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CERTIFICATION TEST REPORT

Manufacturing Address: Perfect Electronics
Room 1307, Lu Plaza
2 Wing Yip Street
Kwun Tong, Kowloon, HK

Applicant: oNotes
1 Broadway, 14th Floor
Cambridge, Massachusetts 02142 USA

Product Name: Cyrano

Product Description: The Cyrano is a step forward in Air Control devices. It allows consumers to control the air they breathe with a smart phone or tablet. The device is portable and battery-operated. It can be recharged via a supplied USB cable. It contains three scent chips and each chip can hold up to 4 individual scents for a total of 12 for the device. Consumers connect to the device via Bluetooth from an iPhone or iPad using our oNotes app. Users simply tap on a scent image to play an individual scent like "Suntan" or "Coconut." Consumers can also create a track of scents to play one after the other.

Power Source: Battery; 120V, 60 Hz

Model: CYR171

FCC ID: 2AHYTCYR171

Testing Commenced: May 10, 2017

Testing Ended: May 10, 2017

Summary of Test Results: **In Compliance, with Modifications**

The EUT complies with the FCC requirements when manufactured identically as the unit tested in this report, including any required modifications. Any changes to the design or build of this unit subsequent to this testing may deem it non-compliant.

Standards:

- FCC Part 15 Subpart C, Section 15.209
- FCC Part 15 Subpart C, Section 15.207 - Conducted Limits



Order Number: F2LQ9607A

Client: oNotes

Model: CYR171

Evaluation Conducted by:

Joe Knepper, EMC Proj. Eng.

Report Reviewed by:

Ken Littell, Director of EMC & Wireless Operations

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TABLE OF CONTENTS

Section	Title	Page
1	ADMINISTRATIVE INFORMATION	4
2	SUMMARY OF TEST RESULTS/MODIFICATIONS	7
3	ENGINEERING STATEMENT	8
4	EUT INFORMATION AND DATA	6
5	LIST OF MEASUREMENT INSTRUMENTATION	9
6	RADIATED EMISSIONS	10
7	CONDUCTED EMISSIONS	17
8	PHOTOGRAPH(S)	19



1 ADMINISTRATIVE INFORMATION

1.1 Measurement Location:

F2 Labs in Middlefield, Ohio. Site description and attenuation data are on file with the FCC's Sampling and Measurement Branch at the FCC Laboratory in Columbia, MD.

1.2 Measurement Procedure:

All measurements were performed according to the 2013 version of ANSI C63.10 and recommended FCC procedure of measurement of equipment operating under Section 15.209. A list of the measurement equipment can be found in Section 6.

1.3 Uncertainty Budget:

The uncertainty in EMC measurements arises from several factors which affect the results, some associated with environmental conditions in the measurement room, the test equipment being used and the measurement techniques adopted.

The measurement uncertainty budgets detailed below are calculated from the test and calibration data, and are expressed with a 95% confidence factor using a coverage factor of $k=2$. The Uncertainty for a laboratory are referred to as U_{lab} . For Radiated and Conducted Emissions, the Expanded Uncertainty is compared to the U_{cispr} values to determine if a specific margin is required to deem compliance.

U_{lab}

Measurement Range	Combined Uncertainty	Expanded Uncertainty
Radiated Emissions <1 GHz @ 3m	2.54	5.07dB
Radiated Emissions <1 GHz @ 10m	2.55	5.09dB
Radiated Emissions 1 GHz to 2.7 GHz	1.81	3.62dB
Radiated Emissions 2.7 GHz to 18 GHz	1.55	3.10dB
AC Power Line Conducted Emissions, 150kHz to 30 MHz	1.38	2.76dB
AC Power Line Conducted Emissions, 9kHz to 150kHz	1.66	3.32dB

U_{cispr}

Measurement Range	Expanded Uncertainty
Radiated Emissions <1 GHz @ 3m	5.2dB
Radiated Emissions <1 GHz @ 10m	5.2dB
Radiated Emissions 1 GHz to 2.7 GHz	Under Consideration
Radiated Emissions 2.7 GHz to 18 GHz	Under Consideration
AC Power Line Conducted Emissions, 150kHz to 30 MHz	3.6dB
AC Power Line Conducted Emissions, 9kHz to 150kHz	4.0dB

If U_{lab} is less than or equal to U_{cispr} , then:

- compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

If U_{lab} is greater than U_{cispr} in table 1, then:

- compliance is deemed to occur if no measured disturbance, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit.

Measurement	Uncertainty
Radiated RF Immunity 80 MHz to 1 GHz	2.12dB
Conducted Common Mode RF Immunity, CDN 150kHz to 80 MHz	1.72dB
Conducted Common Mode RF Immunity, BCI 150kHz to 80 MHz	2.06dB
Harmonic Emissions	6.25%
Flicker	.63%

Note: Only measurements listed in the tables above that relate to tests included in this Test Report are applicable.



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1.4 Document History

Document Number	Description	Issue Date	Approved By
F2LQ9607A-02E	First Issue	May 17, 2017	K. Littell



2 SUMMARY OF TEST RESULTS

Test Name	Standard(s)	Results
Radiated Emissions	FCC Part 15 Subpart C, Section 15.209	Complies*
Conducted Emissions	FCC Part 15 Subpart C, Section 15.207	Complies
Variation of input power	15.31(e) was met by using a new fully charged battery.	Complies

*Complies with modifications.

Modifications Made to the Equipment
<p>The following modifications were made to the EUT to meet Radiated Emissions requirements:</p> <ul style="list-style-type: none">• EUT shut off RFID module when charging current was active.• EUT enclosure is a metal canister



3 ENGINEERING STATEMENT

This report has been prepared on behalf of oNotes to provide documentation for the testing described herein. This equipment has been tested and found to comply with Part 15.209 of the FCC Rules using ANSI C63.10 2013 and Part 15 standards. The test results found in this test report relate only to the items tested.

4 EUT INFORMATION AND DATA

4.1 Equipment Under Test:

Product: Cyrano

Model: CYR171

Serial Number: None Specified

FCC ID: **2AHYTCYR171**

4.2 Trade Name:

oNotes

4.3 Power Supply:

Battery Powered; (120V, 60 Hz for charging battery only. Transmitter is disabled when charging.)

4.4 Applicable Rules:

CFR 47, Part 15.209, subpart C

4.5 Equipment Category:

RFID (13.56 MHz)

4.6 Antenna:

Internal board Antenna

4.7 Accessories:

N/A

4.8 Test Item Condition:

The equipment to be tested was received in good condition.

4.9 Testing Algorithm:

EUT was tested in a constantly transmitting state for the RFID and the Bluetooth. While charging, the RFID module was switched off. The highest emissions were recorded in the data tables.



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5 LIST OF MEASUREMENT INSTRUMENTATION

Equipment Type	Asset Number	Manufacturer	Model	Serial Number	Calibration Due Date
Shielded Chamber	CL166-E	AlbatrossProjects	B83117-DF435-T261	US140023	Nov. 14, 2017
Temp/Hum. Recorder	CL137	Extech	RH520	CH16992	June 3, 2017
Receiver	CL151	Rohde & Schwarz	ESU40	100319	Nov. 28, 2017
Bilog Antenna	CL211	Sunol Sciences	JB1	A021017	Mar. 2, 2018
Amplifier w/Monopole & 18" Loop	CL163	A.H. Systems, Inc.	EHA-52B	100	May 2, 2018
Amplifier w/Monopole & 18" Loop	CL163	A.H. Systems, Inc.	EHA-52B	100	May 2, 2018
Horn Antenna	CL098	Emco	3115	9809-5580	Dec. 28, 2018
Software:	Tile Version 1.0			Software Verified: May 10, 2017	
Software:	EMC 32, Version 5.20.2			Software Verified: May 10, 2017	



6 RADIATED EMISSIONS

6.1 Requirements

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

6.2 Test Procedure

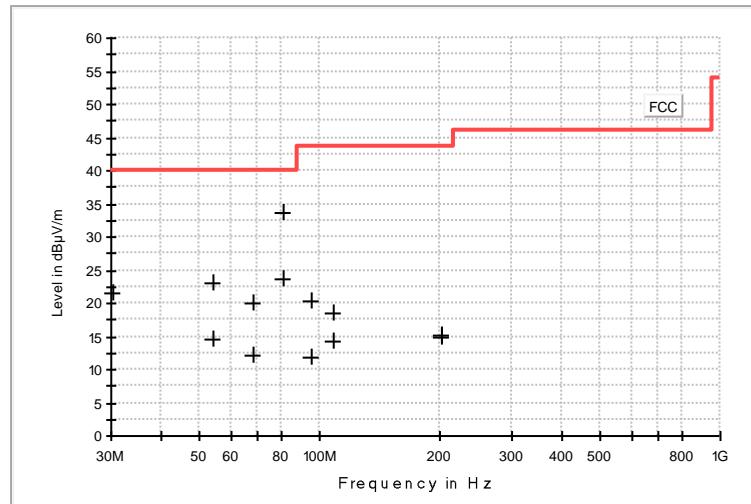
The EUT was tested at a distance of 3 meters. The limits shown are extrapolated from the above table. The emissions were maximized by rotating the table and raising/lowering the antenna mounted on a 4 meter mast. Cable and peripheral positions were also varied to produce maximum emissions. Both horizontal and vertical polarities were measured for frequencies above 30MHz, and all three orientations of the loop antenna were scanned to determine worst case emission. The output of the antenna was connected to the input of the receiver and emissions were measured in the range 9 kHz to 13 GHz. The values up to 13 GHz with a resolution bandwidth of 1, 9, and 120 kHz are quasi-peak readings made at 3 meters. The values from 1 to 13 GHz with a resolution bandwidth of 1 MHz are peak and average readings. The raw measurements were corrected to allow for antenna factor and cable loss.

6.3 Test Data

Test Date(s):	May 10, 2017	Test Engineer:	J. Knepper
Standards:	FCC CFR 47 15.209	Air Temperature:	22.0°C
Results:	Complies*	Relative Humidity:	45%

*Complies with modifications per Section 2.0 of this Test Report.

Frequency (MHz)	Antenna Polarization	Antenna Height (cm)	Azimuth (degrees)	Reading (dB μ V)	Cable Loss & Antenna Factor (dB)	Emission (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
30.373077	H	100.00	0.00	-2.0	23.5	21.50	40.0	-18.5
54.240000	H	250.00	185.00	4.5	9.9	14.40	40.0	-25.6
54.240000	V	100.00	250.00	13.0	9.9	22.90	40.0	-17.1
67.800000	H	250.00	185.00	1.5	10.6	12.10	40.0	-27.9
67.800000	V	100.00	250.00	9.4	10.6	20.00	40.0	-20.0
81.360000	H	250.00	185.00	13.2	10.5	23.70	40.0	-16.3
81.360000	V	100.00	250.00	23.0	10.5	33.50	40.0	-6.5
94.920000	V	100.00	250.00	8.7	11.5	20.20	43.5	-23.3
94.920000	H	250.00	185.00	0.3	11.5	11.80	43.5	-31.7
108.480000	V	100.00	250.00	3.1	15.5	18.60	43.5	-24.9
108.480000	H	250.00	185.00	-1.4	15.5	14.10	43.5	-29.4
200.869231	H	250.00	185.00	-2.8	17.6	14.80	43.5	-28.7
200.869231	V	100.00	0.00	-2.4	17.6	15.20	43.5	-28.3



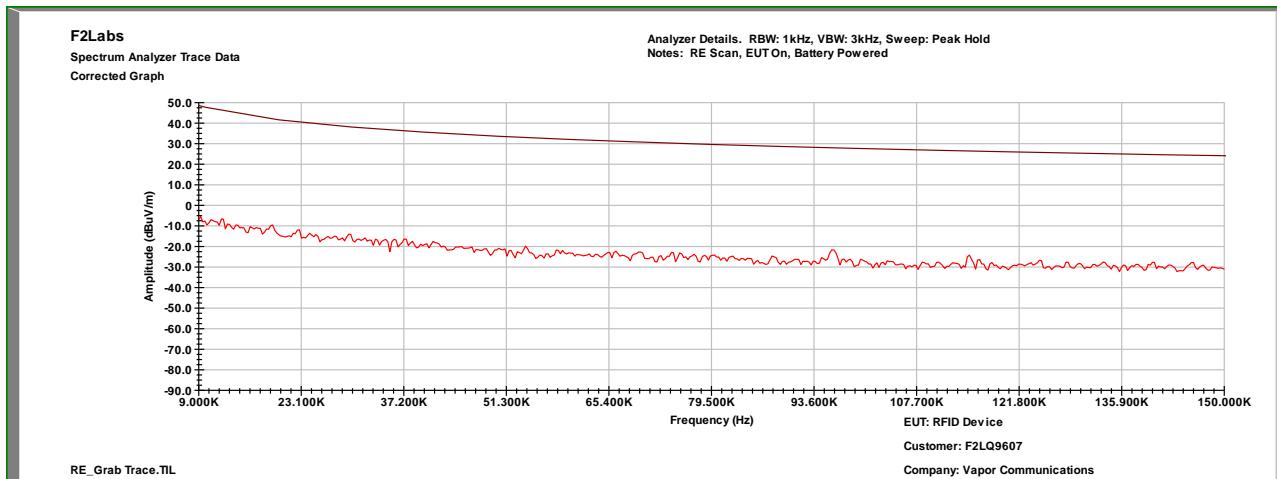


Order Number: F2LQ9607A

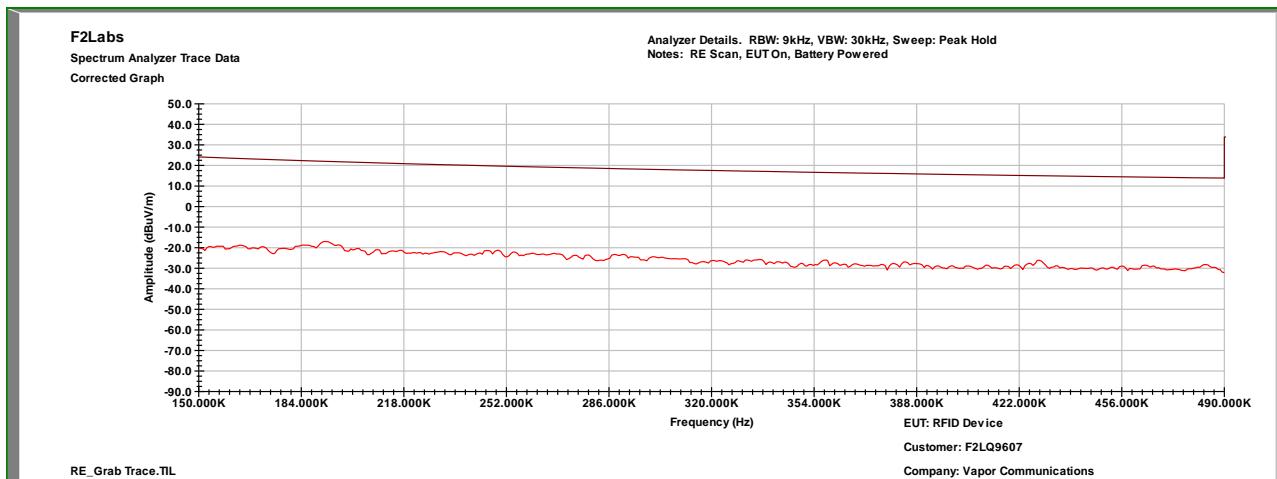
Client: oNotes

Model: CYR171

Characterization Scan, 9kHz to 150 kHz



Characterization Scan, 0.15 MHz to .49 MHz



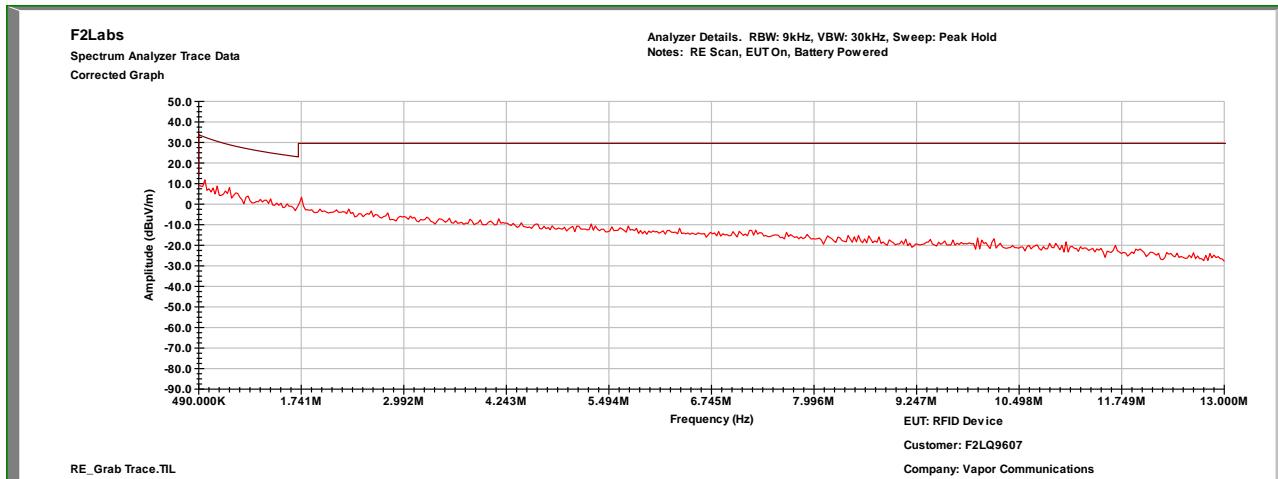


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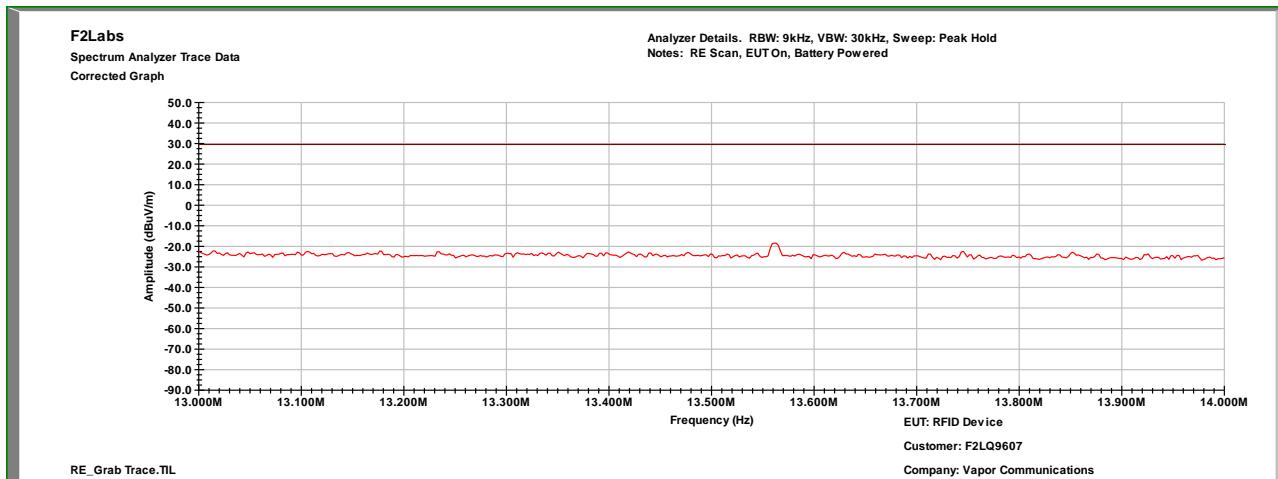
Client: oNotes

Model: CYR171

Characterization Scan, .49 MHz to 13 MHz



Characterization Scan, 13 MHz to 14 MHz



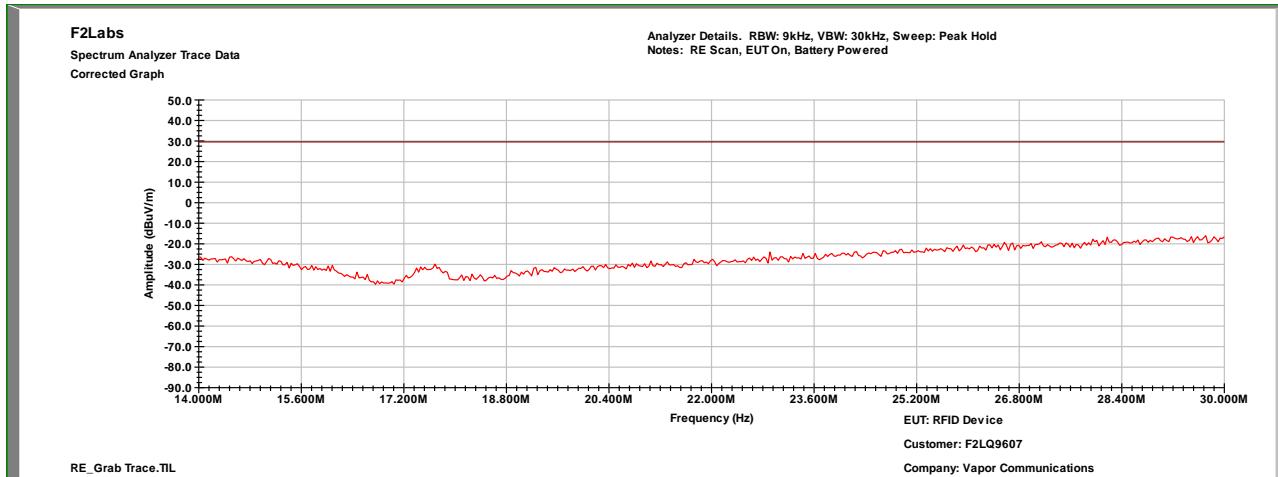


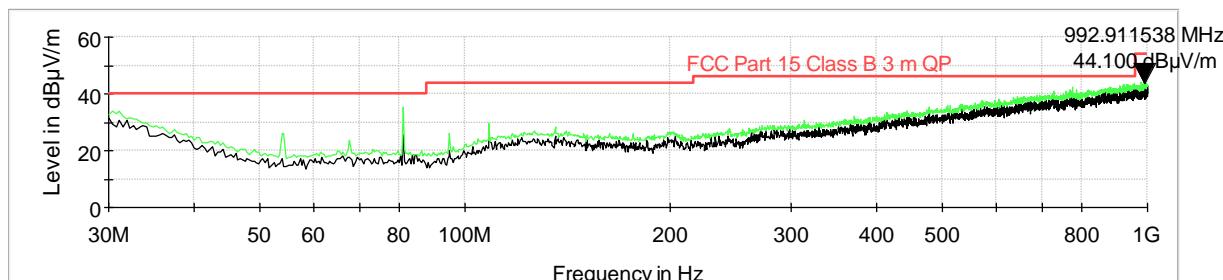
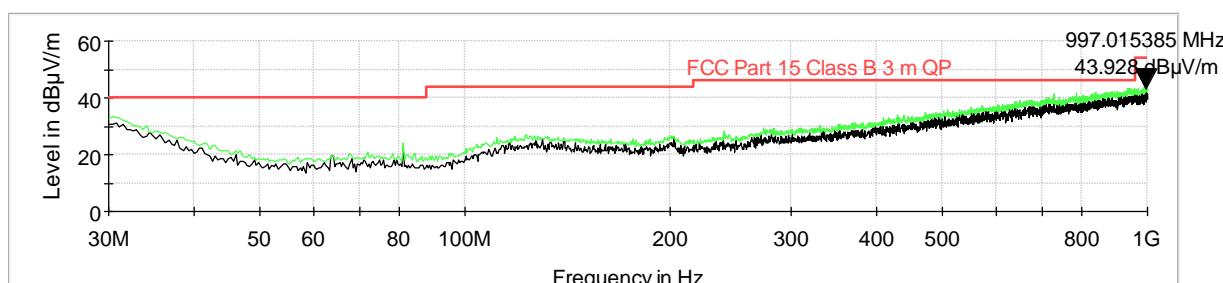
Order Number: F2LQ9607A

Client: oNotes

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Characterization Scan, 14 MHz to 30 MHz - Horizontal



Characterization Scan, 30 MHz to 1 GHz - Vertical**Characterization Scan, 30 MHz to 1 GHz - Horizontal**

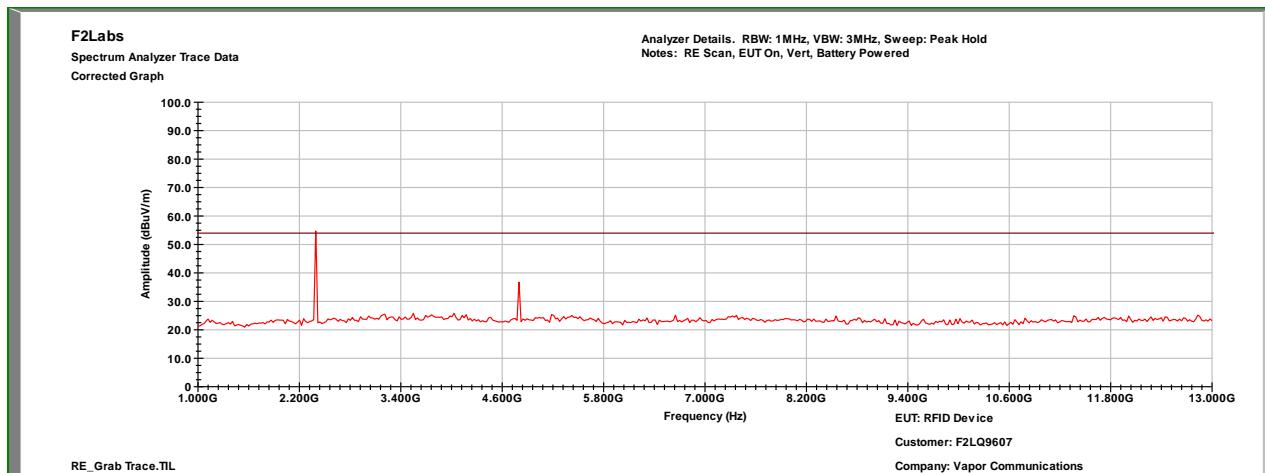


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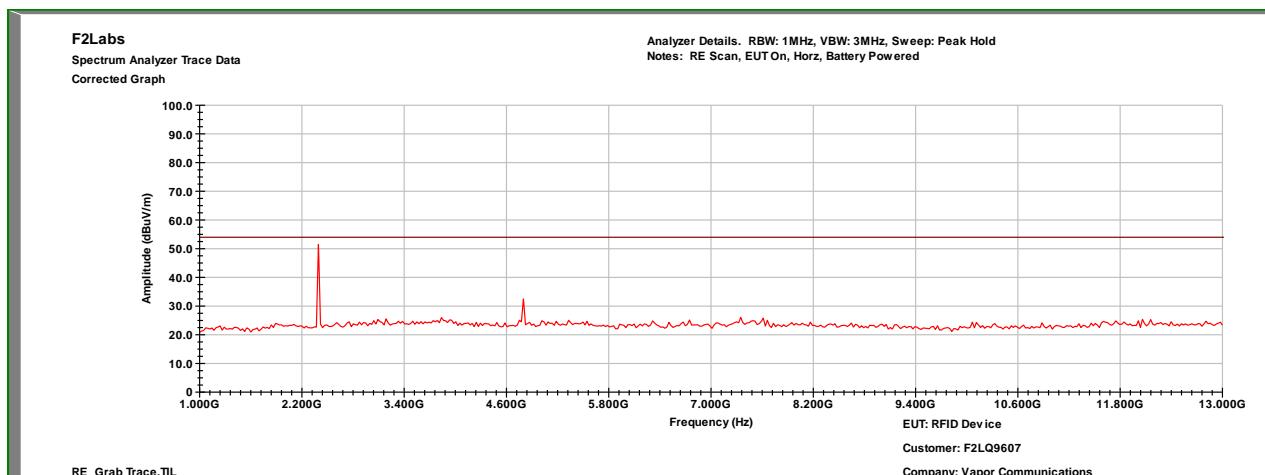
Client: oNotes

Model: CYR171

Characterization Scan, 1 GHz to 13 GHz - Vertical



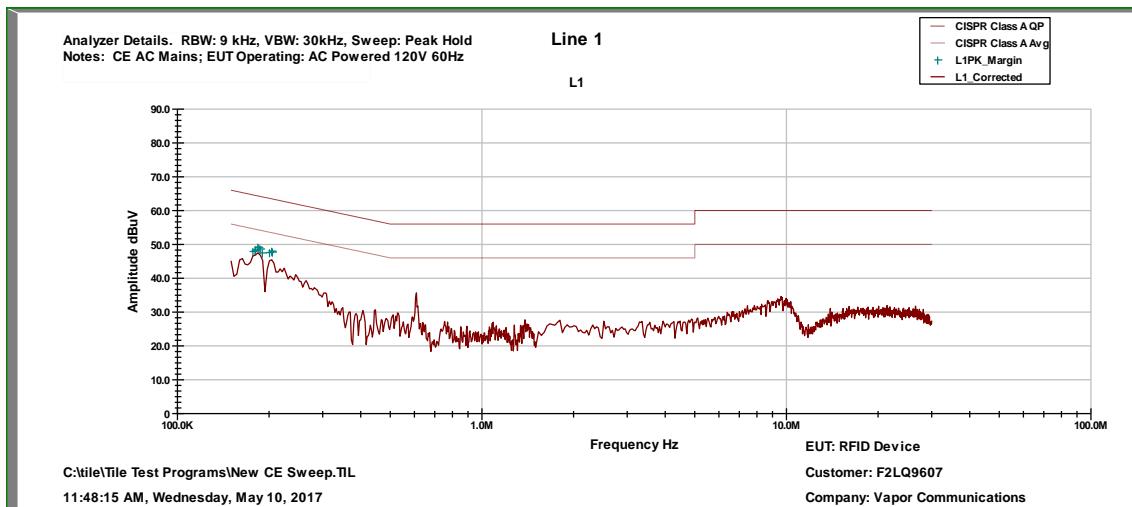
Characterization Scan, 1 GHz to 13 GHz - Horizontal



7 CONDUCTED EMISSIONS (Charging mode only. Transmitter is turned off when charging)

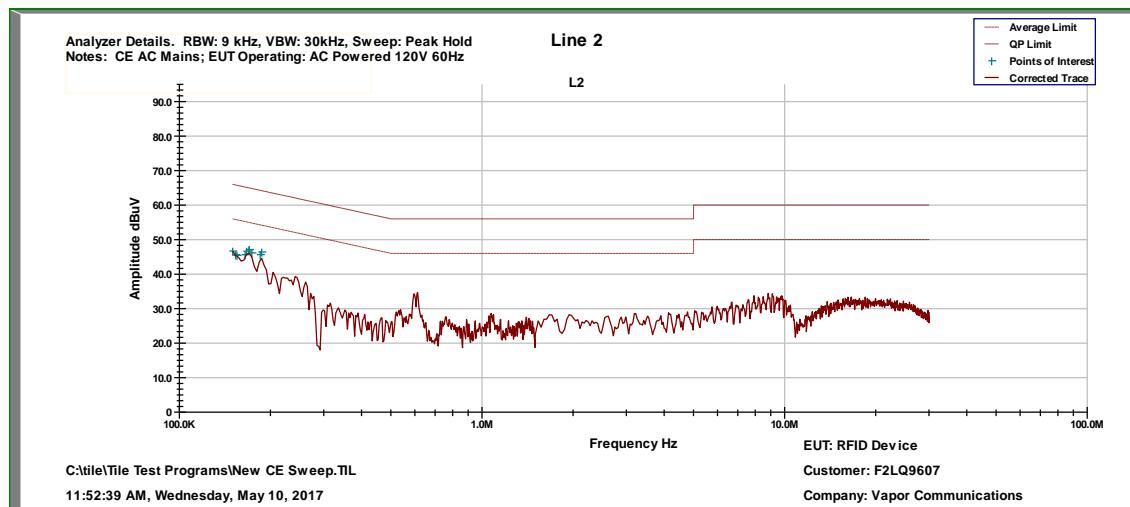
Test Date:	May 10, 2017	Test Engineer:	J. Knepper
Rule:	FCC 15.207	Air Temperature:	21.6° C
Results:	Complies	Relative Humidity:	43%

Conducted Test – Line 1: 0.15 MHz to 30.0 MHz



Top Discrete Measurements								
No.	Conductor	Frequency (MHz)	Detector	Level (dBμV)	Adjustment (dB)	Results (dBμV)	Limit (dBμV)	Margin (dB)
1	Line 1	0.177	Quasi-Peak	33.220	11.379	44.599	64.6	-20.027
		0.177	Average	15.432	11.379	26.811	54.6	-27.815
2	Line 1	0.18	Quasi-Peak	34.020	11.346	45.366	64.5	-19.12
		0.18	Average	16.465	11.346	27.811	54.5	-26.675
3	Line 1	0.180375	Quasi-Peak	34.110	11.345	45.455	64.5	-19.014
		0.180375	Average	16.517	11.345	27.862	54.5	-26.607
4	Line 1	0.18375	Quasi-Peak	33.700	11.333	45.033	64.3	-19.28
		0.18375	Average	15.360	11.333	26.693	54.3	-27.622
5	Line 1	0.185	Quasi-Peak	32.330	11.328	43.658	64.3	-20.600
		0.185	Average	14.398	11.328	25.726	54.3	-28.532
6	Line 1	0.187125	Quasi-Peak	30.520	11.320	41.840	64.2	-22.324
		0.187125	Average	13.813	11.320	25.133	54.2	-29.031
7	Line 1	0.19	Quasi-Peak	31.020	11.310	42.330	64.0	-21.707
		0.19	Average	12.637	11.310	23.947	54.0	-30.090
8	Line 1	0.200625	Quasi-Peak	31.130	11.165	42.295	63.6	-21.290
		0.200625	Average	11.397	11.165	22.562	53.6	-31.023
9	Line 1	0.204	Quasi-Peak	29.310	11.141	40.451	63.4	-22.996
		0.204	Average	7.705	11.141	18.846	53.4	-34.601
10	Line 1	0.205	Quasi-Peak	29.170	11.134	40.304	63.4	-23.102
		0.205	Average	10.765	11.134	21.899	53.4	-31.507

Conducted Test – Line 2: 0.15 MHz to 30.0 MHz



Top Discrete Measurements									
No.	Conductor	Frequency (MHz)	Detector	Level (dB μ V)	Adjustment (dB)	Results (dB μ V)	Limit (dB μ V)	Margin (dB)	
1	Line 2	0.15	Quasi-Peak	37.140	11.722	48.862	66	-17.138	
		0.15	Average	14.570	11.722	26.292	56	-29.708	
2	Line 2	0.153375	Quasi-Peak	33.940	11.669	45.609	65.816	-20.207	
		0.153375	Average	14.825	11.669	26.494	55.816	-29.322	
3	Line 2	0.155	Quasi-Peak	30.720	11.643	42.363	65.728	-23.365	
		0.155	Average	12.313	11.643	23.956	55.728	-31.772	
4	Line 2	0.165	Quasi-Peak	37.580	11.509	49.089	65.208	-16.119	
		0.165	Average	7.770	11.509	19.279	55.208	-35.929	
5	Line 2	0.166875	Quasi-Peak	29.360	11.489	40.849	65.115	-24.27	
		0.166875	Average	10.795	11.489	22.284	55.115	-32.831	
6	Line 2	0.17	Quasi-Peak	30.440	11.455	41.895	64.961	-23.066	
		0.17	Average	14.148	11.455	25.603	54.961	-29.358	
7	Line 2	0.17025	Quasi-Peak	31.860	11.452	43.312	64.949	-21.637	
		0.17025	Average	12.300	11.452	23.752	54.949	-31.197	
8	Line 2	0.173625	Quasi-Peak	29.290	11.415	40.705	64.8	-24.081	
		0.173625	Average	11.115	11.415	22.530	54.8	-32.256	
9	Line 2	0.185	Quasi-Peak	28.680	11.328	40.008	64.3	-24.250	
		0.185	Average	10.923	11.328	22.251	54.3	-32.007	
10	Line 2	0.187125	Quasi-Peak	29.200	11.320	40.520	64.2	-23.644	
		0.187125	Average	8.140	11.320	19.460	54.2	-34.704	

8 PHOTOGRAPH(S)**3m Chamber, <1 GHz****3m Chamber, >1 GHz**

Conducted Emissions