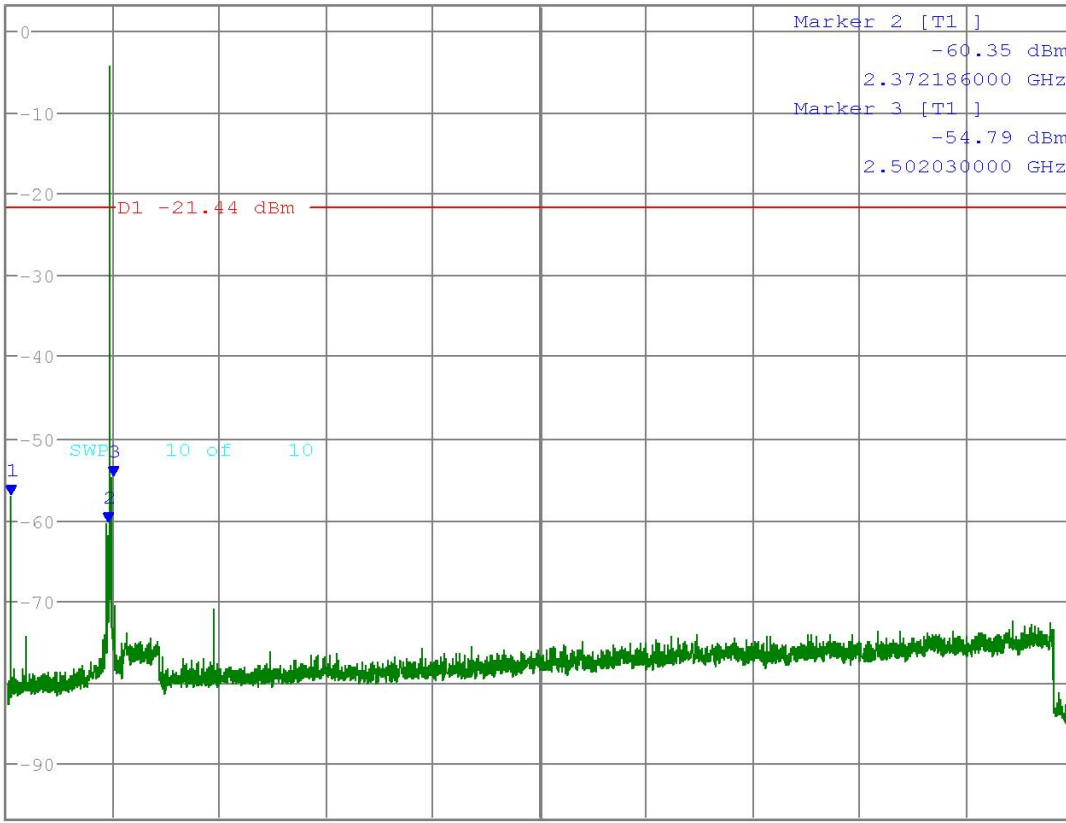
2.372186000 GHz

Marker 3 [T1 ]

-54.79 dBm

2.502030000 GHz

1 PK  
MAXH



Start 30 MHz

2.497 GHz/

Stop 25 GHz

Date: 26.APR.2016 14:43:26

## RESULTS: Meets Requirements

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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## ANTENNA CONDUCTED SPURIOUS EMISSIONS

Test Data: High End of Band 30 MHz – 25 GHz Plot



26.Apr 16 14:44

Ref 3.3 dBm

\*Att 0 dB

\*RBW 100 kHz

\*VBW 300 kHz

SWT 6 s

Marker 1 [T1]

-55.83 dBm

164.838000000 MHz

Marker 2 [T1]

-71.53 dBm

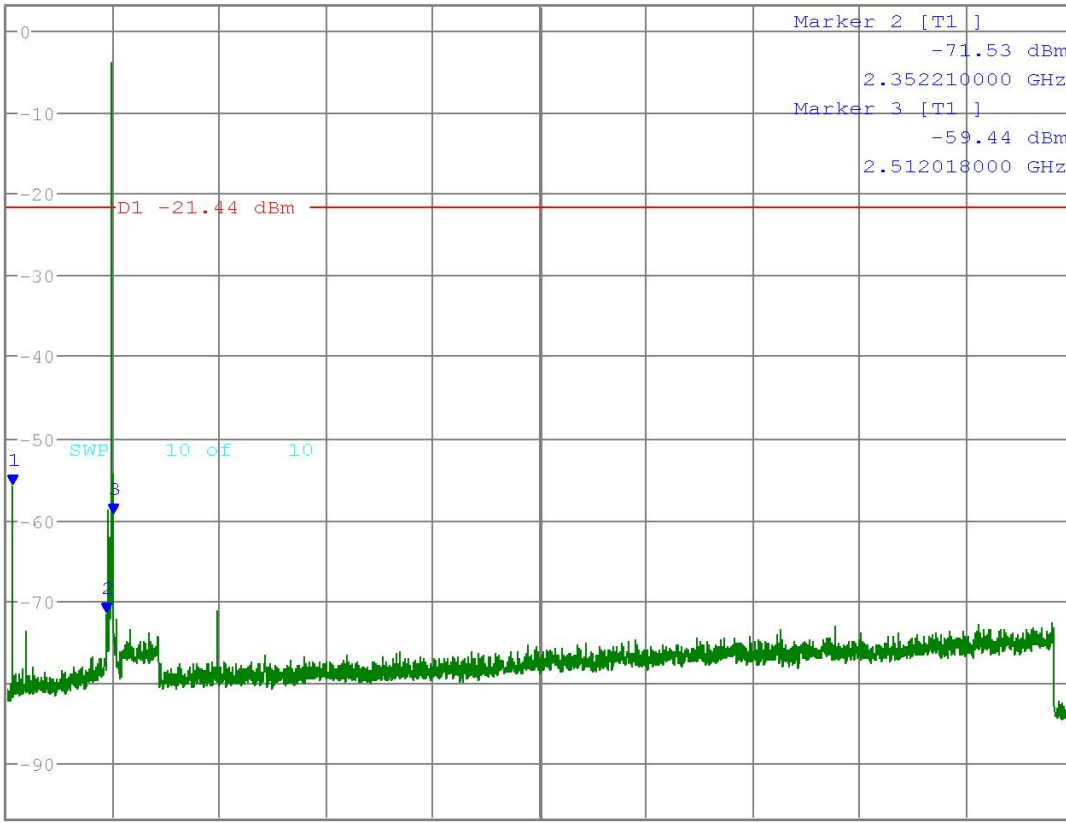
2.352210000 GHz

Marker 3 [T1]

-59.44 dBm

2.512018000 GHz

1 PK  
MAXH



Center 12.515 GHz

2.497 GHz/

Span 24.97 GHz

Date: 26.APR.2016 14:44:57

### RESULTS: Meets Requirements

Applicant: ADHERIUM (NZ) LTD.  
 FCC ID: PN2-SYM1  
 IC: 20509-SYM1  
 Report: 655AUT16TestReport\_Rev1

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## RADIATED SPURIOUS EMISSIONS

**Rules Part No.:** FCC part 15.247 (d) & 15.209, IC RSS 247 § 5.5 & RSS GEN § 8.9

**Requirements:** In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below

In addition, Emissions found in restricted bands of FCC Part 15.205 must comply with the general limits found in FCC part 15.209

Frequency	Limits
FCC Part 15.209, IC RSS-GEN 8.9	
9 to 490 kHz	2400/F (kHz) $\mu$ V/m @ 300 meters
490 to 1705 kHz	24000/F (kHz) $\mu$ V/m @ 30 meters
1705 kHz to 30 MHz	29.54 dB $\mu$ V/m @ 30 meters
30 – 88	40.0 dB $\mu$ V/m @ 3 meters
80 – 216	43.5 dB $\mu$ V/m @ 3 meters
216 – 960	46.0 dB $\mu$ V/m @ 3 meters
Above 960	54.0 dB $\mu$ V/m @ 3 meters

**Test Method:** ANSI C63.4 § Annex D Validation of radiated emissions standard test sites  
 ANSI C63.10 § 6.3 Common requirements radiated emissions  
 ANSI C63.10 § 6.4 Emissions below 30 MHz  
 ANSI C63.10 § 6.5 Emissions between 30 & 1000 MHz  
 ANSI C63.10 § 6.6 Emissions above 1 GHz

### Field Strength Calculation:

The field strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dB $\mu$ V) to the antenna correction factor supplied by the antenna manufacturer plus the coax loss. The antenna correction factors are stated in terms of dB. The gain of the preselector was accounted for in the spectrum analyzer meter reading.

Example:

Freq (MHz)	Meter Reading	+ ACF	+ CL = FS
33	20 dB $\mu$ V	+ 10.36 dB	+ 0.5 = 30.86 dB $\mu$ V/m @ 3m

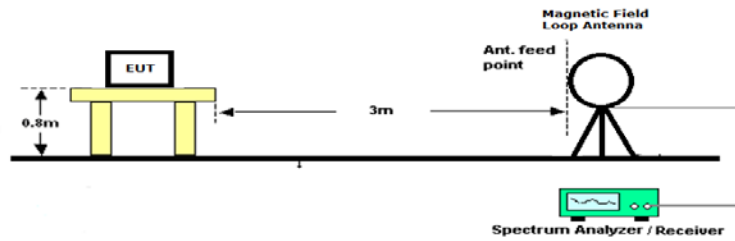
**Notes:** Only emissions within 20dB of the limit are reported from 9 KHz to 25 GHz



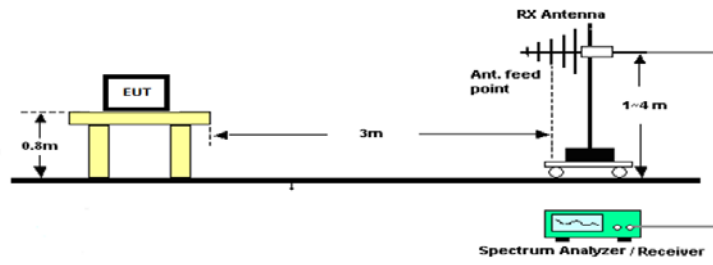
## RADIATED SPURIOUS EMISSIONS

Setup:

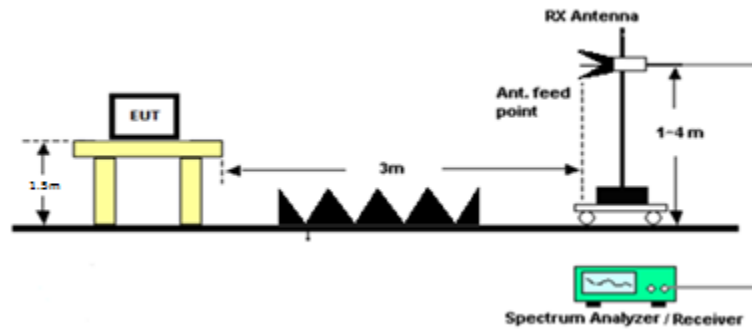
### Emissions below 30 MHz



### Emissions 30 – 1000 MHz



### Emissions above 1 GHz



## RADIATED SPURIOUS EMISSIONS

Test Data: Restricted Band Emissions Field Strength table

Tuned Freq (MHz)	Emission Freq (MHz)	Detector Type (QP/PK/AV)	Meter Reading (dBuV)	Antenna Polarity (H/V)	Coax Loss (dB)	Correction Factor dB/M	Field Strength (dBuV/m)	Margin (dB)
2402	4804	PK	11.39	H	8.07	34	53.46	20.54
2402	4804	AV	4.71	H	8.07	34	46.78	7.22
2440	124.88	PK*	1.09	H	1.29	11.76	14.14	29.36
2440	2372.18	PK*	13.81	H	5.65	32.26	51.72	22.28
2440	2372.18	AV*	1.07	H	5.65	32.26	38.98	15.02
2440	4880	PK	10.25	H	8.13	33.92	52.3	21.7
2440	4880	AV	4.79	V	8.13	33.92	46.84	7.16
2440	7320	PK*	5.23	H	10	35.6	50.83	23.17
2440	7320	AV*	-8.56	V	10	35.6	37.04	16.96
2480	2352.21	PK*	12.11	V	5.63	32.16	49.9	24.1
2480	2352.21	AV*	1.13	V	5.63	32.16	38.92	15.08
2480	4960	PK	9.95	H	8.2	33.96	52.11	21.89
2480	4960	AV	5.43	H	8.2	33.96	47.59	6.41
2480	7440	PK*	7.32	H	10.08	35.6	53	21
2480	7440	AV*	-5.21	H	10.08	35.6	40.47	13.53

\* Indicates Noise Floor

**Results Meet Requirements**

## EMC EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
Antenna: Biconnical 1096	Eaton	94455-1	1096	07/14/15	07/14/17
Antenna: Log-Periodic 1122	Electro-Metrics	LPA-25	1122	07/14/15	07/14/17
CHAMBER	Panashield	3M	N/A	04/25/16	12/13/17
Antenna: Double-Ridged Horn/ETS Horn 2	ETS-Lindgren Chamber	3117	00041534	02/25/15	02/25/17
Software: Field Strength Program	Timco	N/A	Version 4.0	N/A	N/A
Antenna: Active Loop	ETS-Lindgren	6502	00062529	11/18/15	11/18/17
Coaxial Cable #103 - K MS MS 180cm Aqua	Micro-Coax	UFB142A-0-0720-200200	225363-002	08/05/15	08/05/17
Attenuator #27 - K 6dB 2W DC-40	Narda	4768-6	1044-3	06/25/15	06/25/17
EMI Test Receiver R & S ESU 40 Chamber	Rohde & Schwarz	ESU 40	100320	04/01/16	04/01/18
Antenna: Double-Ridged Horn 18-40 GHz	EMCO	3116	9011-2145	11/18/15	11/18/17
Coaxial Cable - Chamber 3 cable set	Micro-Coax	CHAM3PC	Chamber 3 cable set (Primary)	12/05/15	12/05/17
Pre-amp	RF-LAMBDA	RLNA00M45 GA	NA	01/04/16	01/04/18

### \*EMI RECEIVER SOFTWARE VERSION

The receiver firmware used was version 4.43 Service Pack 3