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FCC PART 15.247 & IC RSS-247

900MHz FHSS

TEST REPORT

Applicant	VERDANT ENVIRONMENTAL TECHNOLOGIES
Address	1850 55E AVENUE
	LACHINE QUEBEC H8T 3J5 CANADA
FCC ID	XEYWX
IC Certification Number	8410A-WX
Model Number	WX, VX
Product Description	THERMOSTAT
Date Sample Received	9/25/2017
Final Test Date	10/2/2017
Tested By	Tim Royer
Approved By	Sid Sanders

Report Number	Version Number	Description	Issue Date
871AYUT17TestReport	Rev1	Initial Issue	10/3/2017

**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.

Summary

The device under test does:

- ☒ Fulfill the general approval requirements as identified in this test report and was selected 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 requirements.

I attest that the necessary measurements were made at:

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



Tested by:

Name and Title: Tim Royer, Project Manager/Testing Engineer

Date: 10/02/2017



Reviewed and approved by: Name and Title: Sid Sanders, Engineer

Date: 10/03/17

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
FCC ID: XEYWX
IC: 8410A-WX
Report: 871YAAUT17TestReport_Rev1

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GENERAL INFORMATION

EUT Specification

Regulatory Standards	FCC Title 47 CFR Part 15.247 IC RSS-247 Issue 1 & RSS-GEN Issue 4		
FCC ID	XEYWX		
IC Certification Number	8410A-WX		
Model	WX, VX		
EUT Description	THERMOSTAT		
Modulation Types	FHSS		
Operating Frequency	TX: 902 - 928 MHz	RX: 902 – 928 MHz	
EUT Power Source	☐ 110–120Vac/50– 60Hz		
	☐ DC Power		
	☒ Battery Operated Exclusively		
Test Item	☐ Prototype	☒ Pre-Production	☐ Production
Type of Equipment	☒ Fixed	☐ Mobile	☐ Portable
Antenna Connector	None (Temporary Connector Provided for Testing)		
Antenna	Copper Wire Antenna		
Test Facility	Timco Engineering Inc. located at 849 NW State Road 45 Newberry, FL 32669 USA.		
Test Conditions	Temperature: 24-26°C Relative humidity: 50-65%		
Measurement Standard	ANSI C63.10-2013 FCC DA 00-705 ANSI C63.4-2014 (Radiated Site Validation)		
Test Exercise	The EUT was powered on and tuned to 3 places in the band.		

Test Supporting Equipment

Device	Manufacturer	Model	S/N	Supplied By	Used For
N/A					

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
			20 dB Bandwidth	Pass
15.247(a,1)	RSS-247 § 5.1	FHSS Requirements	Channel Separation	Pass
			Hopping Sequence	Pass
			System Receiver Bandwidth	Pass
			Number of Hopping Channels	Pass
			Hopping Channel Occupancy Time	Pass
15.247(b,1) & (b,4)	RSS-247 § 5.4.2	Peak Power Output	Peak Power Output (ERP)	Pass
			Antenna Gain (EIRP)	Pass
15.247(d)	RSS-247 § 5.5	Unwanted Emissions	Bandedge	Pass
			Radiated Spurious	Pass

Notes:

OCCUPIED BANDWIDTH

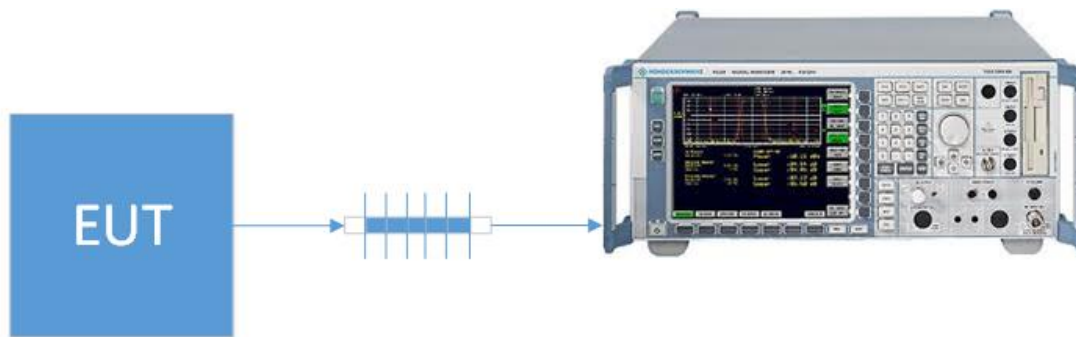
Rules Part No.: FCC 15.215(C), IC RSS 247 § 5.1.1, 5.1.1.3

FCC Requirements: The 20 dB bandwidth of the emission shall be contained within the frequency band designated in the rule section under which the equipment is operated.

IC Requirements: The maximum 20 dB bandwidth shall be 500 KHz

Test Method: ANSI C63.10 § 6.9.2 Occupied bandwidth-20dB Relative procedure

Setup:



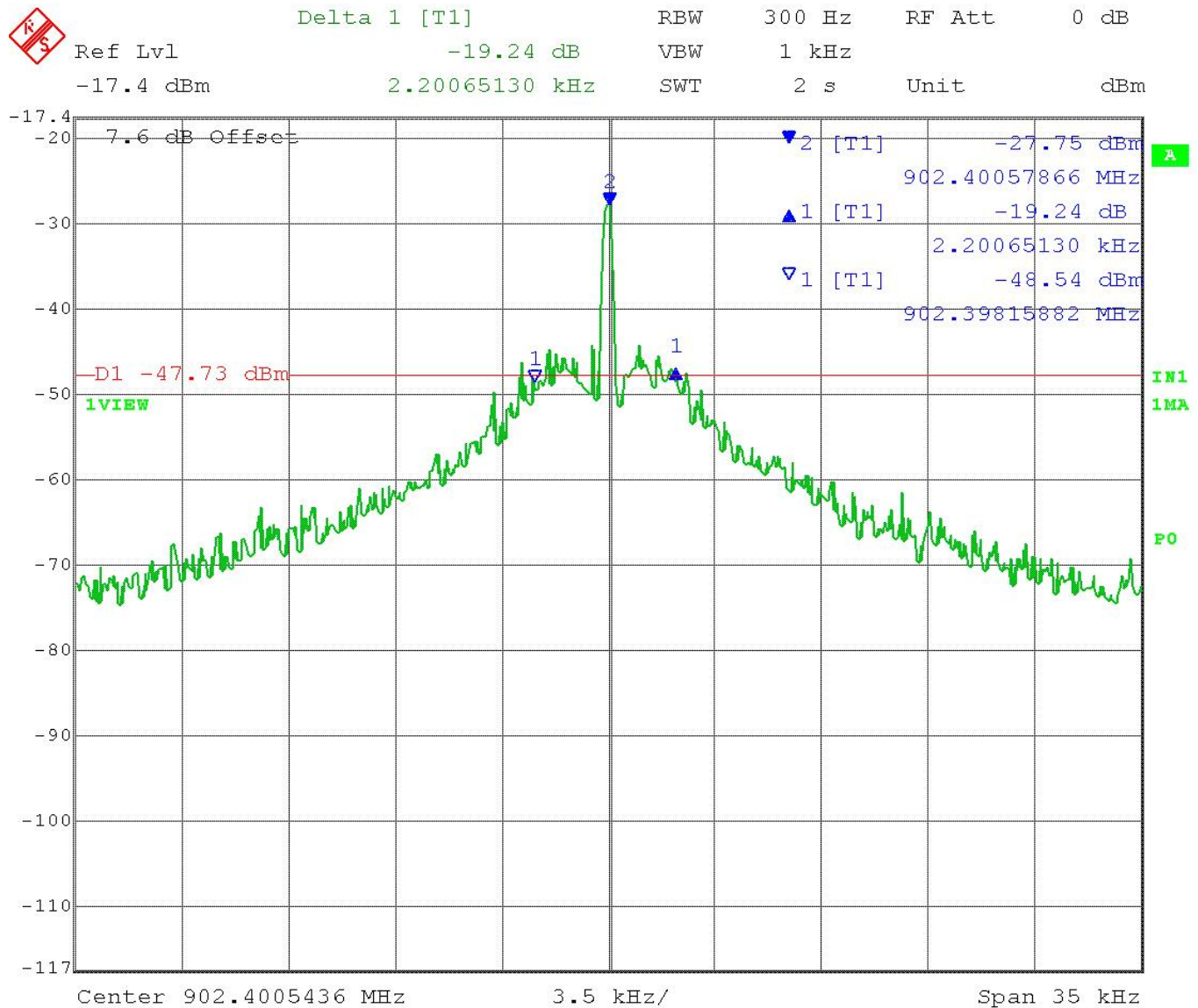
Test Data: 20 dB Occupied Bandwidth Measurement Table

Tuned Frequency (MHz)	20 dB BW (KHz)	Limit (KHz)	Margin (KHz)
902.4	2.2	≤ 500	497.8
915	5.05	≤ 500	494.95
927.6	6.58	≤ 500	493.42

RESULTS: Meets Requirements

OCCUPIED BANDWIDTH

Test Data: 20 dB OBW Low End of Band Plot



Date: 2.JUN.2017 08:47:15

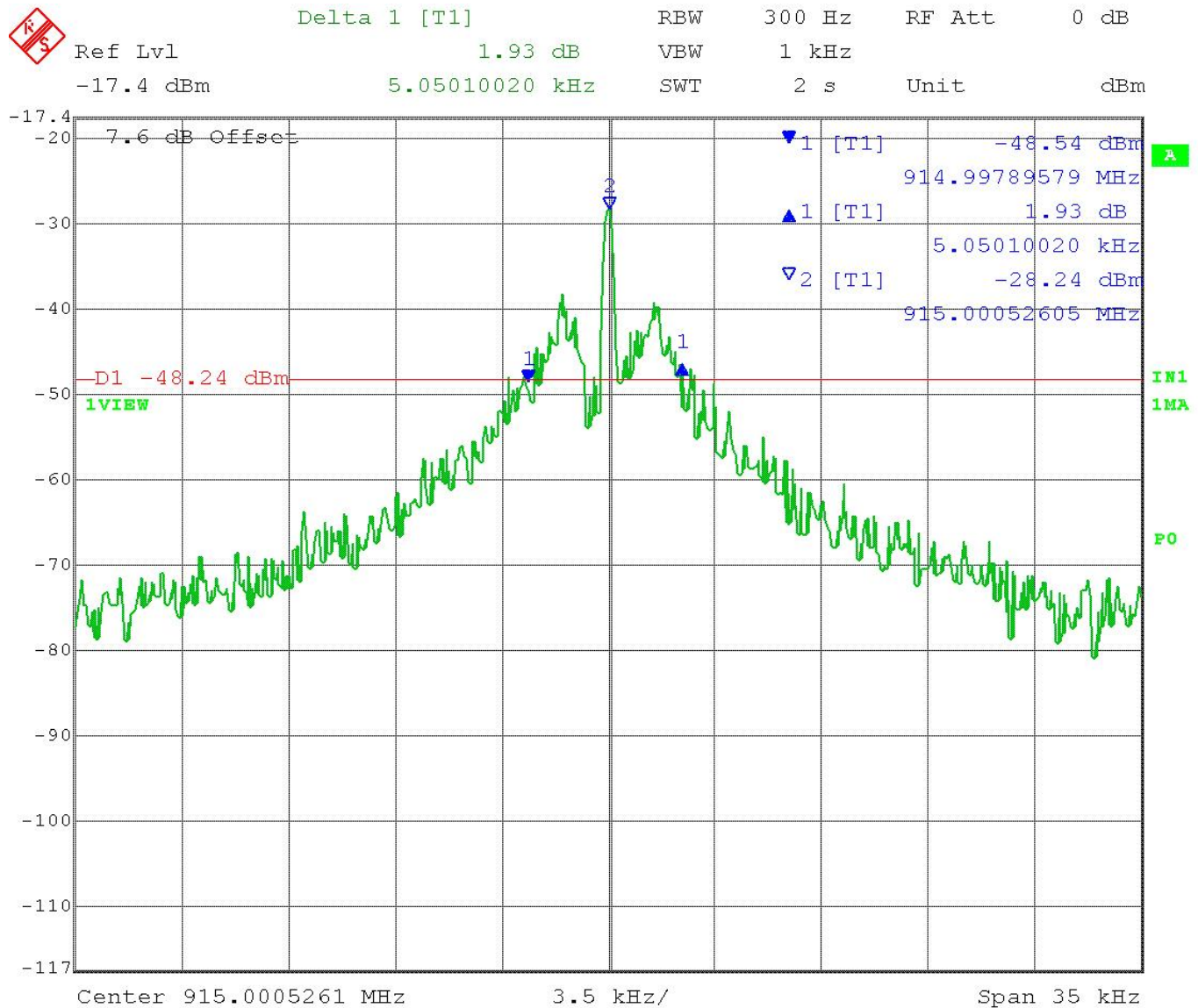
RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
FCC ID: XEYWX
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OCCUPIED BANDWIDTH

Test Data: 20 dB OBW Middle of Band Plot



Date: 2.JUN.2017 08:48:38

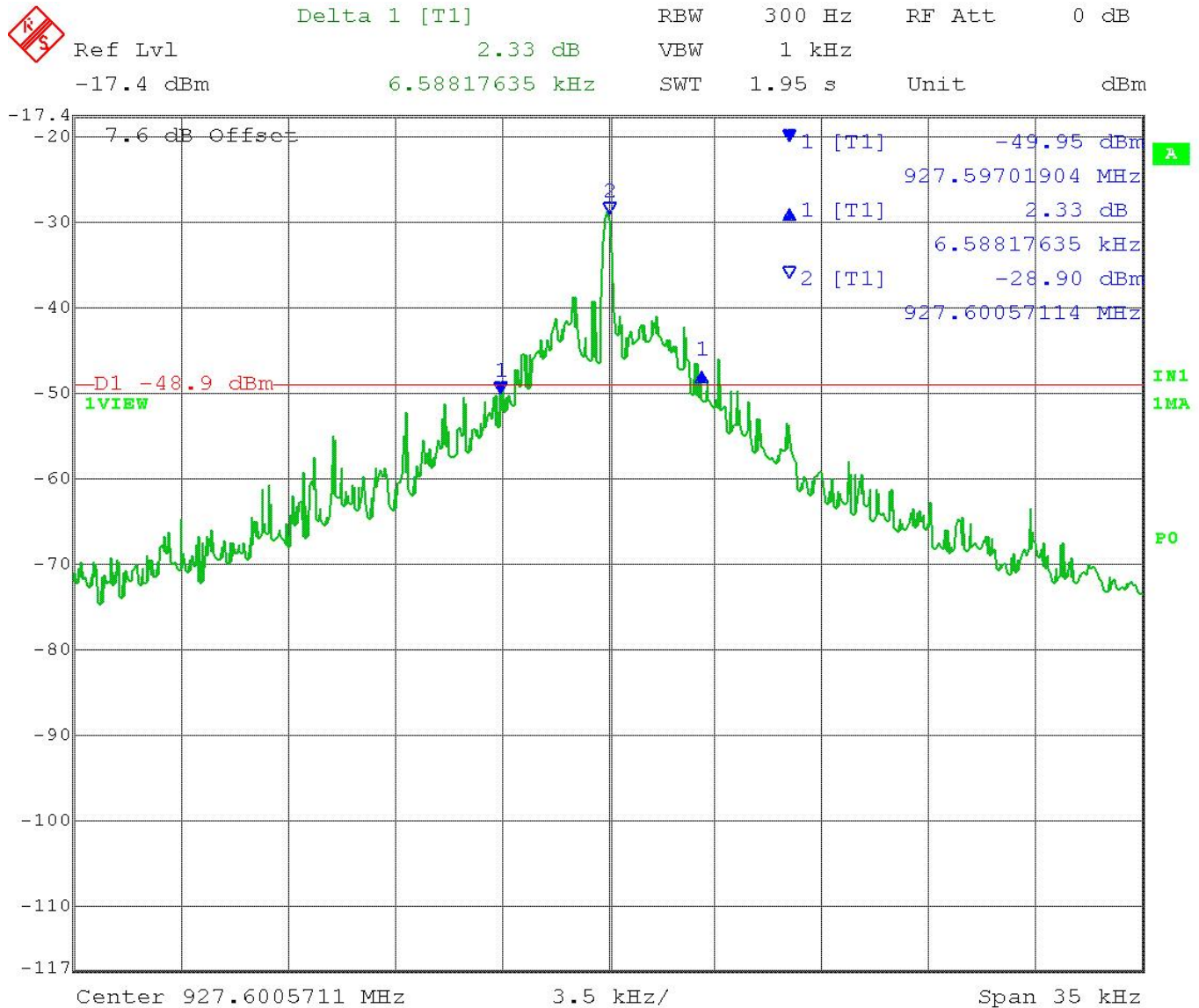
RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
FCC ID: XEYWX
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OCCUPIED BANDWIDTH

Test Data: 20 dB OBW High end of Band Plot



Date: 2.JUN.2017 08:06:32

RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
 FCC ID: XEYWX
 IC: 8410A-WX
 Report: 871YAAUT17TestReport_Rev1

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OCCUPIED BANDWIDTH FHSS REQUIREMENTS

Rules Part No.: FCC 15.247(a)(1), IC RSS 247 § 5.1.1, 5.1.2, 5.1.3

Requirements: **Maximum 20 dB Bandwidth**

The bandwidth of a frequency hopping channel is the -20 dB emission bandwidth, measured with the hopping stopped. The maximum 20 dB bandwidth of the hopping channel shall be 500 kHz.

Channel Separation

FHSS shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the -20 dB bandwidth of the hopping channel, whichever is greater.

Dwell Time and Number of Hopping Channels

If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping channels and the average time of occupancy on any channel shall not be greater than 0.4 seconds within a 20-second period. If the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping channels 0.4 seconds within a 10-second period.

Hopping Sequence

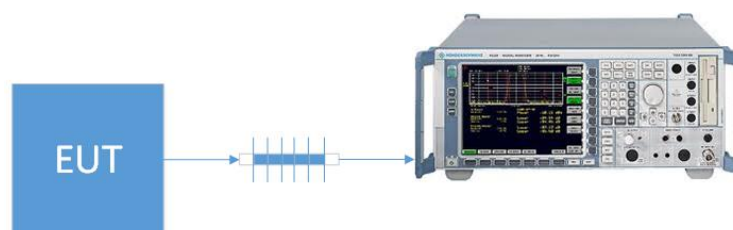
The hopset shall be such that the near-term distribution of frequencies appears random, with sequential hops randomly distributed in both direction and magnitude of change in the hopset, whereas the long-term distribution appears evenly distributed.

Receiver Input Bandwidth

The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Test Method: ANSI C63.10 § 7.8.2 Carrier frequency separation
ANSI C63.10 § 7.8.3 Number of hopping frequencies
ANSI C63.10 § 7.8.3 Time of Occupancy
DA 00-705 § Pseudorandom Frequency Hopping Sequence
DA 00-705 § Equal Hopping Frequency Use
DA 00-705 § System Receiver Input Bandwidth

Setup:



Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
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FHSS REQUIREMENTS

Test Data: FHSS Channel Separation Measurement Table

Separation (KHz)	Limit (KHz)	Pass / Fail
404.8	25	Pass

Test Data: Number of Hopping Channels Measurement Table

Number of channels	Limit	Pass / Fail
64	≥ 50	Pass

Test Data: Hopping Channel Occupancy Time Measurement Table

Number of Tx in Period	Burst Length (mS)	Occupancy Time (Sec)	Limit (sec)	Pass / Fail
12	6.57	0.078	≤ 0.4	Pass

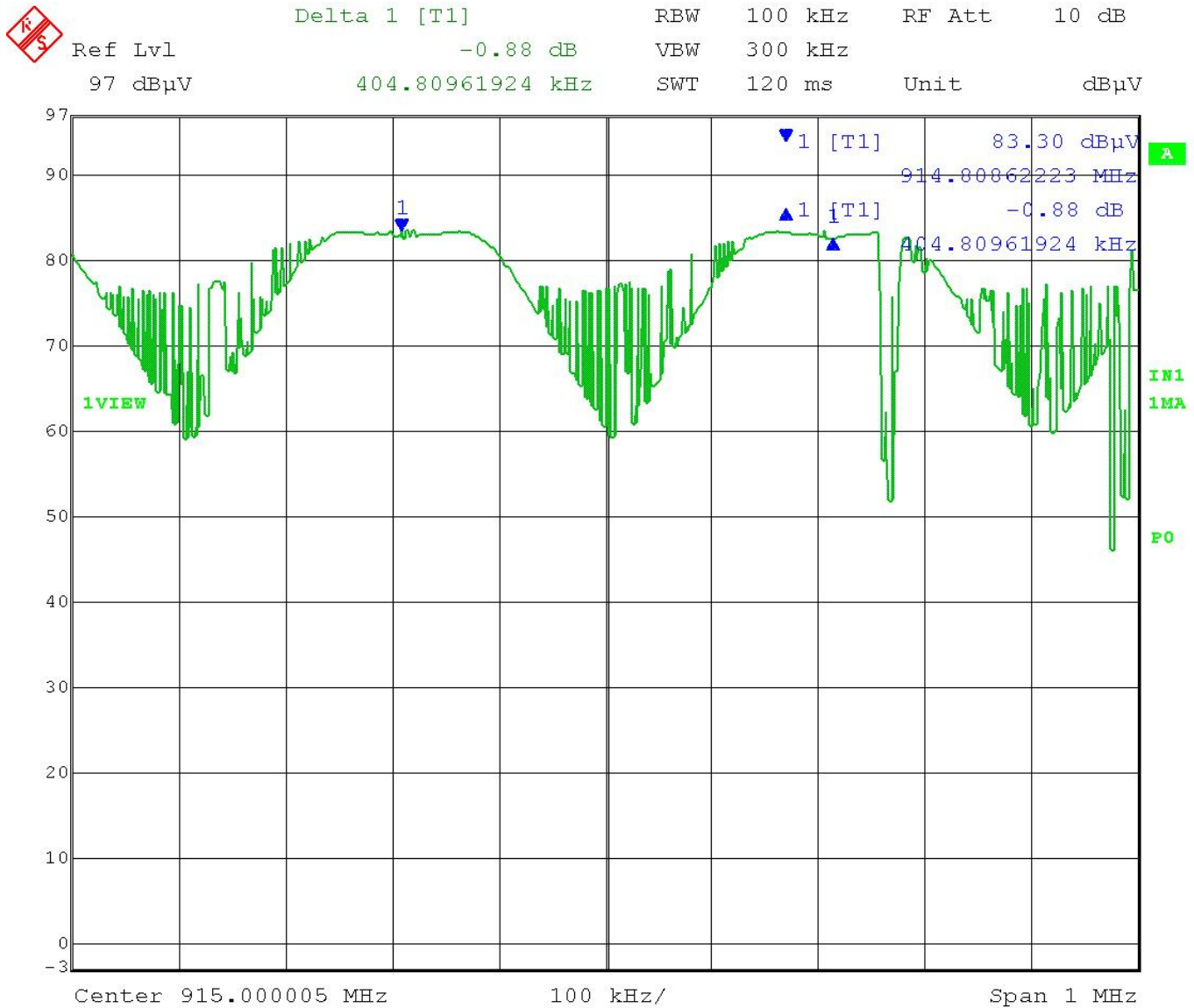
Test Data: FHSS Hopping Sequence and Receiver Bandwidth Verification

Requirement	Supporting Documentation	Pass / Fail
Pseudorandom Hopping Sequence	Operational Description provided by applicant	Pass
Equal Frequency Use		Pass
Receiver Input Bandwidth		Pass

RESULTS: Meets Requirements

FHSS REQUIREMENTS

Test Data: Channel Separation Plot



Date: 5.JUN.2017 10:05:10

RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
FCC ID: XEYWX
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Report: 871YAAUT17TestReport_Rev1

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FHSS REQUIREMENTS

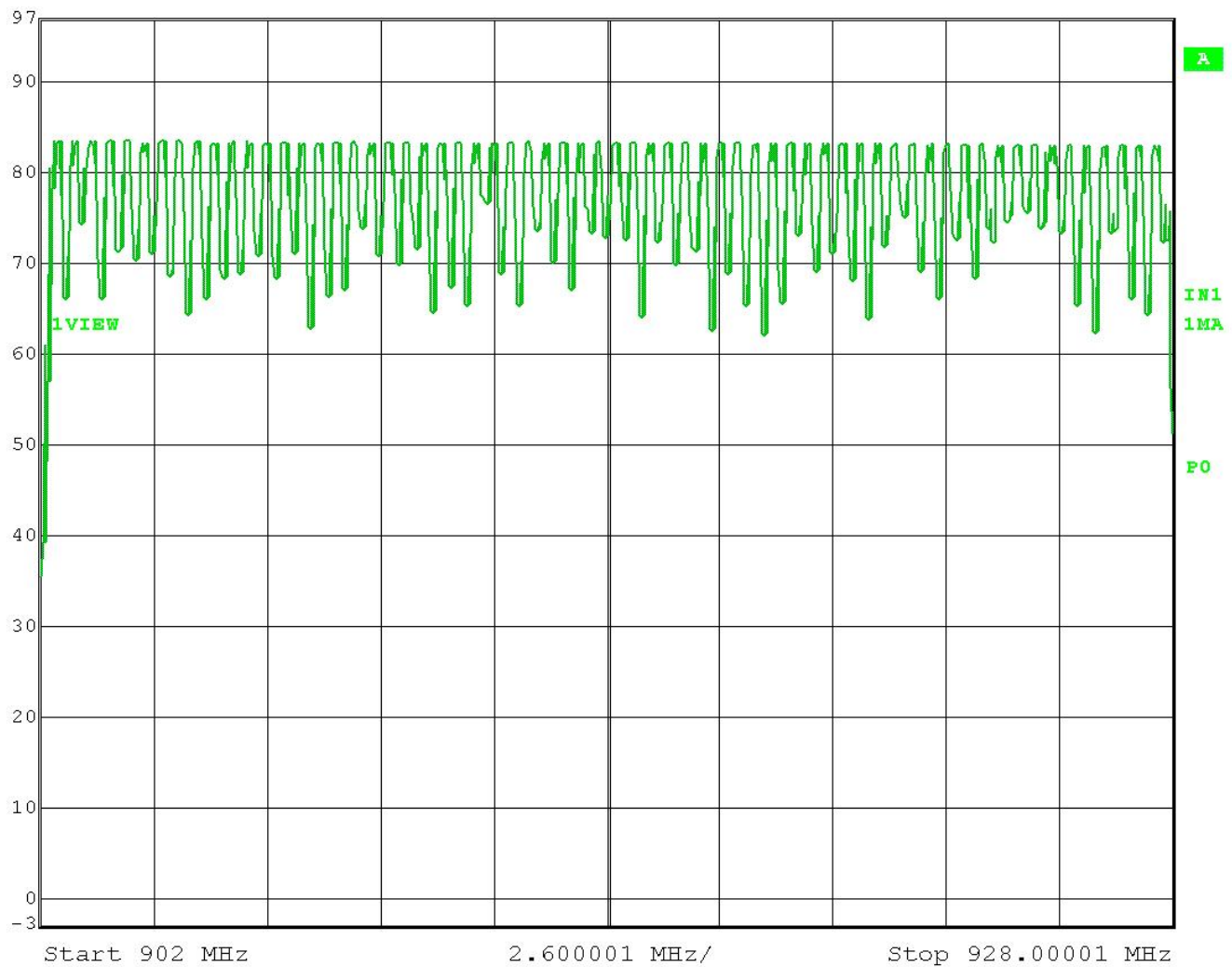
Test Data:

Number of Hopping Channels Plot



Ref Lvl
97 dBμV

RBW 100 kHz RF Att 10 dB
VBW 300 kHz
SWT 120 ms Unit dBμV



Date: 5.JUN.2017 09:50:28

RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
FCC ID: XEYWX
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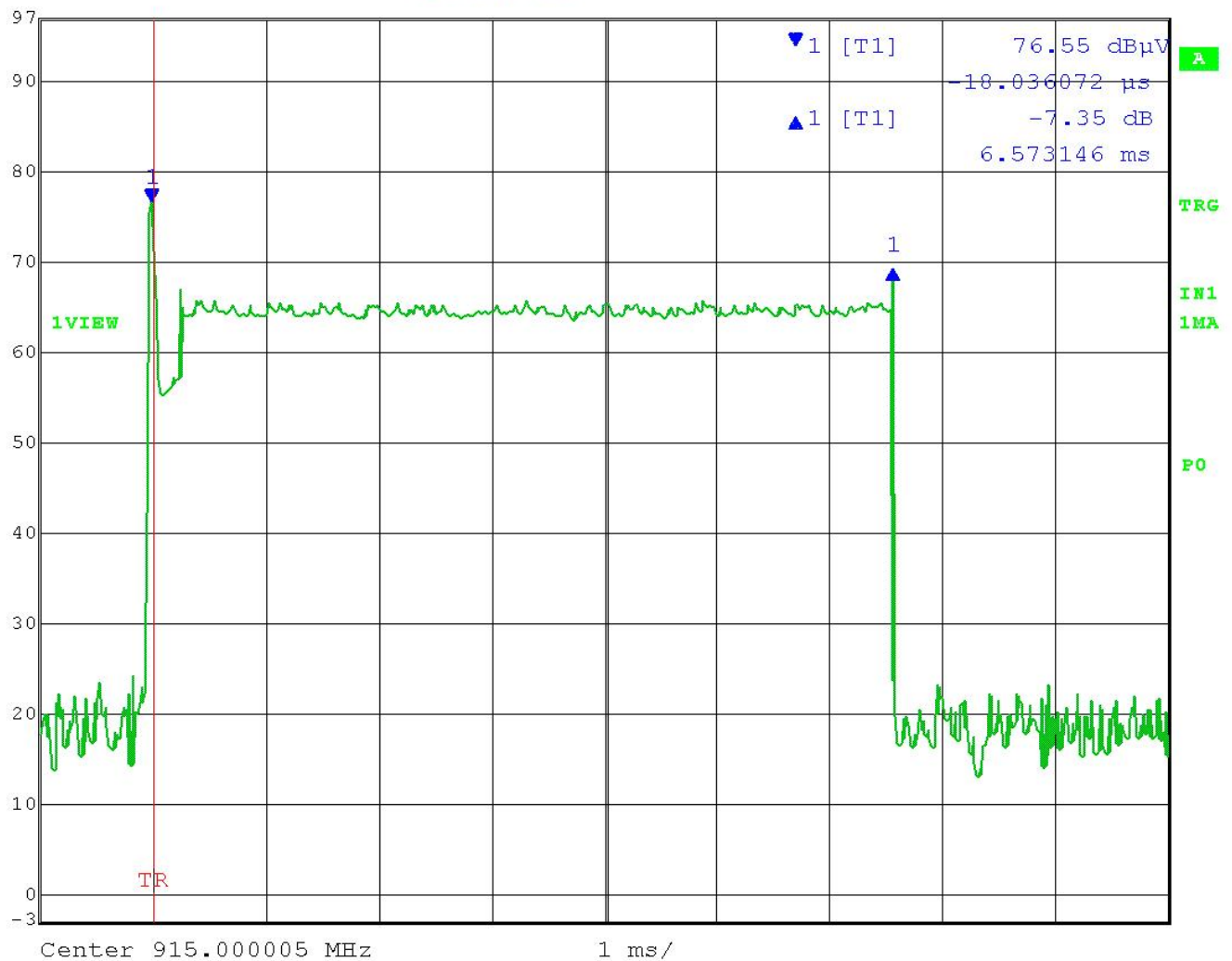
FHSS REQUIREMENTS

Test Data:

Channel Occupancy Time Plot



Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	10 dB
97 dBμV	-7.35 dB	VBW	300 kHz		
	6.573146 ms	SWT	10 ms	Unit	dBμV



Date: 5.JUN.2017 10:08:13

RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
 FCC ID: XEYWX
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 Report: 871YAAUT17TestReport_Rev1

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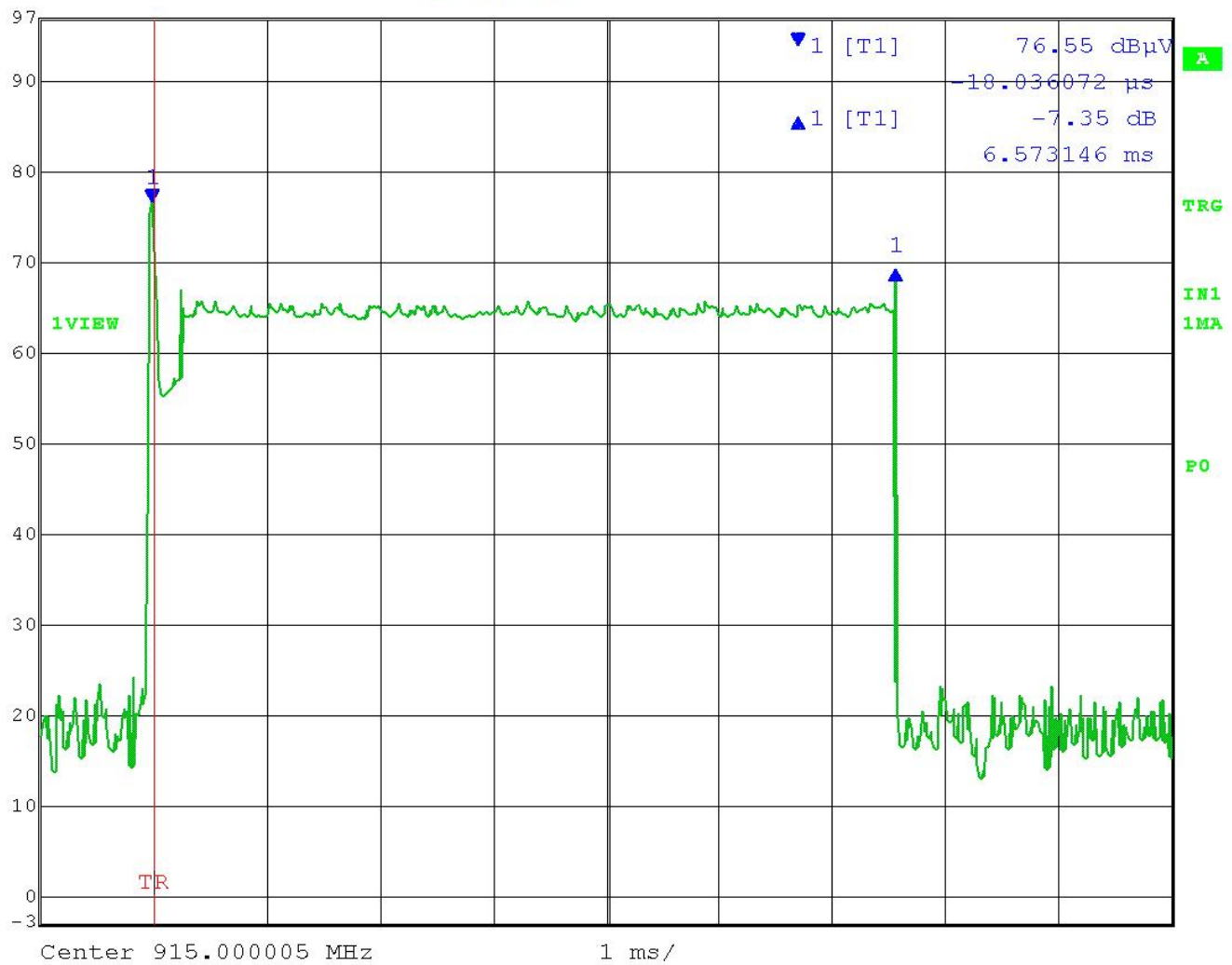
FHSS REQUIREMENTS

Test Data:

Burst Length Plot



Ref Lvl	Delta 1 [T1]	RBW	100 kHz	RF Att	10 dB
97 dBμV	-7.35 dB	VBW	300 kHz		
	6.573146 ms	SWT	10 ms	Unit	dBμV



Date: 5.JUN.2017 10:08:13

RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
 FCC ID: XEYWX
 IC: 8410A-WX
 Report: 871YAAUT17TestReport_Rev1

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PEAK POWER OUTPUT

Rules Part No.: FCC 15.247(b) (2) (4), IC RSS 247 § 5.4.1

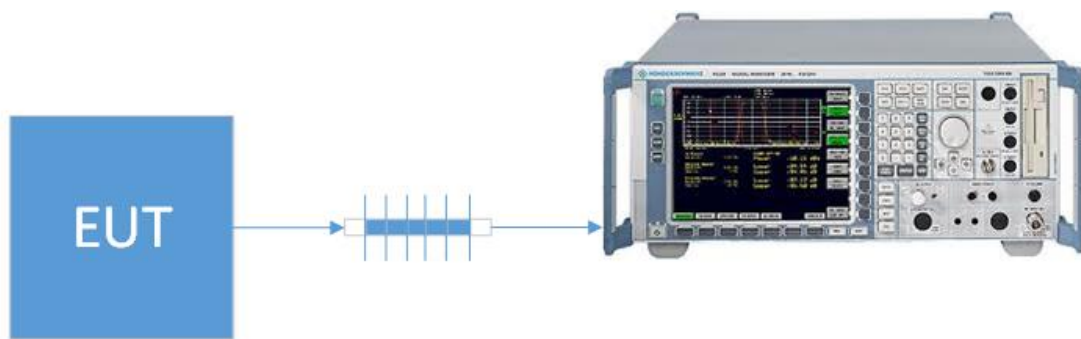
Requirements:

FHSS Using Hopset ≥ 50 Channels

The maximum peak conducted output power shall not exceed 1.0 W, and the e.i.r.p. shall not exceed 4 W if the hopset uses 50 or more hopping channels.

Test Method: ANSI C63.10 § 7.8.5 Output Power test procedure for FHSS

Setup:



PEAK POWER OUTPUT

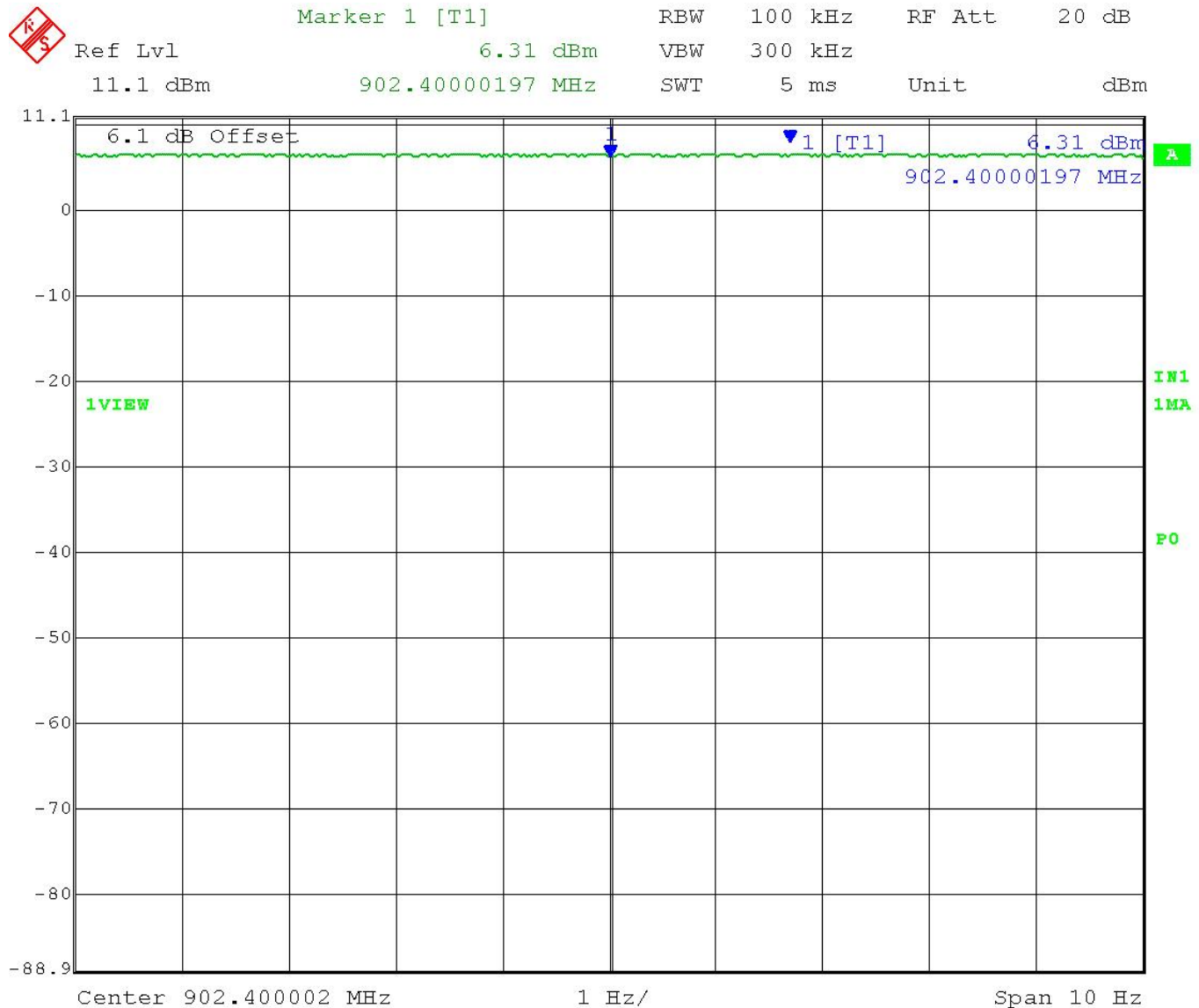
Test Data: **Peak Power Output Measurement Table**

Peak Conducted Power Output Measurement				
Tuned Frequency (MHz)	PConducted (dBm)	PConducted (W)	Limit (W)	Margin (W)
902.4	6.31	0.00428	1.00	0.99572
915	6.46	0.00443	1.00	0.99557
927.6	6.02	0.00400	1.00	0.99600
Peak EIRP Power Output Calculation				
Tuned Frequency (MHz)	PConducted (dBm)	EIRP (W)	Limit (W)	Margin (W)
902.4	6.31	0.00701	4.00	3.99299
915	6.46	0.00726	4.00	3.99274
927.6	6.02	0.00656	4.00	3.99344

RESULTS: Meets Requirements

PEAK POWER OUTPUT

Test Data: Low End of Band Peak Conducted Power Plot



Date: 21.JUN.2017 13:15:16

RESULTS: Meets Requirements

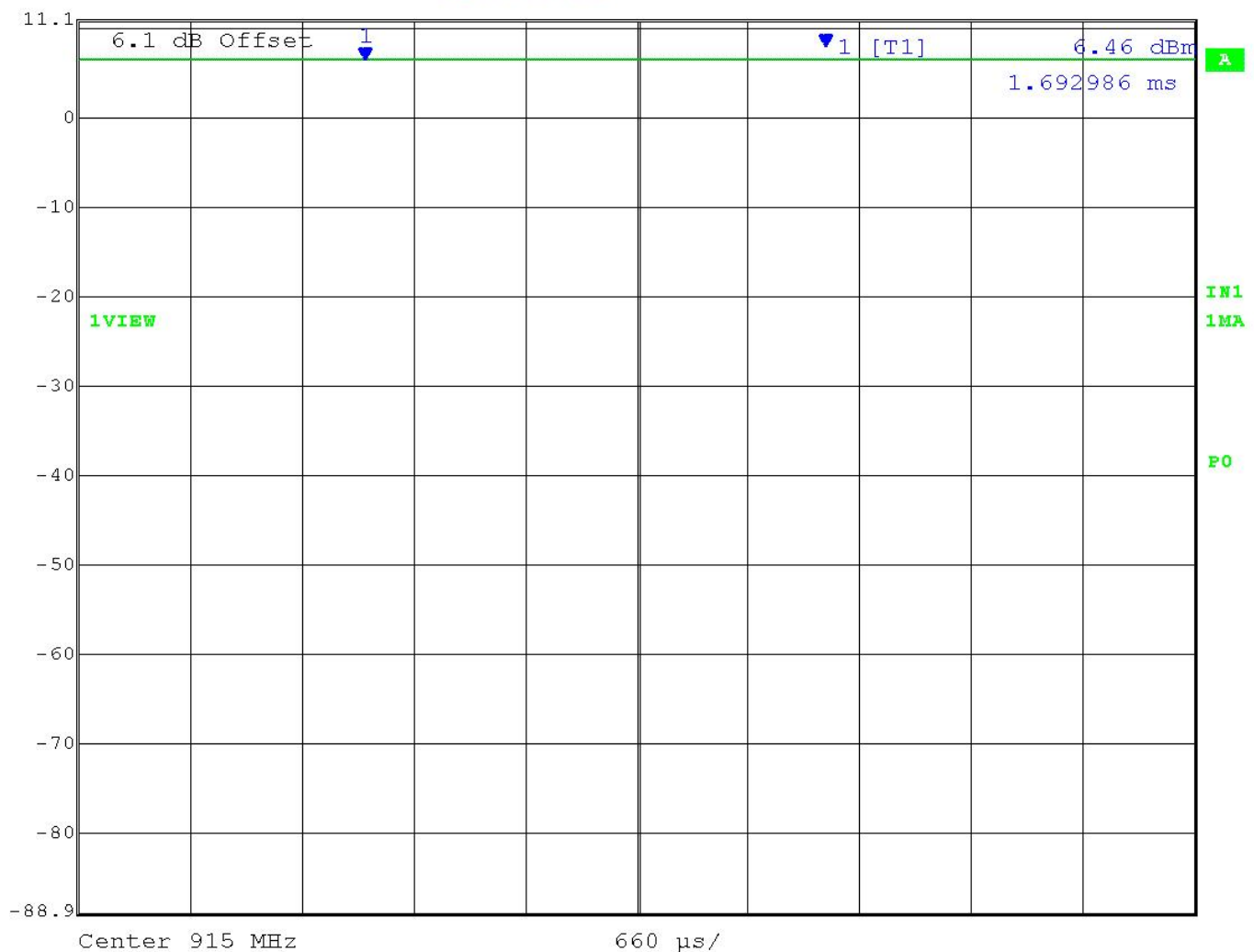
Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
 FCC ID: XEYWX
 IC: 8410A-WX
 Report: 871YAAUT17TestReport_Rev1

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PEAK POWER OUTPUT

Test Data: Middle of Band Peak Conducted Power Plot


 Ref Lvl 11.1 dBm
 Marker 1 [T1] 6.46 dBm
 RBW 100 kHz
 RF Att 20 dB
 VBW 300 kHz
 1.692986 ms
 SWT 6.6 ms
 Unit dBm



Date: 21.JUN.2017 13:14:03

RESULTS: Meets Requirements

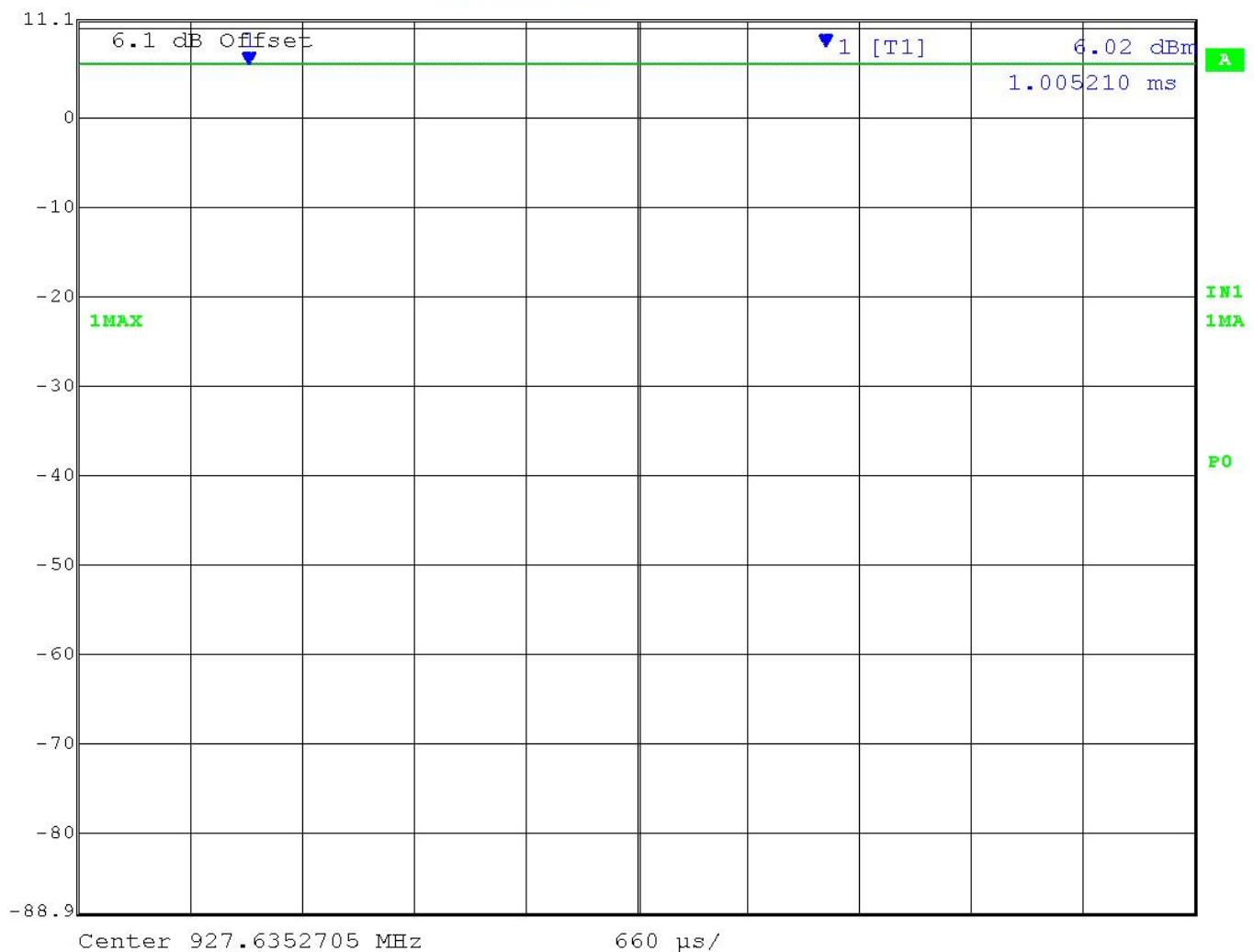
Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
 FCC ID: XEYWX
 IC: 8410A-WX
 Report: 871YAAUT17TestReport_Rev1

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PEAK POWER OUTPUT

Test Data: High End of Band Peak Conducted Power Plot


 Ref Lvl 11.1 dBm
 Marker 1 [T1] 6.02 dBm
 RBW 100 kHz
 RF Att 20 dB
 VBW 300 kHz
 1.005210 ms
 SWT 6.6 ms
 Unit dBm



Date: 21.JUN.2017 13:12:50

RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
 FCC ID: XEYWX
 IC: 8410A-WX
 Report: 871YAAUT17TestReport_Rev1

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PEAK POWER OUTPUT

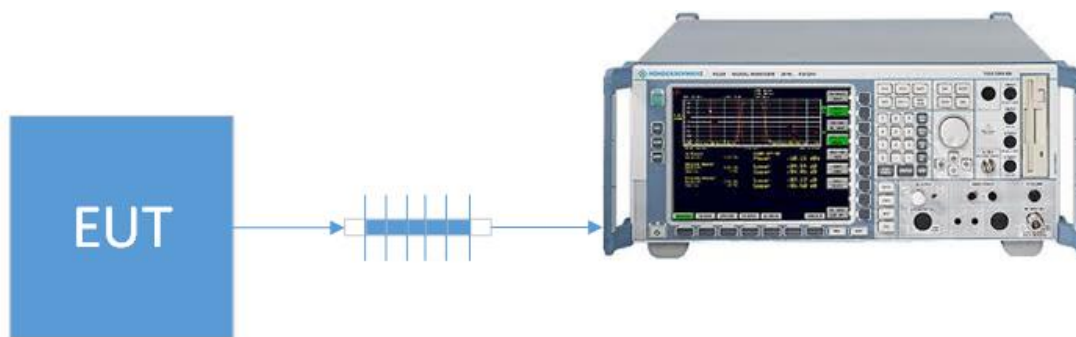
BANDEDGE

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

Requirements: Emissions must be at least 20dB down from the highest emission level Within the authorized band as measured with a 100 kHz RBW, additionally adjacent restricted band edge emissions must comply with 15.209 and RSS-GEN 8.9 limits.

Test Method: ANSI C63.10 § 6.10.4 Authorized band-edge relative method

Setup:



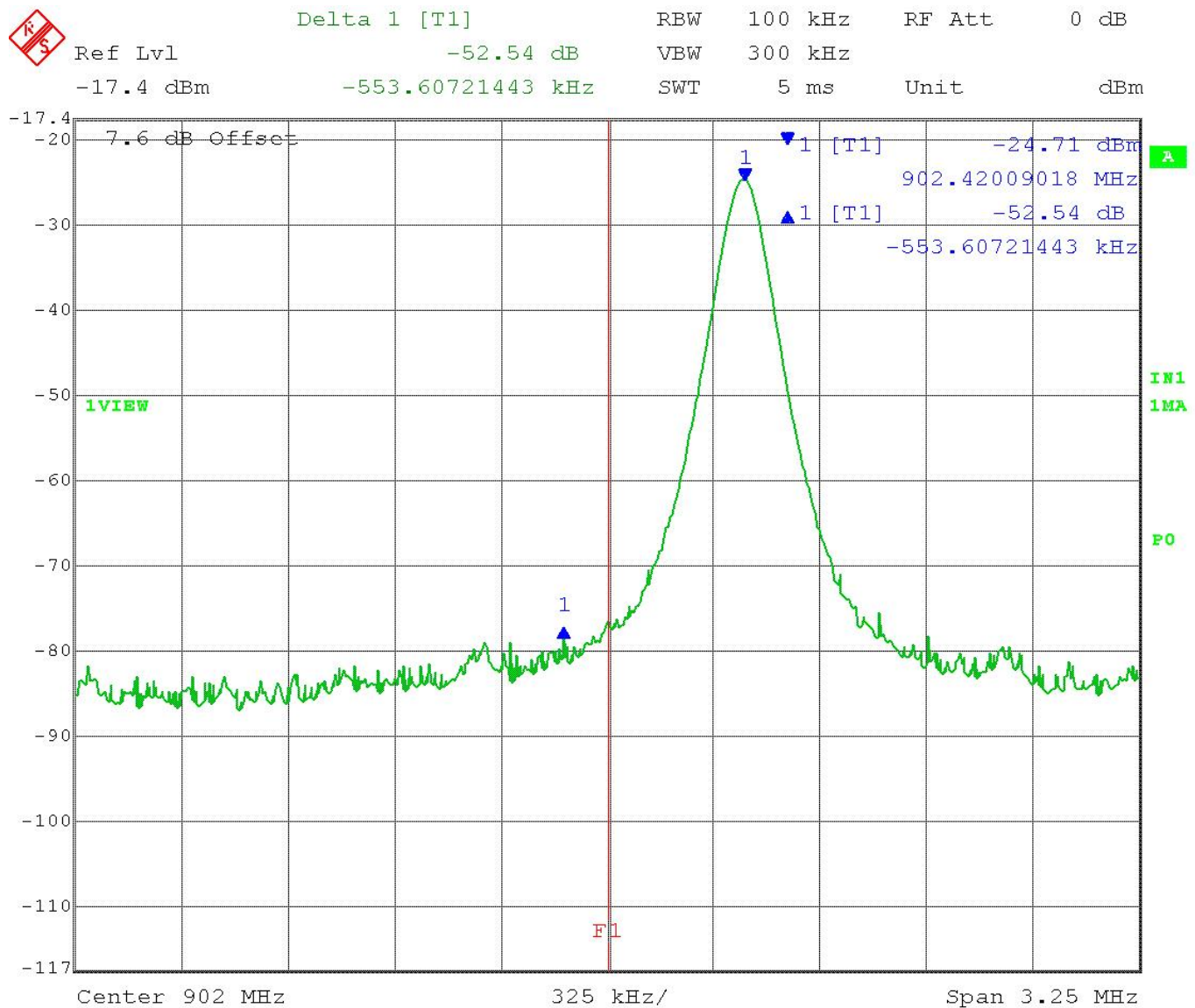
Test Data: **Bandedge Measurement Table**

Bandedge	Tuned Frequency (MHz)	Measured Level (dBc)	Limit (dBc)	Margin (dB)
Upper	927.6	48.16	20	28.16
	Hopping	-21.68	20	1.68
Lower	902.42	52.54	20	32.54
	Hopping	30.79	20	10.79

RESULTS: Meets Requirements

BANDEDGE

Data: Low End of Band Lower Band Edge Plot



Date: 2.JUN.2017 09:21:02

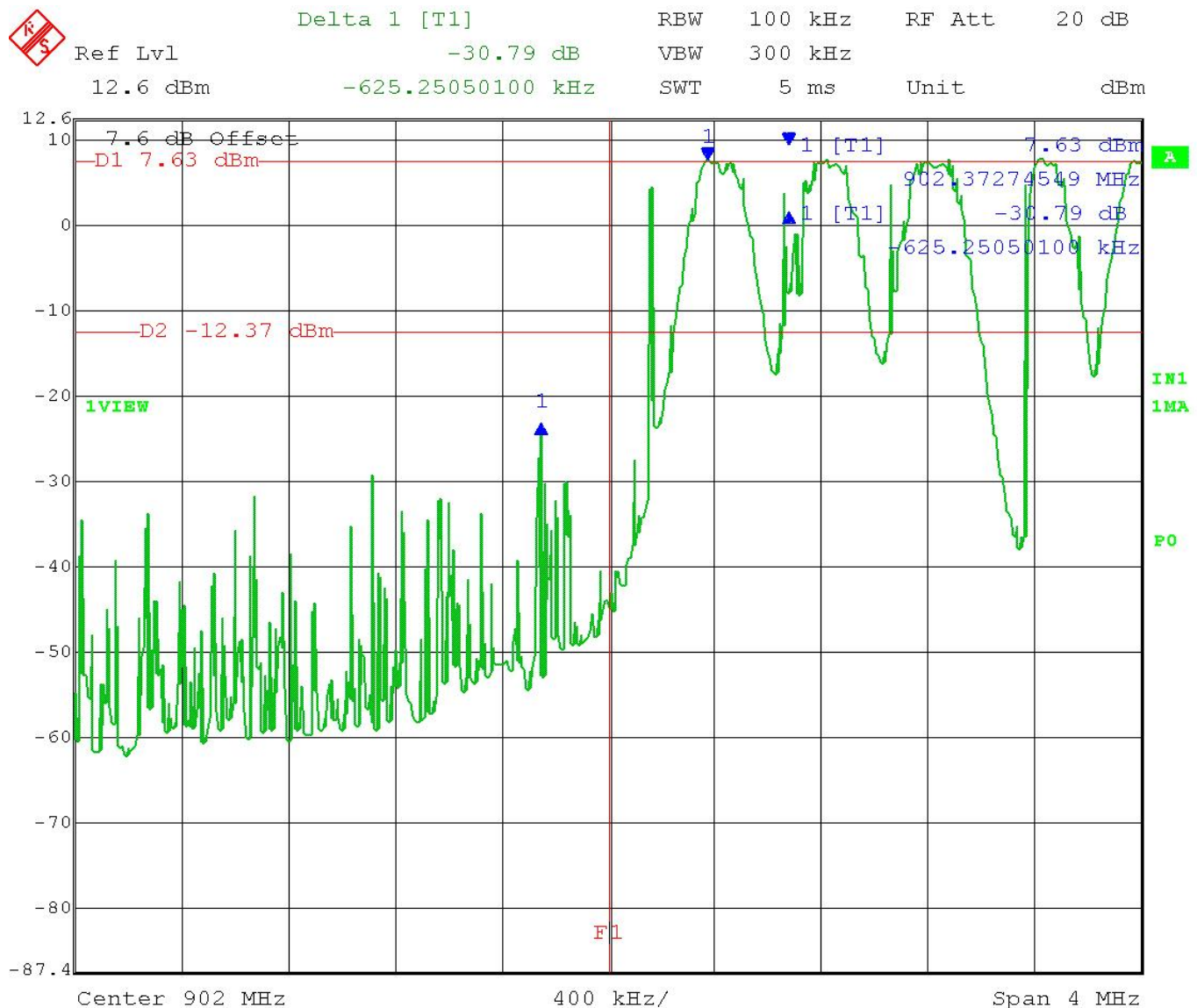
RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
 FCC ID: XEYWX
 IC: 8410A-WX
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BANDEDGE

Data: Hopping Lower Band Edge Plot



Date: 13.JUN.2017 10:26:36

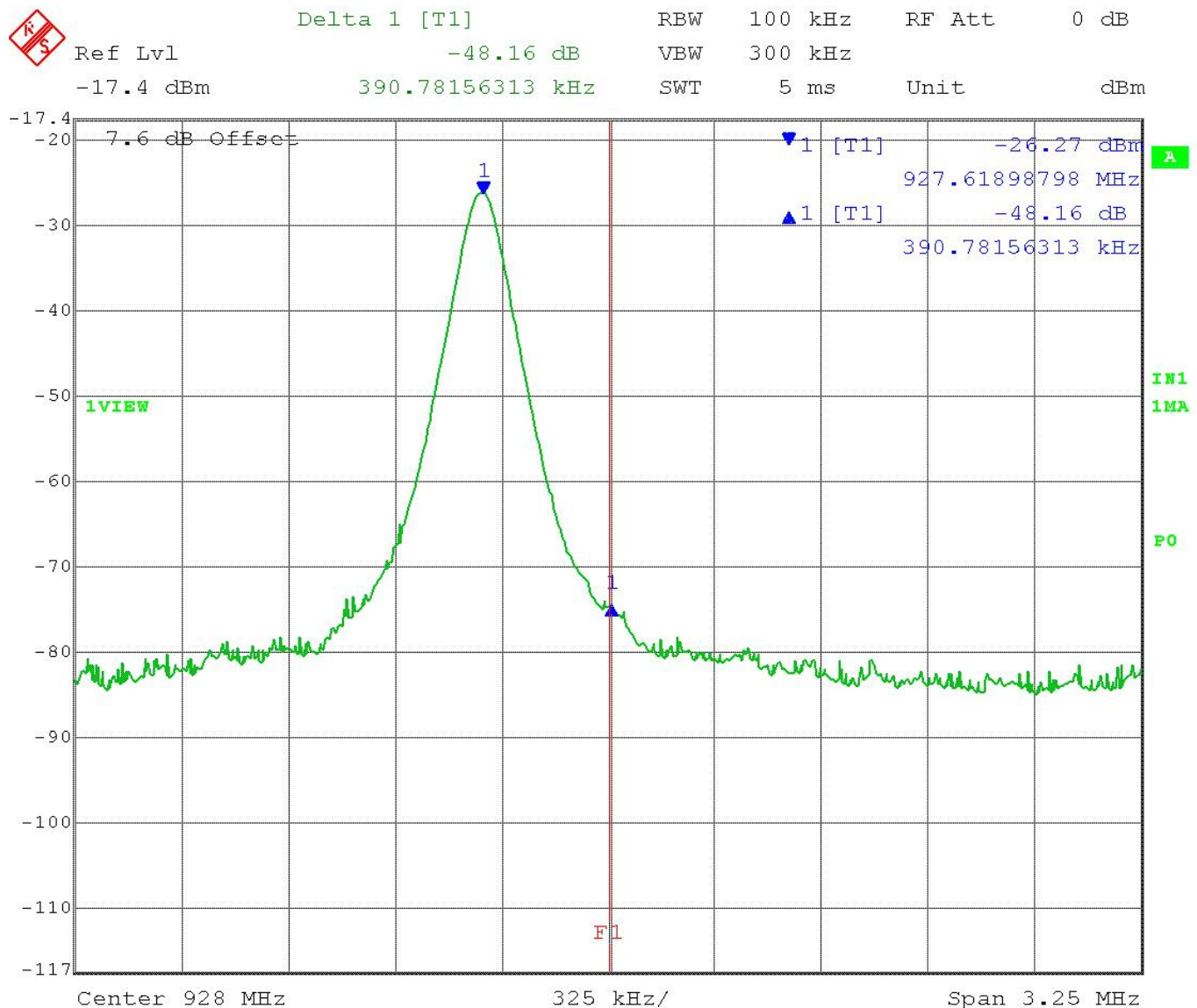
RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
 FCC ID: XEYWX
 IC: 8410A-WX
 Report: 871YAAUT17TestReport_Rev1

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BANDEDGE

Data: High End of Band Upper Band Edge Plot



Date: 2.JUN.2017 09:20:00

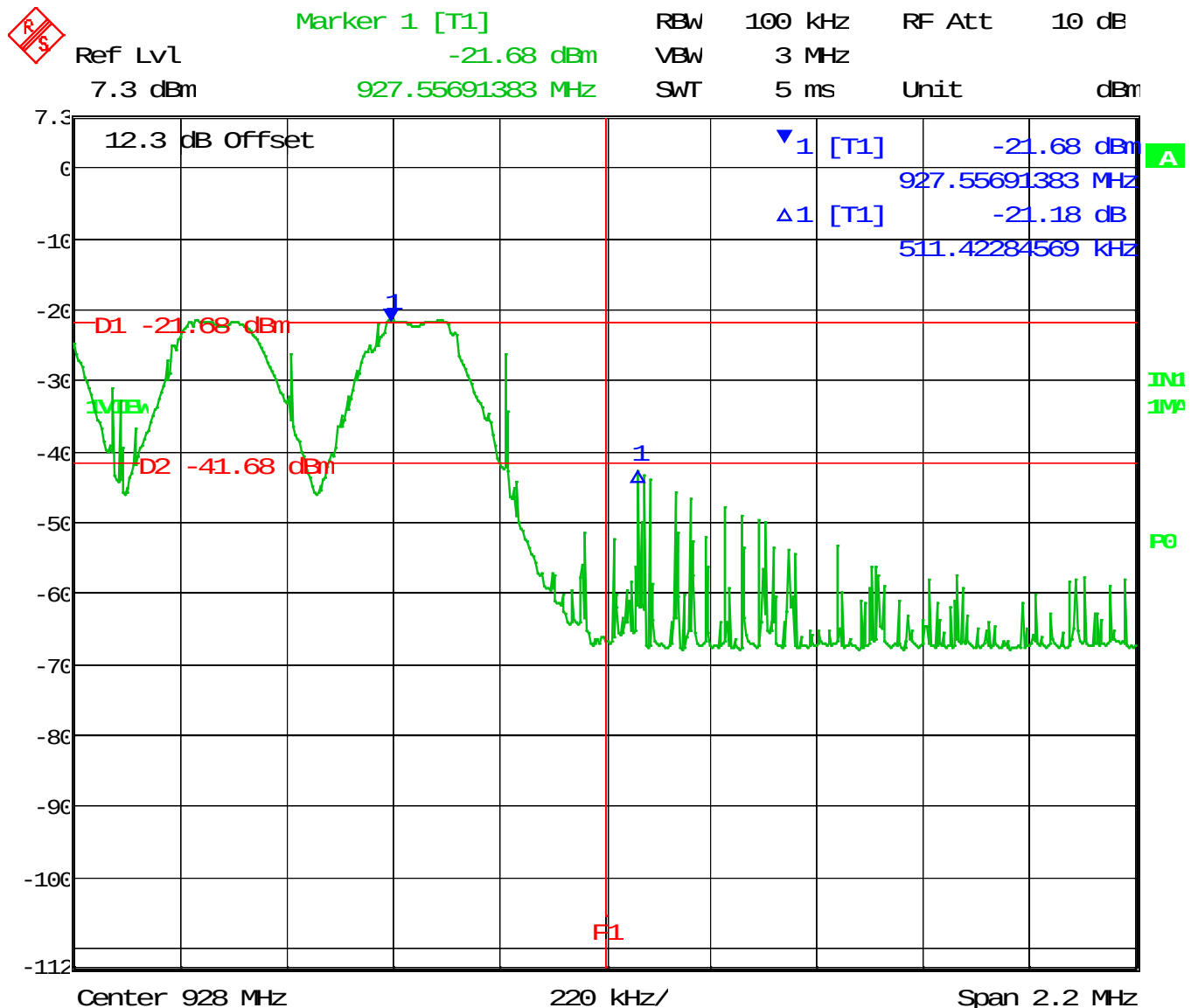
RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
 FCC ID: XEYWX
 IC: 8410A-WX
 Report: 871YAAUT17TestReport_Rev1

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BANDEDGE

Data: Hopping Upper Band Edge Plot



Date: 3.OCT.2017 13:36:04

RESULTS: Meets Requirements

Applicant: VERDANT ENVIRONMENTAL TECHNOLOGIES
 FCC ID: XEYWX
 IC: 8410A-WX
 Report: 871YAAUT17TestReport_Rev1

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DUTY CYCLE

Requirements: There are no requirements for the duty cycle; it is measured to determine compliance with the periodic operation average emission limits and the automatic transmission on time requirement.

Procedure: ANSI C63.10 § 7.5 Average value of pulsed emissions

Formula: $\delta \text{ (dB)} = 20 \log [\Sigma(n_1t_1 + n_2t_2 + n_3t_3) / T]$

Where:

δ is the duty cycle correction factor (dB)

T is the pulse is the period that the pulses are averaged over, (100 ms period).

t_1 is the pulse width of subpulse 1

t_2 is the pulse width of subpulse 2

t_3 is the pulse width of subpulse 3

n_1 is the number of t_1 pulses

n_2 is the number of t_2 pulses

n_3 is the number of t_3 pulses

Test Data: Calculation of Duty Cycle

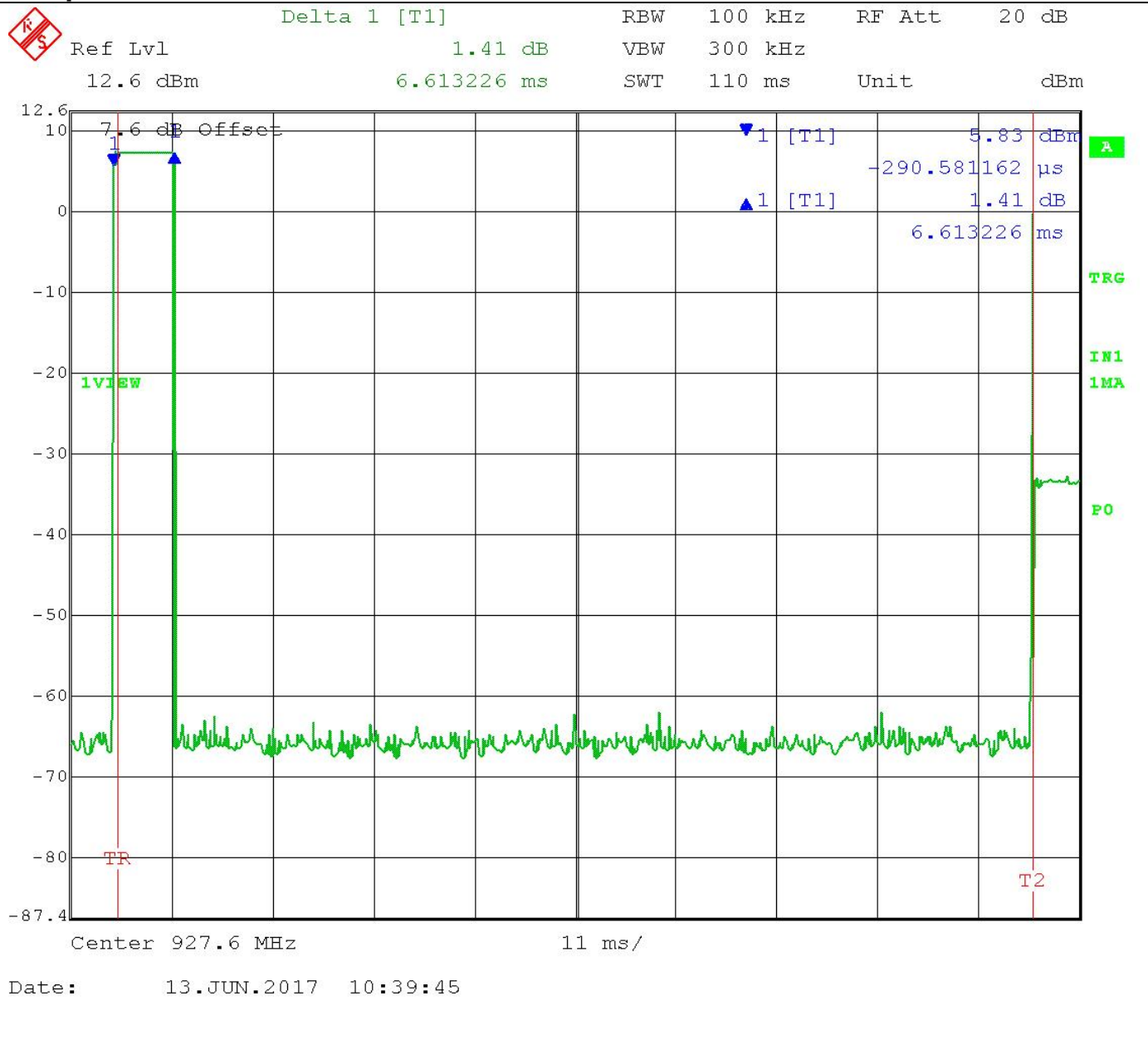
Sub Pulse	Duration (ms)	Number	On Time (ms)
1	6.59	1	6.59
		Total On Time (ms)	6.59
		Period (ms)	100
		Duty Cycle (%)	7%
		Cor Factor (dB)	-23.62

See the following plots.

DUTY CYCLE

Test Data: 100 ms Number of Pulses Plot

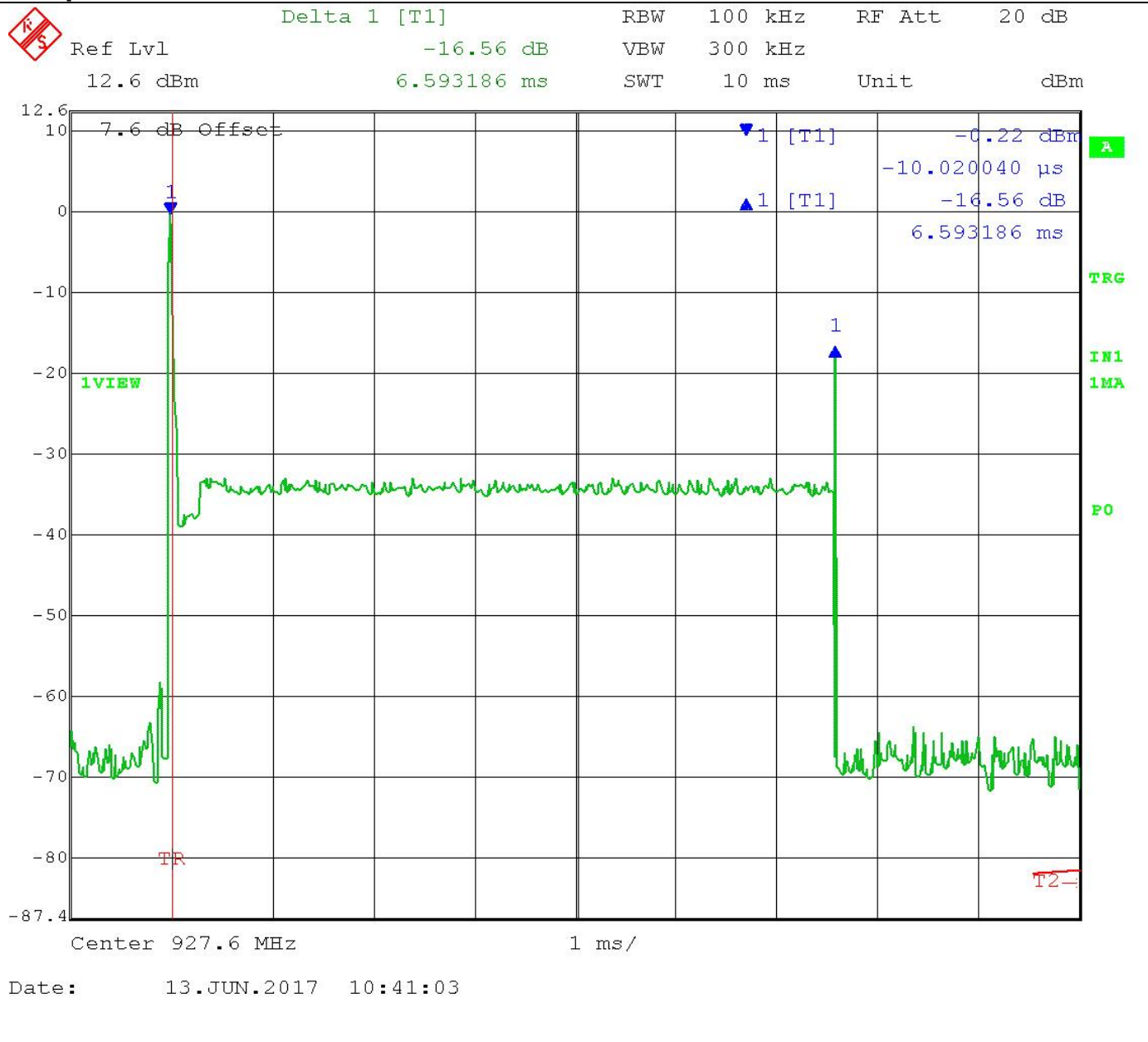
Subpulse 1 = 6.59 ms



DUTY CYCLE

Test Data: SubPulse 1 Duration Plot

Subpulse 1 Duration = 6.59 ms



BANDEDGE

RADIATED SPURIOUS EMISSIONS

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

Requirements: Emissions found in restricted bands the levels 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) $\mu\text{V/m}$ @ 300 meters
490 to 1705 kHz	24000/F (kHz) $\mu\text{V/m}$ @ 30 meters
1705 kHz to 30 MHz	29.54 dB $\mu\text{V/m}$ @ 30 meters
30 – 88	40.0 dB $\mu\text{V/m}$ @ 3 meters
80 – 216	43.5 dB $\mu\text{V/m}$ @ 3 meters
216 – 960	46.0 dB $\mu\text{V/m}$ @ 3 meters
Above 960	54.0 dB $\mu\text{V/m}$ @ 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 μV) 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.

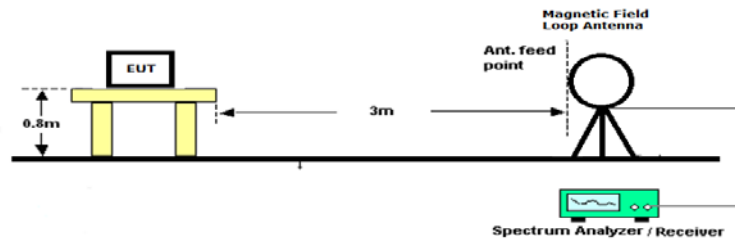
Example:

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

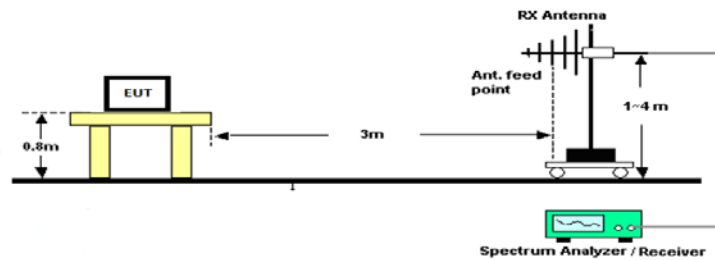
RADIATED SPURIOUS EMISSIONS

Setup:

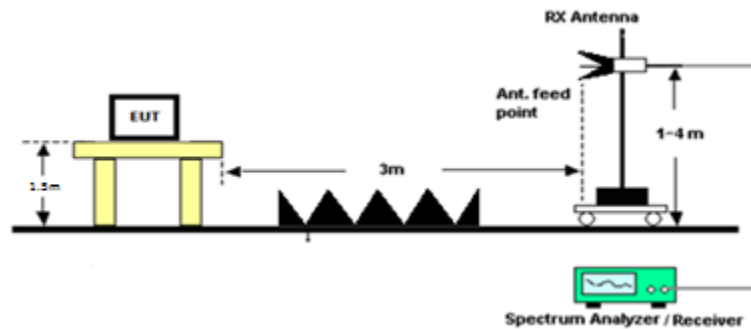
Emissions below 30 MHz



Emissions 30 – 1000 MHz



Emissions above 1 GHz



RADIATED SPURIOUS EMISSIONS

Notes: The EUT was checked in three orthogonal planes as required, a setup photo is provided to show the orientation of the worst case position.

Only the worst case data rate and Output Power which produced emissions within 20dB of the limit are reported.

The spectrum was measured from 9 KHz to 10 GHz

Test Data: Field Strength at 3 Meters Measurement Table

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
Hopping	0.04	21.00	V	0.17	13.00	34.17	5.83
Hopping	0.15	22.30	V	0.08	11.35	33.73	6.27
Hopping	15.41	10.2	H	0.72	10.38	21.25	18.75
Hopping	29.57	10.3	H	0.70	8.48	19.52	20.48
Hopping	30.55	25.3	V	0.63	12.62	38.57	1.43
Hopping	35.99	26.3	H	0.68	12.91	39.88	0.12
Hopping	59.70	25.7	V	0.91	7.52	34.11	5.89
Hopping	67.87	26.6	H	0.98	6.10	33.63	6.37
Hopping	88.03	25.7	V	1.11	10.40	37.18	6.32
Hopping	94.84	25.9	V	1.14	10.98	38.03	5.47
Hopping	113.91	26.8	H	1.24	10.30	38.34	5.16
Hopping	140.34	26.1	V	1.36	15.40	42.84	0.66
Hopping	16.20	1.39	H	16.30	33.89	9.61	16.20
Hopping	181.47	26.1	V	1.53	13.91	41.53	1.97
Hopping	197.82	16.40	H	1.59	16.63	34.62	8.88
Hopping	244.87	25.4	H	1.82	11.59	38.76	88.62
Hopping	260.26	37.1	V	1.89	12.52	51.51	75.87
Hopping	388.46	26.0	H	2.25	14.84	43.08	84.30
Hopping	524.36	36.3	V	2.65	17.27	56.22	71.16
Hopping	626.92	26.0	H	2.88	18.84	47.72	79.66
Hopping	779.49	36.8	V	3.21	22.67	62.63	64.75
Hopping	855.13	25.8	H	3.35	22.70	51.82	75.56
Hopping	946.89	16.60	V	3.53	23.03	43.16	2.84
Hopping	947.01	17.70	V	3.53	23.04	44.27	1.73

Results Meet Requirements

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RADIATED SPURIOUS EMISSIONS

Test Data: Field Strength at 3 Meters Measurement Table

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Duty cycle	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
902.4	1,804.80	22.9	23.62	H	4.94	30.33	34.57	19.43
902.4	1,804.80	23.5	23.62	V	4.94	30.33	35.16	18.84
902.4	2,707.20	23.4	23.62	H	6.04	32.50	38.31	15.69
902.4	2,707.20	24.4	23.62	V	6.04	32.50	39.3	14.7
902.4	3,609.60	24.1	23.62	H	6.96	33.11	40.54	13.46
902.4	3,609.60	24.4	23.62	V	6.96	33.11	40.89	13.11
902.4	4,512.00	21.7	23.62	V	7.81	33.90	39.82	14.18
902.4	4,512.00	21.8	23.62	H	7.81	33.90	39.86	14.14
902.4	5,414.40	22.1	23.62	V	8.60	34.41	41.47	12.53
902.4	5,414.40	22.3	23.62	H	8.60	34.41	41.73	12.27
902.4	6,316.80	21.9	23.62	V	9.32	35.42	43.03	10.97
902.4	6,316.80	22.2	23.62	H	9.32	35.42	43.34	10.66
902.4	7,219.20	20.9	23.62	V	9.93	36.38	43.63	10.37
902.4	7,219.20	21.2	23.62	H	9.93	36.38	43.91	10.09
902.4	8,121.60	19.3	23.62	H	10.53	35.80	42.04	11.96
902.4	8,121.60	19.6	23.62	V	10.53	35.80	42.35	11.65
902.4	9,024.00	20.0	23.62	V	11.04	36.10	43.56	10.44
902.4	9,024.00	20.5	23.62	H	11.04	36.10	44.05	9.95

RADIATED SPURIOUS EMISSIONS

Test Data: Field Strength at 3 Meters Measurement Table

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Duty cycle	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
915.0	1,830.00	22.9	23.62	V	4.93	30.51	34.69	19.31
915.0	1,830.00	23.2	23.62	H	4.93	30.51	34.98	19.02
915.0	2,745.00	23.8	23.62	H	6.08	32.50	38.79	15.21
915.0	2,745.00	25.2	23.62	V	6.08	32.50	40.19	13.81
915.0	3,660.00	22.0	23.62	V	7.01	33.16	38.55	15.45
915.0	3,660.00	22.4	23.62	H	7.01	33.16	38.91	15.09
915.0	4,575.00	22.3	23.62	H	7.87	33.90	40.42	13.58
915.0	4,575.00	22.6	23.62	V	7.87	33.90	40.71	13.29
915.0	5,490.00	20.7	23.62	V	8.66	34.49	40.27	13.73
915.0	5,490.00	20.7	23.62	H	8.66	34.49	40.27	13.73
915.0	6,405.00	22.3	23.62	V	9.38	35.50	43.52	10.48
915.0	6,405.00	22.4	23.62	H	9.38	35.50	43.66	10.34
915.0	7,320.00	20.9	23.62	H	10.00	36.26	43.58	10.42
915.0	7,320.00	21.2	23.62	V	10.00	36.26	43.82	10.18
915.0	8,235.00	19.4	23.62	H	10.59	35.80	42.16	11.84
915.0	8,235.00	19.5	23.62	V	10.59	35.80	42.25	11.75
915.0	9,150.00	19.9	23.62	V	11.12	36.20	43.55	10.45
915.0	9,150.00	20.4	23.62	H	11.12	36.20	44.05	9.95

RADIATED SPURIOUS EMISSIONS

Test Data: Field Strength at 3 Meters Measurement Table

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Duty cycle	Ant. Polarity	Coax Loss dB	Correction Factor dB/m	Field Strength dBuV/m	Margin dB
927.6	1,855.20	23.1	23.62	H	4.93	30.69	35.05	18.95
927.6	1,855.20	23.2	23.62	V	4.93	30.69	35.16	18.84
927.6	2,782.80	24.0	23.62	V	6.11	32.50	39	15
927.6	2,782.80	24.9	23.62	H	6.11	32.50	39.84	14.16
927.6	3,710.40	21.9	23.62	H	7.06	33.19	38.54	15.46
927.6	3,710.40	22.2	23.62	V	7.06	33.19	38.79	15.21
927.6	4,638.00	23.4	23.62	H	7.92	33.90	41.6	12.4
927.6	4,638.00	23.5	23.62	V	7.92	33.90	41.66	12.34
927.6	5,565.60	21.8	23.62	V	8.73	34.43	41.29	12.71
927.6	5,565.60	22.0	23.62	H	8.73	34.43	41.56	12.44
927.6	6,493.20	21.9	23.62	H	9.44	35.50	43.2	10.8
927.6	6,493.20	22.1	23.62	V	9.44	35.50	43.37	10.63
927.6	7,420.80	21.2	23.62	H	10.07	36.06	43.75	10.25
927.6	7,420.80	21.6	23.62	V	10.07	36.06	44.1	9.9
927.6	8,348.40	19.3	23.62	V	10.66	35.85	42.22	11.78
927.6	8,348.40	19.4	23.62	H	10.66	35.85	42.26	11.74
927.6	9,276.00	19.5	23.62	H	11.20	36.30	43.42	10.58
927.6	9,276.00	20.1	23.62	V	11.20	36.30	43.98	10.02

EMC EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
Attenuator K 6dB 2W DC-40G	Narda	4768-6	1044-1	06/25/15	10/25/17
Attenuator K 6dB 2W DC-40G	Narda	4768-6	1044-3	06/25/15	10/25/17
DC Power Supply	HP	6286A	1744A03842	N/A	N/A
Antenna: Biconical 1096 Chamber	Eaton	94455-1	1096	08/01/2017	08/02/2019
Antenna: Log-Periodic 1122	Electro-Metrics	LPA-25	1122	07/26/17	07/26/19
LISN (Primary)	Electro-Metrics	ANS-25/2	2604	07/13/15	10/13/17
Antenna: Standard Gain Horn 18.0-26.3 GHz	Systron Donner	DBE-520-20	Not Serialized	N/A	N/A
Antenna: Standard Gain Horn 12.4-18.0 GHz	ATM	62-442-6	D262108-01	N/A	N/A
Antenna: Standard Gain Horn 5.85-8.2 GHz	ATM	137-442-2	D261908-01	N/A	N/A
CHAMBER	Panashield	3M	N/A	04/25/16	12/31/17
Antenna: Double-Ridged Horn/ETS Horn 2	ETS-Lindgren Chamber	3117	00041534	03/01/17	03/01/19
EMI Test Receiver R & S ESIB 40 Screen Room	Rohde & Schwarz	ESIB 40	100274	08/16/16	08/16/18
Software: Field Strength Program	Timco	N/A	Version 4.10.7.0	N/A	N/A
Antenna: Active	ETS-Lindgren	6502	00062529	11/18/15	11/18/17
USB Peak Power Sensor 50 MHz to 18 GHz	Boonton	55318	9224	09/13/16	09/13/18
Coaxial Cable #103 - KMKM-0180-01 Aqua	Micro-Coax	UFB142A-0-0720-200200	225363-002 (#103)	08/05/15	10/05/17
Coaxial Cable #100 - NMNM-0180-00 Aqua	Micro-Coax	UFB311A-0-0720-50U50U	225362-001 (#100)	07/14/16	07/14/18
Coaxial Cable #102 - KMKM-0180-00 Aqua	Micro-Coax	UFB142A-0-0720-200200	225363-001 (#102)	07/21/16	07/21/18
Coaxial Cable #101 - NMNM-0180-01 Aqua DC-40G	Micro-Coax	UFB311A-0-0720-50U50U	225362-002 (#101)	07/18/16	07/18/18
EMI Test Receiver R & S ESU 40 Chamber	Rohde & Schwarz	ESU 40	100320	04/01/16	04/01/18
Coaxial Cable - KMKM-0100-00 Blue DC-20G - Immunity 2 cable set	Sucoflex	103	49322/3	07/19/16	07/19/18
Coaxial Cable - BMBM-1000-00 Silver	Semflex	LISN Cable	BMBM-1000-00	01/05/17	01/05/18
Coaxial Cable - Chamber 3 cable set	Micro-Coax	Chamber 3 cable set	KMKM-0244-01; KMKM-0670-00;	08/09/16	08/09/18

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(Primary)		(Primary)	KFKF-0198-01		
Band Reject Filter 2.4 GHz	Micro-Tronics	BRM50702-02	-G042	09/27/16	09/27/18
High Pass Filter 18GHz	Micro-Tronics	HPS18771	-002	05/13/16	05/13/18
Antenna: Double-Ridged Horn 18-40 GHz	EMCO	3116	9011-2145	11/18/15	11/18/17
Attenuator K 6dB 2W DC-40G	Narda	4768-6	1044-2	06/25/15	10/25/17
Pre-amp	RF-LAMBDA	RLNA00M45GA	NA	01/04/16	01/04/18

***EMI RECEIVER SOFTWARE VERSION**

The receiver firmware used was version 4.43 Service Pack 3

END OF TEST REPORT