

No. 1 Workshop, M-10, Middle section, Science & Technology Park,

Nanshan District, Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053 Report No.: SZEM160500330703

Fax: +86 (0) 755 2671 0594 Page 1 of 33

TEST REPORT

Application No. :SZEM1605003307CRApplicant:Winspeed Co., LtdManufacturer:Winspeed Co., Ltd

Product Name: NIALA Deskset - Wireless

Model No.(EUT): SL-640304-BK-US

Add Model No.: SL-640304-XX-YY("XX" could be from "A-Z", what stands for the different product

color; "YY" could be from "A-Z", what stands for the different printing version of

keyboard)

Trade Mark: SPEEDLINK FCC ID: 2AEDNA31

Standards: 47 CFR Part 15, Subpart C (2015)

Date of Receipt: 2016-05-16

Date of Test: 2016-05-18 to 2016-05-24

Date of Issue: 2016-05-27

Test Result: PASS *

Authorized Signature:



Jack Zhang EMC Laboratory Manager

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf.

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the SGS PRODUCT CERTIFICATION MARK. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report was used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards

^{*} In the configuration tested, the EUT detailed in this report complied with the standards specified above.



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2 Version

Revision Record							
Version Chapter Date Modifier Remark							
00		2016-05-27		Original			

Authorized for issue by:		
Tested By	Gebin Sun	2016-05-24
	(Gebin Sun) /Project Engineer	Date
Prepared By	Joyce Shi	2016-05-27
	(Joyce Shi) /Clerk	Date
Checked By	Eric Fu	2016-05-27
	(Eric Fu) /Reviewer	Date



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3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 (2013)	PASS
Field Strength of the Fundamental Signal	47 CFR Part 15, Subpart C Section 15.249 (a)	ANSI C63.10 (2013)	PASS
Spurious Emissions	47 CFR Part 15, Subpart C Section 15.249 (a)/15.209	ANSI C63.10 (2013)	PASS
Restricted bands around fundamental frequency (Radiated Emission) 47 CFR Part 15, Subpart C Section 15.249(a)/15.205		ANSI C63.10 (2013)	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.215 (c)	ANSI C63.10 (2013)	PASS



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5 General Information

5.1 Client Information

Applicant: Winspeed Co., Ltd	
Address of Applicant: 14F-1, No.2 Jian-Ba Rd., Chung-Ho District, New Taipei, Taiwa	
Manufacturer:	Winspeed Co., Ltd
Address of Manufacturer:	14F-1, No.2 Jian-Ba Rd., Chung-Ho District, New Taipei, Taiwan

5.2 General Description of EUT

Name:	NIALA Deskset - Wireless
Model No.:	SL-640304-BK-US
Trade Mark :	SPEEDLINK
RF Function (Frequency):	2.4GHz(2408 MHz-2474 MHz)
Modulation Type:	GFSK
Sample Type:	Portable production
Antenna Type:	Integral
Antenna Gain:	0dBi
EUT power supply:	1.5V DC (1.5V x 1 "AA" Size Battery)

Remark:

Model No.: SL-640304-XX-YY("XX" could be from "A-Z", what stands for the different product color; "YY" could be from "A-Z", what stands for the different printing version of keyboard)

Only the model SL-640304-BK-US was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, only different on product color and printing version of keyboard.



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Operation Frequency each of channel							
Channel Frequency		Channel	Frequency	Channel	Frequency		
1CH	2408 MHz	12CH	2430 MHz	23CH	2454 MHz		
2CH	2410 MHz	13CH	2432 MHz	24CH	2456 MHz		
3CH	2412 MHz	14CH	2434 MHz	25CH	2458 MHz		
4CH	2414 MHz	15CH	2436 MHz	26CH	2460 MHz		
5CH	2416 MHz	16CH	2438 MHz	27CH	2462 MHz		
6CH	2418 MHz	17CH	2440 MHz	28CH	2464 MHz		
7CH	2420 MHz	18CH	2444 MHz	29CH	2466 MHz		
8CH	2422 MHz	19CH	2446 MHz	30CH	2468 MHz		
9CH	2424 MHz	20CH	2448 MHz	31CH	2470 MHz		
10CH	2426 MHz	21CH	2450 MHz	32CH	2472 MHz		
11CH	2428 MHz	22CH	2452 MHz	33CH	2474 MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The Lowest channel(CH1)	2408MHz
The Middle channel(CH17)	2440MHz
The Highest channel(CH33)	2474MHz

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5.3 Test Environment and Mode

Operating Environment:	Operating Environment:				
Temperature:	25.0 °C				
Humidity:	55 % RH				
Atmospheric Pressure:	1015 mbar				
Test mode:					
Transmitting mode:	Keep the EUT in transmitting mode with modulation.				

5.4 Description of Support Units

The EUT has been tested independently.

5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.



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5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

· A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

VCCI

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.



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5.10 Equipment List

	RE in Chamber					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS- LINDGREN	N/A	SEM001-01	2016-05-13	2017-05-13
2	EMI Test Receiver	Agilent Technologies	N9038A	SEM004-05	2015-09-16	2016-09-16
3	BiConiLog Antenna (26-3000MHz)	ETS- LINDGREN	3142C	SEM003-01	2014-11-01	2017-11-01
4	Double-ridged horn (1-18GHz)	ETS- LINDGREN	3117	SEM003-11	2015-10-17	2018-10-17
5	Horn Antenna (18-26GHz)	ETS- LINDGREN	3160	SEM003-12	2014-11-24	2017-11-24
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2016-04-25	2017-04-25
7	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A
8	DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2015-10-09	2016-10-09
9	Loop Antenna	Beijing Daze	ZN30401	SEM003-09	2015-05-13	2018-05-13

	RE in Chamber					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2016-05-13	2017-05-13
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEM004-04	2016-04-25	2017-04-25
3	BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2014-11-15	2017-11-15
4	Amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2015-10-09	2016-10-09
5	Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-14
6	Low Noise Amplifier	Black Diamond Series	BDLNA- 0118- 352810	SEM005-05	2015-10-09	2016-10-09
7	Band filter	Amindeon	Asi 3314	SEM023-01	N/A	N/A



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	RF connected test								
Item	Test Equipment	Manufacturer	anufacturer Model No. Inventory No.		Cal. date	Cal.Due date			
					(yyyy-mm-dd)	(yyyy-mm-dd)			
1	DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2015-10-09	2016-10-09			
2	Spectrum Analyzer	Rohde &	FSP	P SEM004-06	2015-10-17	2016-10-17			
	opodiam / maryzon	Schwarz		02111001 00	2010 10 17	2010 10 17			
9	Cianal Conorator	Rohde &	CMI OO	SEM006-02	2016-04-25	2017 04 25			
3	Signal Generator	Schwarz	SML03	3EIVIUU6-U2	2016-04-25	2017-04-25			
	Davis Matau	Rohde &	NDVC	OFM014.00	0015 10 00	0010 10 00			
4	Power Meter	Schwarz	NRVS	SEM014-02	2015-10-09	2016-10-09			



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6 Test results and Measurement Data

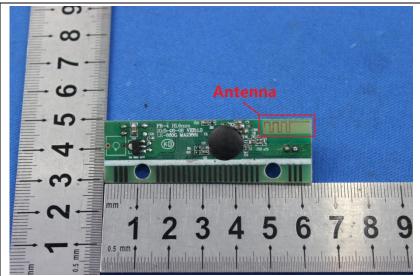
6.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:



The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.



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6.2 Spurious Emissions

Test Requirement:	47 CFR Part 15C Section	n 15	5.249 and 15.20)9				
Test Method:	ANSI C63.10: 2013							
Test Site:	Measurement Distance:	3m	(Semi-Anechoi	c Chamber)			
Receiver Setup:	Frequency		Detector	RBW		VBW	F	Remark
	0.009MHz-0.090MHz	<u>'</u>	Peak	10kHz		30KHz		Peak
	0.009MHz-0.090MHz	<u>-</u>	Average	10kHz		30KHz	Α	verage
	0.090MHz-0.110MHz	<u>-</u>	Quasi-peak	10kHz		30KHz	Qu	asi-peak
	0.110MHz-0.490MHz	<u>'</u>	Peak	10kHz		30KHz		Peak
	0.110MHz-0.490MHz	<u>'</u>	Average	10kHz		30KHz	Α	verage
	0.490MHz -30MHz		Quasi-peak	10kHz		30kHz	Qu	asi-peak
	30MHz-1GHz		Quasi-peak	100 kHz		300KHz	Qu	asi-peak
	Above 1GHz		Peak	1MHz	1MHz			Peak
	Above Tariz	Peak		1MHz		10Hz		verage
Limit: (Spurious Emissions)	Frequency		rield strength icrovolt/meter)	Limit (dBuV/m	Limit (dBuV/m)			Measurement distance (m)
	0.009MHz-0.490MHz	2	400/F (kHz)	-		-		300
	0.490MHz-1.705MHz	24	4000/F (kHz)	-		-		30
	1.705MHz-30MHz		30	-		-		30
	30MHz-88MHz		100	40.	.0	Quasi-pea	k	3
	88MHz-216MHz		150	43.	.5	Quasi-pea	k	3
	216MHz-960MHz		200	46.	.0	Quasi-pea	k	3
	960MHz-1GHz		500	54.	.0	Quasi-pea	k	3
	Above 1GHz		500	54.	.0	Average		3
	mission limi	t app	cy emissions licable to the mission level					
Limit:	Frequency		Limit (dBuV/	m @3m)	Remark			
(Field strength of the	2400MHz-2483.5MH	7	94.0)	Average Value			
fundamental signal)	2400IVIDZ-2403.3IVIH	۷	114.0	0		Peak Value	e	

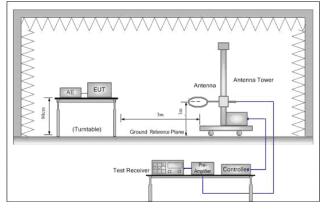
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Test Setup:



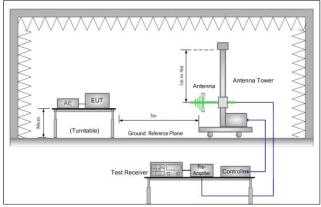


Figure 1. Below 30MHz

Figure 2. 30MHz to 1GHz

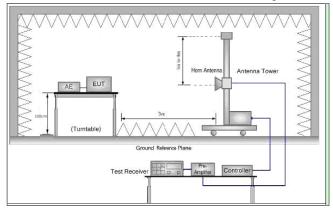


Figure 3. Above 1 GHz

Test Procedure:

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation
- c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height 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.
- e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified



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	 and then reported in a data sheet. h. Test the EUT in the lowest channel, the middle channel, the Highest channel i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case. j. Repeat above procedures until all frequencies measured was complete. 						
Instruments Used:	Refer to section 5.10 for details						
Exploratory Test Mode:	Transmitting mode						
Final Test Mode:	Pretest the EUT at Transmitting mode, found the Transmitting mode which it is worse case Only the worst case is recorded in the report.						
Test Results:	Pass						



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Measurement Data

6.2.1.1 Field Strength Of The Fundamental Signal

Peak value:

Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2407.648	28.64	5.35	38.11	83.33	79.21	114	-34.79	Horizontal
2407.648	28.64	5.35	38.11	74.55	70.43	114	-43.57	Vertical
2440.438	28.79	5.38	38.11	84.16	80.22	114	-33.78	Horizontal
2439.558	28.78	5.38	38.11	74.56	70.61	114	-43.39	Vertical
2474.541	28.94	5.4	38.12	83.62	79.84	114	-34.16	Horizontal
2474.541	28.94	5.4	38.12	75.03	71.25	114	-42.75	Vertical

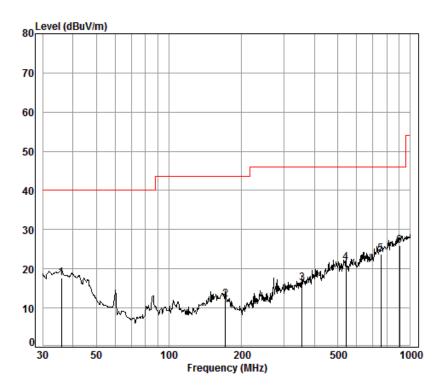


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6.2.1.2 Spurious Emissions

30MHz~1GHz		
Test mode:	Transmitting mode	Vertical



Condition: 3m Vertical Job No. : 3307CR Test mode: TX mode

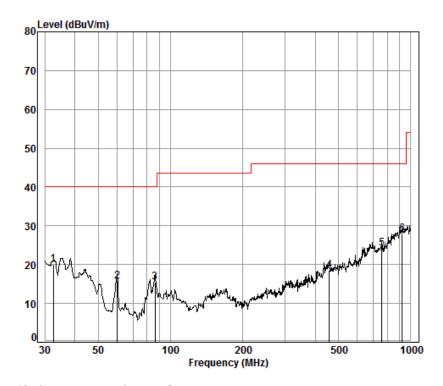
	_			Preamp				
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	35.87	0.60	17.03	25.99	26.11	17.75	40.00	-22.25
2	171.39	1.36	9.33	25.80	27.41	12.30	43.50	-31.20
3	356.68	2.08	12.30	25.68	27.62	16.32	46.00	-29.68
4	541.37	2.64	14.99	25.61	29.62	21.64	46.00	-24.36
5	755.39	3.07	18.56	25.76	28.00	23.87	46.00	-22.13
6 рр	903.31	3.60	21.57	25.04	25.84	25.97	46.00	-20.03



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Test mode: Transmitting mode Horizontal



Condition: 3m Horizontal

Job No. : 3307CR Test mode: TX mode

		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	32.63	0.60	17.50	26.00	27.87	19.97	40.00	-20.03
2	60.07	0.80	6.29	25.94	34.47	15.62	40.00	-24.38
3	86.20	1.10	6.37	25.91	33.83	15.39	40.00	-24.61
4	457.51	2.44	13.78	25.64	27.87	18.45	46.00	-27.55
5	758.04	3.08	18.64	25.76	28.18	24.14	46.00	-21.86
6 рр	919.29	3.62	22.07	24.93	27.21	27.97	46.00	-18.03

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Above 1GHz					
Test mode:	Transmitting	Test channel:	Lowest	Remark:	Peak

Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3803.444	32.90	7.74	38.49	45.29	47.44	74	-26.56	Vertical
4816.000	34.12	8.88	38.75	45.41	49.66	74	-24.34	Vertical
6034.386	34.72	10.52	38.91	45.88	52.21	74	-21.79	Vertical
7224.000	35.59	10.69	37.63	43.03	51.68	74	-22.32	Vertical
9632.000	37.10	12.51	36.31	37.84	51.14	74	-22.86	Vertical
12676.420	37.94	14.65	37.82	37.96	52.73	74	-21.27	Vertical
3792.453	32.87	7.74	38.48	45.52	47.65	74	-26.35	Horizontal
4816.000	34.12	8.88	38.75	45.89	50.14	74	-23.86	Horizontal
6034.386	34.72	10.52	38.91	45.28	51.61	74	-22.39	Horizontal
7224.000	35.59	10.69	37.63	42.50	51.15	74	-22.85	Horizontal
9632.000	37.10	12.51	36.31	37.66	50.96	74	-23.04	Horizontal
12639.790	37.92	14.55	37.79	38.54	53.22	74	-20.78	Horizontal

Test mode:	Test mode: Transmitting		Test char	Test channel:		lle	Remark:		Peak	
Frequency	Antenna	Cable	Preamp	Read		Level	Limit Line	Ove		Dalawinatian

Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3814.467	32.91	7.75	38.49	46.20	48.37	74	-25.63	Vertical
4880.000	34.18	8.97	38.76	47.78	52.17	74	-21.83	Vertical
6034.386	34.72	10.52	38.91	46.77	53.10	74	-20.90	Vertical
7320.000	35.54	10.72	37.59	42.14	50.81	74	-23.19	Vertical
9760.000	37.10	12.58	36.14	39.52	53.06	74	-20.94	Vertical
12603.270	37.90	14.44	37.75	37.85	52.44	74	-21.56	Vertical
3803.444	32.90	7.74	38.49	45.36	47.51	74	-26.49	Horizontal
4880.000	34.18	8.97	38.76	46.23	50.62	74	-23.38	Horizontal
6229.564	34.80	10.26	38.66	45.69	52.09	74	-21.91	Horizontal
7320.000	35.54	10.72	37.59	42.73	51.40	74	-22.60	Horizontal
9760.000	37.10	12.58	36.14	38.76	52.30	74	-21.70	Horizontal
12639.790	37.92	14.55	37.79	38.75	53.43	74	-20.57	Horizontal



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Test mode:	Transmitting	Test channel:	Highest	Remark:	Peak

Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
3814.467	32.91	7.75	38.49	46.16	48.33	74	-25.67	Vertical
4948.000	34.25	9.07	38.78	46.51	51.05	74	-22.95	Vertical
5862.263	34.36	10.18	38.94	46.86	52.46	74	-21.54	Vertical
7422.000	35.56	10.76	37.55	42.35	51.12	74	-22.88	Vertical
9896.000	37.20	12.65	35.96	39.48	53.37	74	-20.63	Vertical
12639.790	37.92	14.55	37.79	37.72	52.40	74	-21.60	Vertical
3892.524	32.99	7.77	38.52	45.92	48.16	74	-25.84	Horizontal
4948.000	34.25	9.07	38.78	46.77	51.31	74	-22.69	Horizontal
6140.076	34.77	10.38	38.78	46.03	52.40	74	-21.60	Horizontal
7422.000	35.56	10.76	37.55	41.73	50.50	74	-23.50	Horizontal
9896.000	37.20	12.65	35.96	39.87	53.76	74	-20.24	Horizontal
12603.270	37.90	14.44	37.75	38.36	52.95	74	-21.05	Horizontal

Remark:

- The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
 Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor
- 2) Scan from 9kHz to 25GHz,The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 3) As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

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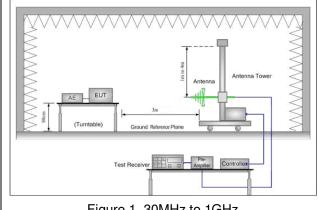
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6.3 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 15	47 CFR Part 15C Section 15.209 and 15.205					
Test Method:	ANSI C63.10: 2013	ANSI C63.10: 2013					
Test site:	Measurement Distance: 3m	(Semi-Anechoic Chambe	r)				
Limit(band edge):	harmonics, shall be attenuate fundamental or to the gener	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.					
	Frequency	Frequency Limit (dBuV/m @3m) Remark					
	30MHz-88MHz	30MHz-88MHz 40.0 Quasi-peak Value					
	88MHz-216MHz	88MHz-216MHz 43.5 Quasi-peak Value					
	216MHz-960MHz	216MHz-960MHz 46.0 Quasi-peak Value					
	960MHz-1GHz 54.0 Quasi-peak Value						
	54.0 Average						
	Above 1GHz 74.0 Peak Value						
Toot Cotup:							





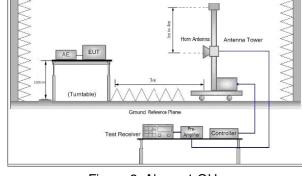


Figure 1. 30MHz to 1GHz

Figure 2. Above 1 GHz

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	<u> </u>
Test Procedure:	 a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. d. The antenna height 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. e. 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. f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. g. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel h. Test the EUT in the lowest channel , the Highest channel i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode,And found the X axis positioning which it is worse case j. Repeat above procedures until all frequencies measured was complete.
Instruments Used:	Refer to section 5.10 for details
Exploratory Test Mode:	Transmitting mode
Final Test Mode:	Pretest the EUT at Transmitting mode, found the Transmitting mode which it is worse case Only the worst case is recorded in the report.
Test Results:	Pass

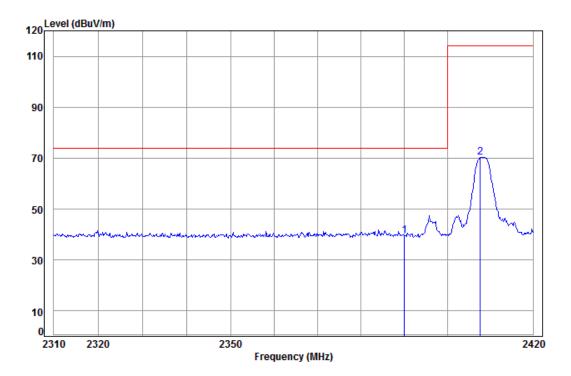
Measurement Data



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Band edge (Radiated Emission)						
Worse case mode:	Transmitting	Test channel:	Lowest	Remark:	Peak	Vertical



Condition: 3m Vertical Job No: : 3307CR

Mode: : 2408 Band edge

Cable Ant Preamp 0ver Read Limit Freq Loss Factor Factor Level Level Line limit dBuV dBuV/m dBuV/m MHz dB dB/m dB 38.11 43.65 39.45 74.00 -34.55 2390.00 5.34 28.57 2407.65 5.35 28.64 38.11 74.55 70.43 114.00 -43.57

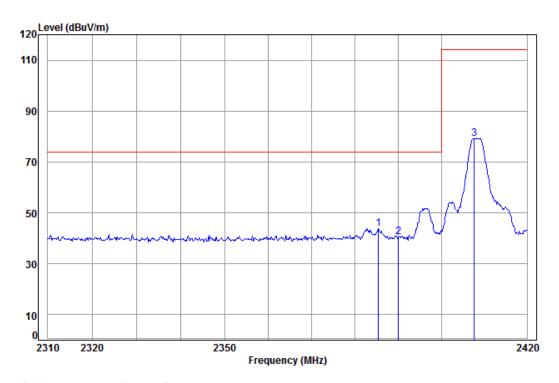
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Worse case mode: Transmitting Test channel: Lowest Remark: Peak Horizontal



Condition: 3m Horizontal

Job No: : 3307CR

Mode: : 2408 Band edge

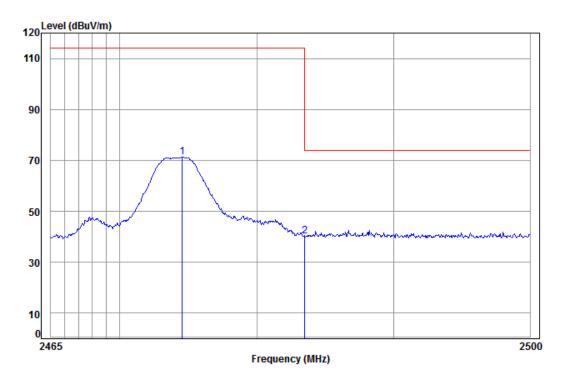
		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
			•			•	•	
1 pp	2385.35	5.33	28.56	38.11	48.18	43.96	74.00	-30.04
2	2390.00	5.34	28.57	38.11	44.89	40.69	74.00	-33.31
3	2407.65	5.35	28.64	38.11	83.33	79.21	114.00	-34.79



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Worse case mode: Transmitting Test channel: Highest Remark: Peak Vertical



Condition: 3m Vertical Job No: : 3307CR

Mode: : 2474 Band edge

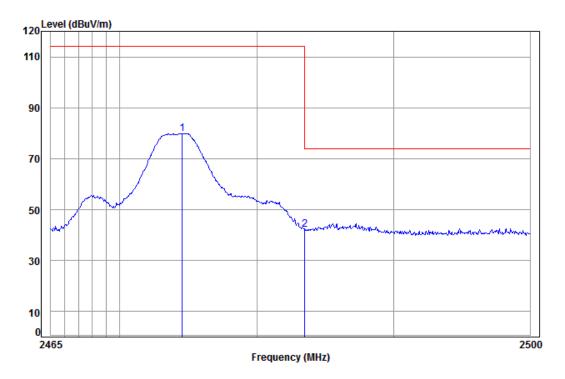
Cable Ant Preamp Limit 0ver Read Limit Loss Factor Factor Level Level Line MHz dB dB/m dBuV dBuV/m dBuV/m 2474.54 5.40 28.94 38.12 75.03 71.25 114.00 -42.75 2483.50 5.41 28.98 38.12 43.97 40.24 74.00 -33.76



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Worse case mode: Transmitting Test channel: Highest Remark: Peak Horizontal



Condition: 3m Horizontal

Job No: : 3307CR

Mode: : 2474 Band edge

				Preamp Factor			Freq	
dB	dBuV/m	dBuV/m	dBuV	dB	dB/m	dB	MHz	-
							2474.54 2483.50	pp

Note:

2

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

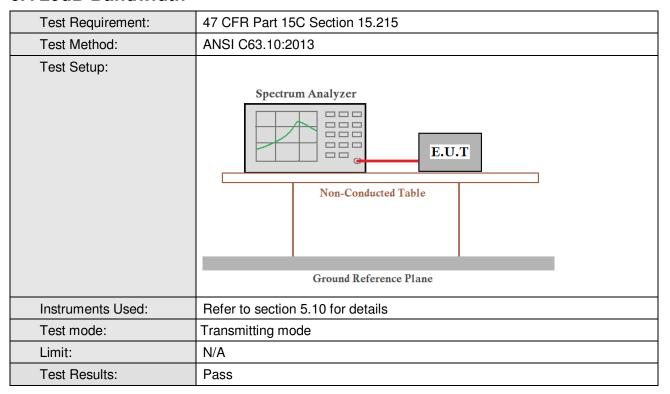
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor



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6.4 20dB Bandwidth



Measurement Data

Test channel	20dB bandwidth (MHz)	Results
Lowest	2.72	Pass
Middle	2.82	Pass
Highest	2.62	Pass

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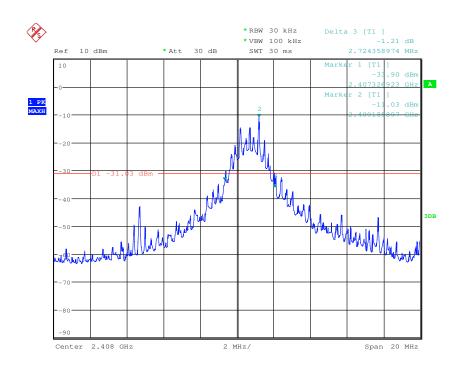


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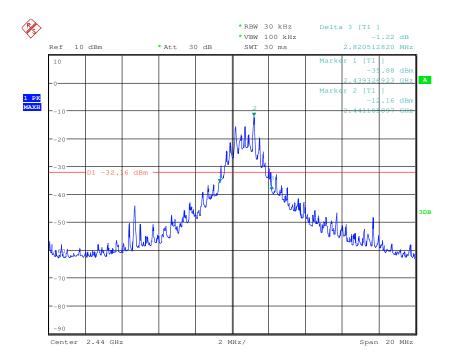
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Test plot as follows:

Test channel: Lowest



Test channel: Middle

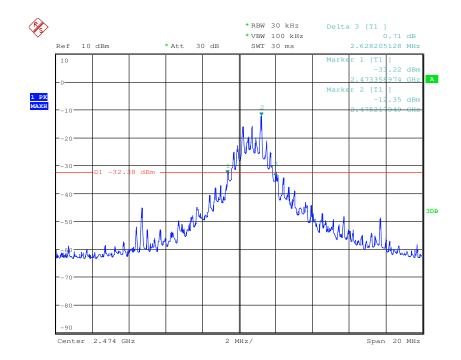




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Test channel: Highest





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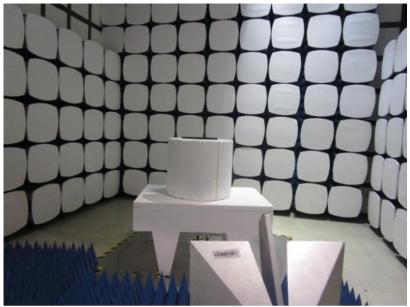
7 Photographs

Test Model No.: SL-640304-BK-US

7.1 Radiated Emission Test Setup



7.2 Radiated Spurious Emission Test Setup



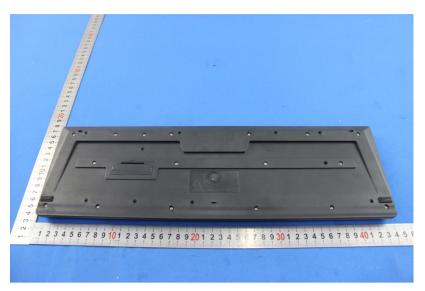


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7.3 EUT Constructional Details







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