

FCC IC Test Report

Report No.: FCC_IC_RF_SL20060401-STR-006 (Transmitter) Rev_2.0

FCC ID: SSH-SYNK4KTX

IC: 4919C-SYNK4KTX

Test Model: 0240031065

Series Model: 0240031061

Received Date: 06/24/2020

Test Date: 06/24/2020 – 06/29/2020

Issued Date: 09/01/2020

Applicant: Stryker Endoscopy

Address: 5900 Optical Court, San Jose, CA, 95138, USA

Manufacturer: Stryker Endoscopy

Address: 5900 Optical Court, San Jose, CA, 95138, USA

Issued By: Bureau Veritas Consumer Products Services, Inc.

Lab Address: 775 Montague Expressway, Milpitas, CA 95035, USA

FCC Test Site Reg No.: 540430



TESTING CERT # 2742-01

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by A2LA or any government agencies.

Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 Summary of Test Results	5
2.1 Measurement Uncertainty	5
2.2 Modification Record	5
3 General Information	6
3.1 General Description of EUT	6
3.2 Description of Operation Modes	7
3.3 Description of Support Units	8
3.4 General Description of Applied Standard	9
4 Test Types and Results	10
4.1 Radiated Emission and Bandedge Measurement	10
4.1.1 Limits of Radiated Emission Measurement	10
4.1.2 Test Instruments	11
4.1.3 Test Procedure	11
4.1.4 Deviation from Test Standard	12
4.1.5 Test Setup	13
4.1.6 EUT Operating Condition	14
4.1.7 Test Results	15
Appendix – Information on the Testing Laboratories	21

Release Control Record

Issue No.	Description	Date Issued
FCC_IC_RF_SL20060401-STR-006 (Transmitter)	Original release	07/02/2020
FCC_IC_RF_SL20060401-STR-006 (Transmitter)_Rev_1.0	Add series model	08/18/2020
FCC_IC_RF_SL20060401-STR-006 (Transmitter)_Rev_2.0	Minor Update, model No. update	09/01/2020

1 Certificate of Conformity

Product: SYNK®4K Wireless Transmitter

Brand: Stryker

Test Model: 0240031065

Series Model: 0240031061

Sample Status: Engineering Sample

Applicant: Stryker Endoscopy

Test Date: 06/24/2020 – 06/29/2020


47 CFR FCC Part 15, Subpart E (Section 15.407)

Standard: RSS-247, RSS-GEN

789033 D02 General UNII Test Procedures New Rules v02r01

ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services, Inc. Milpitas Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :  , **Date:** 09/01/2020
Deon Dai / Test Engineer

Approved by :  , **Date:** 09/01/2020
Chen Ge / Engineer Reviewer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
RSS 247 Issue 2			
Standard Section	Test Item	Result	Remarks
15.407 (b)(1/2/3/4(i/ii)/6) RSS 247 (6.2)	Radiated Emissions & Band Edge Measurement*	Pass	Meet the requirement of limit.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	3.51dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	3.73dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.64dB
	6GHz ~ 18GHz	4.82dB
	18GHz ~ 40GHz	4.91dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	SYNK@4K Wireless Transmitter
Brand	Stryker
Test Model (host)	0240031065
Identification No. of EUT	N/A
Series Model	0240031061
Model Difference	N/A
Status of EUT	Engineering Sample
Power Supply Rating	12V == 2.5A; 24V == 2.0A External power supply: Model: AFM30US12 / BPM150S24F11
Modulation Type	64QAM, 16QAM, OFDM
Operating Frequency	5150 ~ 5250MHz 5250 ~ 5350MHz 5470 ~ 5725MHz 5725 ~ 5850MHz
Number of Channel	5150~5250MHz: (40MHz Bandwidth): 2 5250~5350MHz: (40MHz Bandwidth): 2 5470~5725MHz: (40MHz Bandwidth): 6 5725~5850MHz: (40MHz Bandwidth): 2

3.2 Description of Operation Modes

FOR 5150 ~ 5350MHz

4 channels are provided for 40MHz Bandwidth:

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz
54	5270 MHz	62	5310 MHz

FOR 5470 ~ 5725MHz:

6 channels are provided for 40MHz Bandwidth:

Channel	Frequency	Channel	Frequency
102	5510MHz	110	5550MHz
118	5590MHz	126	5630MHz
134	5670MHz	142	5710MHz

FOR 5745 ~ 5825MHz

4 channels are provided for 40MHz Bandwidth:

Channel	Frequency	Channel	Frequency
151	5775 MHz	159	5795 MHz

1. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	SYNK 4K Wireless Transmitter	Stryker	0240031065	20DVV3124	TBD	
B.	Video generator	Stryker	1688	19A522047	N/A	
C.	4k Display	Stryker	0240031050	SV7328E0198	QVXAMM320ES	
D.	Laptop	Dell	Latitude E7450	8XQLF72	N/A	

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	HDMI cable	2	2	Yes		
2.	USB cable	2	3	No		

Note: The core(s) is (are) originally attached to the cable(s).

3.4 General Description of Applied Standard

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

47 CFR FCC Part 15, Subpart E (Section 15.407)

RSS-247

RSS-GEN

789033 D02 General UNII Test Procedures New Rules v02r01

ANSI C63.10:2013

All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (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

NOTE:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Applicable To			Limit	
789033 D02 General UNII Test Procedure New Rules v02r01			Field Strength at 3m	
			PK:74 (dBμV/m)	AV:54 (dBμV/m)
Frequency Band	Applicable To		EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)		PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz	15.407(b)(2)			
5470~5725 MHz	15.407(b)(3)			
5725~5850 MHz	<input type="checkbox"/>	15.407(b)(4)(i)	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK:122.2 (dBμV/m) *4
	<input checked="" type="checkbox"/>	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
*1 beyond 75 MHz or more above of the band edge.			*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.	
*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.			*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

Note:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \text{ } \mu\text{V/m, where P is the eirp (Watts).}$$

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
50GHz Spectrum Analyzer	N9030B (PXA)	MY57140597	06/05/2020	06/05/2021
Biconilog Antenna Sunol	JB1	A030702	03/09/2020	03/09/2021
Pre-Amplifier RF Bay, Inc.	LPA-6-30	11170601	04/27/2020	04/27/2021
Horn Antenna ETS-Lindgren	3117	218554	11/22/2019	11/22/2020
Pre-Amplifier RF-Lambda	RAMP00M50GA	17032300048	06/18/2020	06/18/2021

4.1.3 Test Procedure

For Radiated emission below 30MHz

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

For Band edge Measurement

789033 D02 General U-NII Test Procedures New Rules v02r01, II.F. Method SA-1

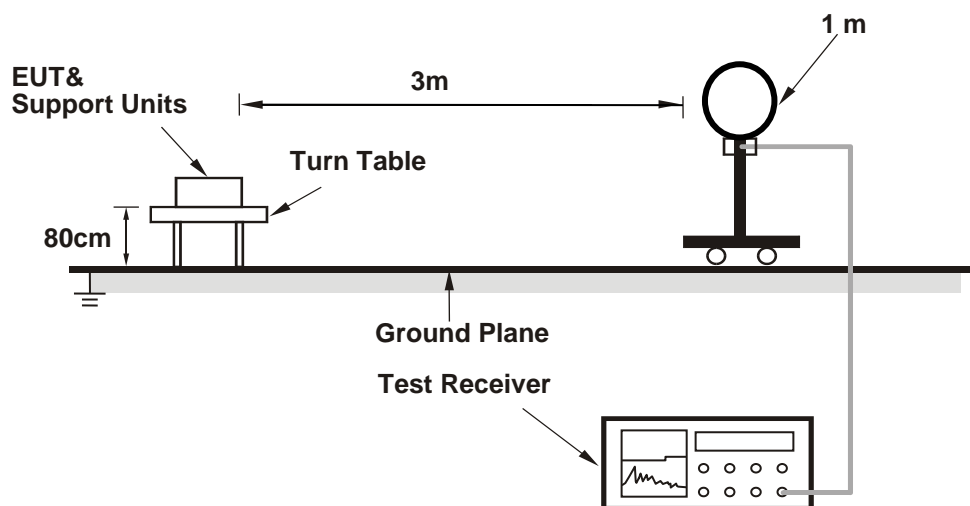
1. For average emissions measurements, follow the procedures described in section II.G.6., "Procedures for Average Unwanted Emissions Measurements above 1000 MHz", except for the following changes:
2. Set RBW=100 kHz
3. Set VBW=300 kHz
4. Perform a band-power integration across the 1 MHz bandwidth in which the band-edge emission level is to be measured.

4.1.4 Deviation from Test Standard

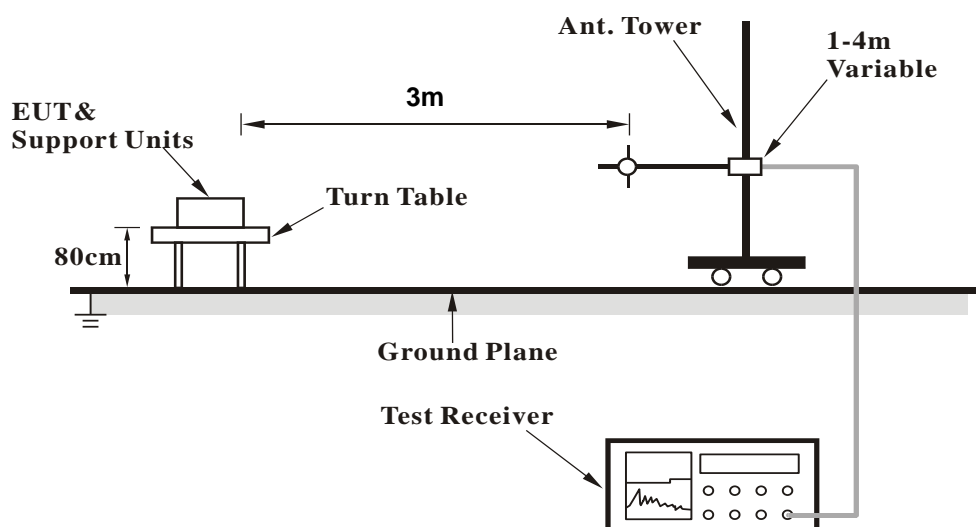
No deviation.

4.1.5 Test Setup

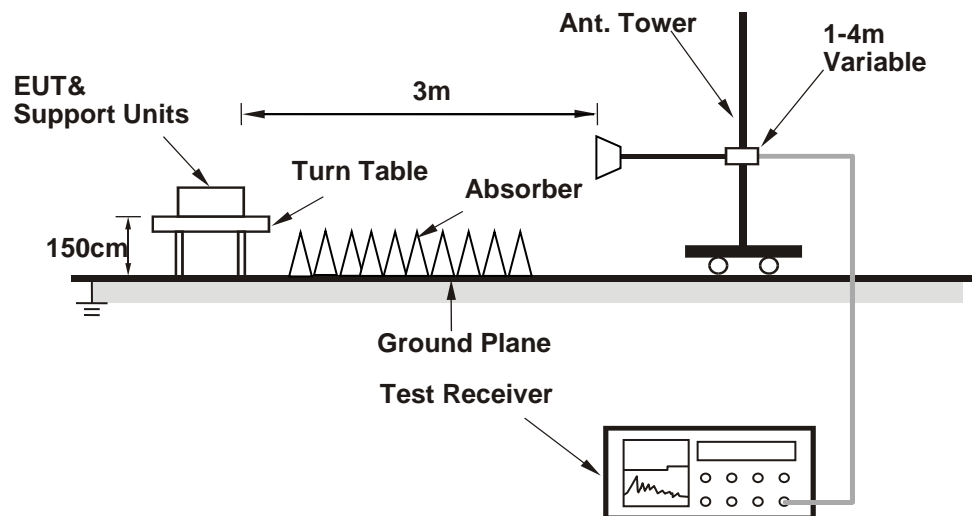
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Condition

- Placed the EUT on the testing table.
- Prepared notebooks to act as communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a USB cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the system in full functions.

4.1.7 Test Results

Below 1GHz Worst-Case Data:

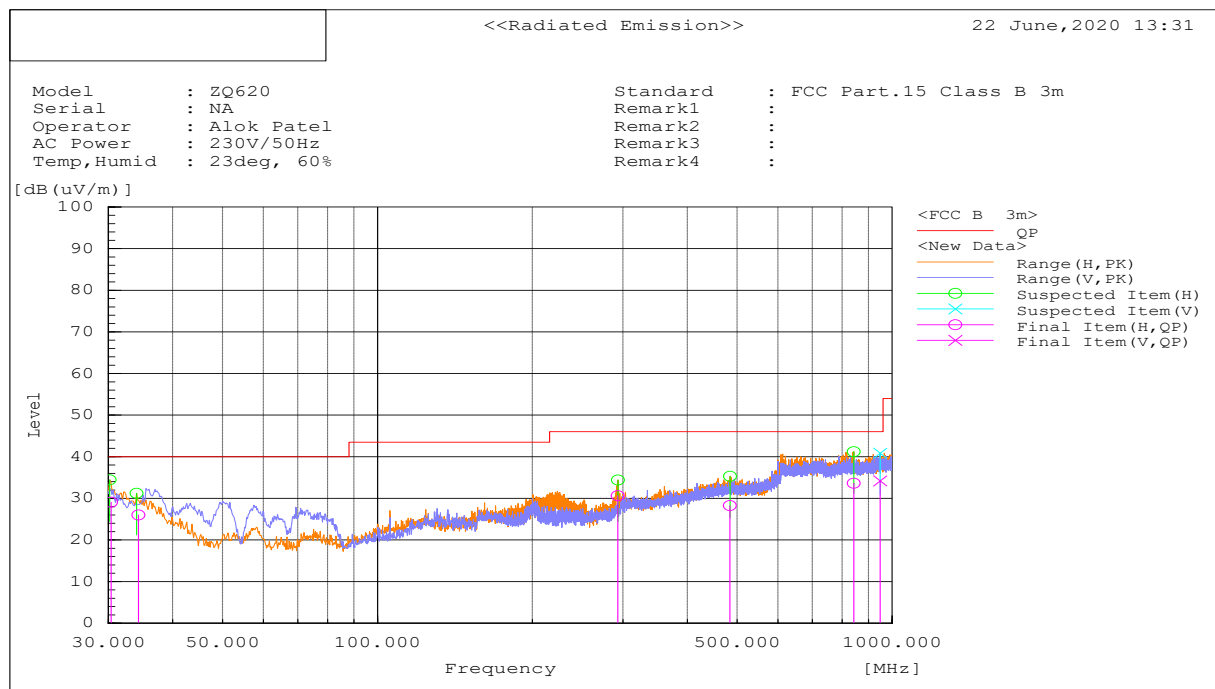
CHANNEL	Channel 102	DETECTOR FUNCTION	Quasi Peak
FREQUENCY RANGE	30MHz – 1GHz		

Antenna Polarity & Test Distance: Vertical and Horizontal at 3m

No.	Frequency (MHz)	Polarization (H/V)	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP dB(uV/m)	Margin QP [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	30.36	H	2.4	26.7	29.1	40	-10.9	104	282	Pass
2	34.31	H	2.1	23.9	26	40	-14	289	50.3	Pass
3	293.02	H	9.5	21.1	30.6	46	-15.4	100	295	Pass
4	484.02	H	3.1	25.2	28.3	46	-17.7	244	107	Pass
5	842.38	H	3.6	30	33.6	46	-12.4	264	117	Pass
6	947.28	V	3.2	31	34.2	46	-11.8	303	359	Pass

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Cable Loss (dB) + AF (dB)
2. AF (dB/m) = Antenna Factor (dB/m) – Preamplifier Gain (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.



Above 1GHz Test Data:

1GHz-40GHz – 5190MHz

Antenna Polarity & Test Distance: Vertical and Horizontal at 3m														
No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	3600.06	V	40.3	53.5	-7.8	32.5	45.7	54	74	-21.5	-28.3	280	242.7	Pass
2	7714.32	V	35	48.2	-0.2	34.8	48	54	74	-19.2	-26	337	113.7	Pass
3	10379.96	H	34.7	48.2	3.1	37.8	51.3	54	74	-16.2	-22.7	158	0.1	Pass

1GHz-40GHz –5230MHz

Antenna Polarity & Test Distance: Vertical and Horizontal at 3m														
No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	2648.69	H	41.2	54.5	-9	32.2	45.5	54	74	-21.8	-28.5	223	359.9	Pass
2	6270.92	V	36.8	49.9	-2.8	34	47.1	54	74	-20	-26.9	201	193.7	Pass
3	10459.96	H	34.9	47.7	3.4	38.3	51.1	54	74	-15.7	-22.9	223	20.9	Pass

1GHz-40GHz –5270MHz

Antenna Polarity & Test Distance: Vertical and Horizontal at 3m														
No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	1919.92	H	41.1	54.3	-10.3	30.8	44	54	74	-23.2	-30	230	70.4	Pass
2	3769.99	V	40	53.2	-7	33	46.2	54	74	-21	-27.8	187	0	Pass
3	10539.97	V	35.3	47.1	3.4	38.7	50.5	54	74	-15.3	-23.5	137	32.3	Pass

1GHz-40GHz –5310MHz

Antenna Polarity & Test Distance: Vertical and Horizontal at 3m														
No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	2564.36	V	41.4	54.1	-9.2	32.2	44.9	54	74	-21.8	-29.1	273	137.8	Pass
2	3770.20	H	40.1	53.9	-7	33.1	46.9	54	74	-20.9	-27.1	102	309.6	Pass
3	10619.96	H	33.7	46.6	3.4	37.1	50	54	74	-16.9	-24	182	205.4	Pass

1GHz-40GHz –5510MHz

Antenna Polarity & Test Distance: Vertical and Horizontal at 3m														
No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	2104.87	V	41.1	54.2	-10.4	30.7	43.8	54	74	-23.3	-30.2	322	284.9	Pass
2	4808.36	V	40.3	53.4	-5.9	34.4	47.5	54	74	-19.6	-26.5	102	270.9	Pass
3	11019.97	H	34.7	47.5	3.7	38.4	51.2	54	74	-15.6	-22.8	231	25.7	Pass

1GHz-40GHz –5550MHz

Antenna Polarity & Test Distance: Vertical and Horizontal at 3m														
No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	2308.624	V	41.2	54	-10.2	31	43.8	54	74	-23	-30.2	265	130.3	Pass
2	3821.173	V	40.2	53.4	-6.9	33.3	46.5	54	74	-20.7	-27.5	215	26.2	Pass
3	11099.977	H	34.3	47.2	3.7	38	50.9	54	74	-16	-23.1	187	66.6	Pass

1GHz-40GHz –5670MHz

Antenna Polarity & Test Distance: Vertical and Horizontal at 3m														
No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	2598.23	V	41.1	53.7	-9.1	32	44.6	54	74	-22	-29.4	158	260.5	Pass
2	3770.38	V	40	53.1	-7	33	46.1	54	74	-21	-27.9	194	106.9	Pass
3	11339.97	H	36.3	48	3.8	40.1	51.8	54	74	-13.9	-22.2	187	15.5	Pass

1GHz-40GHz –5710MHz

Antenna Polarity & Test Distance: Vertical and Horizontal at 3m														
No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	3414.308	H	40.4	53.6	-7.9	32.5	45.7	54	74	21.5	28.3	359	240.1	Pass
2	4500.735	V	39.3	52.8	-6.8	32.5	46	54	74	21.5	28	372	70.6	Pass
3	11419.967	H	36.1	48	3.9	40	51.9	54	74	14	22.1	194	5.5	Pass

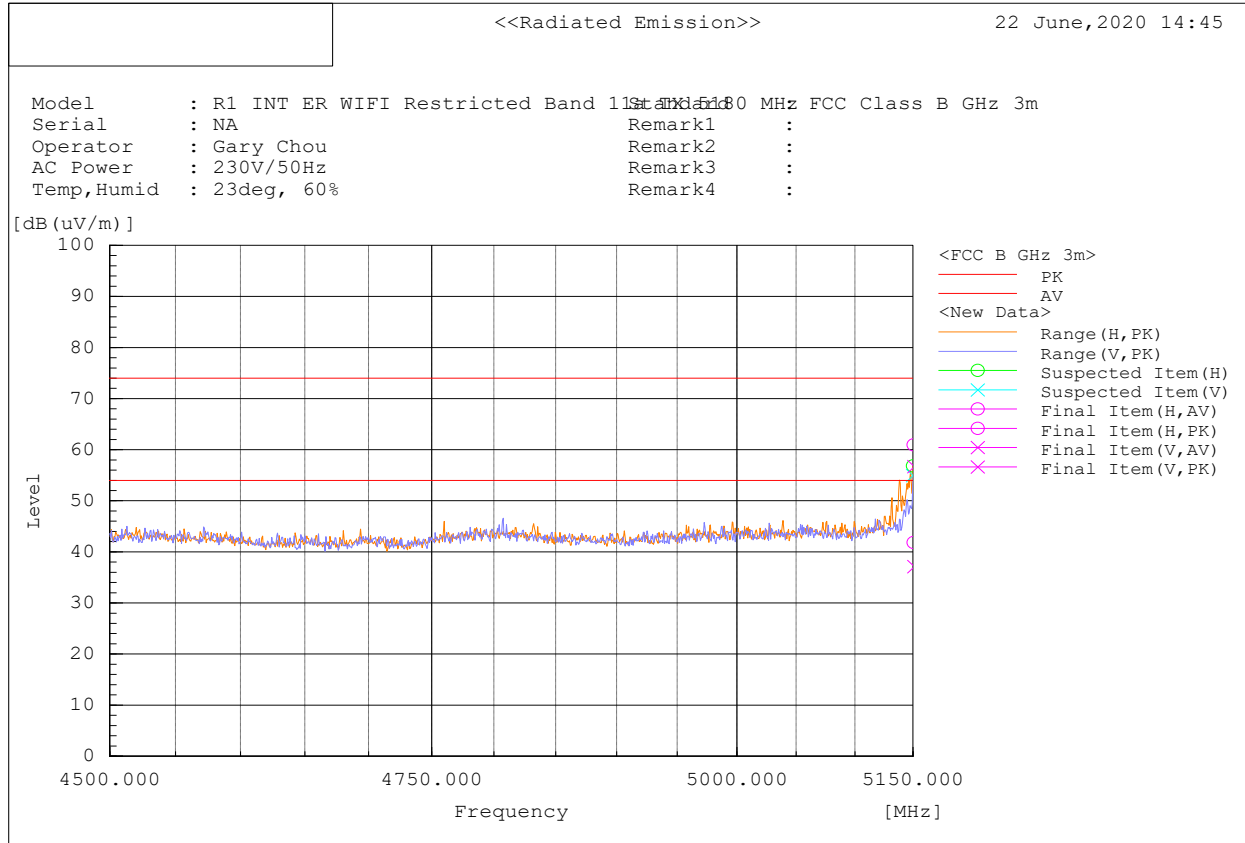
1GHz-40GHz –5775MHz

Antenna Polarity & Test Distance: Vertical and Horizontal at 3m														
No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	1918.595	H	40.8	53.9	-10.3	30.5	43.6	54	74	23.5	30.4	100	257.8	Pass
2	3260.939	V	40.5	53.6	-8.2	32.3	45.4	54	74	21.7	28.6	187	205.6	Pass
3	11510.009	H	33.9	47.2	4.1	38	51.3	54	74	16	22.7	201	117	Pass

1GHz-40GHz –5795MHz

Antenna Polarity & Test Distance: Vertical and Horizontal at 3m														
No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	1986.321	V	41.1	54.8	-10	31.1	44.8	54	74	22.9	29.2	151	43.9	Pass
2	3225.486	H	40.3	53.7	-8.4	31.9	45.3	54	74	22.1	28.7	108	359.9	Pass
3	11589.956	H	35.3	47.5	4.3	39.6	51.8	54	74	14.4	22.2	201	7	Pass

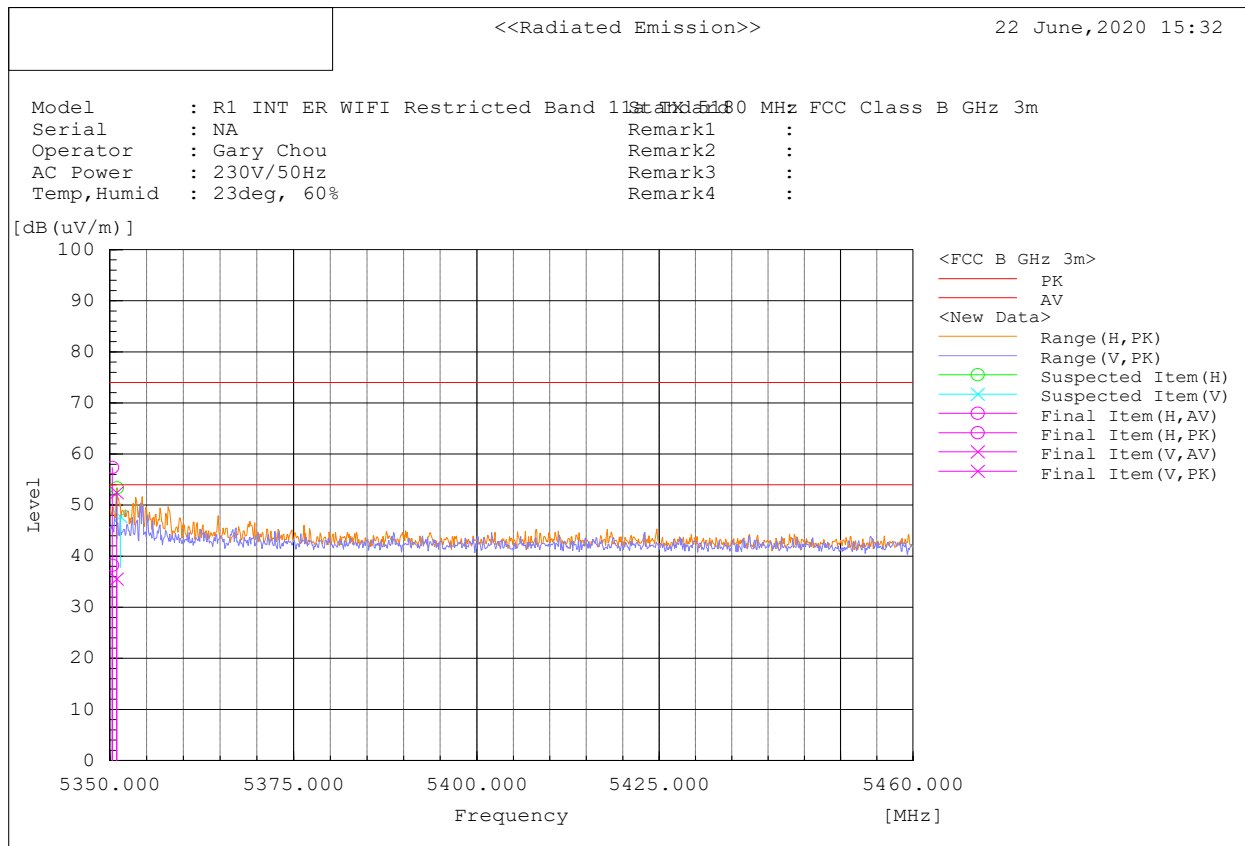
RESTRICTED BAND Test Plots 5190MHz



Antenna Polarity & Test Distance: Vertical and Horizontal at 3m

No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	5150.519	H	47.5	66.6	-5.7	41.8	60.9	54	74	-12.2	-13.1	244	236.6	Pass
2	5151.07	V	42.8	62.4	-5.7	37.1	56.7	54	74	-16.9	-17.3	308	14.5	Pass

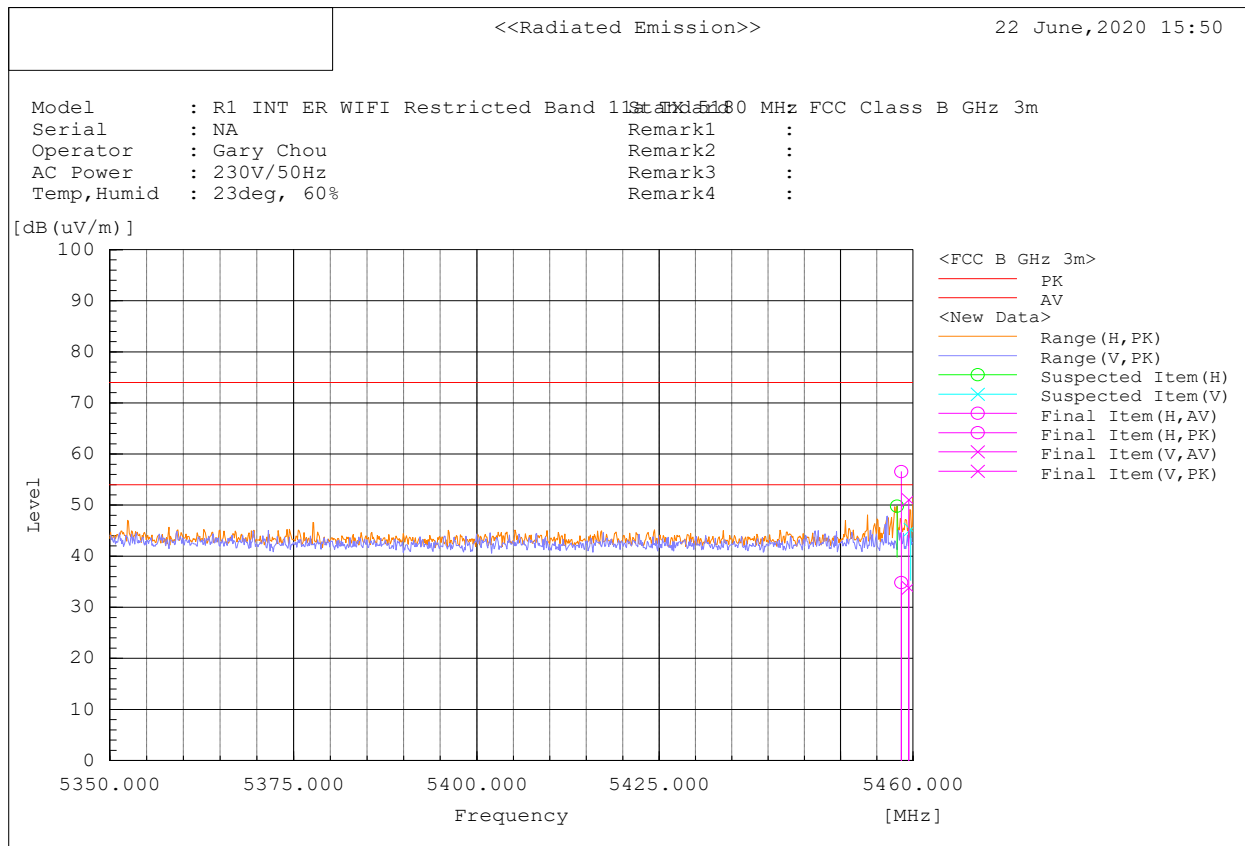
RESTRICTED BAND 5310MHz



Antenna Polarity & Test Distance: Vertical and Horizontal at 3m

No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	5350.341	H	43.2	62.4	-5	38.2	57.4	54	74	-15.8	-16.6	201	352.6	Pass
2	5350.937	V	40.5	57.4	-5	35.5	52.4	54	74	-18.5	-21.6	144	359.9	Pass

RESTRICTED BAND 5510MHz



Antenna Polarity & Test Distance: Vertical and Horizontal at 3m

No	Frequency (MHz)	Polarization (H/V)	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Limit PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height (cm)	Angle (Deg)	Pass/Fail
1	5458.392	H	39.6	61.3	-4.8	34.8	56.5	54	74	-19.2	-17.5	258	191.3	Pass
2	5459.399	V	38.6	55.8	-4.8	33.8	51	54	74	-20.2	-23	151	341.4	Pass

Appendix – Information on the Testing Laboratories

Bureau Veritas is a global leader in testing, inspection and certification (TIC) services. We help businesses improve safety, sustainability and productivity; and our clients include the majority of leading brands in retail, manufacturing and other industries. With a presence in every major country around the world, our quality assurance and compliance solutions are vital in helping our customers enhance product quality and concept-to-consumer journeys. We also assist with increasing speed to market, profitability and brand equity throughout the supply chain. Bureau Veritas is a leading wireless/IoT testing, inspection, audit and certification provider, with a global network of test laboratories to support the IoT industry in areas of connectivity, security, interoperability as well as quality, health & safety, and environmental/chemical requirements.

If you have any comments, please feel free to contact us at the following:

Milpitas EMC/RF/Safety/Telecom Lab

775 Montague Expressway, Milpitas, CA 95035

Tel: +1 408 526 1188

Sunnyvale OTA/Bluetooth Lab

1293 Anvilwood Avenue, Sunnyvale, CA

94089

Tel: +1 669 600 5293

Littleton EMC/RF/Safety/Environmental Lab

1 Distribution Center Cir #1, Littleton, MA 01460

Tel: +1 978 486 8880

Email: sales.eaw@us.bureauveritas.com

Web Site: www.cps.bureauveritas.com

The address and road map of all our labs can be found in our web site also.

--- END ---