

**FCC PART 15, SUBPART B and C; FCC 15.249; and RSS-210 & RSS-GEN
TEST REPORT***for***KEYPAD****Model: KP01**

Prepared for

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DATE: MAY 11, 2021

	REPORT BODY	APPENDICES					TOTAL
		A	B	C	D	E	
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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used by the client to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the United States Government.

Device Tested: Keypad
Model: KP01
S/N: N/A

Product Description: The equipment under test is a battery powered Keypad that uses Z-Wave technology. The transmit frequency is 908.42 and 916 MHz. The clock oscillator is 39 MHz. Dimensions: 14 cm (L) x 8 cm (W) x 2 cm (H).

Modifications: The EUT was not modified to meet the specifications.

Customer: Vivint, Inc.
4931 North 300 West
Provo, Utah 84604

Test Dates: March 3, 4, and 5, 2021

Test Specifications covered by accreditation:

Test Specifications: Emissions requirements
CFR Title 47, Part 15, Subpart B;
CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249; RSS-210 and RSS-Gen



Test Procedures: ANSI C63.4 and ANSI C63.10

Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Spurious Radiated RF Emissions, 9 kHz – 9.3 GHz (Transmitter and Digital portion)	Complies with the Class B limits of CFR Title 47, Part 15 Subpart B; the limits of CFR Title 47, Part 15 Subpart C, sections 15.205, 15.209, and 15.249; and the limits of RSS-210 and RSS-Gen Highest reading in relation to spec limit 93.39 dBuV/m (QP) @ 908.42 MHz (*U = 3.19 dB)
2	99% Bandwidth	This test was performed to obtain the emission designator required by Innovation, Science and Economic Development Canada.

*U = Expanded Uncertainty with a coverage factor of k=2

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the Keypad, Model: KP01. The emissions measurements were performed according to the measurement procedure described in ANSI C63.4 and ANSI C63.10. The tests were performed to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the Class B specification limits defined by CFR Title 47, Part 15 Subpart B section, 15.109; the specification limits defined by CFR Title 47, Part 15 Subpart C sections 15.205, 15.209 and 15.249; and the specifications limits defined by RSS-210 and RSS-Gen.

1.1 Decision Rule & Risk

If a measured value exceeds a specification limit it implies non-compliance. If the value is below a specification limit it implies compliance. Measurement uncertainty of the laboratory is reported with all measurement results but generally not taken into consideration unless a standard, rule or law requires it to be considered.

Qualification test reports are only produced for products that are in compliance with the test requirements, therefore results are always in conformity. Otherwise, an engineering report or just the data is provided to the customer.

When performing a measurement and making a statement of conformity, in or out-of-specification to manufacturer's specifications or Pass/Fail against a requirement, there are two possible outcomes:

- The result is reported as conforming with the specification
- The result is reported as not conforming with the specification

The decision rule is defined below.

When the test result is found to be below the limit but within our measurement uncertainty of the limit, it is our policy that the final acceptance decision is left to the customer, after discussing the implications and potential risks of the decision.

When the test result is found to be exactly on the specification, it is our policy, in the case of unwanted emissions measurements to consider the result non-compliant, however, the final decision is left to the customer, after discussing the implications and potential risks of the decision.

When the test result is found to be over the specification limit under any condition, it is our policy to consider the result non-compliant.

In terms of uncertainty of measurement, the laboratory is a calibrated and tightly controlled environment and generally exceptionally stable, the measurement uncertainties are evaluated without the considering of the test sample. When it comes to the test sample however, as most testing is performed on a single sample rather than a sample population, and that sample is often a pre-production representation of the final product, that test sample represents a significantly higher source of measurement uncertainty. We advise our customers of this and that when in doubt (small test to limit margins), they may wish to perform statistical sampling on a population to gain a higher confidence in the results. All lab reported results are that of a single sample in any event.



2. ADMINISTRATIVE DATA

2.1 Location of Testing

The emissions tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

Vivint, Inc.

Greg Hansen

Regulatory Compliance Manager

Compatible Electronics Inc.

Kyle Fujimoto

Test Engineer

James Ross

Test Engineer

2.4 Date Test Sample was Received

The test sample was received prior to the date of this report.

2.5 Disposition of the Test Sample

The test sample has not been returned to Vivint, Inc. as of the date of this report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
FCC	Federal Communications Commission
DoC	Declaration of Conformity
N/A	Not Applicable
Tx	Transmit
Rx	Receive
Inc.	Incorporated
LLC	Limited Liability Company
RF	Radio Frequency
BLE	Bluetooth Low Energy
CFR	Code of Federal Regulations
PCB	Printed Circuit Board
DC	Direct Current
LED	Light Emitting Diode

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this emission Test Report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules – Radio frequency devices (including digital devices) – Intentional Radiators
FCC Title 47, Part 15 Subpart B	FCC Rules – Radio frequency devices (including digital devices) –Unintentional Radiators
RSS-210 Issue 10: 2019 + Amendment (April 2020)	License-exempt Radio Apparatus: Category I Equipment
RSS-Gen Issue 5: 2019 + Amendment 1	General Requirements for Compliance of Radio Apparatus
ANSI C63.4: 2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI C63.10: 2013	American National Standard of procedure for compliance testing of unlicensed wireless devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration – Emissions

The Keypad, Model: KP01 (EUT) was tested as a stand alone unit. The EUT was transmitting or receiving at 908.42 MHz or 916 MHz on a continuous basis.

The EUT was tested for emissions while in the X, Y and Z axis. The X orientation is when the EUT is parallel to the ground. The Y orientation is when the EUT is perpendicular to the ground mounted vertically. The Z orientation is when the EUT is perpendicular to the ground mounted horizontally.

The EUT was tested with a new battery. The firmware inside the EUT allowed the EUT to continuously transmit or receive at 908.42 MHz or 916 MHz.

The firmware is stored on the company's servers.

The final radiated emissions data for the EUT was taken in the configuration described above. Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

The EUT had no external cables.



5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
KEYPAD (EUT)	VIVINT, INC.	KP01	N/A	2AAAS-KP01 IC: 10941A-KP01
FIRMWARE	VIVINT, INC.	1.0	N/A	N/A



5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CAL. CYCLE
RADIATED EMISSIONS TEST EQUIPMENT					
TDK TestLab	TDK RF Solutions, Inc.	9.22	700145	N/A	N/A
MXE EMI Receiver, 3 Hz – 44 GHz	Keysight Technologies, Inc.	N9038A	MY59050117	October 5, 2020	1 Year
Loop Antenna	Com-Power	AL-130R	121090	February 5, 2019	3 Year
CombiLog Antenna	Com-Power	AC-220	061093	June 5, 2019	2 Year
Horn Antenna	Com-Power	AH-118	10050113	February 4, 2020	2 Year
Preamplifier	Com-Power	PA-118	181653	March 3, 2021	1 Year
System Controller	Sunol Sciences Corporation	SC110V	112213-1	N/A	N/A
Turntable	Sunol Sciences Corporation	2011VS	N/A	N/A	N/A
Antenna-Mast	Sunol Sciences Corporation	TWR95-4	112213-3	N/A	N/A
Computer	Hewlett Packard	p6716f	MXX1030PX0	N/A	N/A
LCD Monitor	Hewlett Packard	52031a	3CQ046N3MG	N/A	N/A

6. TEST SITE DESCRIPTION

6.1 Test Facility Description

Please refer to section 2.1 of this report for emissions test location.

6.2 EUT Mounting, Bonding and Grounding

For frequencies 1 GHz and below: The EUT was mounted on a 0.6 by 1.2 meter non-conductive table 0.8 meters above the ground plane.

For frequencies above 1 GHz: The EUT was mounted on a 0.6 by 1.2 meter non-conductive table 1.5 meters above the ground plane.

The EUT was not grounded.

6.3 Measurement Uncertainty

Compatible Electronics' U_{lab} value is less than U_{cispr} , thus based on this – compliance is deemed to occur if no measured disturbance exceeds the disturbance limit

$$u_c(y) = \sqrt{\sum_i c_i^2 u^2(x_i)}$$

Measurement		U_{cispr}	$U_{lab} = 2 u_c(y)$
Conducted disturbance (mains port)	(150 kHz – 30 MHz)	3.4 dB	2.73 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(30 MHz – 1 000 MHz)	6.3 dB	3.27 dB (Vertical) 3.19 dB (Horizontal)
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(1 GHz - 6 GHz)	5.2 dB	3.95 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(6 GHz – 18 GHz)	5.5 dB	3.95 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(18 GHz – 26.5 GHz)	N/A	4.69 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(26.5 GHz – 40 GHz)	N/A	4.55 dB



7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

7.1 RF Emissions

7.1.1 Conducted Emissions Test

The EMI Receiver was used as a measuring meter. A quasi-peak and/or average reading was taken only where indicated in the data sheets. A 10 dB attenuator was used for the protection of the EMI Receiver input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the EMI Receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding, and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI 63:4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by computer software. The final qualification data is located in Appendix E.

Test Results:

This test was not performed because the EUT operates on battery power only and cannot be connected to the AC public mains.

7.1.2 Radiated Emissions Test

The EMI Receiver was used as the measuring meter. An internal preamplifier was used to increase the sensitivity of the instrument during emissions tests up to 1000 MHz, and an external preamplifier was used to increase the sensitivity of the instrument during emissions tests above 1 GHz. The EMI Receiver was initially used with the Analyzer mode feature activated. In this mode, the EMI receiver can then record the actual frequency to be measured. This final reading is then taken accurately in the EMI Receiver mode, which considers the cable loss, amplifier gain and antenna factors, so that a true reading is compared to the true limit. The effective measurement bandwidth used for the radiated emissions test was according to the frequency measured.

The frequencies below 1 GHz were quasi-peaked using the quasi-peak detector of the EMI Receiver.

The frequencies above 1 GHz were averaged using the average detector of the EMI Receiver.

The EMI test chamber of Compatible Electronics, Inc. was used for radiated emissions testing. This test site is in full compliance with ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna to ensure accurate results.

The EUT was tested at a 3-meter test distance. The six highest emissions are listed in Table 1.

Radiated Emissions Test (Continued)

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
9 kHz to 150 kHz	200 Hz	Loop Antenna
150 kHz to 30 MHz	9 kHz	Loop Antenna
30 MHz to 1 GHz	120 kHz	CombiLog Antenna
1 GHz to 9.3 GHz	1 MHz	Horn Antenna

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; the limits of CFR Title 47, Part 15, Subpart C sections 15.205, 15.209 and 15.249; and the limits of RSS-210 and RSS-Gen for radiated emissions.



7.1.3 RF Emissions Test Results

Table 1 RADIATED EMISSION RESULTS
Keypad
Model: KP01

Frequency (MHz)	Quasi-Peak EMI Reading (dBuV/m)	Specification Limit (dBuV/m)	Delta (Cor. Reading – Spec. Limit) (dB)
908.42 (H) (X-Axis)	93.39	93.97	-0.58
908.42 (V) (Y-Axis)	92.86	93.97	-1.11
916.00 (H) (X-Axis)	92.57	93.97	-1.40
908.42 (H) (Z-Axis)	91.88	93.97	-2.09
916.00 (V) (Y-Axis)	91.81	93.97	-2.16
916.00 (H) (Z-Axis)	90.72	93.97	-3.25

Notes:

- * The complete emissions data is given in Appendix E of this report.
- (V) Vertical Polarization
- (H) Horizontal Polarization

7.1.4 Sample Calculations

A correction factor for the antenna, cable, and a distance factor (if any) must be applied to the meter reading before a true field strength reading can be obtained. This Corrected Meter Reading is then compared to the specification limit in order to determine compliance with the limits.

Conversion to logarithmic terms: Specification limit ($\mu\text{V}/\text{m}$) $\log \times 20$ = Specification Limit in $\text{dB}\mu\text{V}/\text{m}$

To correct for distance when measuring at a distance other than the specification

For measurements below 30 MHz: (Specification distance / test distance) $\log \times 40$ = distance factor

For measurements above 30 MHz: (Specification distance / test distance) $\log \times 20$ = distance factor

Note: When using an Active Antenna, the Antenna factor shall be subtracted due to the combination of the internal amplification and antenna loss.

Corrected Meter Reading = meter reading + F – A + C

where: F = antenna factor
A = amplifier gain
C = cable loss

The correction factors for the antenna and the amplifier gain are attached in Appendix D of this report. The data sheets are attached in Appendix E.

The distance factor D is 0 when the test is performed at the required specification distance.

When the limit is in terms of magnetic field, the following equation applies:

$$H[\text{dB}(\mu\text{A}/\text{m})] = V[\text{dB}(\mu\text{V})] + L_C [\text{dB}] - G_{PA} [\text{dB}] + AF^H [\text{dB}(\text{S}/\text{m})]$$

where: H is the magnetic field strength (to be compared with the limit),
V is the voltage level measured by the receiver or spectrum analyzer,
 L_C is the cable loss,
 G_{PA} is the gain of the preamplifier (if used), and
 AF^H is the magnetic antenna factor.

The G_{PA} term is only included in the equation when an external preamplifier is used in the measurement chain, in front of the receiver or spectrum analyzer. An external preamplifier is not usually necessary (or even advisable, due to risk of saturating the input mixer of the receiver) when an active loop antenna is used. In that case, the antenna factor of the loop already includes the gain of its built-in preamplifier.

Sample Calculations (Continued)

If the “electrical” antenna factor is used instead, the above equation becomes:

$$H[\text{dB}(\mu\text{A/m})] = V[\text{dB}(\mu\text{V})] + L_C[\text{dB}] - G_{PA}[\text{dB}] + AF^E[\text{dB}(\text{m}^{-1})] - 51.5[\text{dB}\Omega]$$

where: AF^E is the “electric” antenna factor, as provided by the antenna calibration laboratory.

When the limit is in terms of electric field, the following equation applies:

$$E[\text{dB}(\mu\text{V/m})] = V[\text{dB}(\mu\text{V})] + L_C[\text{dB}] - G_{PA}[\text{dB}] + AF^E[\text{dB}(\text{m}^{-1})]$$

or, if the magnetic antenna factor is used:

$$E[\text{dB}(\mu\text{V/m})] = V[\text{dB}(\mu\text{V})] + L_C[\text{dB}] - G_{PA}[\text{dB}] + AF^H[\text{dB}(\text{S/m})] + 51.5[\text{dB}\Omega]$$

The display of the receiver (or spectrum analyzer) **shall not** be configured in units of current, e.g. μA or $\text{dB}(\mu\text{A})$. That conversion is calculated inside the receiver (or spectrum analyzer) using its input impedance, which is $50\ \Omega$, while the magnetic field calculation is based on the free-space impedance of $377\ \Omega$.

7.1.5 99 % Bandwidth

The 99 % bandwidth was measured using an EMI Receiver.

The following steps were performed for measuring the 99 % bandwidth per RSS-GEN, Issue 5, clause 6.7:

1. Set RBW to 1 % to 5 % of the actual occupied bandwidth.
2. Set VBW to greater than 3 times the RBW.
3. Set the EMI Receiver to the occupied bandwidth Function set at 99 %
4. Set the peak detector to max hold.
5. Set the sweep time to auto
6. Allow the trace to stabilize.

Please note that this was only used to determine the emission bandwidth and that there are no limits or pass/fail criteria for this test. Please see the data sheets located in Appendix E.

8. CONCLUSIONS

The Keypad, Model: KP01 (EUT), as tested, meets all of the specification limits defined in RSS-210, RSS-Gen, the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B; and the specification limits defined in CFR Title 47, Part, 15, Subpart C, sections 15.205, 15.209 and 15.249.



APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

LABORATORY ACCREDITATIONS AND RECOGNITIONS



For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. **For the most up-to-date version of our scopes and certificates please visit <http://celectronics.com/quality/scope/>**

Quote from ISO-ILAC-IAF Communiqué on the Management Systems Requirements of ISO/IEC 17025, General Requirements for the competence of testing and calibration laboratories:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001"

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APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B, FCC 15.249, RSS-210, and RSS-Gen specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.





APPENDIX C

MODELS COVERED UNDER THIS REPORT

MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

Keypad
Model: KP01
S/N: N/A

There are no additional models or part numbers covered under this report.

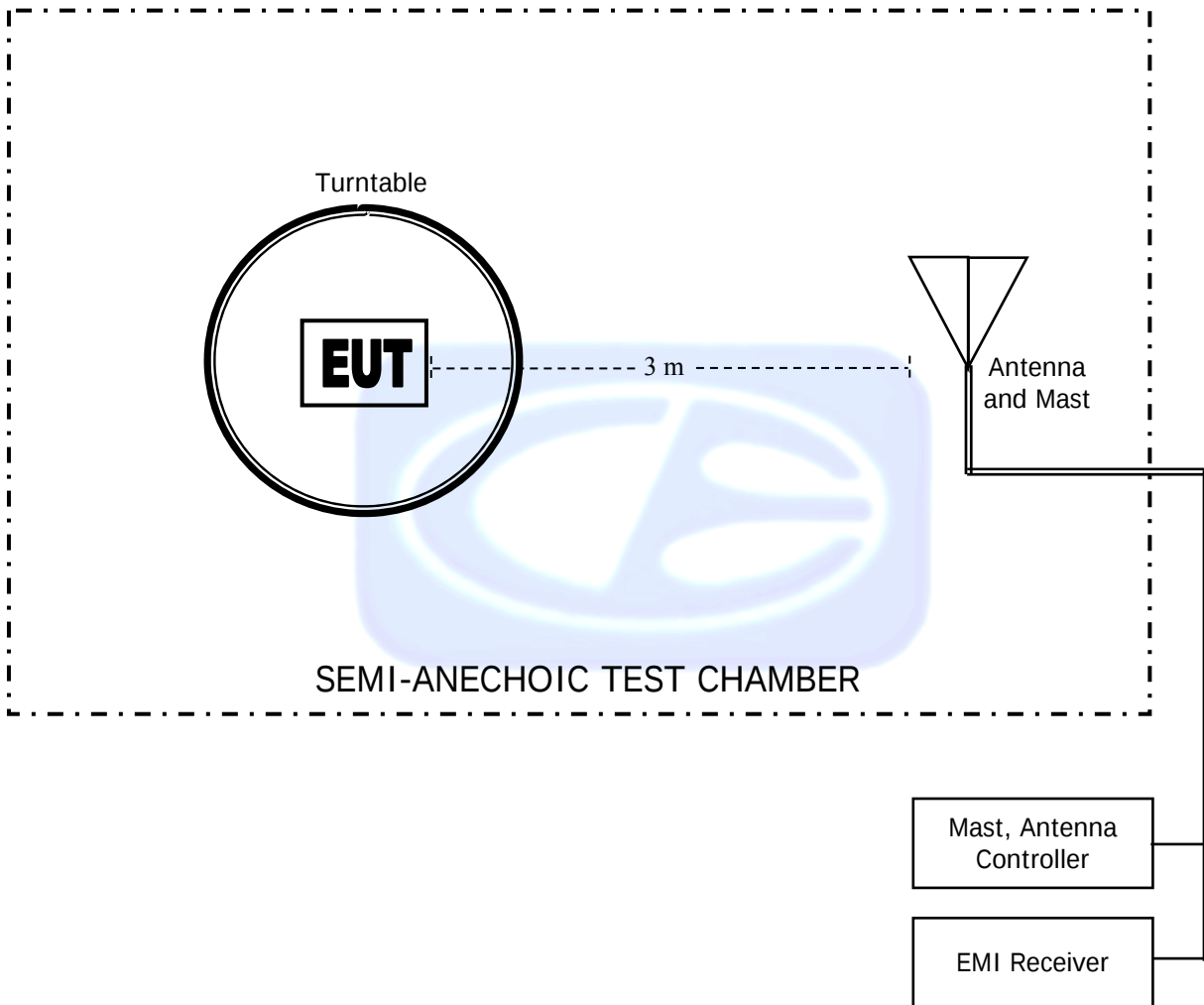




APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

***FIGURE 1: LAYOUT OF THE
SEMI-ANECHOIC TEST CHAMBER***





COM-POWER AL-130R

LOOP ANTENNA

S/N: 121090

CALIBRATION DATE: FEBRUARY 5, 2019

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	16.1	-35.4
0.01	15.6	-35.9
0.02	14.8	-36.7
0.03	15.6	-35.9
0.04	15.1	-36.4
0.05	14.4	-37.0
0.06	14.6	-36.9
0.07	14.4	-37.1
0.08	14.3	-37.1
0.09	14.5	-36.9
0.10	14.1	-37.3
0.20	14.1	-37.3
0.30	14.0	-37.4
0.40	14.0	-37.4
0.50	14.2	-37.2
0.60	14.2	-37.2
0.70	14.2	-37.2
0.80	14.2	-37.3
0.90	14.3	-37.2
1.00	14.5	-37.0
2.00	14.5	-36.9
3.00	14.5	-36.9
4.00	14.7	-36.8
5.00	14.6	-36.9
6.00	14.6	-36.9
7.00	14.6	-36.9
8.00	14.6	-36.9
9.00	14.6	-36.9
10.00	14.8	-36.6
11.00	14.9	-36.6
12.00	14.8	-36.6
13.00	14.8	-36.7
14.00	14.6	-36.8
15.00	14.5	-36.9
16.00	14.5	-37.0
17.00	14.6	-36.9
18.00	14.7	-36.7
19.00	14.8	-36.6
20.00	14.9	-36.6
21.00	14.6	-36.8
22.00	14.2	-37.2
23.00	13.7	-37.7
24.00	13.3	-38.2
25.00	13.0	-38.5
26.00	12.9	-38.6
27.00	13.0	-38.5
28.00	13.1	-38.4
29.00	13.1	-38.4
30.00	12.9	-38.5

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COM-POWER AC-220**COMBILOG ANTENNA****S/N: 61093****CALIBRATION DATE: JUNE 5, 2019**

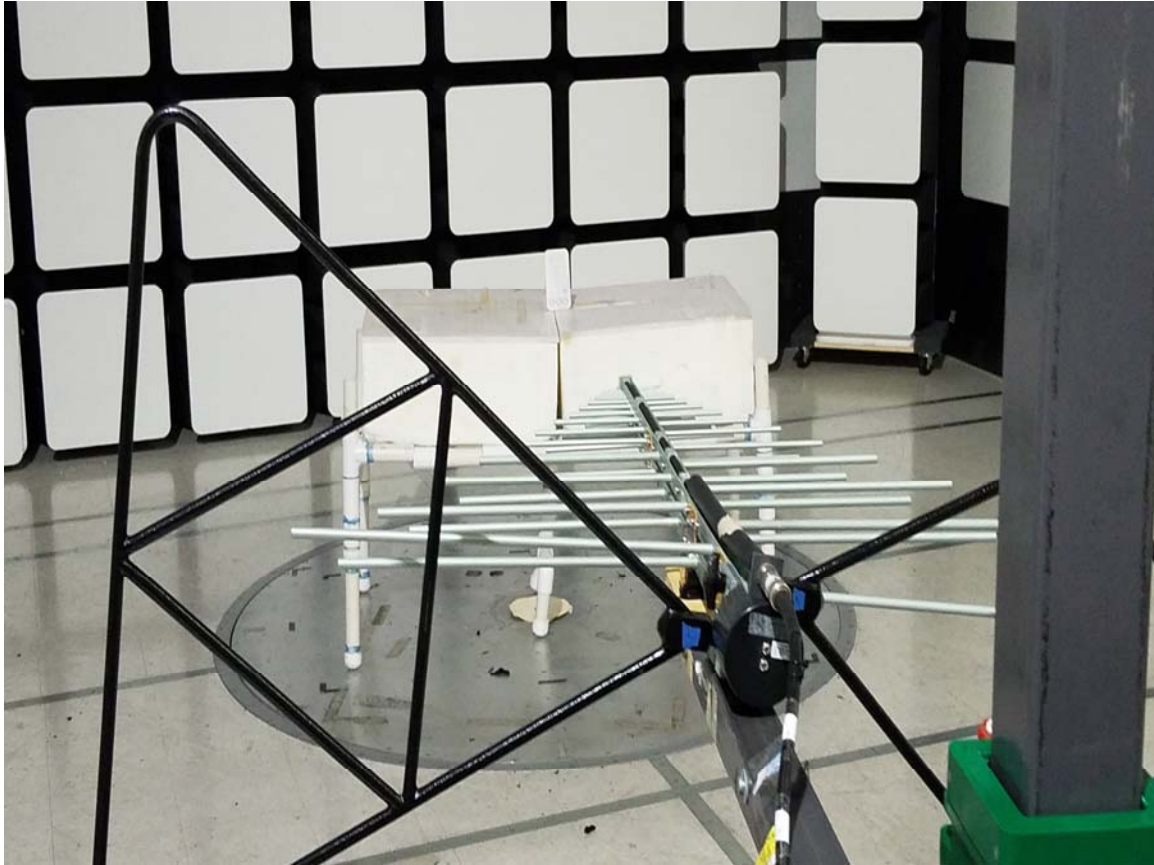
FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	22.10	200	15.30
35	20.90	250	16.80
40	20.10	300	19.00
45	19.40	350	19.60
50	18.40	400	21.70
60	15.10	450	21.60
70	12.00	500	22.20
80	11.60	550	22.70
90	13.50	600	24.20
100	14.70	650	24.40
120	15.90	700	24.50
125	15.90	750	25.40
140	14.80	800	26.30
150	15.50	850	26.70
160	19.80	900	27.50
175	15.20	950	27.80
180	14.90	1000	27.90

COM POWER AH-118**HORN ANTENNA****S/N: 10050113****CALIBRATION DATE: FEBRUARY 4, 2020**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.343	10.0	38.826
1.5	25.419	10.5	39.102
2.0	28.838	11.0	38.259
2.5	28.971	11.5	39.920
3.0	29.919	12.0	40.149
3.5	30.674	12.5	40.576
4.0	31.670	13.0	40.264
4.5	32.437	13.5	40.364
5.0	33.414	14.0	40.424
5.5	34.003	14.5	41.677
6.0	34.799	15.0	43.010
6.5	35.381	15.5	39.799
7.0	37.024	16.0	40.187
7.5	37.403	16.5	40.155
8.0	37.445	17.0	40.507
8.5	37.390	17.5	41.963
9.0	38.076	18.0	43.196
9.5	38.809		

COM-POWER PA-118**PREAMPLIFIER****S/N: 181653****CALIBRATION DATE: MARCH 3, 2021**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	40.18	6.0	39.04
1.1	39.92	6.5	39.16
1.2	39.99	7.0	39.70
1.3	40.19	7.5	39.70
1.4	40.07	8.0	39.56
1.5	40.22	8.5	38.69
1.6	40.23	9.0	39.16
1.7	40.35	9.5	39.70
1.8	40.24	10.0	39.69
1.9	40.29	11.0	38.64
2.0	40.31	12.0	40.41
2.5	40.41	13.0	39.49
3.0	40.59	14.0	39.46
3.5	40.91	15.0	40.38
4.0	40.42	16.0	38.02
4.5	39.92	17.0	39.34
5.0	40.35	18.0	39.86
5.5	39.13		

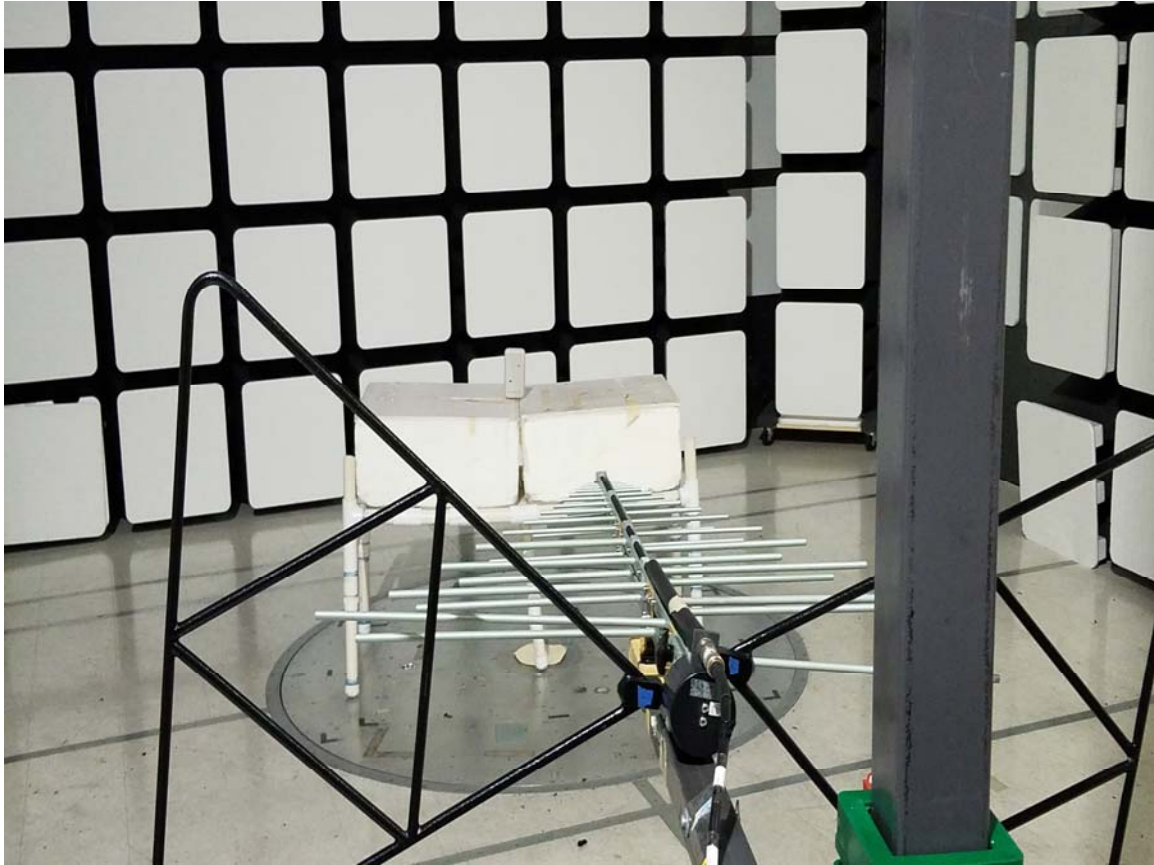


FRONT VIEW

VIVINT, INC.
KEYPAD
MODEL: KP01

FCC SUBPART B AND C; RSS-210 AND RSS-GEN – RADIATED EMISSIONS – BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

**REAR VIEW**

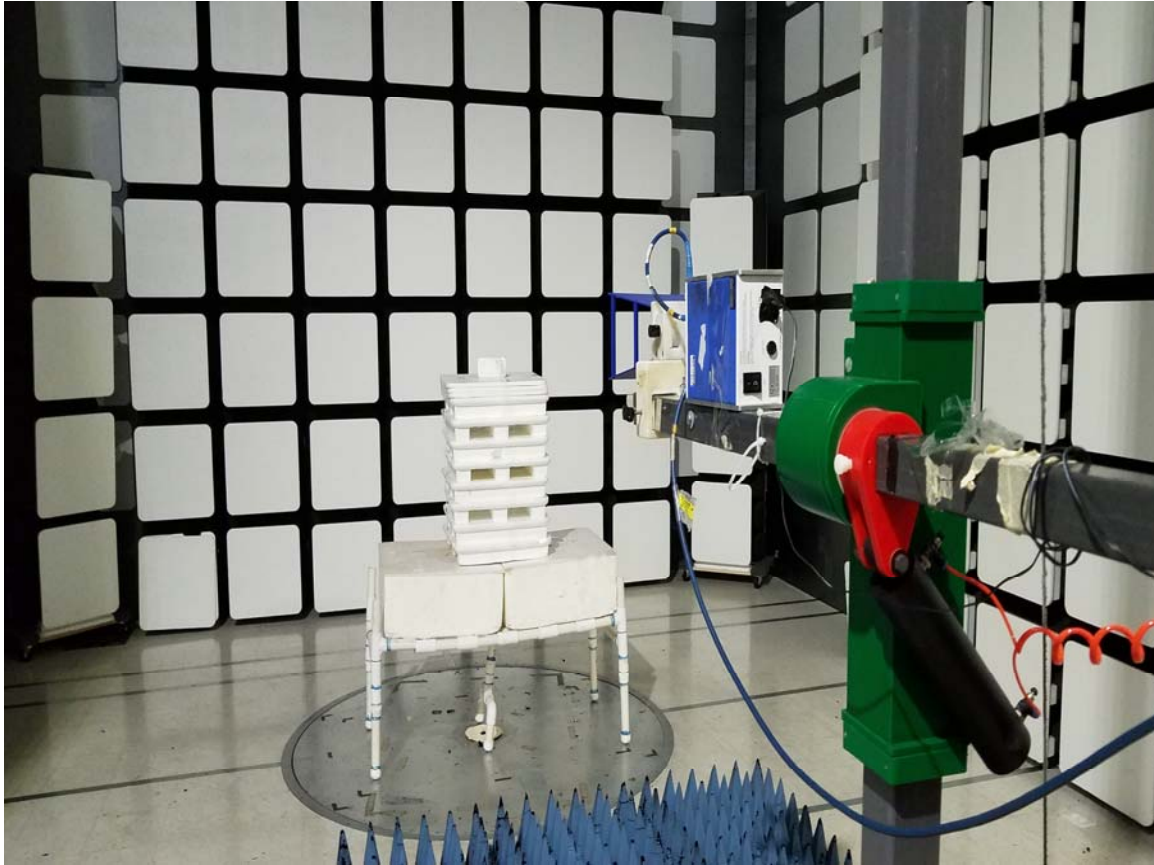
VIVINT, INC.

KEYPAD

MODEL: KP01

FCC SUBPART B AND C; RSS-210 AND RSS-GEN – RADIATED EMISSIONS – BELOW 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

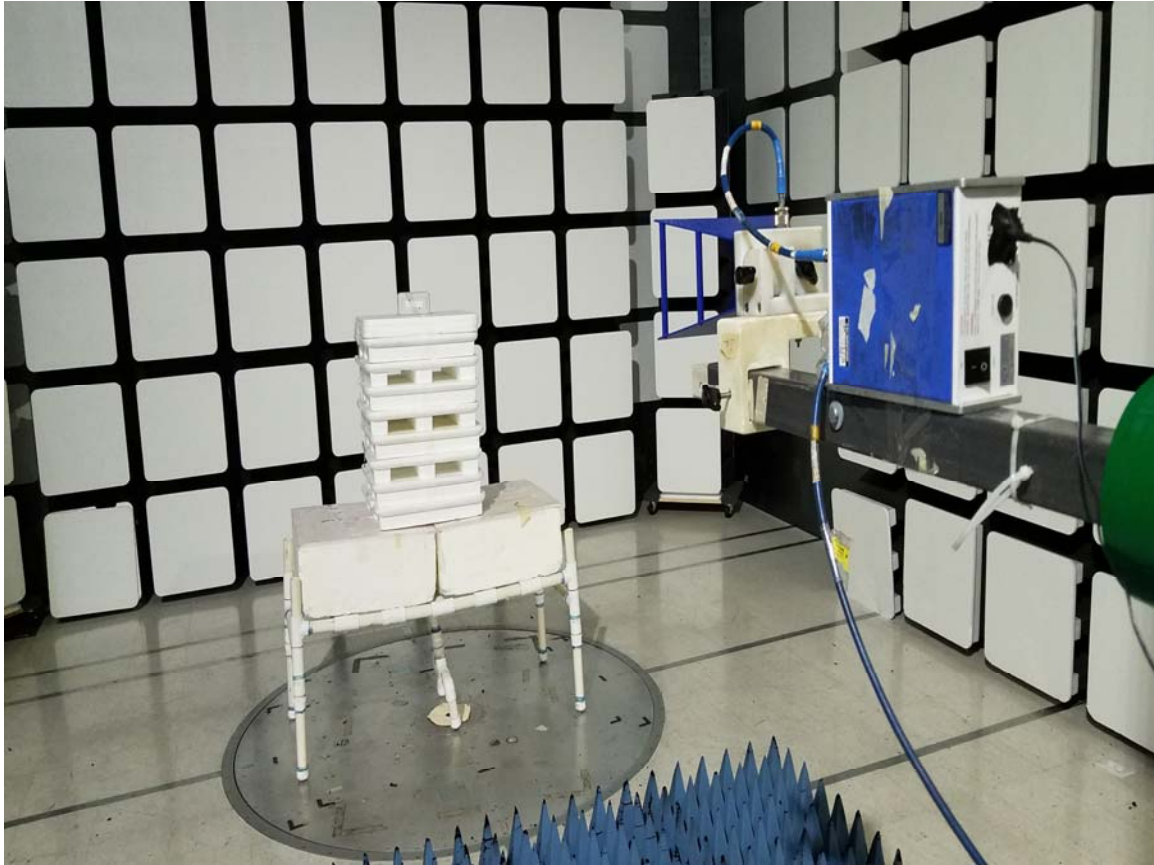


FRONT VIEW

VIVINT, INC.
KEYPAD
MODEL: KP01

FCC SUBPART B AND C; RSS-210 AND RSS-GEN – RADIATED EMISSIONS – ABOVE 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

VIVINT, INC.
KEYPAD
MODEL: KP01

FCC SUBPART B AND C; RSS-210 AND RSS-GEN – RADIATED EMISSIONS – ABOVE 1 GHz

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

APPENDIX E

DATA SHEETS

RADIATED EMISSIONS
DATA SHEETS



FCC Part 15 Subpart B and FCC Section 15.249; RSS-210 & RSS-GEN Test Report

Keypad

Model: KP01

Title: Pre-Scan - FCC Class B

File: 1 - Keysight - Pre-Scan - 908.42 MHz - Tx Mode - X-Axis - KP01 - FCC Class B - 03-05-2021.set

Operator: Kyle Fujimoto

EUT Type: Keypad

EUT Condition: The EUT is continuously transmitting at 908.42 MHz

Company: Vivint, Inc.

Model: KP01

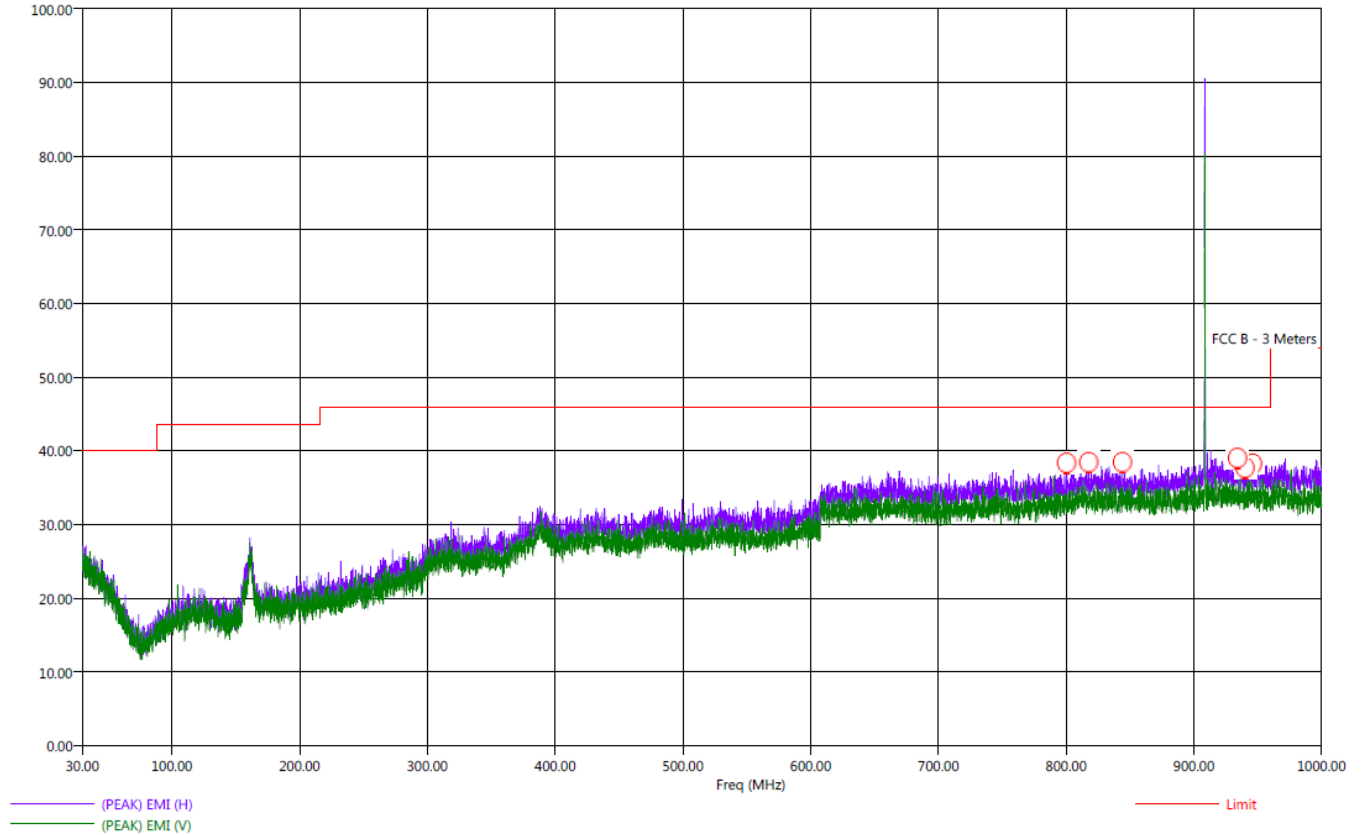
S/N: N/A

Note: The emission at 908.42 MHz is from the intentional radiator from the EUT and is subject to the limits of FCC 15.249 instead.

X-Axis

3/5/2021 7:34:14 AM
Sequence: Preliminary Scan

FCC Class B

Electric Field Strength (dB μ V/m)

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Newbury Park Division
1050 Lawrence Drive
Newbury Park, CA 91320
(805) 480-4044

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



Title: Radiated Final - FCC Class B

File: 1 - Keysight - Final Scan - 908.42 MHz - Tx Mode - X-Axis - KP01 - FCC Class B - 03-05-2021.set

Operator: Kyle Fujimoto

EUT Type: Keypad

EUT Condition: The EUT is continuously transmitting at 908.42 MHz

Company: Vivint, Inc.

Model: KP01

S/N: N/A

X-Axis

3/5/2021 8:15:52 AM

Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBμV/m)	(QP) EMI (dBμV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBμV/m)	Transducer (dB)	Cable (dB)	Ttbl Aql (deq)	Twr Ht (cm)
800.30	H	38.32	32.67	-7.68	-13.33	46.00	26.30	2.31	259.00	111.22
817.70	H	38.39	33.17	-7.61	-12.83	46.00	26.90	2.30	119.50	286.56
844.10	H	37.57	32.80	-8.43	-13.20	46.00	26.70	2.29	76.75	318.92
934.20	H	39.42	33.72	-6.58	-12.28	46.00	27.80	2.58	161.75	128.35
940.10	H	38.91	33.71	-7.09	-12.29	46.00	27.81	2.61	308.75	305.13
946.00	H	38.48	33.64	-7.52	-12.36	46.00	27.80	2.63	201.00	303.52





FCC Part 15 Subpart B and FCC Section 15.249; RSS-210 & RSS-GEN Test Report

Keypad

Model: KP01

Title: Pre-Scan - FCC Class B

File: 2 - Keysight - Pre-Scan - 916.00 MHz - Tx Mode - X-Axis - KP01 - FCC Class B - 03-05-2021.set

Operator: Kyle Fujimoto

EUT Type: Keypad

EUT Condition: The EUT is continuously transmitting at 916 MHz

Company: Vivint, Inc.

Model: KP01

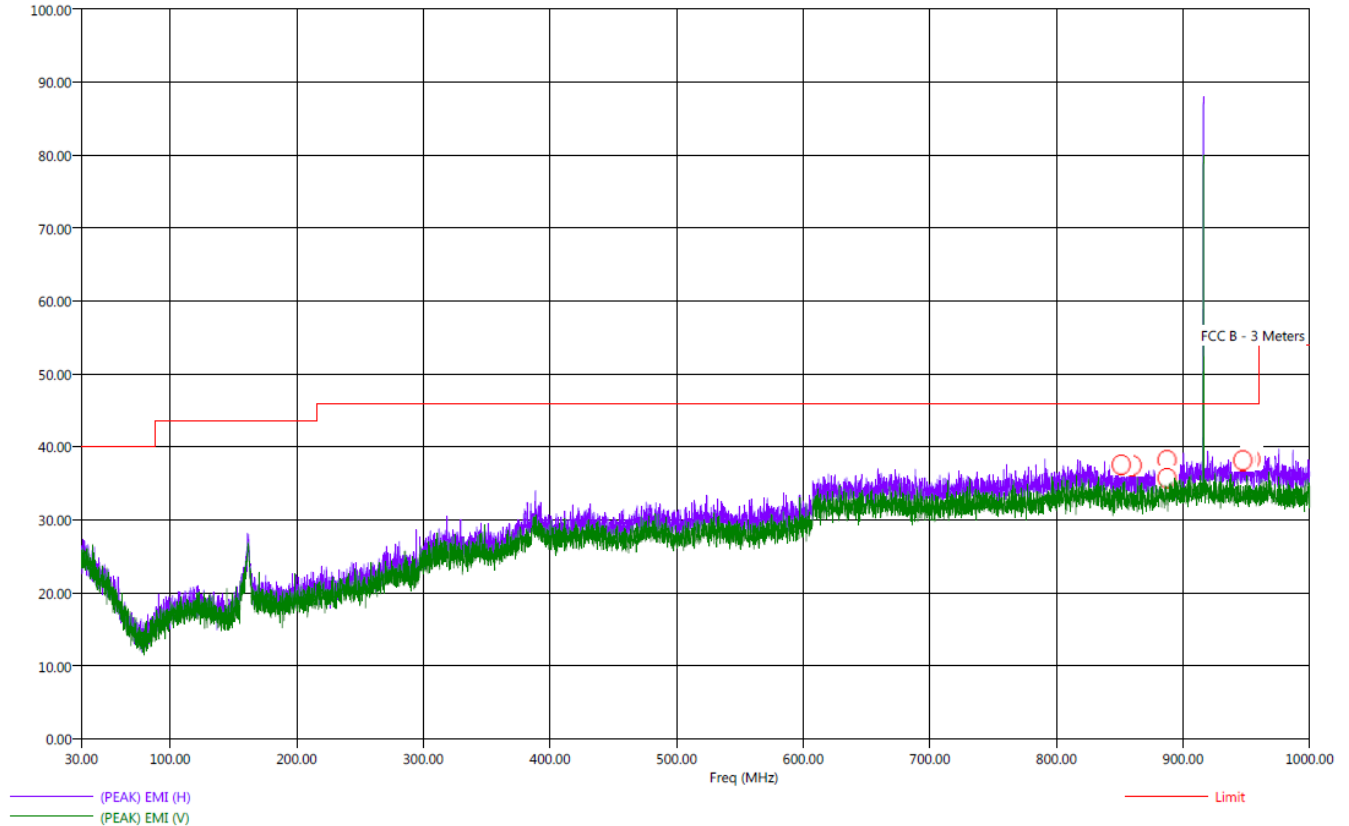
S/N: N/A

Note: The emission at 916 MHz is from the intentional radiator from the EUT and is subject to the limits of FCC 15.249 instead.

X-Axis

3/5/2021 9:14:14 AM
Sequence: Preliminary Scan

FCC Class B

Electric Field Strength (dB μ V/m)

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Newbury Park Division
1050 Lawrence Drive
Newbury Park, CA 91320
(805) 480-4044

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



Title: Radiated Final - FCC Class B

File: 2 - Keysight - Final Scan - 916.00 MHz - Tx Mode - X-Axis - KP01 - FCC Class B - 03-05-2021.set

Operator: Kyle Fujimoto

EUT Type: Keypad

EUT Condition: The EUT is continuously transmitting at 916 MHz

Company: Vivint, Inc.

Model: KP01

S/N: N/A

X-Axis

3/5/2021 9:24:12 AM

Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBμV/m)	(OP) EMI (dBμV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBμV/m)	Transducer (dB)	Cable (dB)	Ttbl Aql (dca)	Twr Ht (cm)
851.30	H	37.48	32.81	-8.52	-13.19	46.00	26.70	2.29	206.75	143.34
859.90	H	38.00	32.79	-8.00	-13.21	46.00	26.70	2.32	0.25	400.00
887.30	H	37.61	33.19	-8.39	-12.81	46.00	27.20	2.40	106.50	335.64
887.40	H	39.04	33.26	-6.96	-12.74	46.00	27.20	2.40	130.00	399.94
947.30	H	39.06	33.81	-6.94	-12.19	46.00	27.80	2.64	48.75	321.13
949.20	H	38.81	33.80	-7.19	-12.20	46.00	27.80	2.65	216.00	111.04
953.40	H	39.12	33.77	-6.88	-12.23	46.00	27.80	2.65	147.50	109.97
954.50	H	39.08	33.75	-6.92	-12.25	46.00	27.80	2.65	246.75	111.94



Title: Pre-Scan - FCC Class B
File: 5 - Keysight - Pre-Scan - 908.42 MHz - Rx Mode - X-Axis - KP01 - FCC Class B - 03-05-2021.set
Operator: Kyle Fujimoto
EUT Type: Keypad
EUT Condition: The EUT is continuously receiving at 908.42 MHz
Company: Vivint, Inc.
Model: KP01
S/N: N/A
X-Axis

3/5/2021 11:33:20 AM
Sequence: Preliminary Scan





Title: Radiated Final - FCC Class B

File: 5 - Keysight - Final Scan - 908.42 MHz - Rx Mode - X-Axis - KP01 - FCC Class B - 03-05-2021.set

Operator: Kyle Fujimoto

EUT Type: Keypad

EUT Condition: The EUT is continuously receiving at 908.42 MHz

Company: Vivint, Inc.

Model: KP01

S/N: N/A

X-Axis

3/5/2021 12:03:49 PM

Sequence: Final Measurements

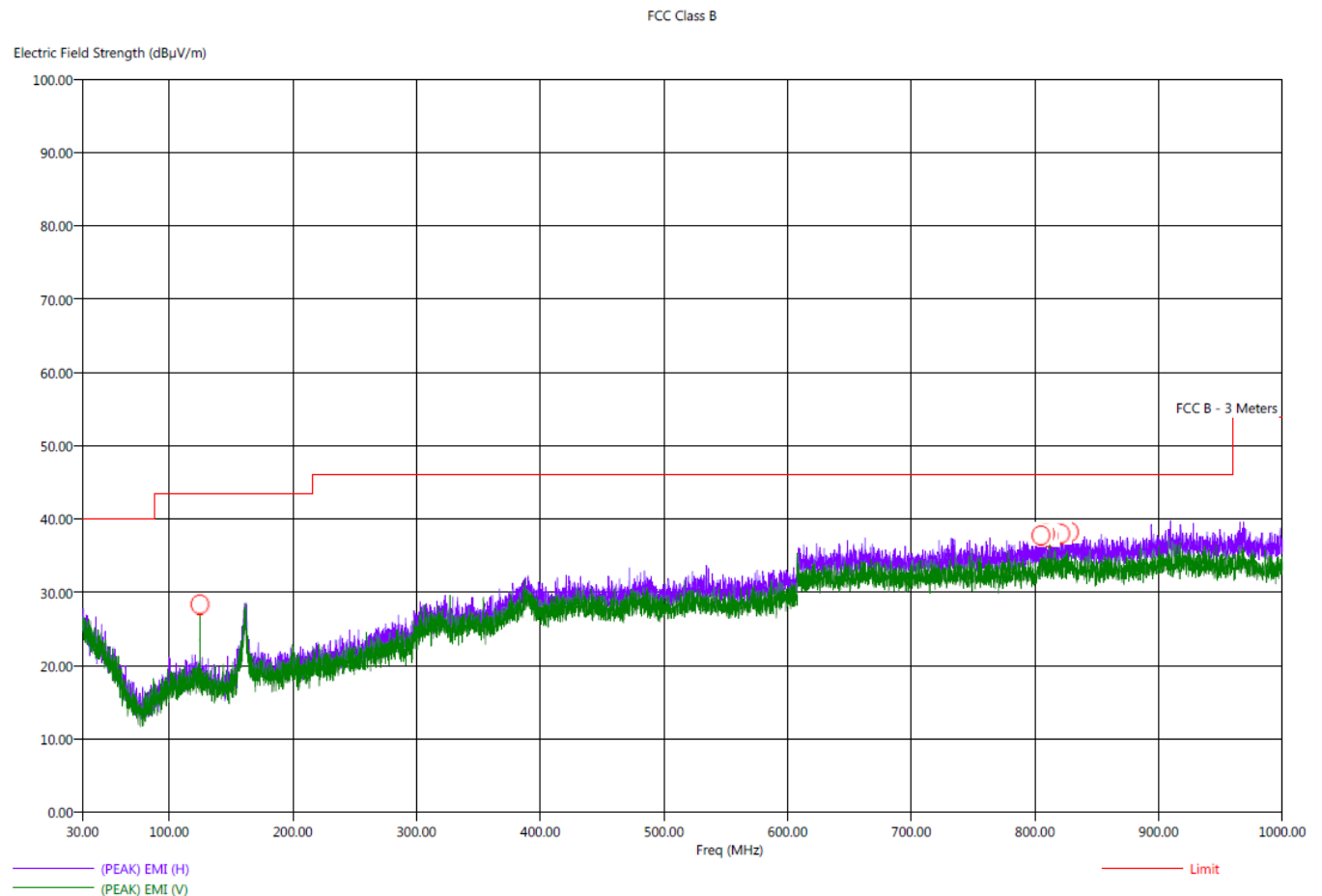
FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBμV/m)	(QP) EMI (dBμV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBμV/m)	Transducer (dB)	Cable (dB)	Ttbl Aql (deq)	Twr Ht (cm)
826.10	H	38.46	33.36	-7.54	-12.64	46.00	27.08	2.30	193.50	382.08
847.60	H	37.88	32.86	-8.12	-13.14	46.00	26.65	2.29	203.25	109.13
866.70	H	37.69	32.78	-8.31	-13.22	46.00	26.70	2.34	255.75	334.80
881.70	H	38.38	33.20	-7.62	-12.80	46.00	27.10	2.39	38.50	319.46
892.10	H	38.73	33.48	-7.27	-12.52	46.00	27.39	2.42	219.00	399.58
910.00	H	39.79	33.96	-6.21	-12.04	46.00	27.90	2.48	281.75	143.04



Title: Pre-Scan - FCC Class B
File: 6 - Keysight - Pre-Scan - 916.00 MHz - Rx Mode - X-Axis - KP01 - FCC Class B - 03-05-2021.set
Operator: Kyle Fujimoto
EUT Type: Keypad
EUT Condition: The EUT is continuously receiving at 916.00 MHz
Company: Vivint, Inc.
Model: KP01
S/N: N/A
X-Axis

3/5/2021 1:37:58 PM
Sequence: Preliminary Scan





Title: Radiated Final - FCC Class B

File: 6 - Keysight - Final Scan - 916.00 MHz - Rx Mode - X-Axis - KP01 - FCC Class B - 03-05-2021.set

Operator: Kyle Fujimoto

EUT Type: Keypad

EUT Condition: The EUT is continuously receiving at 916 MHz

Company: Vivint, Inc.

Model: KP01

S/N: N/A

X-Axis

3/5/2021 2:07:25 PM

Sequence: Final Measurements

FCC Class B

Freq (MHz)	Pol	(PEAK) EMI (dBµV/m)	(QP) EMI (dBµV/m)	(PEAK) Margin (dB)	(QP) Margin (dB)	Limit (dBµV/m)	Transducer (dB)	Cable (dB)	Ttbl Aql (deq)	Twr Ht (cm)
124.90	V	21.59	16.70	-21.91	-26.80	43.50	15.92	0.77	240.25	318.74
804.90	H	38.47	33.02	-7.53	-12.98	46.00	26.50	2.31	253.75	239.16
808.60	H	37.98	33.17	-8.02	-12.83	46.00	26.60	2.31	316.00	350.80
811.20	H	38.56	33.21	-7.44	-12.79	46.00	26.70	2.31	162.25	143.52
820.80	H	38.57	33.30	-7.43	-12.70	46.00	26.90	2.30	214.00	382.56
827.90	H	38.60	33.38	-7.40	-12.62	46.00	27.09	2.30	139.50	318.14





FUNDAMENTAL AND HARMONICS

DATA SHEETS



FCC 15.249 and RSS-210

Vivint, Inc.
Keypad
Model: KP01

Date: 03/04/2021
Lab: D
Tested By: Kyle Fujimoto

Fundamental High Channel

[illegible]

**FCC 15.249 and RSS-210**

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Harmonics - Low Channel**Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	34.74	V	73.97	-39.24	Peak	117.25	146.38	
1816.84	22.36	V	53.97	-31.61	Avg	117.25	146.38	
2725.26	37.36	V	73.97	-36.61	Peak	331.50	150.32	
2725.26	25.31	V	53.97	-28.66	Avg	331.50	150.32	
3633.68	37.08	V	73.97	-36.89	Peak	107.50	127.58	
3633.68	26.26	V	53.97	-27.72	Avg	107.50	127.58	
4542.10	40.15	V	73.97	-33.83	Peak	302.75	116.29	
4542.10	27.32	V	53.97	-26.65	Avg	302.75	116.29	
5450.52	45.14	V	73.97	-28.83	Peak	228.75	163.10	
5450.52	35.90	V	53.97	-18.07	Avg	228.75	163.10	
6358.94								No Emission
6358.94								Detected
7267.36								No Emission
7267.36								Detected
8175.78								No Emission
8175.78								Detected
9084.20								No Emission
9084.20								Detected



FCC 15.249 and RSS-210

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Harmonics - Low Channel

Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	34.96	V	73.97	-39.01	Peak	33.50	159.94	
1816.84	22.35	V	53.97	-31.62	Avg	33.50	159.94	
2725.26	35.15	V	73.97	-38.82	Peak	210.00	151.52	
2725.26	25.25	V	53.97	-28.72	Avg	210.00	151.52	
3633.68	36.99	V	73.97	-36.98	Peak	317.25	144.47	
3633.68	26.29	V	53.97	-27.68	Avg	317.25	144.47	
4542.10	40.81	V	73.97	-33.16	Peak	10.00	125.00	
4542.10	27.37	V	53.97	-26.60	Avg	10.00	125.00	
5450.52	45.20	V	73.97	-28.77	Peak	66.50	141.91	
5450.52	37.57	V	53.97	-16.40	Avg	66.50	141.91	
6358.94								No Emission
6358.94								Detected
7267.36								No Emission
7267.36								Detected
8175.78								No Emission
8175.78								Detected
9084.20								No Emission
9084.20								Detected

**FCC 15.249 and RSS-210**

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Harmonics - Low Channel**Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	35.29	V	73.97	-38.68	Peak	294.50	112.95	
1816.84	22.40	V	53.97	-31.57	Avg	294.50	112.95	
2725.26	37.70	V	73.97	-36.27	Peak	9.25	116.83	
2725.26	25.24	V	53.97	-28.73	Avg	9.25	116.83	
3633.68	37.98	V	73.97	-35.99	Peak	197.75	103.22	
3633.68	26.27	V	53.97	-27.70	Avg	197.75	103.22	
4542.10	40.07	V	73.97	-33.90	Peak	350.00	112.23	
4542.10	27.30	V	53.97	-26.67	Avg	350.00	112.23	
5450.52	48.48	V	73.97	-25.49	Peak	62.25	115.82	
5450.52	42.99	V	53.97	-10.98	Avg	62.20	115.82	
6358.94								No Emission
6358.94								Detected
7267.36								No Emission
7267.36								Detected
8175.78								No Emission
8175.78								Detected
9084.20								No Emission
9084.20								Detected

**FCC 15.249 and RSS-210**

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Harmonics - Low Channel**Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	33.11	H	73.97	-40.87	Peak	278.75	138.38	
1816.84	22.84	H	53.97	-31.14	Avg	278.70	138.38	
2725.26	34.29	H	73.97	-39.68	Peak	69.25	132.00	
2725.26	25.39	H	53.97	-28.59	Avg	69.25	132.00	
3633.68	39.03	H	73.97	-34.94	Peak	257.50	113.13	
3633.68	26.56	H	53.97	-27.41	Avg	257.50	113.13	
4542.10	40.03	H	73.97	-33.94	Peak	6.50	102.43	
4542.10	27.49	H	53.97	-26.48	Avg	6.50	102.43	
5450.52	48.30	H	73.97	-25.67	Peak	346.00	149.01	
5450.52	43.49	H	53.97	-10.48	Avg	346.00	149.01	
6358.94								No Emission
6358.94								Detected
7267.36								No Emission
7267.36								Detected
8175.78								No Emission
8175.78								Detected
9084.20								No Emission
9084.20								Detected

**FCC 15.249 and RSS-210**

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Harmonics - Low Channel**Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	32.72	H	73.97	-41.26	Peak	10.00	125.31	
1816.84	22.57	H	53.97	-31.40	Avg	10.00	125.31	
2725.26	37.85	H	73.97	-36.12	Peak	54.25	160.47	
2725.26	25.20	H	53.97	-28.77	Avg	54.25	160.47	
3633.68	39.17	H	73.97	-34.80	Peak	96.50	136.23	
3633.68	26.32	H	53.97	-27.65	Avg	96.50	136.23	
4542.10	40.30	H	73.97	-33.67	Peak	247.00	125.73	
4542.10	27.24	H	53.97	-26.73	Avg	247.00	125.73	
5450.52	45.03	H	73.97	-28.94	Peak	166.50	121.19	
5450.52	36.07	H	53.97	-17.90	Avg	166.50	121.19	
6358.94								No Emission
6358.94								Detected
7267.36								No Emission
7267.36								Detected
8175.78								No Emission
8175.78								Detected
9084.20								No Emission
9084.20								Detected

**FCC 15.249 and RSS-210**

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Harmonics - Low Channel**Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1816.84	34.76	H	73.97	-39.21	Peak	353.00	102.25	
1816.84	22.55	H	53.97	-31.43	Avg	353.00	102.25	
2725.26	34.65	H	73.97	-39.32	Peak	186.25	128.29	
2725.26	25.28	H	53.97	-28.69	Avg	186.25	128.29	
3633.68	36.62	H	73.97	-37.35	Peak	357.00	123.76	
3633.68	26.54	H	53.97	-27.43	Avg	357.00	123.76	
4542.10	40.54	H	73.97	-33.43	Peak	221.00	118.86	
4542.10	27.47	H	53.97	-26.50	Avg	221.00	118.86	
5450.52	46.30	H	73.97	-27.68	Peak	304.00	165.01	
5450.52	37.80	H	53.97	-16.17	Avg	304.00	165.01	
6358.94								No Emission
6358.94								Detected
7267.36								No Emission
7267.36								Detected
8175.78								No Emission
8175.78								Detected
9084.20								No Emission
9084.20								Detected

**FCC 15.249 and RSS-210**

Vivint, Inc.
Keypad
Model: KP01

Date: 03/03/2021
Lab: D
Tested By: Kyle Fujimoto

Harmonics - High Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	34.21	V	73.97	-39.77	Peak	55.50	113.01	
1832.00	22.56	V	53.97	-31.41	Avg	55.50	113.01	
2748.00	35.65	V	73.97	-38.32	Peak	75.00	113.01	
2748.00	24.99	V	53.97	-28.98	Avg	75.00	113.01	
3664.00	38.37	V	73.97	-35.60	Peak	11.25	106.56	
3664.00	25.92	V	53.97	-28.06	Avg	11.25	106.56	
4580.00	37.16	V	73.97	-36.81	Peak	252.00	101.79	
4580.00	26.80	V	53.97	-27.17	Avg	252.00	101.79	
5496.00	45.68	V	73.97	-28.29	Peak	308.50	157.85	
5496.00	37.99	V	53.97	-15.98	Avg	308.50	157.85	
6412.00								No Emission
6412.00								Detected
7328.00								No Emission
7328.00								Detected
8244.00								No Emission
8244.00								Detected
9160.00								No Emission
9160.00								Detected

**FCC 15.249 and RSS-210**

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Harmonics - High Channel**Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	32.87	V	73.97	-41.10	Peak	328.75	116.59	
1832.00	22.52	V	53.97	-31.45	Avg	328.75	116.59	
2748.00	36.09	V	73.97	-37.88	Peak	72.00	143.04	
2748.00	24.93	V	53.97	-29.04	Avg	72.00	143.04	
3664.00	39.91	V	73.97	-34.06	Peak	68.50	138.14	
3664.00	25.84	V	53.97	-28.13	Avg	68.50	138.14	
4580.00	39.73	V	73.97	-34.24	Peak	10.00	133.79	
4580.00	26.87	V	53.97	-27.10	Avg	10.00	133.79	
5496.00	46.07	V	73.97	-27.90	Peak	356.00	168.17	
5496.00	36.95	V	53.97	-17.02	Avg	356.00	168.17	
6412.00								No Emission
6412.00								Detected
7328.00								No Emission
7328.00								Detected
8244.00								No Emission
8244.00								Detected
9160.00								No Emission
9160.00								Detected

**FCC 15.249 and RSS-210**

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Harmonics - High Channel**Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	34.62	V	73.97	-39.35	Peak	248.50	194.50	
1832.00	22.91	V	53.97	-31.06	Avg	248.50	194.50	
2748.00	37.63	V	73.97	-36.35	Peak	31.75	153.25	
2748.00	24.93	V	53.97	-29.04	Avg	31.75	153.25	
3664.00	38.59	V	73.97	-35.39	Peak	314.25	154.25	
3664.00	25.95	V	53.97	-28.02	Avg	314.25	154.25	
4580.00	39.83	V	73.97	-34.14	Peak	251.50	168.17	
4580.00	26.76	V	53.97	-27.21	Avg	251.50	168.17	
5496.00	49.43	V	73.97	-24.54	Peak	358.00	141.01	
5496.00	45.18	V	53.97	-8.79	Avg	358.00	141.04	
6412.00								No Emission
6412.00								Detected
7328.00								No Emission
7328.00								Detected
8244.00								No Emission
8244.00								Detected
9160.00								No Emission
9160.00								Detected

**FCC 15.249 and RSS-210**

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Harmonics - High Channel**Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	36.20	H	73.97	-37.77	Peak	113.00	129.07	
1832.00	23.58	H	53.97	-30.39	Avg	113.00	129.07	
2748.00	38.01	H	73.97	-35.96	Peak	169.00	123.94	
2748.00	25.09	H	53.97	-28.88	Avg	169.00	123.94	
3664.00	40.58	H	73.97	-33.39	Peak	279.00	120.47	
3664.00	26.25	H	53.97	-27.72	Avg	279.00	120.47	
4580.00	39.86	H	73.97	-34.11	Peak	126.25	133.49	
4580.00	27.04	H	53.97	-26.93	Avg	126.25	133.49	
5496.00	49.18	H	73.97	-24.79	Peak	350.00	138.62	
5496.00	44.31	H	53.97	-9.66	Avg	350.00	138.62	
6412.00								No Emission
6412.00								Detected
7328.00								No Emission
7328.00								Detected
8244.00								No Emission
8244.00								Detected
9160.00								No Emission
9160.00								Detected

**FCC 15.249 and RSS-210**

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Harmonics - High Channel**Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	33.11	H	73.97	-40.86	Peak	235.25	148.11	
1832.00	22.61	H	53.97	-31.36	Avg	235.25	148.11	
2748.00	37.54	H	73.97	-36.43	Peak	284.00	143.40	
2748.00	25.15	H	53.97	-28.83	Avg	284.00	143.40	
3664.00	39.20	H	73.97	-34.77	Peak	0.00	140.23	
3664.00	26.25	H	53.97	-27.72	Avg	0.00	140.23	
4580.00	40.39	H	73.97	-33.58	Peak	40.00	140.23	
4580.00	27.13	H	53.97	-26.84	Avg	40.00	140.23	
5496.00	45.62	H	73.97	-28.35	Peak	96.50	130.38	
5496.00	37.84	H	53.97	-16.13	Avg	96.50	130.38	
6412.00								No Emission
6412.00								Detected
7328.00								No Emission
7328.00								Detected
8244.00								No Emission
8244.00								Detected
9160.00								No Emission
9160.00								Detected



FCC 15.249 and RSS-210

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Harmonics - High Channel

Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV/m)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Table Angle (deg)	Ant. Height (cm)	Comments
1832.00	35.41	H	73.97	-38.56	Peak	10.00	136.89	
1832.00	24.42	H	53.97	-29.55	Avg	10.00	136.89	
2748.00	37.52	H	73.97	-36.45	Peak	9.25	136.89	
2748.00	25.14	H	53.97	-28.83	Avg	9.25	136.89	
3664.00	39.01	H	73.97	-34.96	Peak	118.25	136.89	
3664.00	26.31	H	53.97	-27.66	Avg	118.25	136.89	
4580.00	40.04	H	73.97	-33.93	Peak	356.75	151.04	
4580.00	26.99	H	53.97	-26.98	Avg	356.75	151.04	
5496.00	45.98	H	73.97	-27.99	Peak	104.75	154.56	
5496.00	37.48	H	53.97	-16.49	Avg	104.75	154.56	
6412.00								No Emission
6412.00								Detected
7328.00								No Emission
7328.00								Detected
8244.00								No Emission
8244.00								Detected
9160.00								No Emission
9160.00								Detected

FCC 15.249 and RSS-210

Vivint, Inc.

Keypad

Model: KP01

Date: 03/03/2021

Lab: D

Tested By: Kyle Fujimoto

Non Harmonic Emissions from the Tx and Digital Portion - 9 kHz to 30 MHz

Non Harmonic Emissions from the Tx and Digital Portion - 1 GHz to 9.3 GHz

[illegible]

FCC Class B and RSS-GEN

Vivint, Inc.
Keypad
Model: KP01

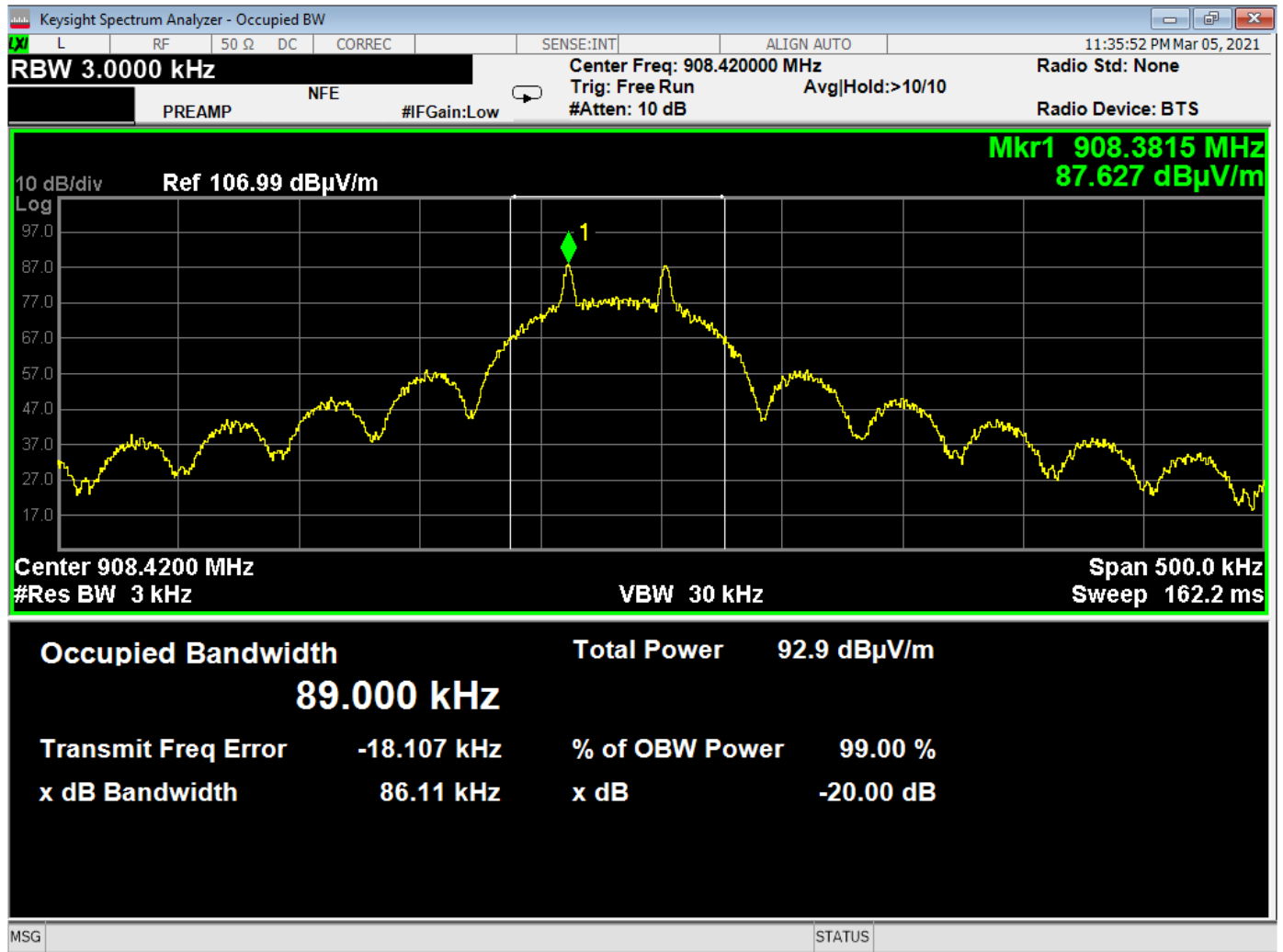
Date: 03/03/2021
Lab: D
Tested By: Kyle Fujimoto

Receive Mode - 1 GHz to 9.3 GHz

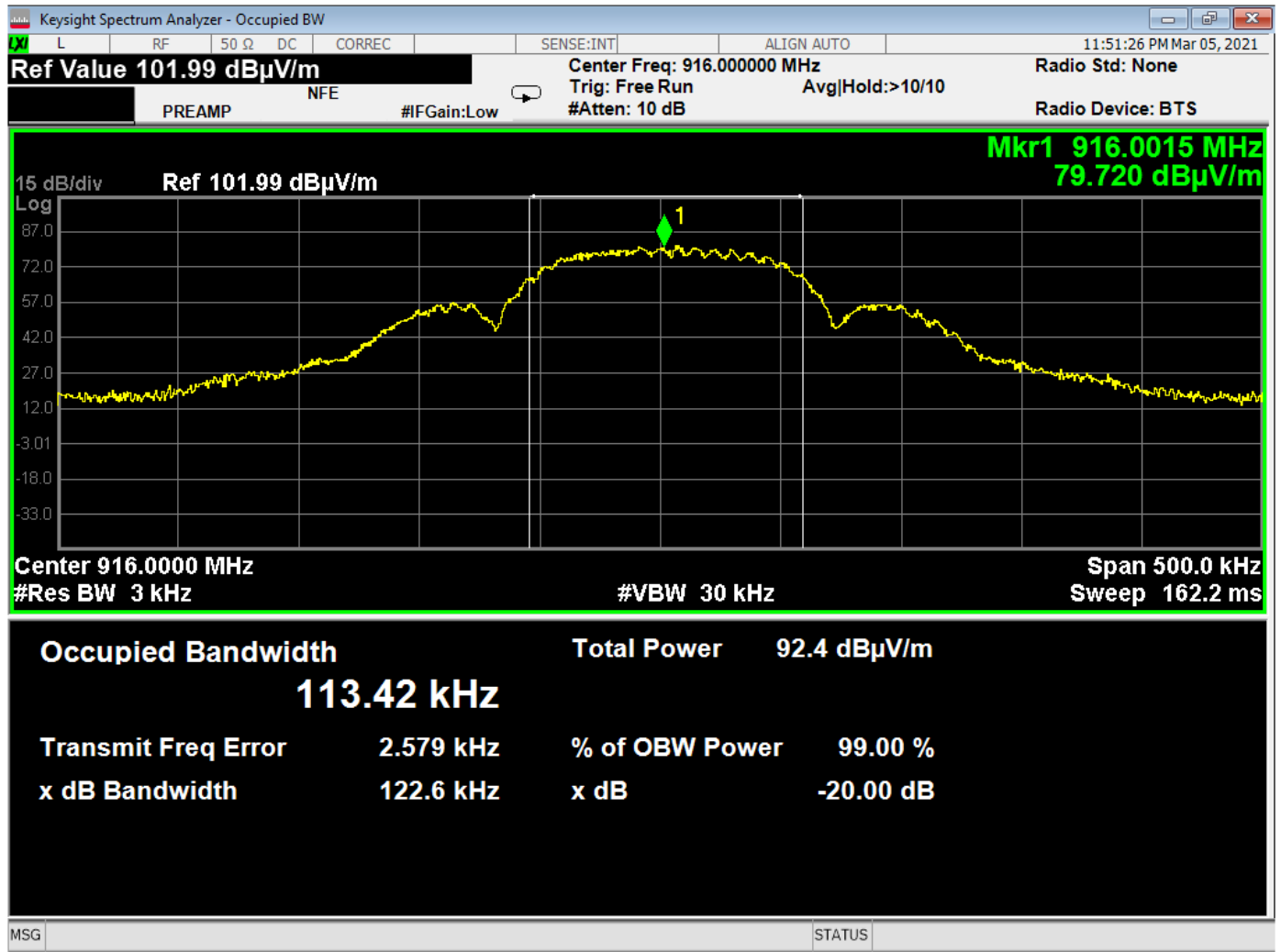
[illegible]



***99 % BANDWIDTH
DATA SHEETS***



99 Percent Bandwidth Plot – 908.42 MHz



99 Percent Bandwidth Plot – 916.00 MHz

***BAND EDGES
DATA SHEETS***



FCC 15.249 and RSS-210

Ecolink Intelligent Technology, Inc.

Keypad

Model: KP01

Date: 03/04/2021

Lab: D

Tested By: Kyle Fujimoto

Band Edges - Low Channel

[illegible]



FCC 15.249 and RSS-210

Ecolink Intelligent Technology, Inc.

Keypad

Model: KP01

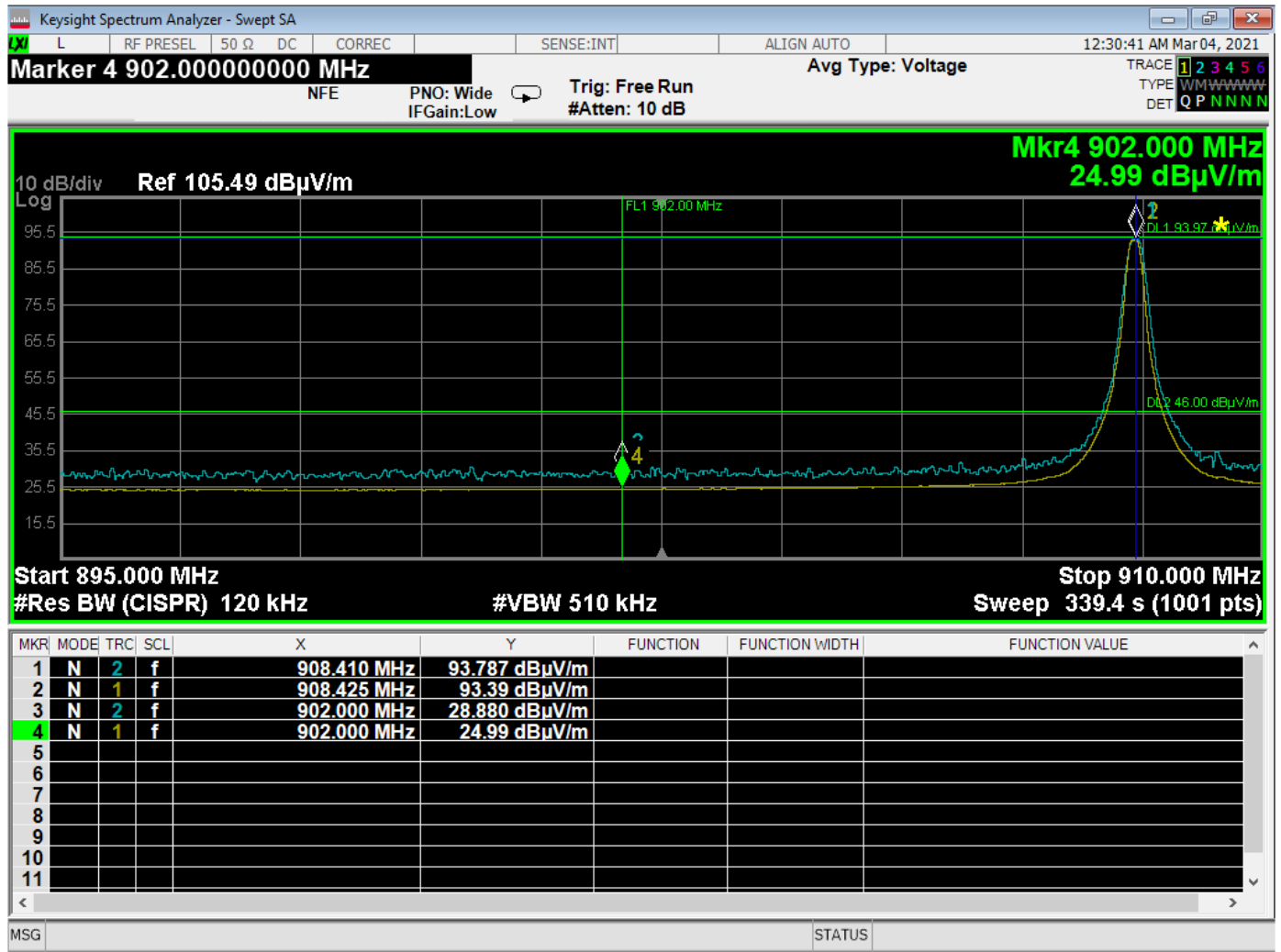
Date: 03/04/2021

Lab: D

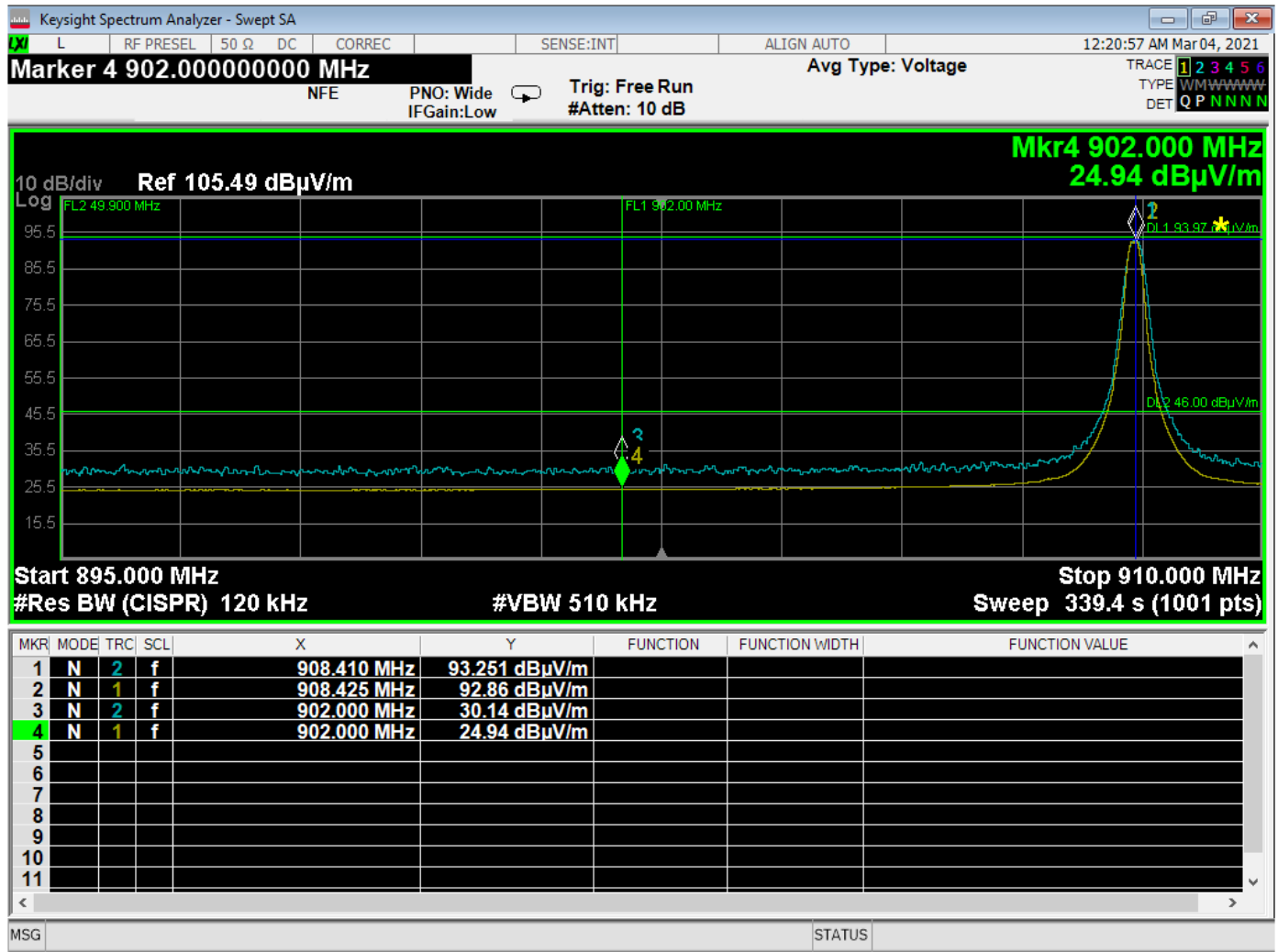
Tested By: Kyle Fujimoto

Band Edges - High Channel

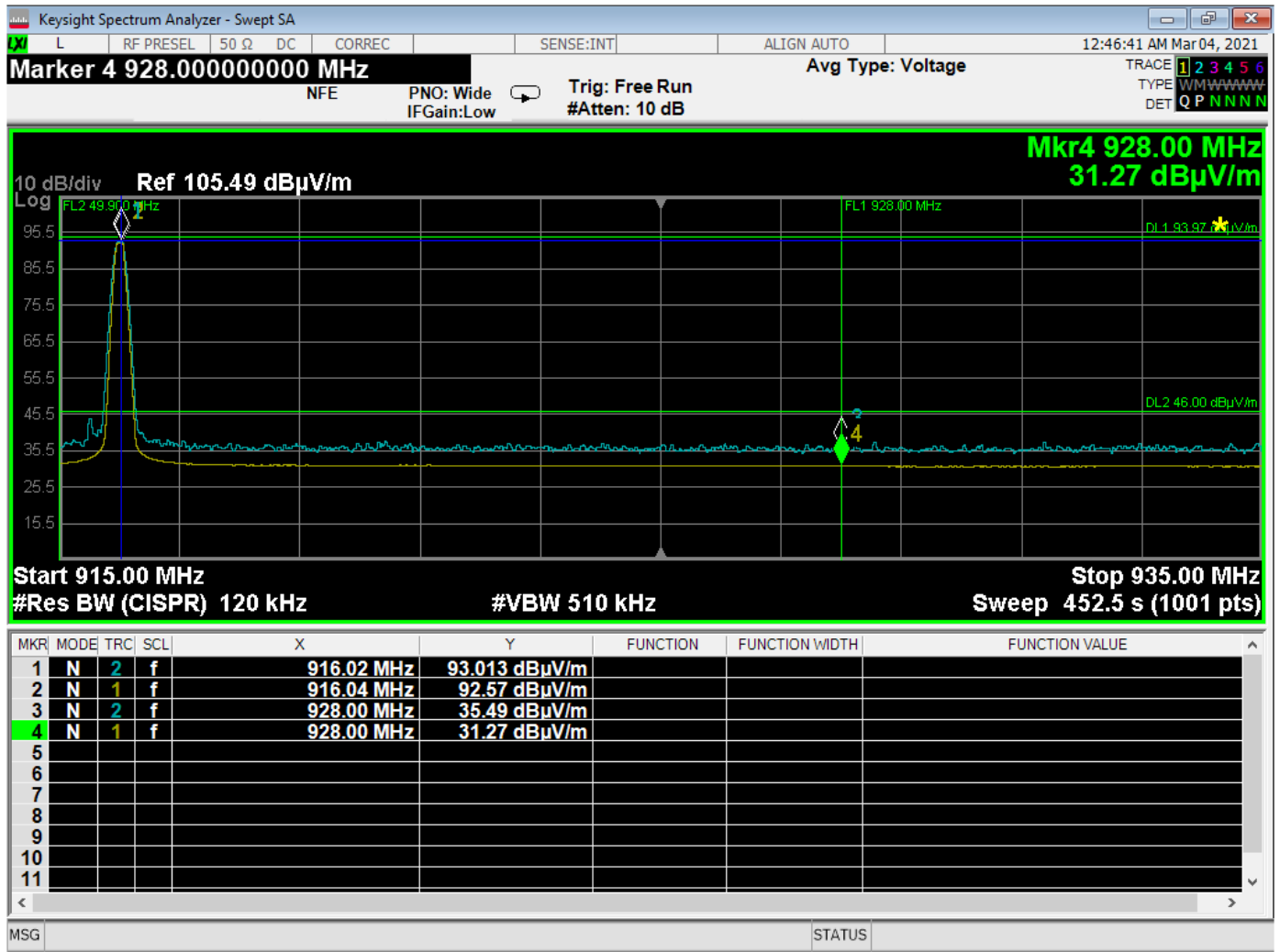
[illegible]



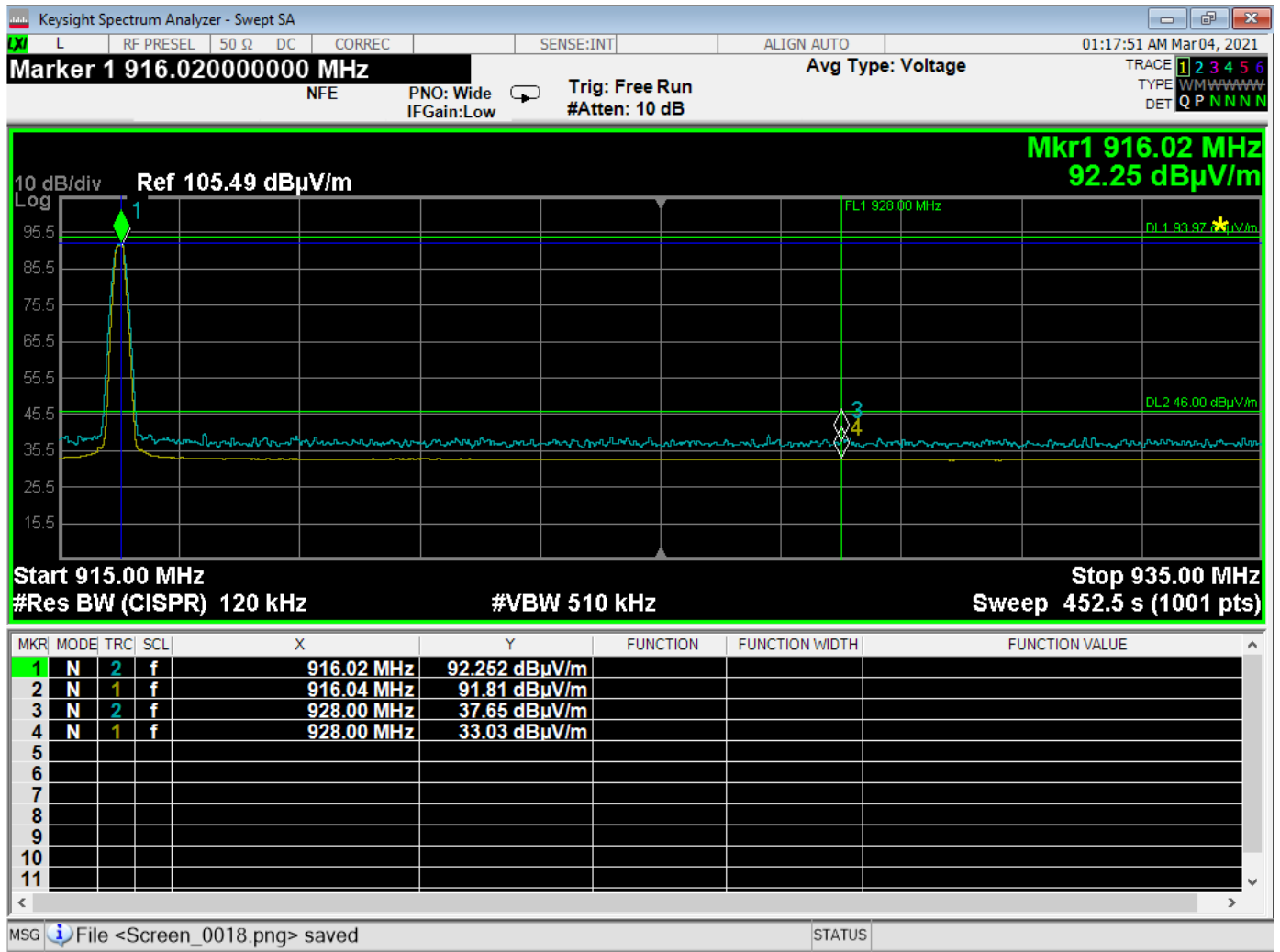
Band Edge – 908.42 MHz – Horizontal Polarization – X-Axis



Band Edge – 908.42 MHz – Vertical Polarization – Y-Axis



Band Edge – 916 MHz – Horizontal Polarization – X-Axis



Band Edge – 916 MHz – Vertical Polarization – Y-Axis