

CFR 47 FCC PART 15 SUBPART E ISED RSS-247 ISSUE 2

TEST REPORT

For

Soundbar speaker

MODEL NUMBER FOR FCC: B95/37,B95/yy,B97/37,B97/yy (yy=00-99 or NiL ,for country code) MODEL NUMBER FOR IC: B95/37, B97/37

FCC ID: 2AR2SB97

IC: 24589-B97

REPORT NUMBER: 4789548706-4

ISSUE DATE: August 31, 2020

Prepared for

MMD Hong Kong Holding Limited Units 1006-1007, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Prepared by

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, People's Republic of China Tel: +86 769 22038881 Fax: +86 769 33244054 Website: www.ul.com

The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products.

(UL)				REPORT No F	.: 4789548706-4 Page 2 of 199
			Revision History		
Rev.	Issue Date	Revisions			Revised By
V0	08/31/2020	Initial Issue			



Summary of Test Results					
Clause	Test Items	FCC/IC Rules	Test Results		
1	6dB/26dB Bandwidth	FCC 15.407 (a)&(e) RSS-247 Clause 6.2	PASS		
2	99% Occupied Bandwidth	RSS-Gen Clause 6.7	PASS		
3	Maximum Conducted Output Power	FCC 15.407 (a) RSS-247 Clause 6.2	PASS		
4	Power Spectral Density	FCC 15.407 (a) RSS-247 Clause 6.2	PASS		
5	Radiated Bandedge and Spurious Emission	FCC 15.407 (b) FCC 15.209 FCC 15.205 RSS-247 Clause 6.2 RSS-GEN Clause 8.9	PASS		
6	Conducted Emission Test For AC Power Port	FCC 15.207 RSS-GEN Clause 8.8	PASS		
7	Frequency Stability	FCC 15.407 (g)	PASS		
8	Antenna Requirement	FCC 15.203 RSS-GEN Clause 6.8	PASS		
Note:					

1. This test report is only published to and used by the applicant, and it is not for evidence purpose in China.

2. The measurement result for the sample received is <Pass> according to < CFR 47 FCC PART 15 SUBPART E >< ISED RSS-247 > when <Accuracy Method> decision rule is applied.



TABLE OF CONTENTS

1.	ATT	ESTATION OF TEST RESULTS	6
2.	TES	T METHODOLOGY	7
3.	FAC	ILITIES AND ACCREDITATION	7
4.	CAL	IBRATION AND UNCERTAINTY	8
4	l.1.	MEASURING INSTRUMENT CALIBRATION	8
4	¹ .2.	MEASUREMENT UNCERTAINTY	8
5.	EQL	JIPMENT UNDER TEST	9
5	5.1.	DESCRIPTION OF EUT	9
5	5.2.	MAXIMUM EIRP	9
5	5.3.	CHANNEL LIST1	0
5	5.4.	THE WORSE CASE POWER SETTING PARAMETER1	1
5	5.5.	THE WORSE CASE CONFIGURATIONS1	2
5	5.6.	DESCRIPTION OF AVAILABLE ANTENNAS1	3
5	5.7.	DESCRIPTION OF TEST SETUP1	4
6.	MEA	ASURING INSTRUMENT AND SOFTWARE USED1	5
7.	ΑΝΤ	ENNA PORT TEST RESULTS	7
7	7.1.	ON TIME AND DUTY CYCLE	7
7	22	6/26/99% dB BANDWIDTH 1	8
. 7	. <u>_</u> . 7.3	MAXIMUM CONDUCTED OUTPUT POWER 2	0
7	.4.	POWER SPECTRAL DENSITY	2
8	Р۸Г		л
ں .		802 112 MODE	- 0
Ľ	8.1. [°]	1. UNII-1 BAND	0
	8.1.2	2. UNII-3 BAND4	6
8	3.2.	802.11n HT20 MODE	2
	8.2.2	2. UNII-3 BAND	2
8	3.3.	802.11n HT40 MODE	4
	8.3.	1. UNII-1 BAND	4
~	0.3.2	2. UNII-3 DAIND	0
č	9. <i>4.</i> 8.4.1	٥٥٢. ١ און	0 8
	8.4.2	2. UNII-3 BAND	6
8	8.5.	SPURIOUS EMISSIONS 18~26GHz	2
	8.5.	1. 802.11a MODE13	2



	1 age 5 61 155
8.6. SPURIOUS EMISSIONS 26~40GHz 8.6.1. 802.11a MODE	
8.7. SPURIOUS EMISSIONS 30M ~ 1 GHz 8.7.1. 802.11a MODE	<i>136</i> 136
8.8. SPURIOUS EMISSIONS BELOW 30M 8.8.1. 802.11a MODE	<i>13</i> 8 138
9. AC POWER LINE CONDUCTED EMISSIONS	141
9.1. 802.11a MODE	
10. FREQUENCY STABILITY	144
11. ANTENNA REQUIREMENTS	147
Appendix A1: 26 dB Emission Bandwidth	
Test Graphs	148
Appendix A2: 99% Occupied channel bandwidth	
Test Graphs	
Appendix A3: 6dB Emission bandwidth	
Test Graphs	
Appendix B: Maximum conducted average output power Test Result	<i>186</i> 186
Appendix C: Maximum power spectral density	
Test Graphs	
Appendix D: Duty Cycle	
Test Result	197 198



1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: MMD Hong Kong Holding Limited Units 1006-1007, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Manufacturer

Address:

Information Company Name: Address:

Factory Information

Company Name: Address: **EUT Information** EUT Name: Model for FCC: Model for IC:

Units 1006-1007, 10th Floor, C-Bons International Center, 108 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Eastech Electronics (Huiyang) Co., Ltd. XINXU, HUIYANG, HUIZHOU CITY GUANGDONG CHINA

Soundbar speaker B95/37,B95/yy,B97/37,B97/yy (yy=00-99 or NiL, for country code) B95/37,B97/37



MMD Hong Kong Holding Limited

Brand: Serial Model: Sample Received Date: Sample Status: Sample ID: Date of Tested:

Please refer to clause 5.1. Description of EUT July 23, 2020 Normal 3230144 July 25, 2020~August 28, 2020

APPLICABLE STANDARDS

STANDARD	TEST RESULTS
CFR 47 FCC PART 15 SUBPART E	PASS
ISED RSS-247 Issue 2	PASS
ISED RSS-GEN Issue 5	PASS

Prepared By:

Mick Zhong

Mick Zhang **Project Engineer** Approved By:

Checked By:

henry being

Shawn Wen Laboratory Leader

Stephen Guo Laboratory Manager



2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, CFR 47 FCC Part 2, CFR 47 FCC Part 15, KDB 789033 D02 v02r01, RSS-GEN Issue 5, RSS-247 Issue 2, KDB414788 D01 Radiated Test Site v01r01.

3. FACILITIES AND ACCREDITATION

	A2LA (Certificate No.: 4102.01)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	has been assessed and proved to be in compliance with A2LA.
	FCC (FCC Designation No.: CN1187)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	Has been recognized to perform compliance testing on equipment subject
	to the Commission's Delcaration of Conformity (DoC) and Certification
	rules
Accreditation	ISED(Company No.: 21320)
Certificate	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Continouto	has been registered and fully described in a report filed with ISED.
	The Company Number is 21320.
	VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	has been assessed and proved to be in compliance with VCCI, the
	Membership No. is 3793.
	Facility Name:
	Chamber D, the VCCI registration No. is G-20019 and R-20004
	Shielding Room B , the VCCI registration No. is C-20012 and T-20011

Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz had been correlated to measurements performed on an OFS.



4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognize national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty		
Uncertainty for Conduction emission test	3.62dB		
Uncertainty for Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	2.2dB		
Uncertainty for Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	4.00dB		
Uncertainty for Radiation Emission test	5.78dB (1GHz-18GHz)		
(1GHz to 26GHz)(include Fundamental	5.23dB (18GHz-26GHz)		
emission)	5.64dB (26GHz-40GHz)		
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.			



5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

EUT Name	Soundbar speaker					
EUT Description	The EUT is a Soundbar.					
Test Model	B97/37					
Model for FCC	B95/37,B95/yy,B97/37	B95/37,B95/yy,B97/37,B97/yy (yy=00-99 or NiL ,for country code)				
Model for IC	B95/37, B97/37					
Model Difference	B95/yy (yy=00-99 or N technical construction components and comp mechanical construction model number. B97/yy (yy=00-99 or N technical construction components and comp mechanical construction model number. The difference betwee B97/37 contains Sound bar: BT+2.4Gw Surround (left): 5.8G v B95/37 contains Sound bar: BT+2.4Gw	0-99 or NiL ,for country code) have the same struction including circuit diagram, PCB Layout, and component layout, all electrical construction and onstruction with B95/37. The difference lies only the er. 0-99 or NiL ,for country code) have the same struction including circuit diagram, PCB Layout, and component layout, all electrical construction and construction with B97/37. The difference lies only the er. the between B95/37 with B97/37 is: tins T+2.4Gwifi+ 5G wifi (band 1+ band4)+ 5.8G wireless (ht): 5.8G wireless(only for receiving) t): 5.8G wireless(only for receiving)				
Radio Technology	IEEE802.11a 20 IEEE802.11n HT20/n HT40 IEEE802.11ac HT20/HT40/HT80					
Operation frequency	UNII-1/UNII-3					
Modulation	OFDM(BPSK,QPSK,1	6QAM,64QAM,256QA	I in ac mode only.)			
Power Supply	Power Adapter	Input Output	AC 120V, 60Hz DC 19V, 6.32A			

Note: The model B97/37 has the most attachments, so only this model has been tested in this report

5.2. MAXIMUM EIRP

IEE Std.	Frequency (MHz)	Max Power (dBm)	Max EIRP (dBm)			
802.11a 20	5150-5250	9.85	14.85			
802.11n HT20	5150-5250	9.28	14.28			
802.11n HT40	5150-5250	9.54	14.54			
802.11ac VHT20	5150-5250	8.79	13.79			
802.11ac VHT40	5150-5250	9.51	14.51			
802.11ac VHT80	5150-5250	7.55	12.55			

UNII-1 BAND

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.

UNII-3 BAND

IEE Std. 802.11	Frequency (MHz)	Max Power (dBm)
802.11a 20	5725-5850	8.70
802.11n HT20	5725-5850	8.25
802.11n HT40	5725-5850	8.28
802.11ac VHT20	5725-5850	7.64
802.11ac VHT40	5725-5850	8.22
802.11ac VHT80	5725-5850	7.46

5.3. CHANNEL LIST

UNII-1		UNII-1		UNII-1	
(For Bandwidth=20MHz)		(For Bandwidth=40MHz)		(For Bandwidth=80MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

UNII-3		UNII-3		UNII-3	
(For Bandwidth=20MHz)		(For Bandwidth=40MHz)		(For Bandwidth=80MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				



5.4. THE WORSE CASE FOWER SETTING PARAMETE	5.4.	THE WORSE CASE POWER SETTING PARAMETE	ΞR
--	------	---------------------------------------	----

The Worse Case Power Setting Parameter				
Test Software	RF Tool			
Frequency Band	mode	channel	setting	
UNII-1	802.11a 20	5180	37	
		5200	37	
		5240	37	
	802.11n (20M)	5180	37	
		5200	37	
		5240	37	
	802.11ac (20M)	5180	37	
		5200	37	
		5240	37	
	802.11n (40M)	5190	37	
		5230	37	
	802.11ac (40M)	5190	37	
		5230	37	
	802.11ac (80M)	5210	35	
UNII-3	802.11a 20	5745	37	
		5785	37	
		5825	37	
	802.11n (20M)	5745	37	
		5785	37	
		5825	37	
	802.11ac (20M)	5745	37	
		5785	37	
		5825	37	
	802.11n (40M)	5755	37	
		5795	37	
	802.11ac (40M)	5755	37	
		5795	37	
	802.11ac (80M)	5775	35	



5.5. THE WORSE CASE CONFIGURATIONS

Worst-case data rates as provided by the client were:

802.11a 20 mode: 6 Mbps 802.11n HT20 mode: MCS0 802.11n HT40 mode: MCS0 802.11ac VHT20 mode: MCS0 802.11ac VHT40 mode: MCS0 802.11ac VHT80 mode: MCS0

802.11ac VHT20 and VHT40 mode are different from 802.11nHT20 and HT40 only in control messages, so for these 4 modes, only 802.11nHT20 and 802.11nHT40 worst case power modes data are recorded in the report .

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna No.	Frequency (MHz)		Antenna Type	Max Antenna Gain (dBi)
1	5150-5850)	FPC antenna	5.0
IEE Std. 802.11	Transmit and Receive Mode		Descri	iption
802.11a 20	⊠1TX, 1RX	ANT 1	can be used as trans	smitting/receiving antenna.
802.11n HT20	ITX, 1RX ANT 1 can be used as transmitting/receiving antenna.		smitting/receiving antenna.	
802.11n HT40	⊠1TX, 1RX	K, 1RX ANT 1 can be used as transmitting/receiving antenna.		
802.11ac VHT20	⊠1TX, 1RX	ANT 1	can be used as trans	smitting/receiving antenna.
802.11ac VHT40	☐ 1TX, 1RX ANT 1 can be used as transmitting/receiving antenna		smitting/receiving antenna.	
802.11ac VHT80	☐ 1TX, 1RX ANT 1 can be used as transmitting/receiving antenna.			
Note: 1. The value of the antenna gain was declared by customer.				

2. The customer declared that BT& 5.8G wireless can transmit simultaneously.



5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Remarks
1	PC	Dell	Vostro 3902	8KNDDB2
2	DVD	Pioneer	DV-410V-K	HGKD001867CN
3	LED TV	INSIGNIA	NS-24DR220NA18	HDMI(ARC)
4	Mobile Phone	HUAWEI	ALP-AL00	/
5	USB TO UART	/	/	/

I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	/	/	1.0 m	/
2	HDMI	/	Shielded	1.8m	/
3	HDMI	/	Shielded	1.0m	/
4	HDMI	/	Shielded	1.2m	/
5	Audio	/	/	1.0m	/
6	Optical	/	/	1.0m	/

ACCESSORIES

Item	Accessory	Brand Name	Model Name	Description
1	AC Adapter	/	NSA120EC- 19063200	Input: AC 100~240V, 50/60Hz, 2.0A Output: DC 19V, 6.32A 120.0W

TEST SETUP

The EUT can work in engineering mode with a software through a Laptop.

SETUP DIAGRAM FOR TESTS



6. MEASURING INSTRUMENT AND SOFTWARE USED

	Conducted Emissions						
	Instrument						
Used	Equipment	Manufacturer	Model No.		Serial No	Last Cal.	Next Cal.
\checkmark	EMI Test Receiver	R&S	ESR	3	101961	Dec.05,2019	Dec.05,2020
V	Two-Line V- Network	R&S	ENV2	16	101983	Dec.05,2019	Dec.05,2020
V	Artificial Mains Networks	Schwarzbec k	NSLK 8	8126	8126465	Dec.05,2019	Dec.05,2020
			Softwa	are			
Used	Des	scription		Manu	ufacturer	Name	Version
\checkmark	Test Software for (Conducted dist	urbance	F	arad	EZ-EMC	Ver. UL-3A1
		Ra	diated Er	nissio	ns		
			Instrum	nent			
Used	Equipment	Manufacturer	Model	No.	Serial No	Last Cal.	Next Cal.
V	MXE EMI Receiver	KESIGHT	N903	8A	MY56400 036	Dec.06,2019	Dec.06,2020
V	Hybrid Log Periodic Antenna	TDK	HLP-3003C		130960	Sep.17, 2018	Sep.17, 2021
	Preamplifier	HP	8447D		2944A090 99	Dec.05,2019	Dec.05,2020
V	EMI Measurement Receiver	R&S	ESR26		101377	Dec.05,2019	Dec.05,2020
\checkmark	Horn Antenna	TDK	HRN-0118		130939	Sep.17, 2018	Sep.17, 2021
	High Gain Horn Antenna	Schwarzbec k	BBHA-9170		691	Aug.11, 2018	Aug.11, 2021
V	Preamplifier	TDK	PA-02-0	0118	TRS-305- 00066	Dec.05,2019	Dec.05,2020
V	Preamplifier	TDK	PA-02	2-2	TRS-307- 00003	Dec.05,2019	Dec.05,2020
\checkmark	Preamplifier	TDK	PA-02	2-3	TRS-308- 00002	Dec.05,2019	Dec.05,2020
\checkmark	Loop antenna	Schwarzbec k	1519	В	80000	Jan.07, 2019	Jan.07, 2022
V	Band Reject Filter	Wainwright	WRCJV12- 5695-5725- 5850-5880- 40SS		4	Dec.05,2019	Dec.05,2020
	Band Reject Filter	Wainwright	WRCJ\ 5120-5 5350-53 60S	/20- 150- 380- S	2	Dec.05,2019	Dec.05,2020

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



REPORT No.: 4789548706-4 Page 16 of 199

							Ŷ	
V	Band Reject Filter	Wainwright	WRCJV20- 5440-5470- 5725-5755- 60SS)-)- 5-	1	Dec.05,2019	Dec.05,2020
	High Pass Filter	Wainwright	WHKX10-5850- 6500-1800- 40SS		50-)-	4	Dec.05,2019	Dec.05,2020
Software								
Used	Desci	iption I		Manu	facturer		Name	Version
	Test Software for R	adiated distur	idiated disturbance Far		arad	EZ-EMC		Ver. UL-3A1
	Other instruments							
Used	Equipment	Manufacturer	Model No. S		Seria	l No.	Last Cal.	Next Cal.
$\mathbf{\overline{\mathbf{A}}}$	Spectrum Analyzer	Keysight	N90	30A	MY554	10512	Dec.06,2019	Dec.06,2020
	Power sensor, Power Meter	R&S	OSP120		1009	921	Dec.06,2019	Dec.06,2020



7. ANTENNA PORT TEST RESULTS 7.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only

TEST SETUP



TEST ENVIRONMENT

Temperature	24.7°C	Relative Humidity	58%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V, 60Hz

RESULTS

Please refer to appendix D.



7.2. 6/26/99% dB BANDWIDTH

LIMITS

CFR 47 FCC Part15, Subpart E ISED RSS-247					
Test Item	est Item Limit Frequency Range (MHz)				
Bandwidth	26 dB Bandwidth	5150-5250			
	26 dB Bandwidth	5250-5350			
	26 dB Bandwidth	For FCC:5470-5725 For IC:5470-5600 5650-5725			
	Minimum 500kHz 6dB Bandwidth	5725-5850			

ISED RSS-247			
RSS-Gen Clause 6.7	99% Bandwidth	For reporting purposes only.	

TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6dB Bandwidth: RBW=100kHz For 26dB Bandwidth: approximately 1%~5% of the emission bandwidth. For 99% Occupied Bandwidth: approximately 1%~5% of the emission bandwidth.
VBW	For 6dB Bandwidth : ≥3×RBW For 26dB Bandwidth : approximately 3×RBW For 99% Occupied Bandwidth: ≥3×RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6dB/26dB&99% Occupied Bandwidth relative to the maximum level measured in the fundamental emission.

TEST SETUP



UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



TEST ENVIRONMENT

Temperature	24.7°C	Relative Humidity	58%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V, 60Hz

RESULTS

Please refer to appendix A.



7.3. MAXIMUM CONDUCTED OUTPUT POWER

LIMITS

CFR 47 FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted	For FCC client devices:250mW (24dBm)	5150-5250
Power	1 Watt (30dBm)	5725-5850

ISED RSS-247		
Test Item	Limit	Frequency Range (MHz)
Conducted Output	Maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever is less where B is the 99% emission bandwidth in megahertz	5150-5250
Power	1 Watt (30dBm)	5725-5850

Note: If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

TEST PROCEDURE

Refer to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Connect the EUT to the a broadband average RF power meter, the power meter shall have a video bandwidth that is greater than or equal to the bandwidth and shall utilize a fastresponding diode detector.

TEST SETUP



TEST ENVIRONMENT

Temperature	24.7°C	Relative Humidity	58%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V, 60Hz



RESULTS

Please refer to appendix B.

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



7.4. POWER SPECTRAL DENSITY

LIMITS

CFR 47 FCC Part15, Subpart E ISED RSS-247		
Test Item	Limit	Frequency Range (MHz)
	For FCC: Other than Mobile and portable:17dBm/MHz Mobile and portable:11dBm/MHz	5150-5250
Power Spectral Density	For RSS: e.i.r.p. 10dBm/MHz	
	11dBm/MHz	5250-5350
	11dBm/MHz	For FCC:5470-5725 For IC:5470-5600 5650-5725
	30dBm/500kHz	5725-5850
Note: 1. If transmitting a	antennas of directional gain greater than 6 dBi are used, bo	th the maximum

1. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

TEST PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

For U-NII-1, U-NII-2A and U-NII-2C band:

Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	1MHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto
For U-NII-3:	
Center Frequency	The center frequency of the channel under test
Detector	RMS
RBW	500kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.





TEST ENVIRONMENT

Temperature	24.7°C	Relative Humidity	58%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V, 60Hz

RESULTS

Please refer to appendix C.



8. RADIATED TEST RESULTS

LIMITS

Please refer to CFR 47 FCC §15.205, §15.209 and §15.407(b) (4)

Please refer to ISED RSS-GEN Clause 8.9

Radiation Disturbance Test Limit for FCC (Class B)(9kHz-1GHz)

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(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
960~1000	500	3

Note: 1) At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

(2) At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). This paragraph (f) shall not apply to Access BPL devices operating below 30 MHz.



IC Restricted bands please refer to ISED RSS-GEN Clause 8.10. FCC Restricted bands please refer to CFR 47 FCC 15.209.

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

LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1GHz)			
		Field Strength Limit	
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	(dBuV/m) at 3 m	
(11112)		Quasi-Peak	
30 - 88	100	40	
88 - 216	150	43.5	
216 - 960	200	46	
Above 960	500	54	
Above 1000	500	Peak	Average
ADOVE 1000		74	54

Limits of unwanted emission out of the restricted bands

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)		
Frequency Range	EIRP Limit	Field Strength Limit
(MHz)		(dBuV/m) at 3 m
5150~5250 MHz		
5250~5350 MHz	PK:-27 (dBm/MHz)	PK:68.2(dBµV/m)
5470~5725 MHz		
	PK:-27 (dBm/MHz) *1	PK: 68.2(dBµV/m) *1
5725~5850 MHz	PK:10 (dBm/MHz) *2	PK:105.2 (dBµV/m) *2
	PK:15.6 (dBm/MHz) *3	PK: 110.8(dBµV/m) *3
	PK:27 (dBm/MHz) *4	PK:122.2 (dBµV/m) *4

Note:

*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.



TEST SETUP AND PROCEDURE

Below 30MHz



The setting of the spectrum analyser

RBW	200Hz (From 9kHz to 0.15MHz)/ 9kHz (From 0.15MHz to 30MHz)
VBW	200Hz (From 9kHz to 0.15MHz)/ 9kHz (From 0.15MHz to 30MHz)
Sweep	Auto
Detector	Peak/QP/ Average
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 0.8 meter above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

6. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.



Below 1G



The setting of the spectrum analyser

RBW	120kHz
VBW	300kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 0.8 meter above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.







The setting of the spectrum analyser

RBW	1MHz
VBW	PEAK: 3MHz AVG: see note 6
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 1.5m above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 7.1.ON TIME AND DUTY CYCLE.



X axis, Y axis, Z axis positions:



Note 1: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.

Note 2: The EUT was fully exercised with external accessories during the test. In the case of multiple accessory external ports, an external accessory shall be connected to one of each type of port.

Note 3: Simultaneous transmission had been evaluated with the 5GHz WiFi and 5.8Gwiless transmitter and there were no any additional or worse emissions found. Only the worst data was recorded in the 5.8G wireless test report.

TEST ENVIRONMENT

Temperature	23.4°C	Relative Humidity	54%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V, 60Hz



8.1. 802.11a MODE

8.1.1. UNII-1 BAND

RESTRICTED BANDEDGE LOW CHANNEL



HORIZONTAL RESULTS
PEAK

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5105.170	17.53	40.21	57.74	74.00	-16.26	peak
2	5150.000	16.26	40.46	56.72	74.00	-17.28	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



<u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5105.170	3.20	40.21	43.41	54.00	-10.59	AVG
2	5150.000	3.15	40.46	43.61	54.00	-10.39	AVG

Note: 1. Measurement = Reading Level + Correct Factor.

2. AVG: VBW=1/Ton where: ton is transmit duration.

3. For duty cycle, please refer to clause 7.1.



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5027.060	17.70	40.10	57.80	74.00	-16.20	peak
2	5150.000	16.72	40.46	57.18	74.00	-16.82	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



<u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5027.060	2.97	40.10	43.07	54.00	-10.93	AVG
2	5150.000	2.99	40.46	43.45	54.00	-10.55	AVG

Note: 1. Measurement = Reading Level + Correct Factor.

2. AVG: VBW=1/Ton where: ton is transmit duration.

3. For duty cycle, please refer to clause 7.1.



HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1162.000	50.20	-13.26	36.94	74.00	-37.06	peak
2	1654.000	49.56	-11.21	38.35	74.00	-35.65	peak
3	3694.000	42.83	-3.99	38.84	74.00	-35.16	peak
4	4750.000	41.26	0.23	41.49	74.00	-32.51	peak
5	5686.000	39.66	1.98	41.64	74.00	-32.36	peak
6	6628.000	37.08	4.47	41.55	74.00	-32.45	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10597.000	35.40	12.43	47.83	74.00	-26.17	peak
2	11565.000	34.91	13.47	48.38	74.00	-25.62	peak
3	13622.000	34.21	16.08	50.29	74.00	-23.71	peak
4	14425.000	33.67	16.65	50.32	74.00	-23.68	peak
5	16845.000	32.41	20.15	52.56	74.00	-21.44	peak
6	17857.000	29.97	23.41	53.38	74.00	-20.62	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1378.000	49.09	-12.81	36.28	74.00	-37.72	peak
2	1990.000	49.42	-10.24	39.18	74.00	-34.82	peak
3	3814.000	42.19	-3.47	38.72	74.00	-35.28	peak
4	4750.000	40.58	0.23	40.81	74.00	-33.19	peak
5	6334.000	37.60	3.13	40.73	74.00	-33.27	peak
6	6790.000	36.50	4.44	40.94	74.00	-33.06	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.


<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10564.000	35.25	12.06	47.31	74.00	-26.69	peak
2	11631.000	34.97	13.38	48.35	74.00	-25.65	peak
3	14656.000	33.53	16.13	49.66	74.00	-24.34	peak
4	16009.000	33.35	17.85	51.20	74.00	-22.80	peak
5	17263.000	31.14	21.64	52.78	74.00	-21.22	peak
6	17956.000	29.72	23.48	53.20	74.00	-20.80	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the

limits list in the standard.



HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1594.000	47.11	-11.66	35.45	74.00	-38.55	peak
2	2110.000	45.14	-9.66	35.48	74.00	-38.52	peak
3	2458.000	44.14	-8.55	35.59	74.00	-38.41	peak
4	3184.000	46.23	-5.70	40.53	74.00	-33.47	peak
5	4660.000	41.17	-0.30	40.87	74.00	-33.13	peak
6	5884.000	38.63	2.23	40.86	74.00	-33.14	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10311.000	36.79	11.29	48.08	74.00	-25.92	peak
2	11510.000	35.35	13.39	48.74	74.00	-25.26	peak
3	13864.000	33.78	16.48	50.26	74.00	-23.74	peak
4	14777.000	34.48	16.10	50.58	74.00	-23.42	peak
5	16900.000	32.17	20.10	52.27	74.00	-21.73	peak
6	17692.000	31.07	22.44	53.51	74.00	-20.49	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1996.000	51.75	-10.24	41.51	74.00	-32.49	peak
2	2662.000	50.47	-7.80	42.67	74.00	-31.33	peak
3	4222.000	41.20	-1.80	39.40	74.00	-34.60	peak
4	4396.000	41.71	-1.96	39.75	74.00	-34.25	peak
5	5848.000	38.62	2.11	40.73	74.00	-33.27	peak
6	6574.000	37.27	4.34	41.61	74.00	-32.39	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7891.000	39.78	7.66	47.44	74.00	-26.56	peak
2	11510.000	35.53	13.39	48.92	74.00	-25.08	peak
3	13622.000	34.27	16.08	50.35	74.00	-23.65	peak
4	15987.000	33.48	17.79	51.27	74.00	-22.73	peak
5	16856.000	32.13	20.13	52.26	74.00	-21.74	peak
6	17626.000	31.03	22.02	53.05	74.00	-20.95	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the

limits list in the standard.



HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1450.000	50.86	-12.53	38.33	74.00	-35.67	peak
2	2536.000	45.43	-8.38	37.05	74.00	-36.95	peak
3	3184.000	44.83	-5.70	39.13	74.00	-34.87	peak
4	4750.000	41.48	0.23	41.71	74.00	-32.29	peak
5	5482.000	40.13	1.75	41.88	74.00	-32.12	peak
6	6658.000	38.10	4.46	42.56	74.00	-31.44	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8034.000	39.98	7.67	47.65	74.00	-26.35	peak
2	10597.000	35.54	12.43	47.97	74.00	-26.03	peak
3	12566.000	34.84	14.42	49.26	74.00	-24.74	peak
4	13798.000	33.28	17.05	50.33	74.00	-23.67	peak
5	17274.000	30.80	21.71	52.51	74.00	-21.49	peak
6	17890.000	29.61	23.41	53.02	74.00	-20.98	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2074.000	46.85	-9.85	37.00	74.00	-37.00	peak
2	2662.000	50.52	-7.80	42.72	74.00	-31.28	peak
3	4552.000	41.40	-0.98	40.42	74.00	-33.58	peak
4	4906.000	39.87	0.69	40.56	74.00	-33.44	peak
5	5656.000	39.69	2.00	41.69	74.00	-32.31	peak
6	6658.000	37.07	4.46	41.53	74.00	-32.47	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7880.000	39.92	7.72	47.64	74.00	-26.36	peak
2	12599.000	35.03	14.19	49.22	74.00	-24.78	peak
3	13622.000	33.66	16.08	49.74	74.00	-24.26	peak
4	14887.000	34.21	16.16	50.37	74.00	-23.63	peak
5	16460.000	32.60	19.49	52.09	74.00	-21.91	peak
6	17714.000	30.54	22.62	53.16	74.00	-20.84	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

8.1.2. UNII-3 BAND

RESTRICTED BANDEDGE LOW CHANNEL



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5645.120	18.31	41.47	59.78	68.20	-8.42	peak
2	5656.960	18.51	41.48	59.99	73.37	-13.38	peak
3	5725.000	16.37	41.61	57.98	122.20	-64.22	peak

Note: 1. Measurement = Reading Level + Correct Factor.



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5615.680	18.30	41.47	59.77	68.20	-8.43	peak
2	5725.000	17.18	41.61	58.79	122.20	-63.41	peak

Note: 1. Measurement = Reading Level + Correct Factor.

5616.000

RESTRICTED BANDEDGE HIGH CHANNEL



HORIZONTAL RESULTS PEAK

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5850.000	16.17	42.89	59.06	122.20	-63.14	peak
2	5901.315	18.46	43.83	62.29	85.69	-23.40	peak
3	5932.920	18.55	43.29	61.84	68.20	-6.36	peak

Note: 1. Measurement = Reading Level + Correct Factor.

.



VERTICAL RESULTS PEAK



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5850.000	16.66	42.89	59.55	122.20	-62.65	peak
2	5880.245	18.71	43.47	62.18	101.30	-39.12	peak
3	5953.345	19.24	42.93	62.17	68.20	-6.03	peak

Note: 1. Measurement = Reading Level + Correct Factor.



HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1864.000	45.25	-10.16	35.09	74.00	-38.91	peak
2	2584.000	44.06	-8.22	35.84	74.00	-38.16	peak
3	3184.000	45.55	-5.70	39.85	74.00	-34.15	peak
4	4846.000	40.79	0.60	41.39	74.00	-32.61	peak
5	5745.000	39.73	1.96	41.69	/	/	fundamental
6	6622.000	36.20	4.48	40.68	74.00	-33.32	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the

limits list in the standard.



HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7814.000	38.87	8.10	46.97	74.00	-27.03	peak
2	10597.000	35.44	12.43	47.87	74.00	-26.13	peak
3	13589.000	34.42	16.08	50.50	74.00	-23.50	peak
4	13864.000	34.07	16.48	50.55	74.00	-23.45	peak
5	17285.000	30.83	21.79	52.62	74.00	-21.38	peak
6	17681.000	30.84	22.37	53.21	74.00	-20.79	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1660.000	50.14	-11.16	38.98	74.00	-35.02	peak
2	2482.000	49.11	-8.50	40.61	74.00	-33.39	peak
3	3736.000	42.43	-3.78	38.65	74.00	-35.35	peak
4	4756.000	40.65	0.26	40.91	74.00	-33.09	peak
5	5884.000	38.78	2.23	41.01	74.00	-32.99	peak
6	6652.000	36.63	4.47	41.10	74.00	-32.90	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7814.000	39.03	8.10	47.13	74.00	-26.87	peak
2	11543.000	35.40	13.44	48.84	74.00	-25.16	peak
3	13534.000	33.97	15.97	49.94	74.00	-24.06	peak
4	14766.000	34.22	16.11	50.33	74.00	-23.67	peak
5	16031.000	33.73	17.97	51.70	74.00	-22.30	peak
6	16449.000	32.83	19.45	52.28	74.00	-21.72	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1324.000	50.59	-12.89	37.70	74.00	-36.30	peak
2	2788.000	43.90	-7.01	36.89	74.00	-37.11	peak
3	4402.000	42.04	-1.95	40.09	74.00	-33.91	peak
4	4858.000	40.44	0.62	41.06	74.00	-32.94	peak
5	5785.000	44.47	1.95	46.42	/	/	fundamental
6	6790.000	36.94	4.44	41.38	74.00	-32.62	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

HORIZONTAL RESULTS <u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11510.000	35.27	13.39	48.66	74.00	-25.34	peak
2	13864.000	34.26	16.48	50.74	74.00	-23.26	peak
3	15624.000	33.45	17.05	50.50	74.00	-23.50	peak
4	16702.000	32.09	20.06	52.15	74.00	-21.85	peak
5	17043.000	31.67	20.74	52.41	74.00	-21.59	peak
6	17890.000	29.81	23.41	53.22	74.00	-20.78	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1162.000	51.37	-13.26	38.11	74.00	-35.89	peak
2	1450.000	53.48	-12.53	40.95	74.00	-33.05	peak
3	1996.000	48.39	-10.24	38.15	74.00	-35.85	peak
4	3562.000	46.15	-4.67	41.48	74.00	-32.52	peak
5	5668.000	39.14	1.99	41.13	74.00	-32.87	peak
6	6664.000	36.97	4.47	41.44	74.00	-32.56	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10256.000	37.03	10.91	47.94	74.00	-26.06	peak
2	13611.000	33.31	16.10	49.41	74.00	-24.59	peak
3	14414.000	33.34	16.66	50.00	74.00	-24.00	peak
4	16449.000	31.80	19.45	51.25	74.00	-22.75	peak
5	17241.000	31.33	21.48	52.81	74.00	-21.19	peak
6	17813.000	29.44	23.41	52.85	74.00	-21.15	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1192.000	50.35	-13.10	37.25	74.00	-36.75	peak
2	1990.000	47.02	-10.24	36.78	74.00	-37.22	peak
3	3298.000	42.57	-5.56	37.01	74.00	-36.99	peak
4	5200.000	38.23	1.92	40.15	74.00	-33.85	peak
5	5825.000	41.75	2.03	43.78	/	/	fundamental
6	6622.000	36.69	4.48	41.17	74.00	-32.83	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

HORIZONTAL RESULTS <u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11719.000	35.94	13.09	49.03	74.00	-24.97	peak
2	12808.000	33.04	16.09	49.13	74.00	-24.87	peak
3	13864.000	33.61	16.48	50.09	74.00	-23.91	peak
4	14425.000	33.47	16.65	50.12	74.00	-23.88	peak
5	17054.000	31.61	20.76	52.37	74.00	-21.63	peak
6	17703.000	31.04	22.52	53.56	74.00	-20.44	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1666.000	48.55	-11.12	37.43	74.00	-36.57	peak
2	1990.000	48.82	-10.24	38.58	74.00	-35.42	peak
3	3694.000	42.53	-3.99	38.54	74.00	-35.46	peak
4	4756.000	40.57	0.26	40.83	74.00	-33.17	peak
5	5825.000	40.12	2.03	42.15	/	/	fundamental
6	6754.000	36.58	4.45	41.03	74.00	-32.97	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10619.000	35.90	12.32	48.22	74.00	-25.78	peak
2	11521.000	35.40	13.40	48.80	74.00	-25.20	peak
3	13798.000	33.28	17.05	50.33	74.00	-23.67	peak
4	14436.000	34.20	16.64	50.84	74.00	-23.16	peak
5	17087.000	32.02	20.85	52.87	74.00	-21.13	peak
6	17725.000	30.87	22.72	53.59	74.00	-20.41	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



8.2. 802.11n HT20 MODE

8.2.1. UNII-1 BAND

RESTRICTED BANDEDGE LOW CHANNEL



HORIZONTAL RESULTS PEAK

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5026.330	17.01	40.10	57.11	74.00	-16.89	peak
2	5150.000	16.21	40.46	56.67	74.00	-17.33	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



<u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5026.330	2.86	40.10	42.96	54.00	-11.04	AVG
2	5150.000	2.97	40.46	43.43	54.00	-10.57	AVG

Note: 1. Measurement = Reading Level + Correct Factor.

2. AVG: VBW=1/Ton where: ton is transmit duration.

3. For duty cycle, please refer to clause 7.1.



VERTICAL RESULTS PEAK



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5108.820	17.39	40.23	57.62	74.00	-16.38	peak
2	5150.000	14.41	40.46	54.87	74.00	-19.13	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



<u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5108.820	3.19	40.23	43.42	54.00	-10.58	AVG
2	5150.000	3.26	40.46	43.72	54.00	-10.28	AVG

Note: 1. Measurement = Reading Level + Correct Factor.

2. AVG: VBW=1/Ton where: ton is transmit duration.

3. For duty cycle, please refer to clause 7.1.



HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1906.000	47.11	-10.18	36.93	74.00	-37.07	peak
2	2134.000	47.42	-9.53	37.89	74.00	-36.11	peak
3	2782.000	44.39	-7.06	37.33	74.00	-36.67	peak
4	4858.000	41.05	0.62	41.67	74.00	-32.33	peak
5	4978.000	40.56	0.81	41.37	74.00	-32.63	peak
6	6658.000	37.29	4.46	41.75	74.00	-32.25	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8166.000	38.46	8.60	47.06	74.00	-26.94	peak
2	10564.000	36.78	12.06	48.84	74.00	-25.16	peak
3	13809.000	33.25	16.99	50.24	74.00	-23.76	peak
4	15987.000	32.82	17.79	50.61	74.00	-23.39	peak
5	17098.000	31.58	20.88	52.46	74.00	-21.54	peak
6	17857.000	29.60	23.41	53.01	74.00	-20.99	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1594.000	51.53	-11.66	39.87	74.00	-34.13	peak
2	1660.000	52.96	-11.16	41.80	74.00	-32.20	peak
3	2656.000	48.44	-7.83	40.61	74.00	-33.39	peak
4	3994.000	44.46	-3.73	40.73	74.00	-33.27	peak
5	5686.000	38.97	1.98	40.95	74.00	-33.05	peak
6	6658.000	36.57	4.46	41.03	74.00	-32.97	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10564.000	36.31	12.06	48.37	74.00	-25.63	peak
2	13754.000	33.91	16.60	50.51	74.00	-23.49	peak
3	14414.000	34.40	16.66	51.06	74.00	-22.94	peak
4	16075.000	33.02	18.20	51.22	74.00	-22.78	peak
5	17043.000	31.78	20.74	52.52	74.00	-21.48	peak
6	17692.000	31.05	22.44	53.49	74.00	-20.51	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1660.000	48.85	-11.16	37.69	74.00	-36.31	peak
2	2122.000	47.91	-9.60	38.31	74.00	-35.69	peak
3	4210.000	41.63	-1.79	39.84	74.00	-34.16	peak
4	4750.000	40.60	0.23	40.83	74.00	-33.17	peak
5	5860.000	38.21	2.15	40.36	74.00	-33.64	peak
6	6664.000	36.39	4.47	40.86	74.00	-33.14	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7143.000	40.24	6.58	46.82	74.00	-27.18	peak
2	10311.000	36.22	11.29	47.51	74.00	-26.49	peak
3	11499.000	36.31	13.35	49.66	74.00	-24.34	peak
4	13787.000	33.31	16.94	50.25	74.00	-23.75	peak
5	16834.000	32.18	20.15	52.33	74.00	-21.67	peak
6	17670.000	31.03	22.30	53.33	74.00	-20.67	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1162.000	52.51	-13.26	39.25	74.00	-34.75	peak
2	2656.000	47.65	-7.83	39.82	74.00	-34.18	peak
3	2986.000	45.76	-6.13	39.63	74.00	-34.37	peak
4	3988.000	46.78	-3.72	43.06	74.00	-30.94	peak
5	4984.000	41.13	0.82	41.95	74.00	-32.05	peak
6	6622.000	36.41	4.48	40.89	74.00	-33.11	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands


<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	9354.000	37.98	9.64	47.62	74.00	-26.38	peak
2	11741.000	35.55	13.13	48.68	74.00	-25.32	peak
3	13622.000	34.22	16.08	50.30	74.00	-23.70	peak
4	16438.000	32.47	19.41	51.88	74.00	-22.12	peak
5	17076.000	31.72	20.82	52.54	74.00	-21.46	peak
6	17857.000	29.99	23.41	53.40	74.00	-20.60	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1318.000	50.40	-12.90	37.50	74.00	-36.50	peak
2	1660.000	48.71	-11.16	37.55	74.00	-36.45	peak
3	2326.000	46.09	-8.83	37.26	74.00	-36.74	peak
4	4750.000	40.91	0.23	41.14	74.00	-32.86	peak
5	5632.000	39.09	2.01	41.10	74.00	-32.90	peak
6	6586.000	36.86	4.40	41.26	74.00	-32.74	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11642.000	35.56	13.33	48.89	74.00	-25.11	peak
2	12610.000	35.55	14.21	49.76	74.00	-24.24	peak
3	13930.000	33.89	16.17	50.06	74.00	-23.94	peak
4	14854.000	34.28	16.13	50.41	74.00	-23.59	peak
5	17043.000	32.28	20.74	53.02	74.00	-20.98	peak
6	17703.000	30.43	22.52	52.95	74.00	-21.05	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1162.000	54.39	-13.26	41.13	74.00	-32.87	peak
2	2110.000	49.11	-9.66	39.45	74.00	-34.55	peak
3	2998.000	46.02	-6.08	39.94	74.00	-34.06	peak
4	3982.000	45.42	-3.71	41.71	74.00	-32.29	peak
5	5824.000	39.36	2.03	41.39	74.00	-32.61	peak
6	6376.000	37.88	3.34	41.22	74.00	-32.78	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	9376.000	37.11	9.79	46.90	74.00	-27.10	peak
2	10564.000	35.84	12.06	47.90	74.00	-26.10	peak
3	11598.000	35.34	13.54	48.88	74.00	-25.12	peak
4	13798.000	33.84	17.05	50.89	74.00	-23.11	peak
5	16999.000	31.71	20.64	52.35	74.00	-21.65	peak
6	17802.000	30.03	23.41	53.44	74.00	-20.56	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



8.2.2. UNII-3 BAND

RESTRICTED BANDEDGE LOW CHANNEL



HORIZONTAL RESULTS

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5631.680	18.17	41.47	59.64	68.20	-8.56	peak
2	5657.760	18.02	41.48	59.50	73.96	-14.46	peak
3	5725.000	16.30	41.61	57.91	122.20	-64.29	peak



VERTICAL RESULTS



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5637.440	18.33	41.47	59.80	68.20	-8.40	peak
2	5670.880	18.13	41.49	59.62	83.69	-24.07	peak
3	5725.000	17.47	41.61	59.08	122.20	-63.12	peak

RESTRICTED BANDEDGE HIGH CHANNEL



HORIZONTAL RESULTS

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5850.000	16.68	42.89	59.57	122.20	-62.63	peak
2	5903.035	18.34	43.79	62.13	84.42	-22.29	peak
3	5945.820	18.64	43.06	61.70	68.20	-6.50	peak



VERTICAL RESULTS



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5850.000	16.58	42.89	59.47	122.20	-62.73	peak
2	5915.290	18.73	43.59	62.32	75.36	-13.04	peak
3	5924.965	18.45	43.42	61.87	68.23	-6.36	peak



HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2158.000	46.38	-9.41	36.97	74.00	-37.03	peak
2	4006.000	42.73	-3.68	39.05	74.00	-34.95	peak
3	4258.000	41.54	-1.84	39.70	74.00	-34.30	peak
4	4900.000	40.45	0.69	41.14	74.00	-32.86	peak
5	5745.000	42.68	1.96	44.64	/	/	fundamental
6	6784.000	37.23	4.44	41.67	74.00	-32.33	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10586.000	35.90	12.30	48.20	74.00	-25.80	peak
2	11521.000	35.48	13.40	48.88	74.00	-25.12	peak
3	13611.000	33.96	16.10	50.06	74.00	-23.94	peak
4	14711.000	34.01	16.21	50.22	74.00	-23.78	peak
5	17417.000	31.19	21.52	52.71	74.00	-21.29	peak
6	17945.000	29.96	23.46	53.42	74.00	-20.58	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1162.000	51.45	-13.26	38.19	74.00	-35.81	peak
2	2986.000	45.72	-6.13	39.59	74.00	-34.41	peak
3	4264.000	41.41	-1.84	39.57	74.00	-34.43	peak
4	4714.000	40.61	0.02	40.63	74.00	-33.37	peak
5	5745.000	43.55	1.96	45.51	/	/	fundamental
6	6754.000	36.60	4.45	41.05	74.00	-32.95	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10608.000	36.05	12.39	48.44	74.00	-25.56	peak
2	11532.000	35.50	13.42	48.92	74.00	-25.08	peak
3	13622.000	34.13	16.08	50.21	74.00	-23.79	peak
4	16372.000	31.67	19.05	50.72	74.00	-23.28	peak
5	17208.000	32.33	21.26	53.59	74.00	-20.41	peak
6	17758.000	29.96	23.03	52.99	74.00	-21.01	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1318.000	51.27	-12.90	38.37	74.00	-35.63	peak
2	1594.000	50.34	-11.66	38.68	74.00	-35.32	peak
3	2326.000	46.62	-8.83	37.79	74.00	-36.21	peak
4	3874.000	41.87	-3.56	38.31	74.00	-35.69	peak
5	4750.000	41.32	0.23	41.55	74.00	-32.45	peak
6	5785.000	39.26	1.95	41.21	/	/	fundamental

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10608.000	36.69	12.39	49.08	74.00	-24.92	peak
2	14425.000	34.09	16.65	50.74	74.00	-23.26	peak
3	14766.000	34.65	16.11	50.76	74.00	-23.24	peak
4	16438.000	33.07	19.41	52.48	74.00	-21.52	peak
5	17703.000	30.59	22.52	53.11	74.00	-20.89	peak
6	17978.000	29.99	23.51	53.50	74.00	-20.50	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1492.000	50.11	-12.33	37.78	74.00	-36.22	peak
2	1996.000	51.28	-10.24	41.04	74.00	-32.96	peak
3	2998.000	47.43	-6.08	41.35	74.00	-32.65	peak
4	4258.000	42.37	-1.84	40.53	74.00	-33.47	peak
5	5638.000	39.68	2.01	41.69	74.00	-32.31	peak
6	6754.000	36.94	4.45	41.39	74.00	-32.61	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8980.000	38.80	9.23	48.03	74.00	-25.97	peak
2	11565.000	35.17	13.47	48.64	74.00	-25.36	peak
3	13820.000	34.12	16.89	51.01	74.00	-22.99	peak
4	16471.000	31.83	19.52	51.35	74.00	-22.65	peak
5	16856.000	32.11	20.13	52.24	74.00	-21.76	peak
6	17307.000	30.79	21.87	52.66	74.00	-21.34	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1318.000	48.81	-12.90	35.91	74.00	-38.09	peak
2	1660.000	50.91	-11.16	39.75	74.00	-34.25	peak
3	3190.000	47.22	-5.69	41.53	74.00	-32.47	peak
4	4714.000	40.96	0.02	40.98	74.00	-33.02	peak
5	5825.000	39.99	2.03	42.02	/	/	fundamental
6	6628.000	37.18	4.47	41.65	74.00	-32.35	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

HORIZONTAL RESULTS <u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	9343.000	37.64	9.57	47.21	74.00	-26.79	peak
2	12643.000	34.79	14.29	49.08	74.00	-24.92	peak
3	13809.000	33.24	16.99	50.23	74.00	-23.77	peak
4	17021.000	31.63	20.69	52.32	74.00	-21.68	peak
5	17274.000	30.81	21.71	52.52	74.00	-21.48	peak
6	17857.000	29.60	23.41	53.01	74.00	-20.99	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1990.000	48.65	-10.24	38.41	74.00	-35.59	peak
2	2482.000	47.92	-8.50	39.42	74.00	-34.58	peak
3	3994.000	46.12	-3.73	42.39	74.00	-31.61	peak
4	4756.000	41.30	0.26	41.56	74.00	-32.44	peak
5	5632.000	38.83	2.01	40.84	74.00	-33.16	peak
6	6664.000	37.39	4.47	41.86	74.00	-32.14	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10366.000	36.57	11.22	47.79	74.00	-26.21	peak
2	11653.000	35.60	13.28	48.88	74.00	-25.12	peak
3	12687.000	34.81	14.40	49.21	74.00	-24.79	peak
4	13798.000	33.28	17.05	50.33	74.00	-23.67	peak
5	17307.000	30.85	21.87	52.72	74.00	-21.28	peak
6	17703.000	30.43	22.52	52.95	74.00	-21.05	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



8.3. 802.11n HT40 MODE

8.3.1. UNII-1 BAND

RESTRICTED BANDEDGE LOW CHANNEL



HORIZONTAL RESULTS

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5126.340	17.42	40.33	57.75	74.00	-16.25	peak
2	5150.000	16.63	40.46	57.09	74.00	-16.91	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



<u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5126.340	3.53	40.33	43.86	54.00	-10.14	AVG
2	5150.000	3.46	40.46	43.92	54.00	-10.08	AVG

Note: 1. Measurement = Reading Level + Correct Factor.

2. AVG: VBW=1/Ton where: ton is transmit duration.

3. For duty cycle, please refer to clause 7.1.



VERTICAL RESULTS PEAK



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5098.600	17.62	40.18	57.80	74.00	-16.20	peak
2	5150.000	17.07	40.46	57.53	74.00	-16.47	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



<u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5098.600	3.40	40.18	43.58	54.00	-10.42	AVG
2	5150.000	3.90	40.46	44.36	54.00	-9.64	AVG

Note: 1. Measurement = Reading Level + Correct Factor.

2. AVG: VBW=1/Ton where: ton is transmit duration.

3. For duty cycle, please refer to clause 7.1.



HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2362.000	44.87	-8.73	36.14	74.00	-37.86	peak
2	3694.000	41.86	-3.99	37.87	74.00	-36.13	peak
3	4216.000	42.24	-1.80	40.44	74.00	-33.56	peak
4	5110.000	40.26	1.43	41.69	74.00	-32.31	peak
5	5956.000	38.74	2.46	41.20	74.00	-32.80	peak
6	6784.000	37.71	4.44	42.15	74.00	-31.85	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7880.000	39.50	7.72	47.22	74.00	-26.78	peak
2	12654.000	36.17	14.31	50.48	74.00	-23.52	peak
3	13622.000	34.50	16.08	50.58	74.00	-23.42	peak
4	16471.000	32.46	19.52	51.98	74.00	-22.02	peak
5	16867.000	32.26	20.13	52.39	74.00	-21.61	peak
6	17879.000	29.91	23.40	53.31	74.00	-20.69	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1990.000	51.85	-10.24	41.61	74.00	-32.39	peak
2	2668.000	45.07	-7.76	37.31	74.00	-36.69	peak
3	3808.000	42.99	-3.46	39.53	74.00	-34.47	peak
4	4828.000	39.91	0.56	40.47	74.00	-33.53	peak
5	6388.000	37.49	3.40	40.89	74.00	-33.11	peak
6	6682.000	36.52	4.47	40.99	74.00	-33.01	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	8001.000	39.61	7.44	47.05	74.00	-26.95	peak
2	10597.000	35.34	12.43	47.77	74.00	-26.23	peak
3	12852.000	34.28	15.61	49.89	74.00	-24.11	peak
4	14425.000	34.20	16.65	50.85	74.00	-23.15	peak
5	16449.000	32.92	19.45	52.37	74.00	-21.63	peak
6	17802.000	29.87	23.41	53.28	74.00	-20.72	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	3160.000	43.19	-5.75	37.44	74.00	-36.56	peak
2	3688.000	41.73	-4.02	37.71	74.00	-36.29	peak
3	4426.000	42.07	-1.80	40.27	74.00	-33.73	peak
4	5110.000	39.74	1.43	41.17	74.00	-32.83	peak
5	5932.000	38.81	2.38	41.19	74.00	-32.81	peak
6	6838.000	36.34	4.54	40.88	74.00	-33.12	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	9904.000	36.23	10.28	46.51	74.00	-27.49	peak
2	11653.000	35.38	13.28	48.66	74.00	-25.34	peak
3	12687.000	34.87	14.40	49.27	74.00	-24.73	peak
4	13908.000	34.32	16.16	50.48	74.00	-23.52	peak
5	16933.000	32.74	20.28	53.02	74.00	-20.98	peak
6	17615.000	31.27	21.96	53.23	74.00	-20.77	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1492.000	49.60	-12.33	37.27	74.00	-36.73	peak
2	1990.000	49.84	-10.24	39.60	74.00	-34.40	peak
3	2662.000	46.21	-7.80	38.41	74.00	-35.59	peak
4	5128.000	39.20	1.54	40.74	74.00	-33.26	peak
5	5500.000	39.63	1.80	41.43	74.00	-32.57	peak
6	5926.000	38.74	2.36	41.10	74.00	-32.90	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands







No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10520.000	36.85	11.57	48.42	74.00	-25.58	peak
2	11521.000	35.86	13.40	49.26	74.00	-24.74	peak
3	13798.000	34.23	17.05	51.28	74.00	-22.72	peak
4	17043.000	32.56	20.74	53.30	74.00	-20.70	peak
5	17219.000	32.09	21.34	53.43	74.00	-20.57	peak
6	17813.000	29.68	23.41	53.09	74.00	-20.91	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.



8.3.2. UNII-3 BAND

RESTRICTED BANDEDGE LOW CHANNEL



HORIZONTAL RESULTS

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5636.540	17.92	41.47	59.39	68.20	-8.81	peak
2	5687.660	18.10	41.50	59.60	96.10	-36.50	peak
3	5725.000	16.57	41.61	58.18	122.20	-64.02	peak



VERTICAL RESULTS



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5606.660	18.56	41.46	60.02	68.20	-8.18	peak
2	5725.000	20.73	41.61	62.34	122.20	-59.86	peak

Note: 1. Measurement = Reading Level + Correct Factor.

RESTRICTED BANDEDGE HIGH CHANNEL





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5850.000	17.10	42.89	59.99	122.20	-62.21	peak
2	5951.470	19.33	42.97	62.30	68.20	-5.90	peak

Note: 1. Measurement = Reading Level + Correct Factor.


VERTICAL RESULTS



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5850.000	16.89	42.89	59.78	122.20	-62.42	peak
2	5959.520	19.32	42.83	62.15	68.20	-6.05	peak

Note: 1. Measurement = Reading Level + Correct Factor.



HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1318.000	49.73	-12.90	36.83	74.00	-37.17	peak
2	2332.000	45.10	-8.80	36.30	74.00	-37.70	peak
3	3190.000	46.05	-5.69	40.36	74.00	-33.64	peak
4	4708.000	41.31	-0.01	41.30	74.00	-32.70	peak
5	4822.000	40.16	0.56	40.72	74.00	-33.28	peak
6	6778.000	36.91	4.44	41.35	74.00	-32.65	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands complies with the lowest limit(54dBuV/m), so all the test point were deemed to comply with the limits list in the standard.

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7814.000	39.00	8.10	47.10	74.00	-26.90	peak
2	11378.000	35.97	12.63	48.60	74.00	-25.40	peak
3	12742.000	35.29	15.16	50.45	74.00	-23.55	peak
4	14436.000	34.33	16.64	50.97	74.00	-23.03	peak
5	16856.000	32.58	20.13	52.71	74.00	-21.29	peak
6	17703.000	30.98	22.52	53.50	74.00	-20.50	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1156.000	49.03	-13.29	35.74	74.00	-38.26	peak
2	1996.000	49.83	-10.24	39.59	74.00	-34.41	peak
3	3322.000	43.45	-5.53	37.92	74.00	-36.08	peak
4	4258.000	41.01	-1.84	39.17	74.00	-34.83	peak
5	4750.000	41.01	0.23	41.24	74.00	-32.76	peak
6	6628.000	36.81	4.47	41.28	74.00	-32.72	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7759.000	39.98	7.63	47.61	74.00	-26.39	peak
2	12808.000	33.67	16.09	49.76	74.00	-24.24	peak
3	14810.000	34.50	16.07	50.57	74.00	-23.43	peak
4	16405.000	33.10	19.29	52.39	74.00	-21.61	peak
5	17010.000	32.01	20.67	52.68	74.00	-21.32	peak
6	17868.000	30.05	23.40	53.45	74.00	-20.55	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2092.000	45.26	-9.75	35.51	74.00	-38.49	peak
2	2374.000	45.02	-8.69	36.33	74.00	-37.67	peak
3	3190.000	46.73	-5.69	41.04	74.00	-32.96	peak
4	4912.000	39.91	0.71	40.62	74.00	-33.38	peak
5	5686.000	39.05	1.98	41.03	74.00	-32.97	peak
6	6784.000	37.60	4.44	42.04	74.00	-31.96	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7847.000	39.28	7.91	47.19	74.00	-26.81	peak
2	10553.000	36.95	11.93	48.88	74.00	-25.12	peak
3	11367.000	36.40	12.58	48.98	74.00	-25.02	peak
4	13578.000	34.75	16.06	50.81	74.00	-23.19	peak
5	16460.000	32.59	19.49	52.08	74.00	-21.92	peak
6	17615.000	31.36	21.96	53.32	74.00	-20.68	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1996.000	51.57	-10.24	41.33	74.00	-32.67	peak
2	2662.000	47.80	-7.80	40.00	74.00	-34.00	peak
3	3988.000	43.10	-3.72	39.38	74.00	-34.62	peak
4	4780.000	40.05	0.41	40.46	74.00	-33.54	peak
5	5110.000	39.64	1.43	41.07	74.00	-32.93	peak
6	6754.000	36.49	4.45	40.94	74.00	-33.06	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7847.000	39.80	7.91	47.71	74.00	-26.29	peak
2	11499.000	35.69	13.35	49.04	74.00	-24.96	peak
3	14425.000	34.08	16.65	50.73	74.00	-23.27	peak
4	15195.000	34.61	16.14	50.75	74.00	-23.25	peak
5	16482.000	32.38	19.56	51.94	74.00	-22.06	peak
6	17615.000	31.27	21.96	53.23	74.00	-20.77	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



8.4. 802.11ac VHT80 MODE

8.4.1. UNII-1 BAND

RESTRICTED BANDEDGE LOW CHANNEL



HORIZONTAL RESULTS

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4867.840	19.25	39.43	58.68	74.00	-15.32	peak
2	5150.000	16.06	40.46	56.52	74.00	-17.48	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



VERTICAL RESULTS



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4867.840	3.80	39.43	43.23	54.00	-10.77	AVG
2	5150.000	3.32	40.46	43.78	54.00	-10.22	AVG

Note: 1. Measurement = Reading Level + Correct Factor.

2. AVG: VBW=1/Ton where: ton is transmit duration.

3. For duty cycle, please refer to clause 7.1.



VERTICAL RESULTS PEAK



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4882.280	18.02	39.44	57.46	74.00	-16.54	peak
2	5150.000	15.92	40.46	56.38	74.00	-17.62	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.



<u>AVG</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4882.280	3.90	39.44	43.34	54.00	-10.66	AVG
2	5150.000	3.95	40.46	44.41	54.00	-9.59	AVG

Note: 1. Measurement = Reading Level + Correct Factor

2. AVG: VBW=1/Ton where: ton is transmit duration.

3. For duty cycle, please refer to clause 7.1.



HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2464.000	45.35	-8.52	36.83	74.00	-37.17	peak
2	3196.000	45.90	-5.67	40.23	74.00	-33.77	peak
3	4582.000	41.41	-0.77	40.64	74.00	-33.36	peak
4	5122.000	40.58	1.51	42.09	74.00	-31.91	peak
5	5614.000	39.01	2.02	41.03	74.00	-32.97	peak
6	6664.000	36.44	4.47	40.91	74.00	-33.09	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7836.000	39.81	7.96	47.77	74.00	-26.23	peak
2	11510.000	35.87	13.39	49.26	74.00	-24.74	peak
3	12852.000	34.44	15.61	50.05	74.00	-23.95	peak
4	14425.000	34.75	16.65	51.40	74.00	-22.60	peak
5	17109.000	31.91	20.91	52.82	74.00	-21.18	peak
6	17791.000	30.13	23.33	53.46	74.00	-20.54	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1996.000	50.38	-10.24	40.14	74.00	-33.86	peak
2	2662.000	44.98	-7.80	37.18	74.00	-36.82	peak
3	4156.000	41.55	-2.22	39.33	74.00	-34.67	peak
4	5146.000	39.62	1.64	41.26	74.00	-32.74	peak
5	5404.000	39.54	1.58	41.12	74.00	-32.88	peak
6	6802.000	36.43	4.44	40.87	74.00	-33.13	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	11532.000	35.28	13.42	48.70	74.00	-25.30	peak
2	13809.000	32.92	16.99	49.91	74.00	-24.09	peak
3	14436.000	34.17	16.64	50.81	74.00	-23.19	peak
4	15250.000	34.14	16.09	50.23	74.00	-23.77	peak
5	17076.000	31.70	20.82	52.52	74.00	-21.48	peak
6	17901.000	29.66	23.40	53.06	74.00	-20.94	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



8.4.2. UNII-3 BAND

RESTRICTED BANDEDGE MID CHANNEL



HORIZONTAL RESULTS

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5611.600	18.77	41.46	60.23	68.20	-7.97	peak
2	5725.000	16.86	41.61	58.47	122.20	-63.73	peak
3	5850.000	16.92	42.89	59.81	122.20	-62.39	peak
4	5935.200	18.64	43.25	61.89	68.20	-6.31	peak

Note: 1. Measurement = Reading Level + Correct Factor.



VERTICAL RESULTS



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5642.800	17.84	41.48	59.32	68.20	-8.88	peak
2	5725.000	20.33	41.61	61.94	122.20	-60.26	peak
3	5850.000	17.02	42.89	59.91	122.20	-62.29	peak
4	5947.600	18.69	43.04	61.73	68.20	-6.47	peak

Note: 1. Measurement = Reading Level + Correct Factor.



HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL



HORIZONTAL RESULTS <u>1-7GHz</u>

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1594.000	48.37	-11.66	36.71	74.00	-37.29	peak
2	2320.000	45.22	-8.84	36.38	74.00	-37.62	peak
3	3184.000	44.25	-5.70	38.55	74.00	-35.45	peak
4	4678.000	41.12	-0.19	40.93	74.00	-33.07	peak
5	5818.000	38.67	2.00	40.67	74.00	-33.33	peak
6	6652.000	37.28	4.47	41.75	74.00	-32.25	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

HORIZONTAL RESULTS 7-18GHz



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	10597.000	35.67	12.43	48.10	74.00	-25.90	peak
2	11554.000	35.55	13.45	49.00	74.00	-25.00	peak
3	12753.000	34.25	15.36	49.61	74.00	-24.39	peak
4	14447.000	33.52	16.63	50.15	74.00	-23.85	peak
5	17241.000	31.91	21.48	53.39	74.00	-20.61	peak
6	17703.000	30.86	22.52	53.38	74.00	-20.62	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands

VERTICAL RESULTS <u>1-7GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1498.000	49.36	-12.30	37.06	74.00	-36.94	peak
2	1990.000	48.92	-10.24	38.68	74.00	-35.32	peak
3	3694.000	42.69	-3.99	38.70	74.00	-35.30	peak
4	4750.000	40.80	0.23	41.03	74.00	-32.97	peak
5	5686.000	39.75	1.98	41.73	74.00	-32.27	peak
6	6784.000	38.20	4.44	42.64	74.00	-31.36	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



<u>7-18GHz</u>



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	9255.000	37.90	9.12	47.02	74.00	-26.98	peak
2	11103.000	35.47	12.66	48.13	74.00	-25.87	peak
3	12599.000	35.24	14.19	49.43	74.00	-24.57	peak
4	14777.000	33.92	16.10	50.02	74.00	-23.98	peak
5	15613.000	34.27	17.09	51.36	74.00	-22.64	peak
6	17219.000	31.95	21.34	53.29	74.00	-20.71	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

5. Proper operation of the transmitter prior to adding the filter to the measurement chain.

6. Owing to the highest peak level of unwanted emission out of the restricted bands



8.5. SPURIOUS EMISSIONS 18~26GHz

8.5.1. 802.11a MODE





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	20128.000	50.26	-4.64	45.62	74.00	-28.38	peak
2	20880.000	51.34	-5.21	46.13	74.00	-27.87	peak
3	22480.000	51.98	-5.82	46.16	74.00	-27.84	peak
4	23400.000	51.42	-4.96	46.46	74.00	-27.54	peak
5	24464.000	49.78	-2.74	47.04	74.00	-26.96	peak
6	25784.000	48.23	-1.49	46.74	74.00	-27.26	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.





SPURIOUS EMISSIONS (UNII-1 HIGH CHANNEL, VERTICAL, WORST-CASE CONFIGURATION)

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	18464.000	50.20	-4.39	45.81	74.00	-28.19	peak
2	20192.000	50.87	-4.76	46.11	74.00	-27.89	peak
3	21784.000	51.70	-5.82	45.88	74.00	-28.12	peak
4	23512.000	51.51	-4.76	46.75	74.00	-27.25	peak
5	23944.000	50.95	-4.14	46.81	74.00	-27.19	peak
6	25648.000	47.62	-1.53	46.09	74.00	-27.91	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.3. Peak: Peak detector.

Note: All the test modes have been tested, only the worst data record in the report.



8.6. SPURIOUS EMISSIONS 26~40GHz

8.6.1. 802.11a MODE

SPURIOUS EMISSIONS (UNII-1 HIGH CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	26490.000	51.79	-4.74	47.05	74.00	-26.95	peak
2	30144.000	47.96	-1.30	46.66	74.00	-27.34	peak
3	32762.000	48.95	-1.21	47.74	74.00	-26.26	peak
4	35366.000	46.90	2.59	49.49	74.00	-24.51	peak
5	37228.000	46.23	3.14	49.37	74.00	-24.63	peak
6	39958.000	44.58	5.12	49.70	74.00	-24.30	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Proper operation of the transmitter prior to adding the filter to the measurement chain.



SPURIOUS EMISSIONS (UNII-1 HIGH CHANNEL, VERTICAL, WORST-CASE CONFIGURATION)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	26476.000	51.53	-4.78	46.75	74.00	-27.25	peak
2	28828.000	47.63	-0.79	46.84	74.00	-27.16	peak
3	32104.000	49.49	-1.75	47.74	74.00	-26.26	peak
4	35254.000	46.12	2.65	48.77	74.00	-25.23	peak
5	38278.000	44.82	3.82	48.64	74.00	-25.36	peak
6	39972.000	44.95	5.13	50.08	74.00	-23.92	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Peak: Peak detector.

4. Proper operation of the transmitter prior to adding the filter to the measurement chain.

Note: All the test modes have been tested, only the worst data record in the report.



8.7. SPURIOUS EMISSIONS 30M ~ 1 GHz

8.7.1. 802.11a MODE

SPURIOUS EMISSIONS (UNII-1 HIGH CHANNEL HORIZONTAL, WORST-CASE CONFIGURATION)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	146.4000	45.26	-18.70	26.56	43.50	-16.94	QP
2	283.1700	58.18	-16.88	41.30	46.00	-4.70	QP
3	339.4300	52.02	-14.71	37.31	46.00	-8.69	QP
4	527.6100	48.58	-11.13	37.45	46.00	-8.55	QP
5	666.3200	41.32	-9.18	32.14	46.00	-13.86	QP
6	792.4200	34.79	-7.93	26.86	46.00	-19.14	QP

Note: 1. Result Level = Read Level + Correct Factor.

If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.





SPURIOUS EMISSIONS (UNII-1 HIGH CHANNEL, VERTICAL, WORST-CASE CONFIGURATION)

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB / m)	(dBuV/m)	(dBuV/m)	(dB)	
1	79.4700	57.21	-21.45	35.76	40.00	-4.24	QP
2	166.7700	52.72	-17.56	35.16	43.50	-8.34	QP
3	275.4100	53.22	-17.52	35.70	46.00	-10.30	QP
4	447.1000	43.00	-12.52	30.48	46.00	-15.52	QP
5	527.6100	44.52	-11.13	33.39	46.00	-12.61	QP
6	653.7100	39.62	-9.38	30.24	46.00	-15.76	QP

Note: 1. Result Level = Read Level + Correct Factor.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

Note: All the test modes have been tested, only the worst data record in the report.



8.8. SPURIOUS EMISSIONS BELOW 30M

8.8.1. 802.11a MODE

SPURIOUS EMISSIONS (UNII-1 HIGH CHANNEL, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)



9kHz~ 150kHz

No.	Frequency	Reading	Correct	Result	Limit	ISED	ISED	Margin	Remark
						Result	Limit		
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuA/m)	(dBuA/m)	(dB)	
1	0.0100	74.72	-101.40	-26.68	47.60	-78.18	-3.90	-74.28	peak
2	0.0131	72.97	-101.38	-28.41	45.25	-79.91	-6.25	-73.66	peak
3	0.0221	69.13	-101.35	-32.22	40.71	-83.72	-10.79	-72.93	peak
4	0.0349	65.53	-101.41	-35.88	36.75	-87.38	-14.75	-72.63	peak
5	0.0589	60.81	-101.52	-40.71	32.20	-92.21	-19.30	-72.91	peak
6	0.0981	55.77	-101.78	-46.01	27.77	-97.51	-23.73	-73.78	peak

Note: 1. Measurement = Reading Level + Correct Factor (dBuA/m= dBuV/m- 20Log10[120 π] = dBuV/m- 51.5).

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch This report shall not be reproduced except in full, without the written approval of UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch.



<u>150kHz ~ 490kHz</u>



No.	Frequency	Reading	Correct	Result	Limit	ISED	ISED	Margin	Remark
		_				Result	Limit	_	
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuA/m)	(dBuA/m)	(dB)	
1	0.1650	71.81	-101.66	-29.85	23.26	-81.35	-28.24	-53.11	peak
2	0.2084	66.47	-101.73	-35.26	21.22	-86.76	-30.28	-56.48	peak
3	0.2285	66.40	-101.77	-35.37	20.42	-86.87	-31.08	-55.79	peak
4	0.2977	62.91	-101.85	-38.94	18.13	-90.44	-33.37	-57.07	peak
5	0.3234	62.48	-101.88	-39.40	17.41	-90.90	-34.09	-56.81	peak
6	0.4062	58.64	-101.96	-43.32	15.43	-94.82	-36.07	-58.75	peak

Note: 1. Measurement = Reading Level + Correct Factor (dBuA/m= dBuV/m- 20Log10[120 π] = dBuV/m- 51.5).

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.



<u>490kHz ~ 30MHz</u>



No.	Frequency	Reading	Correct	Result	Limit	ISED	ISED	Margin	Remark
						Result	Limit		
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dBuA/m)	(dBuA/m)	(dB)	
1	0.6671	62.25	-62.10	0.15	31.12	-51.35	-20.38	-30.97	peak
2	0.8679	61.35	-62.18	-0.83	28.83	-52.33	-22.67	-29.66	peak
3	1.4700	58.89	-62.05	-3.16	24.26	-54.66	-27.24	-27.42	peak
4	2.6737	55.14	-61.65	-6.51	29.54	-58.01	-21.96	-36.05	peak
5	10.5234	54.31	-60.82	-6.51	29.54	-58.01	-21.96	-36.05	peak
6	18.4908	55.06	-60.89	-5.83	29.54	-57.33	-21.96	-35.37	peak

Note: 1. Measurement = Reading Level + Correct Factor (dBuA/m= dBuV/m- 20Log10[120π] = dBuV/m- 51.5).

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

3. All 3 polarizations(Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

Note: All the test modes have been tested, only the worst data record in the report.



9. AC POWER LINE CONDUCTED EMISSIONS

<u>LIMITS</u>

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

FREQUENCY(MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

TEST SETUP AND PROCEDURE



The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through an Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10 -2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

TEST RESULTS



8

9

10

11

12

9.1. 802.11a MODE



LINE N RESULTS (UNII-1 HIGH CHANNEL, WORST-CASE CONFIGURATION)

Note: 1. Result = Reading +Correct Factor.

21.42

27.60

17.21

23.29

17.49

0.6342

1.0317

1.0317

11.2903

11.2903

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

31.02

37.21

26.82

33.08

27.28

46.00

56.00

46.00

60.00

50.00

-14.98

-18.79

-19.18

-26.92

-22.72

AVG

QP

AVG

QP

AVG

3. Test setup: RBW: 200 Hz (9 kHz-150 kHz), 9 kHz (150 kHz-30 MHz).

9.60

9.61

9.61

9.79

9.79

4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.







No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.2203	30.50	9.60	40.10	62.81	-22.71	QP
2	0.2203	25.07	9.60	34.67	52.81	-18.14	AVG
3	0.3299	37.10	9.60	46.70	59.45	-12.75	QP
4	0.3299	12.61	9.60	22.21	49.45	-27.24	AVG
5	0.3748	35.88	9.60	45.48	58.39	-12.91	QP
6	0.3748	25.07	9.60	34.67	48.39	-13.72	AVG
7	0.5109	38.64	9.60	48.24	56.00	-7.76	QP
8	0.5109	28.72	9.60	38.32	46.00	-7.68	AVG
9	0.6271	37.41	9.60	47.01	56.00	-8.99	QP
10	0.6271	25.15	9.60	34.75	46.00	-11.25	AVG
11	11.0432	23.93	9.76	33.69	60.00	-26.31	QP
12	11.0432	16.84	9.76	26.60	50.00	-23.40	AVG

Note: 1. Result = Reading +Correct Factor.

- 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
- 3. Test setup: RBW: 200 Hz (9 kHz-150 kHz), 9 kHz (150 kHz-30 MHz).
- 4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

Note: All the test modes have been tested, only the worst data record in the report.



10. FREQUENCY STABILITY

<u>LIMITS</u>

The frequency of the carrier signal shall be maintained within band of operation

TEST SETUP AND PROCEDURE

Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	PEAK
RBW	10kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.

User manual temperature is 0°C~45°C.

TEST SETUP



	Normal Test Conditions	Extreme Test Conditions	
Tomporatura	NT(Normal Temperature):	LT(Low Temperature): 0°C	
remperature	24.7°C	HT(High Temperature): 45°C	
SupplyValtage	NV/(Normal Valtage): AC 120V	LT(Low Voltage): AC 102V	
Supply voltage	NV(Normal Voltage). AC 120V	HT(High Voltage): AC 138V	


TEST RESULTS

Frequency Error vs. Voltage										
802.11a:5200MHz										
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute		
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	
ΤN	VL	5200.02503	4.81	5200.02796	5.38	5200.0312	6.00	5200.02625	5.05	
ΤN	VN	5200.02861	5.50	5200.02792	5.37	5200.04244	8.16	5200.02831	5.44	
ΤN	VH	5200.02588	4.98	5200.03036	5.84	5200.04122	7.93	5200.03936	7.57	
Frequency Error vs. Temperature										
802.11a:5200MHz										
T	Volt.	0 Minute		2 Minute		5 Minute		10 Minute		
Temp.		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	
45	VN	5200.03449	6.63	5200.04561	8.77	5200.03216	6.18	5200.04537	8.72	
40	VN	5200.03341	6.42	5200.02877	5.53	5200.03344	6.43	5200.02587	4.98	
30	VN	5200.04566	8.78	5200.03713	7.14	5200.03655	7.03	5200.02679	5.15	
20	VN	5200.02852	5.49	5200.03662	7.04	5200.0371	7.14	5200.03381	6.50	
10	VN	5200.02763	5.31	5200.03837	7.38	5200.03135	6.03	5200.03875	7.45	
0	VN	5200.02424	4.66	5200.03622	6.97	5200.04289	8.25	5200.02267	4.36	



Frequency Error vs. Voltage									
802.11a:5825MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
TN	VL	5825.03248	5.58	5825.03574	6.14	5825.04554	7.82	5825.04365	7.49
TN	VN	5825.02223	3.82	5825.0404	6.94	5825.03174	5.45	5825.04552	7.82
TN	VH	5825.02649	4.55	5825.04108	7.05	5825.0243	4.17	5825.03354	5.76
Frequency Error vs. Temperature									
802.11a:5825MHz									
Temp.	Volt.	0 Minute		2 Minute		5 Minute		10 Minute	
		Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)	Freq.Error (MHz)	Tolerance (ppm)
45	VN	5825.02793	4.79	5825.04528	7.77	5825.04129	7.09	5825.04217	7.24
40	VN	5825.04106	7.05	5825.0289	4.96	5825.02266	3.89	5825.04362	7.49
30	VN	5825.04297	7.38	5825.02786	4.78	5825.03744	6.43	5825.02603	4.47
20	VN	5825.04574	7.85	5825.03089	5.30	5825.04103	7.04	5825.02974	5.11
10	VN	5825.02991	5.14	5825.02623	4.50	5825.02337	4.01	5825.03966	6.81
0	VN	5825.04119	7.07	5825.03588	6.16	5825.03399	5.83	5825.04699	8.07

Note: All the test modes have been tested, only the worst data record in the report.



11.ANTENNA REQUIREMENTS

APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

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 shall be considered sufficient to comply with the provisions of this section. 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.

Please refer to FCC §15.247(b)(4)

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

RESULTS Complies



Appendix A1: 26 dB Emission Bandwidth Test Result

Test Mode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Verdict
		5180	19.920	5170.000	5189.920	PASS
		5200	20.640	5189.640	5210.280	PASS
11420	Apt1	5240	20.000	5229.840	5249.840	PASS
TIAZU	Anti	5745	20.040	5735.040	5755.080	PASS
		5785	19.960	5775.240	5795.200	PASS
		5825	19.720	5815.000	5834.720	PASS
		5180	20.240	5169.840	5190.080	PASS
		5200	20.480	5190.040	5210.520	PASS
1111200100	A	5240	20.440	5229.560	5250.000	PASS
1111205150	Anti	5745	20.920	5734.360	5755.280	PASS
		5785	20.160	5775.120	5795.280	PASS
		5825	20.440	5814.640	5835.080	PASS
	A == ± 1	5190	40.800	5169.600	5210.400	PASS
111100100		5230	41.040	5209.680	5250.720	PASS
111403130	Anti	5755	40.320	5734.600	5774.920	PASS
		5795	40.960	5774.920	5815.880	PASS
		5180	20.640	5169.840	5190.480	PASS
		5200	20.400	5189.720	5210.120	PASS
110000000	A nt1	5240	20.160	5229.840	5250.000	PASS
1140205150	Anti	5745	20.200	5734.720	5754.920	PASS
		5785	20.600	5774.480	5795.080	PASS
		5825	20.320	5814.920	5835.240	PASS
		5190	41.200	5169.440	5210.640	PASS
1100408180	Ant1	5230	41.680	5209.200	5250.880	PASS
1140403130		5755	40.000	5734.680	5774.680	PASS
		5795	41.040	5774.200	5815.240	PASS
114000000	Apt1	5210	81.760	5168.560	5250.320	PASS
1140003130	Anti	5775	80.000	5735.320	5815.320	PASS



Test Graphs













		11N20SISO	Ant1_5180		
Ke	ysight Spectrum Analyzer - Swept SA L RF 50 Ω DC	SENSE:INT	ALIGN AUTO	01:46:35 PM Aug 04, 2020	
Cer	nter Freq 5.180000000 GHz	: Wide Trig: Free Run	#Avg Type: RMS Avg Hold: 10/10	TRACE	Frequency
	Ref Offset 11.98 dB	In:Low #Atten: 30 db	ΔMk	r3 20.24 MHz	Auto Tune
10 d Log	B/div Ref 20.00 dBm			0.876 08	
10.0		\Diamond^2			Center Freq 5.18000000 GHz
-10.0		mound and how when	ermannen		
-20.0	01		1∆ ^{3∆1}	EL 1 (IP 9) (Bit	Start Freq
-40.0	A A A A A A A A A A A A A A A A A A A		My		5.16000000 GHz
-50.0	Manual Contraction of the Contra			and the second	Ctop From
-60.0					5.20000000 GHz
-70.0					
Cer #Re	nter 5.18000 GHz s BW 220 kHz	#VBW 620 kHz	Sweep 1.00	Span 40.00 MHz 00 ms (1001 pts)	CF Step 4.000000 MHz
MKR	MODE TRC SCL X	Y	NCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Man
1 2	N f 5.169 84 N f 5.180 84	GHz -29.930 dBm GHz -2.895 dBm			Freq Offset
4	Δι τ τ (Δ) 20.24	WITZ (A) 0.876 GB		-	0 Hz
6 7					
8 9					Scale Type
10 11					Log <u>Lin</u>
MSG		int.	STATUS	· .	
		11N20SISO	Ant1 5200		
Ke	sysight Spectrum Analyzer - Swept SA	chicchic	NICH WITE	01-40-40 04 0 04 0000	- 9 X
Cer	ter Freq 5.20000000 GHz	Trig: Free Run	#Avg Type: RMS AvgiHold: 10/10	TRACE 1 2 3 4 5 6 TYPE M 1000	Frequency
_	NFE PNC IFGa	in:Low #Atten: 30 dB		DETPPPPP	Auto Tune
10 d	Ref Offset 11.98 dB B/div Ref 20.00 dBm	-	ДМК	-4.562 dB	
Log 10.0					Center Frea
0.00		methy way only in the	-		5.20000000 GHz
-10.0		A R. R. CONTRACTOR BACK DAVID	As descent		
-20.0			Mu∆3∆1	51.1 -37 49 dBm	Start Freq
-40.0	AND AND AND		MAN	Avertain	0.1000000 GHZ
-50.0	her V. A. a. V. Jackstry, J. adult			MA IN ANNOUNT	Stop Freq
-60.0					5.220000000 GHz
Cor	ter 5 20000 GHz			Snan 40 00 MHz	CEStan
#Re	s BW 220 kHz	#VBW 620 kHz	Sweep 1.00	00 ms (1001 pts)	4.000000 MHz
	NODE TRE SEL	GHz -29.728 dBm	NCTION FUNCTION WIDTH	FUNCTION VALUE	Auto Man
2	N f 5.205 80 Δ1 f (Δ) 20.48	GHz -1.494 dBm MHz (Δ) -4.562 dB			Freq Offset
4 5				E	0 Hz
6 7 9					Scale Type
9 10					Log Lin
11		107			