

# Global United Technology Services Co., Ltd.

Report No.: GTS2024010316F02

# **TEST REPORT**

Applicant: Signcomplex Limited

Address of Applicant: 401, Mingfeng Bulding, No.2 Xikeng Road, Xinhe Community,

Fucheng Street, Longhua, Shenzhen, Guangdong 518110,

China

Manufacturer: Signcomplex Limited

Address of No.70 Hexiang West Road, Heshan Industrial Park, Heshan,

Manufacturer: Guangdong, China

**Equipment Under Test (EUT)** 

Product Name: LED Camera Motion Security Lights

Model No.: SEC102P-36W-CCT-R80-0001, SEC103P-020-CCT-R80-

0001, SEC102P-036-CCT-RXX-YY, SEC103P-020-CCT-RXX-

YY

YY---The "YY": can be 70, 80, 90, represent LED Color

Rendering Index 70, 80, 90;

ZZ-- from 01 to 99, represents the Light body color or

sequential number

Including: 01 indicates the light body color white, 02 indicates the light color black, 03 represents the light body color bronze

FCC ID: ZR3-SECABCAM5G

Applicable standards: FCC CFR Title 47 Part 15 Subpart E Section 15.407

Date of sample receipt: January 25, 2024

**Date of Test:** January 26, 2024-March 28, 2024

Date of report issue: March 28, 2024

Test Result: PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Laboratory Manager
This results shown in this tes

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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# Version

Version No.	Date	Description	
00	March 28, 2024	Original	

Prepared By:	Joseph Cu	Date:	March 28, 2024	
	Project Engineer			

object of lust Check By: Date: March 28, 2024

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# 4 Test Summary

Test Item	Section	Result
Antenna requirement	FCC part 15.203	PASS
AC Power Line Conducted Emission	FCC part 15.207	PASS
Emission Bandwidth	FCC part 15.407	PASS
Maximum Conducted Output Power	FCC part 15.407(a)(1)	PASS
Power Spectral Density	FCC part 15.407(a)(1)	PASS
Undesirable Emission	FCC part 15.407(b), 15.205/15.209	PASS
Radiated Emission	FCC part 15.205/15.209	PASS
Band Edge	FCC part 15.407(b)(1)	PASS
Frequency Stability	FCC part 15.407(g)	PASS

Remark:

Pass: The EUT complies with the essential requirements in the standard.

# 4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes		
Radiated Emission	9kHz-30MHz	3.1dB	(1)		
Radiated Emission	30MHz-200MHz	3.8039dB	(1)		
Radiated Emission	200MHz-1GHz	3.9679dB	(1)		
Radiated Emission	1GHz-18GHz	4.29dB	(1)		
Radiated Emission	18GHz-40GHz	3.30dB	(1)		
AC Power Line Conducted Emission 0.15MHz ~ 30MHz 3.44dB (1)					
Note (1): The measurement unce	ertainty is for coverage factor of ka	=2 and a level of confidence of 9	95%.		



### 5 General Information

# 5.1 General Description of EUT

Product Name:	LED Camera N	Motion Security Lights					
Model No.:		SEC102P-36W-CCT-R80-0001, SEC103P-020-CCT-R80-0001, SEC102P-036-CCT-RXX-YY, SEC103P-020-CCT-RXX-YY					
	YYThe "YY": can be 70, 80, 90, represent LED Color Rendering Index 70、80、90;						
	ZZ from 01 to	99, represents the Light bo	ody color or sequ	uential number			
		ndicates the light body color represents the light body c		tes the light			
Test Model No.:	SEC102P-36W	/-CCT-R80-0001, SEC103F	P-020-CCT-R80-	0001			
Remark:All above models a	are identical in the same PCB layout, interior structure and electrical circuits.						
The differences are light bo	ody color and mo	odel name for commercial p	urpose.				
Test sample(s) ID:	GTS20240103	16-1					
Sample(s) Status:	Engineer samp	ole					
S/N:	2401220001						
Operation Frequency:	Band	Mode	Frequency Range(MHz)	Number of channels			
	U-NII Band	IEEE 802.11a	5180-5240	4			
		IEEE 802.11n 20MHz	5180-5240	4			
		IEEE 802.11n 40MHz	5190-5230	2			
Modulation technology:	OFDM						
Antenna Type:	FPC Antenna						
Antenna gain:	3.28dBi(Declared by applicant)						
Power supply:	AC 120~277V	50/60Hz 0.40A 36W					

#### Remark:

- 1. Antenna gain information provided by the customer
- 2. The relevant information of the sample is provided by the entrusting company, and the laboratory is not responsible for its authenticity.

Channel list for 802.11a/n(HT20)							
Channel Frequency Channel Frequency Channel Frequency							Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz

Channel list for 802.11n(HT40)					
Channel	Frequency				
38	5190MHz	46	5230MHz		

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#### 5.2 Test mode

Tra	Transmitting mode Keep the EUT in transmitting with modulation						
	We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:						
	Pre-scan all kind of data	rate in lowest channel,	and found the follow list which it was worst case.				
	Mode	Data rate					
	802.11a/n(HT20) 6/6.5 Mbps						
	802.11n(HT40)	13.5 Mbps					

### 5.3 Test Facility

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

• FCC —Registration No.: 381383

Designation Number: CN5029

Global United Technology 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 files.

• ISED—Registration No.: 9079A

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of ISED for radio equipment testing.

• NVLAP (LAB CODE:600179-0)

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

#### 5.4 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480 Fax: 0755-27798960

### 5.5 Description of Support Units

None.

#### 5.6 Deviation from Standards

None.

#### 5.7 Additional Instructions

Test Software	Special test software provided by manufacturer	
Power level setup	Default	

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# 6 Test Instruments list

Radia	ated Emission:					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	June 23, 2021	June 22, 2024
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	April 14, 2023	April 13, 2024
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	March 19, 2023	March 18, 2025
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	April 17, 2023	April 16, 2025
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	April 14, 2023	April 13, 2024
8	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov. 13, 2023	Nov.12, 2024
9	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	April 14, 2023	April 13, 2024
10	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	April 14, 2023	April 13, 2024
11	Horn Antenna (18- 26.5GHz)	1	UG-598A/U	GTS664	Oct. 29, 2023	Oct. 28, 2024
12	Horn Antenna (26.5-40GHz)	A.H Systems	SAS-573	GTS665	Oct. 29, 2023	Oct. 28, 2024
13	FSV·Signal Analyzer (10Hz-40GHz)	Keysight	FSV-40-N	GTS666	March 12, 2024	March 11, 2025
14	Amplifier	1	LNA-1000-30S	GTS650	April 14, 2023	April 13, 2024
15	CDNE M2+M3-16A	HCT	30MHz-300MHz	GTS692	Nov. 08, 2023	Nov.07, 2024
16	Wideband Amplifier	1	WDA-01004000-15P35	GTS602	April 14, 2023	April 13, 2024
17	Thermo meter	JINCHUANG	GSP-8A	GTS643	April 19, 2023	April 18, 2024
18	RE cable 1	GTS	N/A	GTS675	July 31. 2023	July 30. 2024
19	RE cable 2	GTS	N/A	GTS676	July 31. 2023	July 30. 2024
20	RE cable 3	GTS	N/A	GTS677	July 31. 2023	July 30. 2024
21	RE cable 4	GTS	N/A	GTS678	July 31. 2023	July 30. 2024
22	RE cable 5	GTS	N/A	GTS679	July 31. 2023	July 30. 2024
23	RE cable 6	GTS	N/A	GTS680	July 31. 2023	July 30. 2024
24	RE cable 7	GTS	N/A	GTS681	July 31. 2023	July 30. 2024
25	RE cable 8	GTS	N/A	GTS682	July 31. 2023	July 30. 2024



Con	Conducted Emission							
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)		
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	July 12, 2022	July 11, 2027		
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 14, 2023	April 13, 2024		
3	LISN	<b>ROHDE &amp; SCHWARZ</b>	ENV216	GTS226	April 14, 2023	April 13, 2024		
4	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A		
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A		
6	Thermo meter	JINCHUANG	GSP-8A	GTS642	April 19, 2023	April 18, 2024		
7	Absorbing clamp	Elektronik- Feinmechanik	MDS21	GTS229	April 14, 2023	April 13, 2024		
8	ISN	SCHWARZBECK	NTFM 8158	GTS565	April 14, 2023	April 13, 2024		
9	High voltage probe	SCHWARZBECK	TK9420	GTS537	April 14, 2023	April 13, 2024		
10	Antenna end assembly	Weinschel	1870A	GTS560	April 14, 2023	April 13, 2024		

RF C	RF Conducted Test:												
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)							
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	April 14, 2023	April 13, 2024							
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 14, 2023	April 13, 2024							
3	PSA Series Spectrum Analyzer	Agilent	E4440A	GTS536	April 14, 2023	April 13, 2024							
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	April 14, 2023	April 13, 2024							
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	April 14, 2023	April 13, 2024							
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	April 14, 2023	April 13, 2024							
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	April 14, 2023	April 13, 2024							
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	April 14, 2023	April 13, 2024							
9	Thermo meter	JINCHUANG	GSP-8A	GTS641	April 19, 2023	April 18, 2024							
10	EXA Signal Analyzer	Keysight	N9010B	MY60241168	Nov. 03, 2023	Nov. 02, 2024							

Gen	General used equipment:											
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)						
1	Barometer	KUMAO	SF132	GTS647	April 19, 2023	April 18, 2024						



### 7 Test results and Measurement Data

# 7.1 Antenna requirement:

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement:	
	be designed to ensure that no antenna other than that furnished by the sed with the device. The use of a permanently attached antenna or of an
	coupling to the intentional radiator, the manufacturer may design the unit

#### **E.U.T Antenna:**

electrical connector is prohibited.

The antenna is FPC antenna, reference to the appendix II for details



### 7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207									
Test Method:	ANSI C63.10:2013									
Test Frequency Range:	150KHz to 30MHz									
Receiver setup:	RBW=9KHz, VBW=30KHz									
Limit:	Limit (dBuV)									
	Frequency range (MHz)  Quasi-peak  Average									
	0.15-0.5	56 to 46*								
	0.5-5	56	46							
	5-30	60	50							
	* Decreases with the logarithm	n of the frequency.								
Test procedure	The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.									
Test setup:	Reference Plane									
	AUX Equipment  Test table/Insulation plane  Remark E.U.T  Remark E.U.T  EMI Receiver  Receiver									
Test Instruments:	Refer to section 6.0 for details									
Test mode:	Refer to section 5.2 for details	Refer to section 5.2 for details								
Test environment:	Temp.: 25 °C Hun	nid.: 52%	Press.: 1012mbar							
Test voltage:	AC 120V, 60Hz									

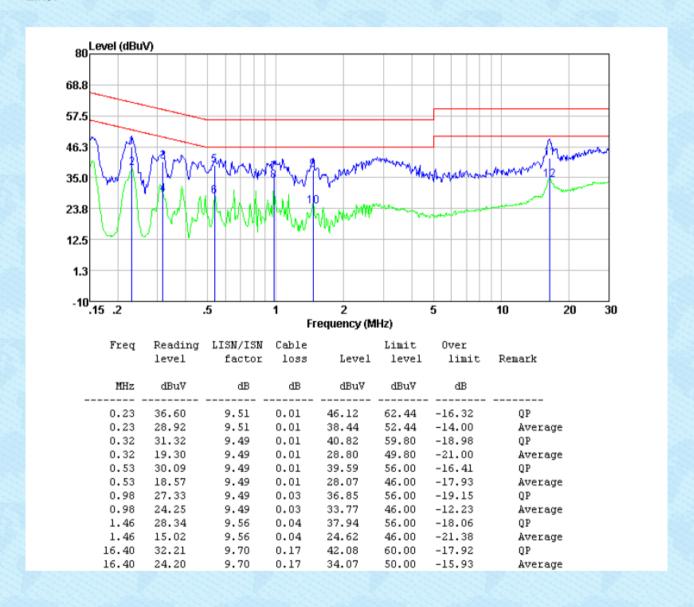


#### Measurement data:

Pre-scan all test modes, found worst case at 802.11a 5180MHz, and so only show the test result of it

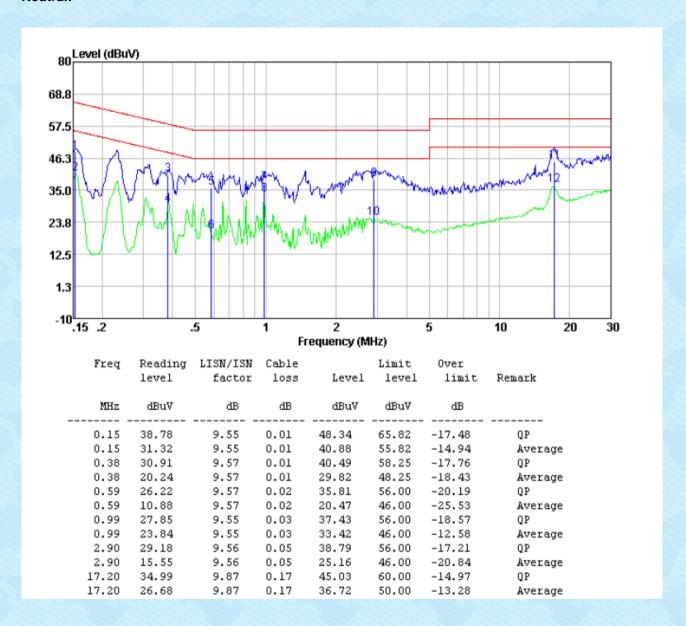
Model No.: SEC102P-36W-CCT-R80-0001

#### Line:





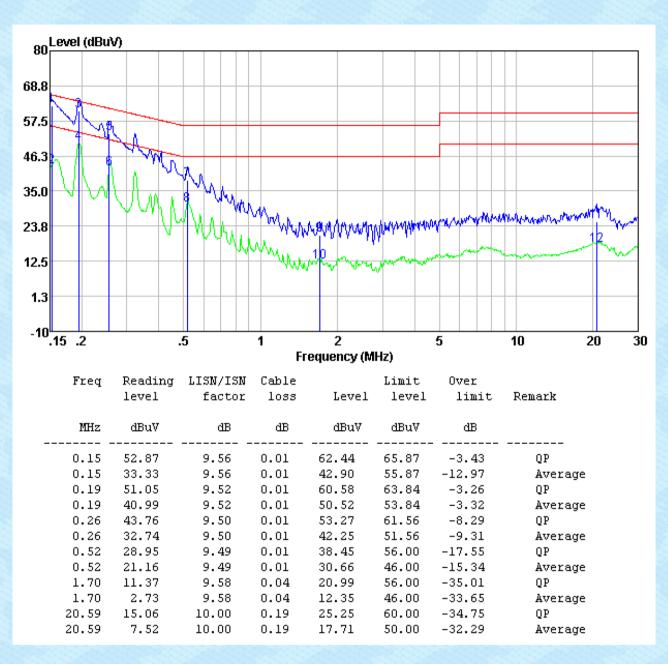
#### Neutral:





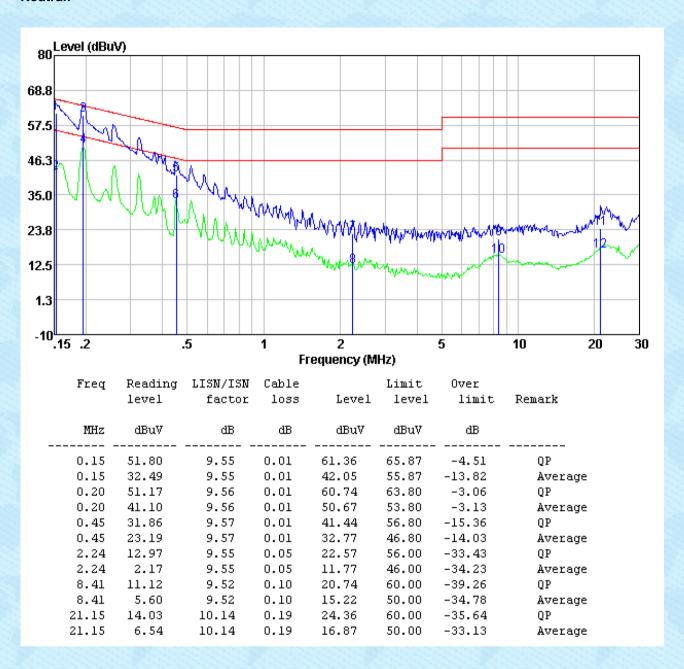
Model No.: SEC103P-020-CCT-R80-0001

Line:





#### Neutral:

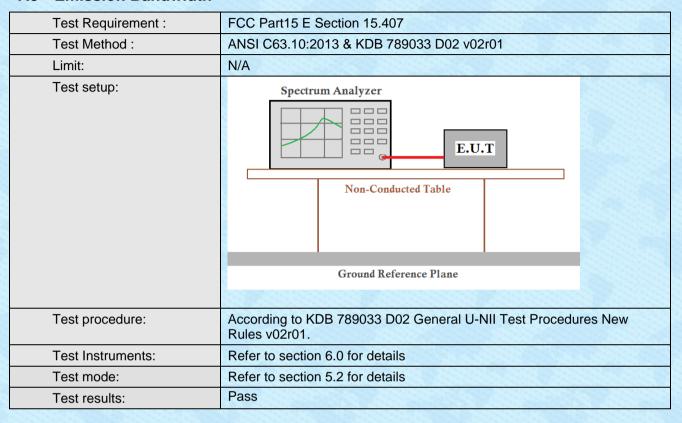


#### Notes:

- 1. An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss



### 7.3 Emission Bandwidth



Measurement Data: The detailed test data see Appendix.



# 7.4 Maximum Conducted Output Power

Test Requirement	FCC Part15 E Section	15.407						
Test Method :	ANSI C63.10:2013 & I	ANSI C63.10:2013 & KDB 789033 D02 v02r01						
Limit:	Frequency band (MHz)	Limit						
	5150-5250 ≤1W(30dBm) for master device ≤250Mw(23.98dBm) for client device							
	5250-5350	≤250Mw(23.98dBm) for client device or 11dBm+10logB*						
	5470-5725	≤250Mw(23.98dBm) for client device or 11dBm+10logB*						
	Remark: *Where B is	the 26Db emission bandwidth in MHz.						
		cted output power must be measured over any stransmission using instrumentation calibrated in valent voltage.						
Test setup:	Power Meter  E.U.T  Non-Conducted Table							
	Ground Referen	nce Plane						
Duty Cycle set up:	RBW=VBW=8MHz							
Test procedure:	Measurement using	an RF average power meter						
	meter with a th	s may be performed using a wideband RF power nermocouple detector or equivalent if all of the ed below are satisfied						
	a) The EUT is with a constar	configured to transmit continuously or to transmit at duty cycle.						
		when the EUT is transmitting, it must be its maximum power control level.						
		ation period of the power meter exceeds the od of the transmitted signal by at least a factor of						
		ter does not transmit continuously, measure the of the transmitter output signal as described in						
	(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.							
		asurement in dBm by adding 10 log(1/x) where x is (e.g., 10log(1/0.25) if the duty cycle is 25 percent).						
Test Instruments:	Refer to section 6.0 fo	r details						
Test mode:	Refer to section 5.2 fo	r details						
Test results:	Pass							

Measurement Data: The detailed test data see Appendix.

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# 7.5 Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.40	07						
Test Method :	ANSI C63.10:2013 & KDB 789033 D02 v02r01							
Limit:	Frequency band (MHz)	Limit						
	5150-5250	≤17dBm in 1MHz for master device						
		≤11dBm in 1MHz for client device						
	5250-5350 ≤11dBm in 1MHz for client device							
	5470-5725	≤11dBm in 1MHz for client device						
		wer spectral density is measured as a ect connection of a calibrated test instrument it.						
Test setup:	Spectrum Analyzer  Non-Conducte  Ground Referen							
Test procedure:	being tested by following measuring maximum co analyzer or EMI receive SA-2, SA-3, or alternativincluding, the step labeled.  2) Use the peak search fur the spectrum.  3) Make the following adjust applicable:  a) If Method SA-2 or SA where x is the duty cycle b) If Method SA-3 Alterrused in step E)2)g)(viii),	er spectrum for the EUT operating mode g the instructions in section E)2) for inducted output power using a spectrum r: select the appropriate test method (SA-1, wes to each) and apply it up to, but not ed, "Compute power".  Inction on the instrument to find the peak of estments to the peak value of the spectrum, if etc. Alternative was used, add 10 log(1/x), etc. to the peak of the spectrum.  Inative was used and the linear mode was add 1 dB to the final result to compensate en linear averaging and power averaging.						
Test Instruments:	Refer to section 6.0 for deta	ils						
Test mode:	Refer to section 5.2 for deta	ils						
Test results:	Pass							

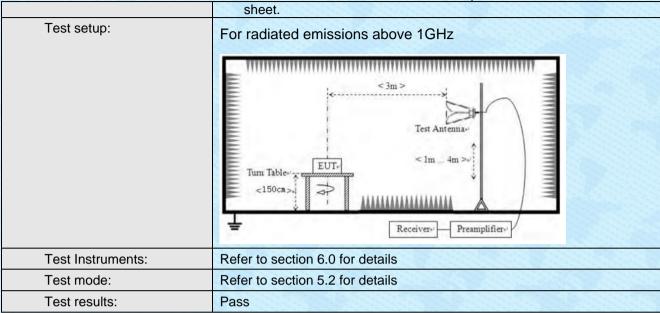
Measurement Data: The detailed test data see Appendix.



# 7.6 Band Edge

Test Requirement:	FCC Part15 E Section 15.407 and 5.205							
Test Method:	ANSI C63.10:2013							
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)							
Receiver setup:								
· ·	Frequency	Detector	RBW	VBW	Remark			
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value			
	Above 1GHz	Peak	1MHz	3MHz	Peak Value			
	710000 10112	AV	1MHz	3MHz	Average Value			
Limit:								
	Frequen		Limit (dBuV		Remark			
	30MHz-88		40.0		Quasi-peak Value			
	88MHz-216		43.5		Quasi-peak Value			
	216MHz-96		46.0		Quasi-peak Value			
	960MHz-1	GHZ	54.0		Quasi-peak Value			
	Above 10	GHz -	54.0		Average Value Peak Value			
			00.2		reak value			
	Undesirable emission limits:  (1) For transmitters operating in the 5.15-5.25 GHz band: outside of the 5.15-5.35 GHz band shall not exceed a dBm/MHz.  (2) For transmitters operating in the 5.25-5.35 GHz band: outside of the 5.15-5.35 GHz band shall not exceed a dBm/MHz. Devices operating in the 5.25-5.35 GHz band generate emissions in the 5.15-5.25 GHz band must applicable technical requirements for operation in the band (including indoor use) or alternatively meet an emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 (3) For transmitters operating in the 5.47-5.725 GHz band							
Test Procedure:	<ul> <li>(3) For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.</li> <li>a. The EUT was placed on the top of a rotating table 1.5 m above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>c. 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.</li> <li>d. 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 rotable table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>f. 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-</li> </ul>							





#### Remarks:

- Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 3. The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.
- According to KDB 789033 D02 v02r01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows: E[dBuV/m] = EIRP[dBm] + 95.2;

For example, if EIRP = -27dBm

E[dBuV/m] = -27 + 95.2 = 68.2dBuV/m.



#### **Measurement Data:**

Only show the worst case(Model No.: SEC102P-36W-CCT-R80-0001)

Only show the wors	t case(Model	No.: SEC10	02P-36W-CCT-F	R80-0001)			
Worse case	mode:	8	02.11a	Test Fre	quency:	5180N	ЛHz
Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
5150	49.94	-3.63	46.31	68.20	-21.89	peak	Н
5150	45.82	-3.63	42.19	54.00	-11.81	AVG	Н
5150	51.84	-3.63	48.21	68.20	-19.99	peak	V
5150	45.06	-3.63	41.43	54.00	-12.57	AVG	V
Worse case	mode:	8	02.11a	Test Fre	quency:	5240N	ЛHz
Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
5350	48.71	-3.59	45.12	68.20	-23.08	peak	Н
5350	45.28	-3.59	41.69	54.00	-12.31	AVG	Н
5350	50.13	-3.59	46.54	68.20	-21.66	peak	V
5350	43.87	-3.59	40.28	54.00	-13.72	AVG	V
Worse case	mode:	8	02.11n	Test Fre	quency:	ncy: 5180M	
Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
5150	49.52	-3.63	45.89	68.20	-22.31	peak	Н
5150	45.94	-3.63	42.31	54.00	-11.69	AVG	Н
5150	51.90	-3.63	48.27	68.20	-19.93	peak	V
5150	44.72	-3.63	41.09	54.00	-12.91	AVG	V
Worse case	mode:	8	02.11n	Test Fre	quency:	5240N	ЛHz
Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
5350	48.83	-3.59	45.24	68.20	-22.96	peak	Н
5350	45.31	-3.59	41.72	54.00	-12.28	AVG	Н
5350	49.68	-3.59	46.09	68.20	-22.11	peak	V
5350	43.86	-3.59	40.27	54.00	-13.73	AVG	V
Worse case	mode:	802.	11n(HT40)	Test Fre	quency:	5190N	ЛHz
Frequency (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission Level (dBµV/m)	Limits (dBµV/m)	Over (dB)	Detector Type	Ant. Pol. H/V
5150	49.74	-3.63	46.11	68.20	-22.09	peak	Н
5150	46.34	-3.63	42.71	54.00	-11.29	AVG	Н
5150	52.18	-3.63	48.55	68.20	-19.65	peak	V
5150	44.93	-3.63	41.30	54.00	-12.70	AVG	V
					The state of the s		



Worse case mode:		802.11n(HT40)		Test Fr	equency:	5230MHz	
Frequency (MHz)	Meter Reading (dB)		Emission Level	Limits (dBµV/m)	Over	Detector Type	Ant. Pol.
(IVII IZ)	(dBµV)	(ub)	(dBµV/m)	(ασμν/ιιι)	BµV/m) (dB)		H/V
5350	48.70	-3.45	45.25	68.20	-22.95	peak	Н
5350	45.28	-3.45	41.83	54.00	-12.17	AVG	Н
5350	50.13	-3.45	46.68	68.20	-21.52	peak	V
5350	43.87	-3.45	40.42	54.00	-13.58	AVG	V



### 7.7 Radiated Emission

Tari Dan income	F00 D-145 0 0-	-1' 45 000 -							
Test Requirement :	FCC Part15 C Section 15.209 and 15.205  ANSI C63.10: 2013								
Test Method :		13							
Test Frequency Range:	9kHz to 40GHz								
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)  Frequency Detector RBW VBW Value								
Receiver setup:	Frequency	Detector	RBW						
	9kHz-150KHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value				
	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value				
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value				
	4011	Peak	1MHz	3MHz	Peak Value				
	Above 1GHz	AV	1MHz	3MHz	Average Value				
Limite	Note: For Duty cycle < 98%, ave				as above For Duty				
Limit:	Frequency (MHz) Fie	eld strength (microv	olts/meter)	Measureme	ent distance (meters)				
	0.009-0.490 24	00/F(kHz)			300				
	0.490-1.705 24 1.705-30.0 30	000/F(kHz)			30 30				
		0**			3				
		0**			3				
	216-960 20 Above 960 50	0**			3				
	7,5000 50								
	the frequency bandle. Radiated emeasurements	ands 9-90 kH emission limit employing an	z, 110-490 s in these average o	kHz and three band detector.	ds are based on				
Test Procedure:	Substitution meth emission levels of The following test 1>.Below 1GHz to	the EUT.		rmine the a	actual ERP				
					e (0.8m for below				
		5 meters for ab							
				360 degrees	s to determine the				
	2. The EUT wa	e highest radia s set 3 meters		the interfer	rence-receiving				
		ich was mount							
	antenna tow				3				
					our meters above				
					ne field strength.				
			I polarization	ons of the a	ntenna are set to				
	make the me 4. For each sus		ion the EU	T was array	nged to its worst				
	case and the		was tuned	to heights	from 1 meter to 4				
		nd the maximu	ım reading.						
	Specified Ba	indwidth with N	/laximum H	old Mode.					
	the limit spec	cified, then tes	ting could b	e stopped	as 10dB lower than and the peak the emissions that				

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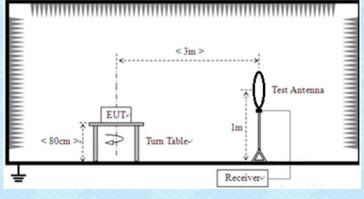
did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- 2>.Above 1GHz test procedure:
- 1. On the test site as test setup graph above, the EUT shall be placed at the 0.8m support on the turntable and in the position closest to normal use as declared by the provider.
- The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter. The output of the test antenna shall be connected to the measuring receiver.
- 3. The transmitter shall be switched on, if possible, without modulation and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- 4. The test antenna shall be raised and lowered from 1m to 4m until a maximum signal level is detected by the measuring receiver. Then the turntable should be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- 5. Repeat step 4 for test frequency with the test antenna polarized horizontally.
- 6. Remove the transmitter and replace it with a substitution antenna
- 7. Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a nonradiating cable. With the antennas at both ends vertically polarized, and with the signal generator tuned to a particular test frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.
- 8. Repeat step 7 with both antennas horizontally polarized for each test frequency.
- 9. Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps 7 and 8 by the power loss in the cable between the generator and the antenna, and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna by the following formula:
  EIRP(dBm) = Pg(dBm) cable loss (dB) + antenna gain (dBi) where:

Pg is the generator output power into the substitution antenna.

Test setup:

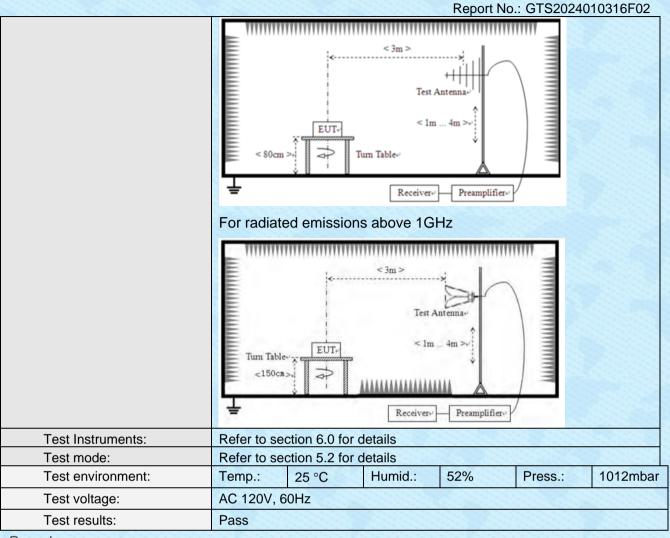
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz

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### Remarks:

1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

#### **Measurement Data:**

#### 9 kHz ~ 30 MHz

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

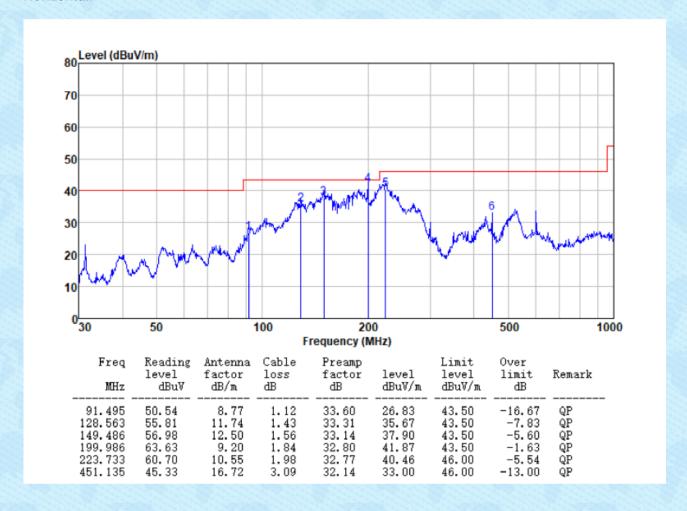


#### 30MHz~1GHz

Pre-scan all test modes, found worst case at 802.11a 5180MHz, and so only show the test result of it

Model No.: SEC102P-36W-CCT-R80-0001

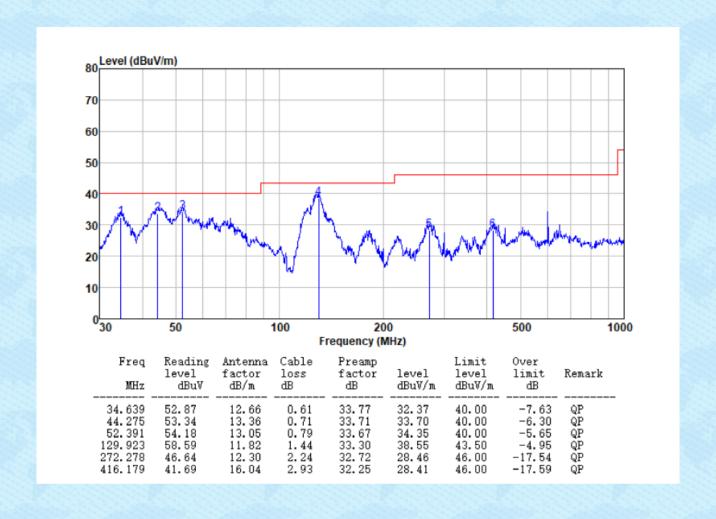
#### Horizontal:





Vertical:

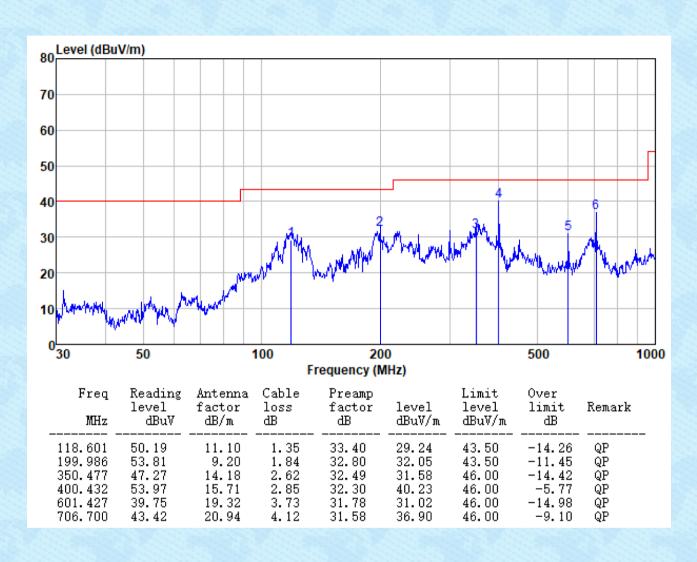
Report No.: GTS2024010316F02





Model No.: SEC103P-020-CCT-R80-0001

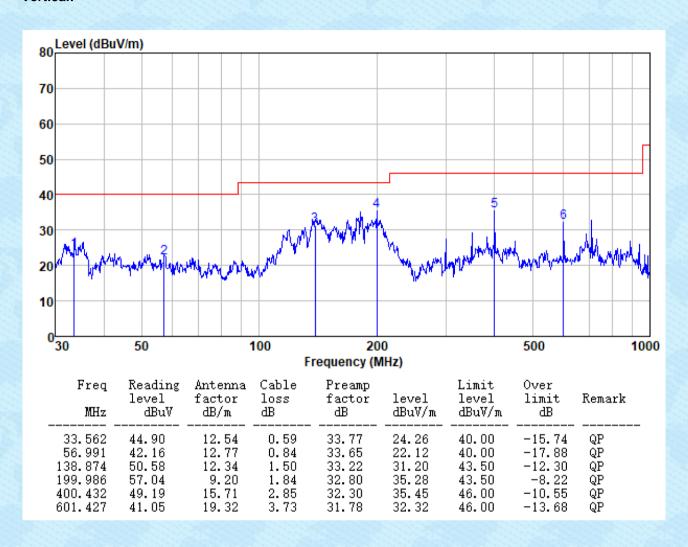
#### Horizontal:



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#### Vertical:





### **Above 1GHz:**

Only show the worst case(Model No.: SEC102P-36W-CCT-R80-0001)

	80	02.11a			Test Frequency: 5180MHz				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	
10360	36.44	38.96	8.27	35.64	48.03	68.20	-20.17	Vertical	
15540	34.32	38.40	10.57	35.35	47.94	68.20	-20.26	Vertical	
10360	35.49	38.96	8.27	35.64	47.08	68.20	-21.12	Horizontal	
15540	31.97	38.40	10.57	35.35	45.59	68.20	-22.61	Horizontal	
10360	28.81	38.96	8.27	35.64	40.40	54.00	-13.60	Vertical	
15540	27.11	38.40	10.57	35.35	40.73	54.00	-13.27	Vertical	
10360	26.70	38.96	8.27	35.64	38.29	54.00	-15.71	Horizontal	
15540	26.69	38.40	10.57	35.35	40.31	54.00	-13.69	Horizontal	

	80	02.11a			Test Frequency: 5200MHz				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	
10400	36.14	39.01	8.29	35.67	47.77	68.20	-20.43	Vertical	
15600	34.42	38.30	10.62	35.36	47.98	68.20	-20.22	Vertical	
10400	35.92	39.01	8.29	35.67	47.55	68.20	-20.65	Horizontal	
15600	29.93	38.30	10.62	35.36	43.49	68.20	-24.71	Horizontal	
10400	29.76	39.01	8.29	35.67	41.39	54.00	-12.61	Vertical	
15600	28.39	38.30	10.62	35.36	41.95	54.00	-12.05	Vertical	
10400	24.94	39.01	8.29	35.67	36.57	54.00	-17.43	Horizontal	
15600	25.74	38.30	10.62	35.36	39.30	54.00	-14.70	Horizontal	

	802.11a				Test Frequency: 5240MHz				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	
10480	36.78	39.15	8.32	35.78	48.47	68.20	-19.73	Vertical	
15720	33.24	38.00	10.72	35.37	46.59	68.20	-21.61	Vertical	
10480	33.50	39.15	8.32	35.78	45.19	68.20	-23.01	Horizontal	
15720	33.48	38.00	10.72	35.37	46.83	68.20	-21.37	Horizontal	
10480	27.39	39.15	8.32	35.78	39.08	54.00	-14.92	Vertical	
15720	25.28	38.00	10.72	35.37	38.63	54.00	-15.37	Vertical	
10480	25.85	39.15	8.32	35.78	37.54	54.00	-16.46	Horizontal	
15720	22.57	38.00	10.72	35.37	35.92	54.00	-18.08	Horizontal	



	802.11n(HT20)					Test Frequency: 5180MHz				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization		
10360	36.40	39.20	8.34	35.82	48.12	68.20	-20.08	Vertical		
15540	34.86	37.90	10.77	35.38	48.15	68.20	-20.05	Vertical		
10360	36.16	39.20	8.34	35.82	47.88	68.20	-20.32	Horizontal		
15540	30.20	37.90	10.77	35.38	43.49	68.20	-24.71	Horizontal		
10360	28.46	39.20	8.34	35.82	40.18	54.00	-13.82	Vertical		
15540	25.96	37.90	10.77	35.38	39.25	54.00	-14.75	Vertical		
10360	24.46	39.20	8.34	35.82	36.18	54.00	-17.82	Horizontal		
15540	24.41	37.90	10.77	35.38	37.70	54.00	-16.30	Horizontal		

	802.11n(HT20)				Test Frequency: 5200MHz				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	
10400	37.11	38.96	8.27	35.64	48.70	68.20	-19.50	Vertical	
15600	32.47	38.40	10.57	35.35	46.09	68.20	-22.11	Vertical	
10400	33.22	38.96	8.27	35.64	44.81	68.20	-23.39	Horizontal	
15600	34.06	38.40	10.57	35.35	47.68	68.20	-20.52	Horizontal	
10400	30.29	38.96	8.27	35.64	41.88	54.00	-12.12	Vertical	
15600	28.50	38.40	10.57	35.35	42.12	54.00	-11.88	Vertical	
10400	27.46	38.96	8.27	35.64	39.05	54.00	-14.95	Horizontal	
15600	22.80	38.40	10.57	35.35	36.42	54.00	-17.58	Horizontal	

	802.11n(HT20)				Test Frequency: 5240MHz				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	
10480	33.78	39.15	8.32	35.78	45.47	68.20	-22.73	Vertical	
15720	33.27	38.00	10.72	35.37	46.62	68.20	-21.58	Vertical	
10480	32.94	39.15	8.32	35.78	44.63	68.20	-23.57	Horizontal	
15720	29.20	38.00	10.72	35.37	42.55	68.20	-25.65	Horizontal	
10480	28.32	39.15	8.32	35.78	40.01	54.00	-13.99	Vertical	
15720	27.94	38.00	10.72	35.37	41.29	54.00	-12.71	Vertical	
10480	24.61	39.15	8.32	35.78	36.30	54.00	-17.70	Horizontal	
15720	25.80	38.00	10.72	35.37	39.15	54.00	-14.85	Horizontal	



	802.11n(HT40)				Test Frequency: 5190MHz				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	
10380	37.85	39.01	8.28	35.67	49.47	68.20	-18.73	Vertical	
15570	33.06	38.30	10.60	35.36	46.60	68.20	-21.60	Vertical	
10380	34.19	39.01	8.28	35.67	45.81	68.20	-22.39	Horizontal	
15570	31.05	38.30	10.60	35.36	44.59	68.20	-23.61	Horizontal	
10380	27.10	39.01	8.28	35.67	38.72	54.00	-15.28	Vertical	
15570	26.43	38.30	10.60	35.36	39.97	54.00	-14.03	Vertical	
10380	27.97	39.01	8.28	35.67	39.59	54.00	-14.41	Horizontal	
15570	25.49	38.30	10.60	35.36	39.03	54.00	-14.97	Horizontal	

802.11n(HT40)					Test Frequency: 5230MHz				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization	
10460	36.36	39.11	8.31	35.75	48.03	68.20	-20.17	Vertical	
15690	33.62	38.10	10.70	35.37	47.05	68.20	-21.15	Vertical	
10460	33.21	39.11	8.31	35.75	44.88	68.20	-23.32	Horizontal	
15690	31.01	38.10	10.70	35.37	44.44	68.20	-23.76	Horizontal	
10460	30.24	39.11	8.31	35.75	41.91	54.00	-12.09	Vertical	
15690	29.17	38.10	10.70	35.37	42.60	54.00	-11.40	Vertical	
10460	25.30	39.11	8.31	35.75	36.97	54.00	-17.03	Horizontal	
15690	27.46	38.10	10.70	35.37	40.89	54.00	-13.11	Horizontal	

#### Notes:

- 1. Level = Read Level + Antenna Factor+ Cable loss- Preamp Factor.
- 2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.



# 7.8 Frequency stability

Test Requirement:	FCC Part15 C Section 15.407(g)							
Test Method:	ANSI C63.10:2013, FCC Part 2.105	ANSI C63.10:2013, FCC Part 2.1055,						
Limit:	stability such that an emission is ma	Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified						
Test Procedure:		The EUT was setup to ANSI C63.4, 2003; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements.						
Test setup:	Spectrum analyzer  Att.  Note: Measurement setup for testing on A	Temperature Chamber  EUT  Variable Power Supply  Antenna connector						
Test Instruments:	Refer to section 6.0 for details							
Test mode:	Refer to section 5.2 for details							
Test results:	Pass							

### **Measurement Data:**

Test Condition	Test Mode	Test Frequency [MHz]	Ant	Result [ppm]	Limit [ppm]	Verdict
NTNV Ca		5180	1	-3.35	<=20	PASS
	Carrier	5190	51	-2.80	<=20	PASS
		5200	1	-5.82	<=20	PASS
		5210	1	-0.44	<=20	PASS
		5230	1	5.45	<=20	PASS
		5240	1	-6.29	<=20	PASS



# 8 Test Setup Photo

Reference to the appendix I for details.

# 9 EUT Constructional Details

Reference to the appendix II for details.

---END---