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# TEST REPORT

FCC ID: 2AMY3-8T9-422L

Product: Tablet PC

Model No.: Acer One 8 T9-422L

Trade Mark: Acer

Report No.: WSCT-A2LA-R&E230300002A-Wi-Fi2

Issued Date: 13 April 2023

Issued for:

Acer India Pvt Ltd.

Embassy Heights 6th Floor, No. 13, Magrath Road, (Next to Hosmat Hospital), Bangalore-560 025, India.

Issued By:

World Standardization Certification & Testing Group(Shenzhen) Co., Ltd.

Building A-B, Baoshi Science & Technology Park, Baoshi Road,

Bao'an District, Shenzhen, Guangdong, China

TEL: +86-755-26996192

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WSET









Report No.: WSCT-A2LA-R&E230300002A-Wi-Fi2

Certificate #5768.01

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# Report No.: WSCT-A2LA-R&E230300002A-Wi-Fi2

# **Test Certification**

Product: Tablet PC

Model No.: Acer One 8 T9-422L

Trade Mark: Acer

Applicant: Acer India Pvt Ltd.

Embassy Heights 6th Floor, No. 13, Magrath Road, (Next to Hosmat Address:

Hospital), Bangalore-560 025, India.

Manufacturer: Acer India Pvt Ltd.

Embassy Heights 6th Floor, No. 13, Magrath Road, (Next to Hosmat Address:

Hospital), Bangalore-560 025, India.

Factory: Acer India Pvt Ltd.

RS No. 38/2, Sedarapet Village, Villianur Commune, Pondicherry Address:

-605111.

12 January 2023 to 15 March 2023 Date of Test:

Applicable FCC CFR Title 47 FCC Part 15 Subpart E Standards:

The above equipment has been tested by World Standardization Certification & Testing Group(Shenzhen)Co., Ltd. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:

(Wang Xiang)

Checked By:

( Qin Shuiguan)

Approved By:

Date: /5

(Liu Fuxin)

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# 2 **EUT Description**

~		
	Product:	Tablet PC
	Model No.:	Acer One 8 T9-422L
	Trade Mark:	Acer
1	Operation Frequency:	Band 1: 5180-5240 MHz Band 2: 5260-5320 MHz Band 3: 5500-5700 MHz Band 4: 5745-5825 MHz
9	Modulation type:	IEEE 802.11a/n/ac: OFDM/OFDMA (BPSK/QPSK/16QAM/64QAM/256QAM)
	Antenna Type:	Integral Antenna
	Antenna Gain	2.27dBi
	Rechargeable Li-Polymer Battery:	Model: GFL 1100100 1ICP4/100/100 Nominal Voltage: 3.8V Rated capacity: 5100mAh/19.38Wh Limited Charge Voltage: 4.35V
	Adapter:	Model: BSY01J3050200UU Input: 100-240V~50/60Hz 0.3A Output:5.0V===2.0A 10.0W
	Remark:	N/A.





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# 3 TEST DESCRIPTION

## 3.1 MEASUREMENT UNCERTAINTY

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The reported uncertainty of measurement  $\mathbf{y} \pm \mathbf{U}$ , where expended uncertainty  $\mathbf{U}$  is based on a standard uncertainty multiplied by a coverage factor of  $\mathbf{k=2}$ , providing a level of confidence of approximately  $\mathbf{95}$ %.

×			
^	No.	Item	Uncertainty
7	1	Conducted Emission Test	±3.2dB
	2	RF power, conducted	±0.16dB
	3	Spurious emissions, conducted	±0.21dB
	4	All emissions, radiated(<1GHz)	±4.7dB
	5	All emissions, radiated(>1GHz)	±4.7dB
×	6	Temperature	±0.5°C
7	7	Humidity	±2%

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IVE 14	Wister	William	W/5/47	N/6-1-91	
NV.				VETA	X15191
NV-14	TW-51-01	WETTE	NISTA	WE TO	
			X	VSIE	XV5191
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## 3.2 TEST ENVIRONMENT AND MODE

1	Operating Environment:	
	Temperature:	25.0 °C
	Humidity:	56 % RH
	Atmospheric Pressure:	1010 mbar
	Test Mode:	
	Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 98.46%)
	X	X

The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. For the full battery state and The output power to the maximum state.

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

	Test Mode	Description
	Mode 1	802.11a
	Mode 2	802.11n20
2	Mode 3	802.11n40
	Mode 4	802.11ac20
	Mode 5	802.11ac40
1	Mode 6	802.11ac80

#### Note

- (1) The measurements are performed at the highest, lowest available channels.
- (2) The EUT use new battery.
- (3) Record the worst case of each test item in this report.











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Test				*#*#	36466	33#*#	*		1	
program										
Mode Test Frequency (MHz)								X		
Mode				N	<b>ICB</b> : 20	MHz				
802.11a	5180	5240	5260	5320	5500	5700	5745	5825		
002.11a	MHz	MHz	MHz	MHz	tion of the same	MHz	MHz	MHz		
802,11n	5180	5240	5260	5320	5500	5700	5745	5825		
002.1111	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz		
002 1100	5180	5240	5260	5320	5500	5700	5745	5825		
802.11ac MH	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz	١,	
11772			117.8	N	ICB: 40	MHz	1132	A.	A	
802.11n	5190	5230	5270	5310	5510	5670	5755	5795	-	
602.1111	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz		
000 44	5190	5230	5270	5310	5510	5670	5755	5795		
802.11ac	MHz	MHz	MHz	MHz	MHz	MHz	MHz	MHz		
				N	ICB: 80	MHz				
802.11ac	5210	5290	5530	5610	5775			A 17 45 Tab at 1		
ouz.Trac	MHz	MHz	MHz	MHz	MHz				-	

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

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## 3.4 CONFIGURATION OF SYSTEM UNDER TEST



(EUT: Tablet PC)

## 3.5 DESCRIPTION OF SUPPORT UNITS (CONDUCTED MODE)

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

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
1,6	Adapter	7/43/11	BSY01J30 <mark>5</mark> 0200UU	(VIS)	/
2	Earphone		N/A	1	1

## Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in <code>"Length\_"</code> column.
- (3) "YES" is means "shielded" "with core"; "NO" is means "unshielded" "without core".
- (4) The adapter supply by the applicant.

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# SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

1		FCC Part15 Subpart C&E			
	Standard Section	Test Item	Judgment	Remark	
	2.1049 15.403(i)	26dB & 99% Bandwidth	PASS	Complies	
/	15.407(e)	5.407(e) 6dB Spectrum Bandwidth			
1	15.407(a) Maximum Conducted Output Power		PASS	Complies	
业	15.407(a)	Power Spectral Density	PASS	Complies	
	15.407(b)	Unwanted Emissions	PASS	Complies	
	15.207	AC Conducted Emission	PASS ////	Complies	
1	15.407(g)	Frequency Stability	PASS	Complies	
	15.407(c)	Automatically Discontinue Transmission	PASS	Complies	
-df-	15.203 & 15.407(a)	X	PASS	Complies	
	15.407(h)	Transmit Power Control (TPC) and Dynamic Frequency Selection (DFS)	PASS	Complies	

NOTE:

(1)" N/A" denotes test is not applicable in this test report.

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# MEASUREMENT INSTRUMENTS

	Z-11 Jr 1 rd III.				APP 1 PB 1881 - N	- 1 1 m 1 1
7	NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	Calibration Date	Calibration Due.
2	Test software	177	EZ-EMC	CON-03A	17	144
	Test software	/	MTS8310	- 3	V-	
	EMI Test Receiver	R&S	ESCI	100005	11/05/2022	11/04/2023
7	LISN	AFJ	LS16	16010222119	11/05/2022	11/04/2023
	LISN(EUT)	Mestec	AN3016	04/10040	11/05/2022	11/04/2023
	Universal Radio Communication Tester	R&S	CMU 200	1100.0008.02	11/05/2022	11/04/2023
	Coaxial cable	Megalon	LMR400	N/A	11/05/2022	11/04/2023
	GPIB cable	Megalon	GPIB	N/A	11/05/2022	11/04/2023
,	Spectrum Analyzer	R&S	FSU	100114	11/05/2022	11/04/2023
	Pre Amplifier	H.P.	HP8447E	2945A02715	11/05/2022	11/04/2023
_	Pre-Amplifier	CDSI	PAP-1G18-38		11/05/2022	11/04/2023
	Bi-log Antenna	SUNOL Sciences	JB3	A021907	11/05/2022	11/04/2023
	9*6*6 Anechoic	X	X		11/05/2022	11/04/2023
	Horn Antenna	COMPLIANCE ENGINEERING	CE18000	- 6	11/05/2022	11/04/2023
7	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-631	11/05/2022	11/04/2023
	Cable	TIME MICROWAVE	LMR-400	N-TYPE04	11/05/2022	11/04/2023
	System-Controller	ccs	N/A	N/A	N.C.R	N.C.R
	Turn Table	ccs	N/A	N/A	N.C.R	N.C.R
	Antenna Tower	ccs	N/A	N/A	N.C.R	N.C.R
,	RF cable	Murata	MXHQ87WA300 0		11/05/2022	11/04/2023
	Loop Antenna	EMCO	6502	00042960	11/05/2022	11/04/2023
\	Horn Antenna	SCHWARZBECK	BBHA 9170	1123	11/05/2022	11/04/2023
A S	Power meter	Anritsu	ML2487A	6K00003613	11/05/2022	11/04/2023
	Power sensor	Anritsu	MX248XD		11/05/2022	11/04/2023
	Spectrum Analyzer	Keysight	N9010B	MY60241089	11/05/2022	11/04/2023
/	mon & Teeu	Z 774	116741		A74 A	1757



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# 6 Facilities and Accreditations

## 6.1 FACILITIES

All measurement facilities used to collect the measurement data are located at Building A-B, Baoshi Science & Technology Park, Baoshi Road, Bao'an District, Shenzhen, Guangdong, China of the World Standardization Certification & Testing Group(Shenzhen) CO., LTD

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

## 6.2 ACCREDITATIONS

China National Accreditation Service for Conformity Assessment (CNAS)
Registration number NO: L3732

American Association for Laboratory Accreditation(A2LA)

Registration NO: 5768.01

Copies of granted accreditation certificates are available for downloading from our web site, <a href="http://www.wsct-cert.com">http://www.wsct-cert.com</a>











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# 7 Test Results and Measurement Data

# 7.1 CONDUCTED EMISSION MEASUREMENT

POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

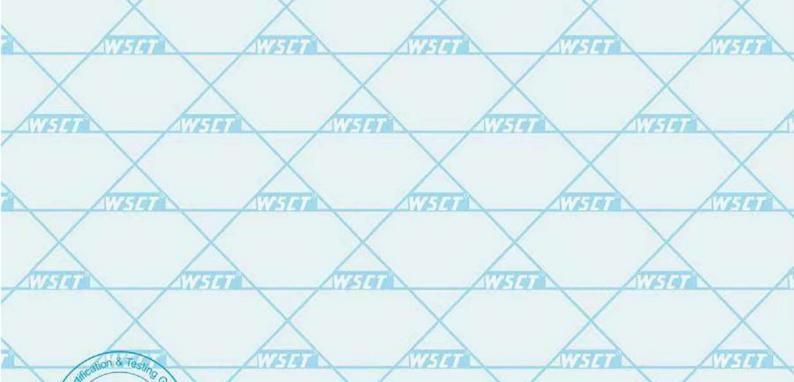
		Class A	(dBuV)	Class B	(dBuV)	Standard
	FREQUENCY (MHz)	Quasi-peak	Average	Quasi-peak	Average	Standard
	0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
	0.50 -5.0	73.00	60.00	56.00	46.00	FCC
/	5.0 -30.0	73.00	60.00	60.00	50.00	FCC

## Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

The following table is the setting of the receiver	ノリスタカ海 シー・フリスタカ海 ト
Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz





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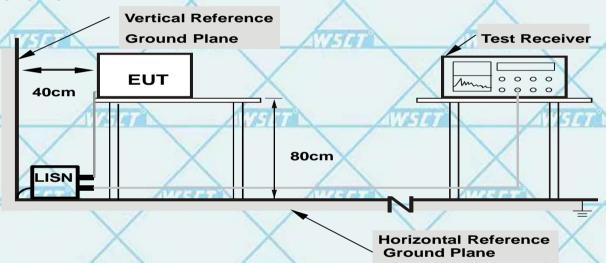
## 7.1.1 TEST PROCEDURE

- a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e For the actual test configuration, please refer to the related Item -EUT Test Photos.

## 7.2 DEVIATION FROM TEST STANDARD

No deviation

#### **TEST SETUP**



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

#### 7.2.1 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



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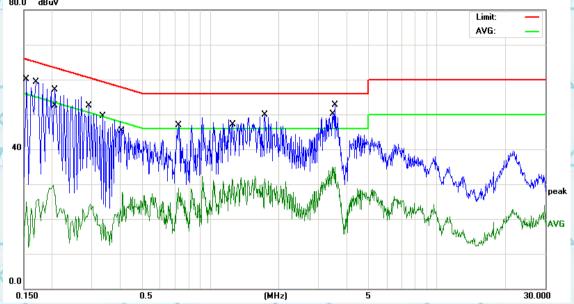


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## 7.2.2 TEST RESULTS

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)-worst



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1539	49.77	10.41	60.18	65.78	-5.60	QP
2		0.1700	48.94	10.41	59.35	64.96	-5.61	QP
3		0.2020	19.21	10.41	29.62	53.52	-23.90	AVG
4		0.2060	46.76	10.41	57.17	63.36	-6.19	QP
5		0.2900	42.08	10.43	52.51	60.52	-8.01	QP
6		0.3339	39.05	10.44	49.49	59.35	-9.86	QP
7		0.4100	17.31	10.45	27.76	47.65	-19.89	AVG
8		0.7220	18.37	10.49	28.86	46.00	-17.14	AVG
9		1.2460	20.95	10.55	31.50	46.00	-14.50	AVG
10		1.7420	20.80	10.62	31.42	46.00	-14.58	AVG
11		3.4460	24.30	10.67	34.97	46.00	-11.03	AVG
12	*	3.5580	41.95	10.68	52.63	56.00	-3.37	QP

Remark: All the modes have been investigated, and only worst mode is presented in this report.



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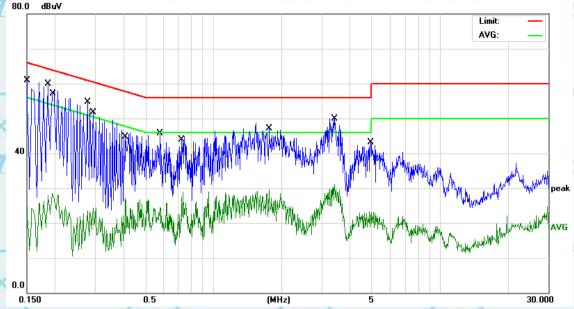




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# Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)



Ž.	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		7
ĺ			MHz	dBuV	dB	dBuV	dBuV	dB	Detector	
ľ	1		0.1500	50.41	10.41	60.82	65.99	-5.17	QP	1
,	2	*	0.1860	49.44	10.41	59.85	64.21	-4.36	QP	.2
	3		0.1940	18.03	10.41	28.44	53.86	-25.42	AVG	
	4		0.2779	44.32	10.43	54.75	60.88	-6.13	QP	
Z	5		0.2940	41.31	10.43	51.74	60.41	-8.67	QP	1
ĺ	6		0.4100	16.67	10.45	27.12	47.65	-20.53	AVG	
ĺ	7		0.5820	35.31	10.48	45.79	56.00	-10.21	QP	1
j	8		0.7340	18.46	10.49	28.95	46.00	-17.05	AVG	4
	9		1.7540	18.87	10.62	29.49	46.00	-16.51	AVG	
	10		3.4220	39.16	10.67	49.83	56.00	-6.17	QP	
Z.	11		3.4220	20.33	10.67	31.00	46.00	-15.00	AVG	/
	12		4.8820	12.57	10.69	23.26	46.00	-22.74	AVG	

## Note1:

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Freq. = Emission frequency in MHz

Reading level  $(dB\mu V)$  = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss

Measurement  $(dB\mu V)$  = Reading level  $(dB\mu V)$  + Corr. Factor (dB)

Limit (dBµV) = Limit stated in standard

Margin (dB) = Measurement (dB $\mu$ V) – Limits (dB $\mu$ V)

Q.P. =Quasi-Peak AVG =average

meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

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## 7.3 RADIATED EMISSION MEASUREMENT

## Radiated Emission Limits(Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies	Field Strength	Measurement Distance
(MHz)	(micorvolts/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	/V/5/200	V547 3 AV51
Above 960	500	3

## LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)			
PREQUENCT (MIDZ)	PEAK	AVERAGE		
Above 1000	74	WS/7 54 WS/		

#### Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 1Hz for Average
Dariu)	

Receiver Parameter	Setting
Attenuation	SET WS Auto WSCT
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP



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7.3.2

No deviation







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**DEVIATION FROM TEST STANDARD** 

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## 7.3.1 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. 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.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

  Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

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7.3.3

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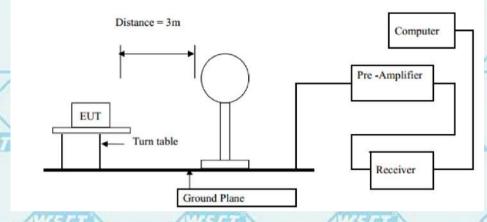
## Report No.: WSC 1-AZLA-R&EZSUSUUUZA-WI-FIZ

**TEST SETUP** 

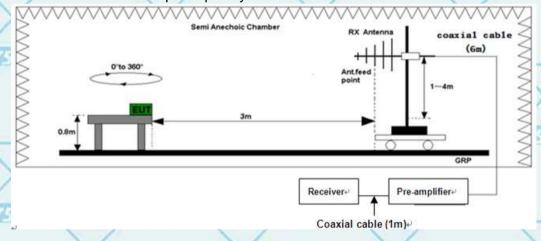
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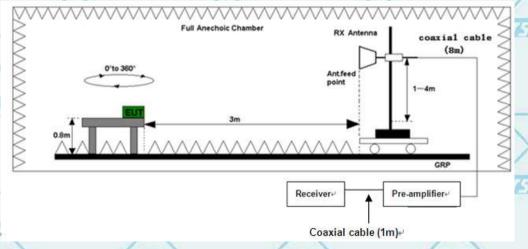
## (A) Radiated Emission Test-Up Frequency Below 30MHz



## (B) Radiated Emission Test-Up Frequency 30MHz~1GHz



## (C) Radiated Emission Test-Up Frequency Above 1GHz



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## 7.3.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.3.5 RESULTS (BELOW 30 MHZ)

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
	FILE	-	-12	P
X	Х	×	X	Р

LATHEN			,		2 1 1 2 m 2 m 2 m 2 m 2 m 2 m 2 m 2 m 2	
	-	1			P	
	X	X	X	X	Р	
	WETGE	1279	1774	17274	NVA.	7
Not	te:		/			
No.	o result in this part for m	argin above 20dB.		X	X	
	stance extrapolation fac					
	mit line = specific limits(				MILTON	
All	the x/y/z orientation has	been investigated	, and only worst ca	ase is presented in	this report.	
						1
	X				/	1
					_	
/	11494	374744	11/19	11-74	1167	4
\/			/			
X	X	X		X	X	
THE	ATTENDED TO	11773		THE PERSON	ATTIGUE	

WEIGH	WEIGH.	WHITE	WEIGH	WETER	
				$\times$	X
WE	ATT.	1974 NTF	TEL	Flan	AVETTE
XXXX	775197	WHITE	NETTE	115198	
NVA:	G W	THE WILL	700	F19.	AYET O





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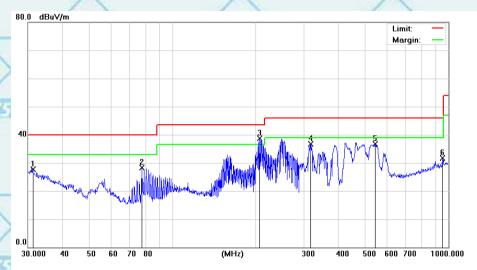
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## 7.3.6 TEST RESULTS (BETWEEN 30M - 1000 MHZ)

# Please refer to following diagram for individual

## Below 1GHz

Horizontal:



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
5 1		31.2893	23.44	4.29	27.73	40.00	-12.27	QP
_2	All	77.5928	35.39	-7.14	28.25	40.00	-11.75	QP
3	* 2	207.1226	45.44	-6.68	38.76	43.50	-4.74	QP
4	3	316.5890	38.79	-2.04	36.75	46.00	-9.25	QP
745	5	43.2742	35.92	0.88	36.80	46.00	-9.20	QP
6	9	52.0937	25.32	6.45	31.77	46.00	-14.23	QP

Remark: All the modes have been investigated, and only worst mode is presented in this report.



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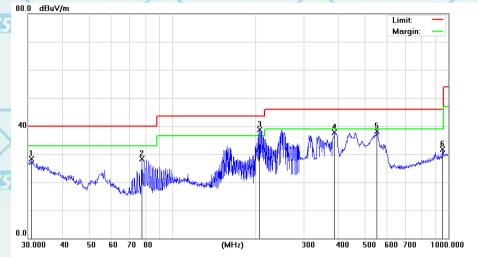


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## Vertical:



5	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	THE STATE OF
ĺ			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
	1	/3	80.9619	23.94	4.43	28.37	40.00	-11.63	QP
	2	ATA	7.5928	35.39	-7.14	28.25	40.00	-11.75	QP
1	3	* 20	7.1226	45.44	-6.68	38.76	43.50	-4.74	QP
5	4	38	86.6338	38.90	-1.14	37.76	46.00	-8.24	QP
	45	55	0.9480	37.07	0.96	38.03	46.00	-7.97	QP
	6	95	2.0937	25.32	6.45	31.77	46.00	-14.23	QP

## Note1:

Freq. = Emission frequency in MHz Reading level (dBµV) = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss - Amplifier factor.

Measurement  $(dB\mu V)$  = Reading level  $(dB\mu V)$  + Corr. Factor (dB)

Limit (dBµV) = Limit stated in standard

Margin (dB) = Measurement (dB $\mu$ V) – Limits (dB $\mu$ V)











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# 7.3.7 TEST RESULTS (ABOVE 1GHZ)

## Above 1GHz

L	F	Low channel: 5180MHz						
Freq. (MHz)		Ant.Pol	Emission Level(dBu\		Limit 3m(dBuV/m)		Over(dB)	
	(IVI□Z)	H/V	PK	AV	PK	AV	PK	AV
	10360	V	59.40	41.76	74 /	54	-14.60	-12.24
Ļ	15540	V	59.79	40.07	74	54	-14.21	-13.93
	10360	H	58.31	40.42	74	54	-15.69	-13.58
	15540	Н	59.15	40.15	74	54	-14.85	-13.85

- 4								
í	Г.,			Low cha	annel: 5180	MHz		
	Freq.	Ant.Pol	Emission L	_evel(dBuV)	Limit 3m	(dBuV/m)	Ove	r(dB)
	(MHz)	H/V	PK	AV	PK	AV	PK	AV
	10360	V	60.69	39.24	74	54	-13.31	-14.76
	15540	V	58.51	40.59	74	54	-15.49	-13.41
5	10360	H	58.72	39.64	74	54	-15.28	-14.36
	15540	Η	58.85	39.85	74	54	-15.15	-14.15

1	From	Low channel: 5180MHz							
	Freq.	Ant.Pol	Emission L	Emission Level(dBuV) Limit 3r		(dBuV/m)	Over(dB)		
	(MHz)	H/V	PK	AV	PK	AV	PK	AV	
	10360	V	58.16	41.02	74	54	-15.84	-12.98	
	15540	V	58.07	40.80	74	54	-15.93	-13.20	
	10360	STATION	59.51	39.43	74	54	-14.49	-14.57	
`	15540	H	58.53	39.53	74	54	-15.47	-14.47	

				A				
Frog	Low channel: 5180MHz							
Freq. (MHz)	Ant.Pol	Emission I	Emission Level(dBuV)		Limit 3m(dBuV/m)		Over(dB)	
(IVITZ)	H/V	PK	AV	PK	AV	PK	AV -13.75 -14.70 -14.71	
10360	V	60.32	40.25	74	54	-13.68	-13.75	
15540	V	58.93	39.30	74	54	-15.07	-14.70	
10360	real A	59.95	39.29	74	54	-14.05	-14.71	
15540	-134	58.14	39.14	74	54	-15.86	-14.86	

## Note:

- 1. All emissions not reported were more than 20dB below the specified limit or in the noise floor.
- 2. Emission Level= Reading Level+ Probe Factor +Cable Loss.
- 3. Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.









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## 7.4 ANTENNA REQUIREMENT

Standard requirement: The EUT'S antenna is met the requirement of FCC part 15C section 15.203 and FCC part 15C section 15.407.

FCC part 15C section 15.203 and FCC part 15C section 15.407 requirements: Systems operating in the 5150~5850MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

## E.U.T Antenna:

The Wi-Fi antenna is a Integral Antenna. it meets the standards, and the best case gain of the antenna is 2.27dBi.



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# 7.5 EMISSION BANDWIDTH

## 7.5.1 TEST EQUIPMENT

Please refer to Section 5 this report.

## 7.5.2 TEST PROCEDURE

١						
	-26dB Bandwidth	and 99% Occupied Band	dwidth:	MISSE	ATTIZZZ	
	Test Method:	a)The transmitter was rac	diated to the sp	pectrum analyzer in peak hold mode.	- III-19	
	\/			emission that is 26 dB down from the pe	ak of the	
	X	emission Compare this w	ith the RBW	setting of the analyzer. Readjust RBW a	nd repeat	
				/EBW ratio is approximately 1%.	•	
	Test Equipment Sett	ting – 26dB Bandwidth:		Test Equipment Setting - 99%% Bandwidth	153	
	a)Attenuation: Auto			a)Span: 1.5 times to 5.0 times the OBW		
,	b)Span Frequency:	> 26dB Bandwidth	\	b)RBW: 1 % to 5 % of the OBW		
		tely 1% of the emission band	width	c)VBW: ≥ 3 x RBW	V	
	d) $VBW: VBW > RI$	3W		d)Detector: Peak		
	e)Detector: Peak			e)Trace: Max Hold		
	f)Trace: Max Hold	1674	1175/4	17274	AWST	
Ī	g)Sweep Time: Auto	5				
	6 dB Bandwidth:					
	Test Method:			pectrum analyzer in peak hold mode.		
	b)Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of					
	ATTITUTE		mation Infrast	ructure (U-NII) Devices - section (C) Em	ission	
	A 19 1	Bandwidth.	1	C1 F19		
		c)Multiple antenna system	n was perform	ned in accordance with KDB662911 D01	v02r01	

Test Equipment Setting:

a)Attenuation: Auto

b)Span Frequency: > 6dB Bandwidth

c)RBW: 100kHz

d)VBW: ≥ 3 x RBW

e)Detector: Peak f)Trace: Max Hold

g)Sweep Time: Auto

#### **Maximum Conducted Output Power Measurement:**

**Emissions** 

Test Method: a)The transmitter output (antenna port) was connected to the power meter.

b)Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (PM) =>b) Method PM-G (Measurement using a gated RF average power meter).

c)Multiple antenna systems was performed in accordance with KDB662911 D01 v02r01

Emissions

Testing of Transmitters with Multiple Outputs in the Same Band.

Testing of Transmitters with Multiple Outputs in the Same Band.

d)Measured the spectrum width with power higher than 6dB below carrier.

d)When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

Test Equipment Setting: Detector - Average

## **Power Spectral Density:**

NOW \* P

Test Method:

a)The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
b)Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of
Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power

Spectral Density (PSD).

c)Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band

Power

Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the

utputs.

d)When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for

the first frequency bin of the summed spectrum. The summed spectrum value for each of the other

frequency bins is computed in the same way.

e)For 5.725~5.85 GHz, the measured result of PSD level must add 10log(500kHz/RBW)

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Test Equipment Setting:

a)Attenuation: Auto

b)Span Frequency: Encompass the entire emissions bandwidth (EBW) of

and the final result should ≤ 30 dBm.

the signal

c)RBW: 1000 kHz d)VBW: 3000 kHz e)Detector: RMS f)Trace: AVERAGE

g)Sweep Time: Auto

h)Trace Average: 100 times

Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

Frequency Stability Measurement:

Test Method:

a)The transmitter output (antenna port) was connected to the spectrum analyzer.

b)EUT have transmitted absence of modulation signal and fixed channelize.

c)Set the spectrum analyzer span to view the entire absence of modulation emissions

bandwidth.

d)Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.

e)fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 106

ppm and

the limit is less than ±20ppm (IEEE 802.11nspecification).

f)The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of

the

nominal value

g)Extreme temperature is 0°C~40°C

Test Equipment Setting:

a)Attenuation: Auto

b)Span Frequency: Entire absence of modulation emissions bandwidth

c)RBW: 10 kHz d)VBW: 10 kHz e)Sweep Time: Auto

#### 7.5.3 CONFIGURATION OF THE EUT

Same as section 3.4 of this report

#### 7.5.4 EUT OPERATING CONDITION

Same as section 3.5 of this report.

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	7.5.5 LIMIT	X	www.wsct-cert.com
Ī	-26dB Bandwidth and 99% Occupied Bandwidth:		
İ	Limit: No restriction limits.	ATTAMEN ATTAMEN	13757111
t	-6 dB Bandwidth:		THE CAME
1		inimum 6dB bandwidth shall be at least 500 kHz.	
İ	Test Equipment Setting:	XX	
¢	a)Attenuation: Auto	e)Detector: Peak	
ı	b)Span Frequency: > 6dB Bandwidth	f)Trace: Max Hold	-
4	c)RBW: 100kHz	g)Sweep Time: Auto	
ı	d)VBW: ≥ 3 x RBW		\ /
İ	Maximum Conducted Output Power Measurement:		
İ	⊠5.15~5.	25 GHz	
İ	Limit of Outdoor access point:	Limit of Indoor access point:	
İ	The maximum conducted output power over the	The maximum conducted output power over the	JWSTT
t	frequency band of operation shall not exceed 1 W	frequency band of operation shall not exceed 1 W	/
1	(30dBm) provided the maximum antenna gain does not	(30dBm) provided the maximum antenna gain does	
ı	exceed 6 dBi. If transmitting antennas of directional gain	not	
l	greater than 6 dBi are used, both the maximum	exceed 6 dBi. If transmitting antennas of directional	
I	conducted output power and the maximum power	gain greater than 6 dBi are used, both the maximum	_
	spectral density shall be reduced by the amount in dB	conducted output power and the maximum power	
I	that the directional gain of the antenna exceeds 6 dBi.	spectral density shall be reduced by the amount in	
ı	The maximum e.i.r.p. at any elevation angle above 30	dB	
ı	degrees as measured from the horizon must not exceed	that the directional gain of the antenna exceeds 6	
ı	125 mW (21 dBm).	dBi.	
ľ	Limit of Fixed point-to-point access points:	∐Limit of Mobile and portable client devices:	ATTION
ł	The maximum conducted output power over the	The maximum conducted output power over the	118148
ł	frequency band of operation shall not exceed 1 W	frequency band of operation shall not exceed 250	
ı	(30dBm). Fixed point-to-point U-NII devices may employ	mW .	
l	antennas with directional gain up to 23 dBi without any	(24dBm) provided the maximum antenna gain does	
1	corresponding reduction in the maximum conducted	not	
1	output power or maximum power spectral density. For	exceed 6 dBi. If transmitting antennas of directional	
Ī	fixed point-to-point transmitters that employ a directional	gain greater than 6 dBi are used, both the maximum	
ı	antenna gain greater than 23 dBi, a 1 dB reduction in	conducted output power and the maximum power	
ı	maximum conducted output power and maximum	spectral density shall be reduced by the amount in	X
ı	power spectral density is required for each 1 dB of	dB	
ı	antenna gain in excess of 23 dBi.	that the directional gain of the antenna exceeds 6	ATTITUTE
ł	A 1-1-1	dBi.	Z1187418
l	∑5.25-5.35 GHz & ∑		
1	The maximum conducted output power over the frequency		
ı	mW (24dBm) or 11 dBm 10 log B, where B is the 26 dB e		8
1	antennas of directional gain greater than 6 dBi are used,	both the maximum conducted output power and the	
ì	maximum power spectral density shall be reduced by the	amount in dB that the directional gain of the antenna	
ŀ	exceeds 6 dBi.	05.01)	
ŀ	∑5.725~5		
ı	The maximum conducted output power over the frequency		
ı	transmitting antennas of directional gain greater than 6 de power and the maximum power spectral density shall be r		
ı	the antenna exceeds 6 dBi. However, fixed point-to-point		1875100
t	transmitting antennas with	O-Mit devices operating in this band may employ	1000
ł	directional gain greater than 6 dBi without any correspond	ding reduction in transmitter conducted nower	
ŀ	Power Spectral Density	ang reduction in transmitter conducted power.	
١		05.011	
ŀ	∑5.15~5		-
4	Limit of Outdoor access point: 17 dBm/MHz	Limit of Indoor access point: 17 dBm/MHz	
ı	Limit of Fixed point-to-point access points: 17	Limit of Mobile and portable client devices: 11	
1	dBm/MHz	dBm/MHz	
1	□5.25-5.35 GHz	11 dBm/MHz	
1	□5.470-5.725 GHz	11 dBm/MHz	
-	∑5.725~5.85 GHz	30 dBm/500kHz	107570
1	Frequency Stability Measurement:	the bender worth 1 II II	THE IS
2		the band of operation under all conditions of normal	
1	operation as specified in the user's m		
1		rance shall be ± 20 ppm maximum for the 5 GHz band	
L	TELET STREET		Some

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802.11n specification).

## 7.5.6 TEST RESULT

# -26dB Bandwidth and 99% Occupied Bandwidth

Product	: EUT-Sample	Test Mode	: See section 3.4
Test Item	: -26dB Bandwidth/-6dB Bandwidth and 99% Occupied Bandwidth	Temperature	: 25 ℃
Test Voltage	: DC 3.8V	Humidity	: 56%RH
Test Result	: PASS		

## -26dB Bandwidth

-0	ub ban	awiatii					<b>\</b>
	Band	Channel	Frequency (MHz)	-26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit -26 dB Bandwidth (MHz)	Verdict
	1	/		20MHz(IEEE 802.11a/r	n/ac)		1
		Low	5180	20.463	17.598	0.5	Pass
		High	5240	20.415	17.624	0.5	Pass
	2	Low	5260	20.317	17.605	0.5	Pass
V	VI CONTRACTOR	High	5320	20.388	17.589	0.5	Pass
	3	Low	5500	20.204	17.607	0.5	Pass
	3	High	5700	20.297	17.606	0.5	Pass
		X		40MHz(IEEE 802.11n/	/ac)	X	
	1	Low	5190	40.202	35.844	0.5	Pass
X		High	5230	39.996	35.925	0.5	Pass
D	2	Low	5270	40	35.865	0.5	Pass
	1	High	5310	39.742	35.949	0.5	Pass
	3	Low	5510	39.548	35.862	0.5	Pass
	2	High	5670	39.618	35.921	0.5	Pass
				80MHz(IEEE 802.11a	ic)		
3	weter.	Low	5210	79.058	75.160	0.5	Pass
1	2	Low	5290	78.758	75.252	0.5	Pass
	3	Low	5530	79.484	75.126	0.5	Pass
	3	High	5610	79.32	75.265	0.5	Pass

## -6dB Bandwidth

	dwidth	and the second second	THE PARTY OF THE P	A ST A SE SE SELL STATE OF THE SECOND	20111222			
Band	Channel	Frequency (MHz)	-6 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict		
20MHz(IEEE 802.11a/n/ac)								
	Low	5745	16.67	17.527	> 0.5	Pass		
/4	High	5825	15.398	17.536	> 0.5	Pass		
11172-1	73	AUG TO THE REAL PROPERTY.	40MHz(IEEE 802.11n)	ac)	2-144	KITZ		
4	Low	5755	35.042	35.825	> 0.5	Pass		
4	High	5795	33.846	35.809	> 0.5	Pass		
	80MHz(IEEE 802.11ac)							
4	Low	5775	75.101	75.178	> 0.5	Pass		



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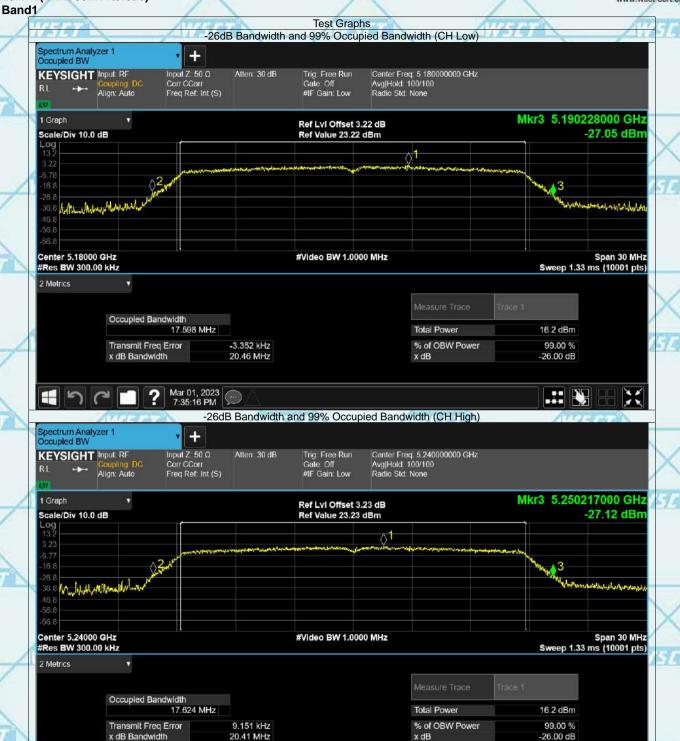


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# 20MHz(IEEE 802.11a/n/ac)





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Occupied Bandwidth

Transmit Freq Error

17.606 MHz

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-24.008 kHz

20.30 MHz

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Total Power

% of OBW Power

17.6 dBm

99.00 %

-26.00 dB









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# 40MHz(IEEE 802.11n/ac)

Band1 -26dB Bandwidth and 99% Occupied Bandwidth (CH Low) Spectrum Analyzer 1 Occupied BW + Center Freq: 5 190000000 GHz Avg|Hold: 100/100 Atten: 30 dB KEYSIGHT Input RF Input Z: 50 Ω Trig: Free Run Corr CCorr Align: Auto Freq Ref: Int (S) Radio Std: None Mkr3 5.210092000 GHz Ref LvI Offset 3.22 dB Ref Value 23.22 dBm -26.05 dBm Scale/Div 10.0 dB - 1 may have my forther what Bud of the AND HAM TO INVESTIGATION OF THE PARTY OF THE Span 60 MHz Sweep 1.33 ms (10001 pts) Center 5.19000 GHz #Res BW 300.00 kHz #Video BW 1.0000 MHz 2 Metrics Occupied Bandwidth 35.844 MHz Total Power 16.9 dBm Transmit Freq Error -9.347 kHz % of OBW Power 99.00 % x dB Bandwidth 40.20 MHz x dB -26.00 dB Mar 01, 2023 8:03:39 PM -26dB Bandwidth and 99% Occupied Bandwidth (CH High) Spectrum Analyzer 1 Occupied BW + Center Freq: 5 230000000 GHz Avg|Hold: 100/100 Input Z: 50 Ω Corr CCorr Atten: 30 dB KEYSIGHT Input RF Trig: Free Run Align: Auto Freq Ref: Int (S) Radio Std: None Mkr3 5.249986000 GHz 1 Graph Ref LvI Offset 3.22 dB Ref Value 23.22 dBm -27.34 dBm Scale/Div 10.0 dB high ships of he distilled to the well in Center 5.23000 GHz #Res BW 300.00 kHz Span 60 MHz Sweep 1.33 ms (10001 pts) #Video BW 1.0000 MHz 2 Metrics Occupied Bandwidth 35.925 MHz Total Power 16 6 dBm Transmit Freq Error -12.457 kHz % of OBW Power 99.00 % x dB Bandwidth 40.00 MHz -26.00 dB Mar 01, 2023 8:05:18 PM



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# 80MHz(IEEE 802.11ac)









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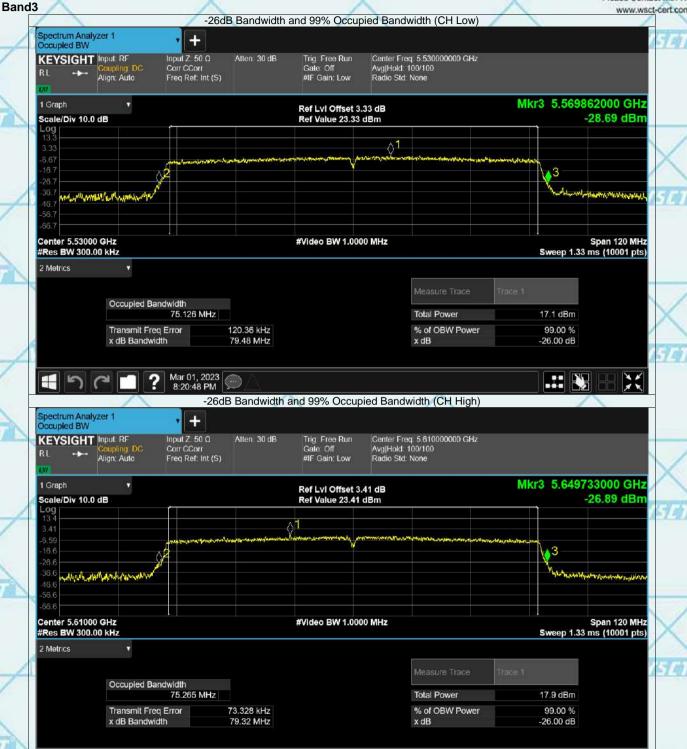




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# -6dB Bandwidth 20MHz(IEEE 802.11a/n/ac)





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Band4 -6dB Bandwidth and 99% Occupied Bandwidth (CH Low) Spectrum Analyzer 1 Occupied BW + Center Freq: 5 755000000 GHz Avg|Hold: 100/100 Input Z 50 Ω Corr CCorr Freq Ref: Int (S) Atten: 30 dB KEYSIGHT Input RF Trig: Free Run Align: Auto Radio Std: None Mkr3 5.772505000 GHz Ref LvI Offset 3.38 dB Ref Value 23.38 dBm -9.46 dBm Scale/Div 10.0 dB 2 Physical State of the State of way my be when the bear Span 60 MHz Sweep 6.00 ms (10001 pts) Center 5.75500 GHz #Res BW 100.00 kHz #Video BW 300.00 kHz 2 Metrics Occupied Bandwidth 35 825 MHz Total Power 17.3 dBm Transmit Freq Error -16.329 kHz % of OBW Power 99.00 % x dB Bandwidth 35.04 MHz x dB -6.00 dB -6dB Bandwidth and 99% Occupied Bandwidth (CH High) Spectrum Analyzer 1 Occupied BW + Center Freq: 5 795000000 GHz Avg|Hold: 100/100 Input Z: 50 Ω Corr CCorr Atten: 30 dB KEYSIGHT Input RF Trig: Free Run Align: Auto Freq Ref: Int (S) Radio Std: None Mkr3 5.811910000 GHz 1 Graph Ref LvI Offset 3.34 dB Ref Value 23.34 dBm Scale/Div 10.0 dB whole the whole was all the other was way beauthous weatherd Center 5.79500 GHz #Res BW 100.00 kHz Span 60 MHz Sweep 6.00 ms (10001 pts) #Video BW 300.00 kHz 2 Metrics Occupied Bandwidth 35.809 MHz Total Power 16.9 dBm Transmit Freq Error -12.786 kHz % of OBW Power 99.00 % x dB Bandwidth 33.85 MHz -6.00 dB Mar 01, 2023 8:15:24 PM



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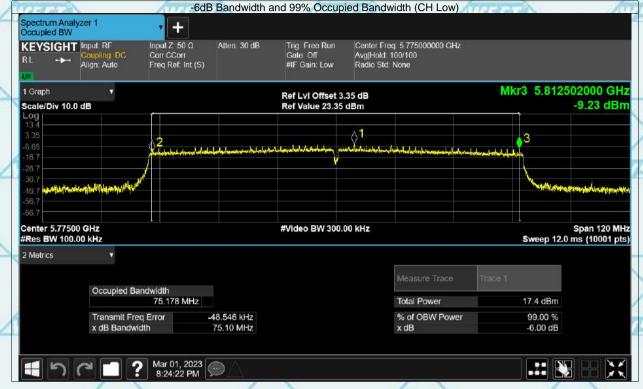
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# 7.6 PEAK POWER

Product	: EUT-Sample	Test Mode	: See section 3.4
Test Item	: Peak Power	Temperature	: 25 °C
Test Voltage	: DC 3.8V	Humidity	: 56%RH
Test Result	: PASS	N.	499

/								
	Band	Channel	Frequency (MHz)	Total Power (dBm)	Limit (dBm)	Verdict	l	
	20MHz(IEEE 802.11a/n/ac)-worst							
	1	Low	5180	11.01	24	Pass	1	
		High	5240	10.78	24	Pass	1	
LA	2	Low	5260	11.08	24	Pass	t	
-	2	High	5320	9.66	24	Pass	1	
	3	Low	5500	10.66	24	Pass	1	
		High	5700	12.45	24	Pass	١	
	1145	Low	5745	11.98	30	Pass	l	
		High	5825	11.39	30	Pass	þ	
1	40MHz(IEEE 802.11n/ac)-worst							
	1	Low	5190	10.96	24	Pass	Ī	
		High	5230	10.65	24	Pass	1	
	2	Low	5270	10.57	24	Pass	1	
		High	5310	9.59	24	Pass	1	
	3	Low	5510	10.29	24	Pass	1	
		High	5670	11.91	24	Pass	þ	
	4	Low	5755	11.69	30	Pass	Ī	
		High	5795	11.24	30	Pass	١	
	80MHz(IEEE 802.11ac)-worst							
	411746	Low	5210	10.35	24	Pass	Ī	
,	2	Low	5290	10	24	Pass	Ī	
	3	Low	5530	10.58	24	Pass		
		High	5610	11.36	24	Pass	1	
1	4	Low	5775	11.21	30	Pass	1	





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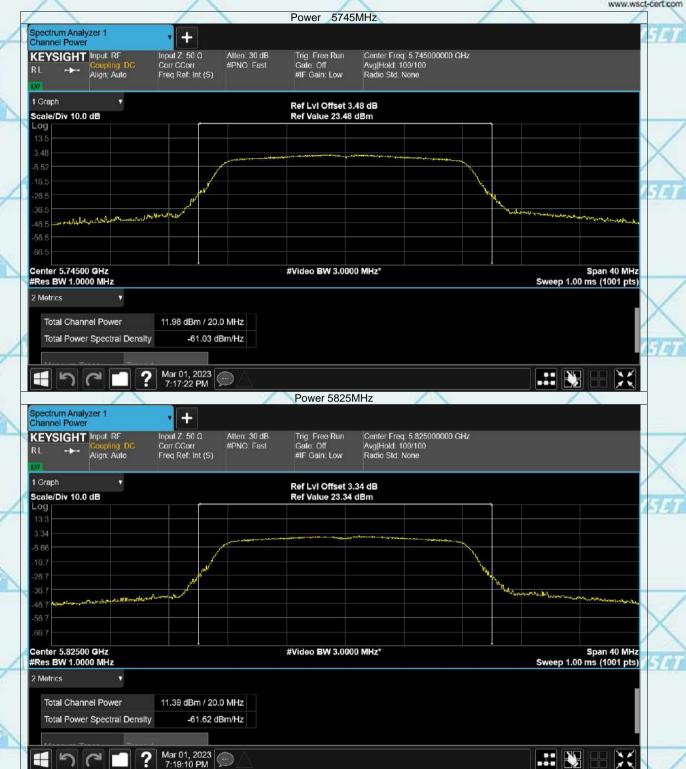




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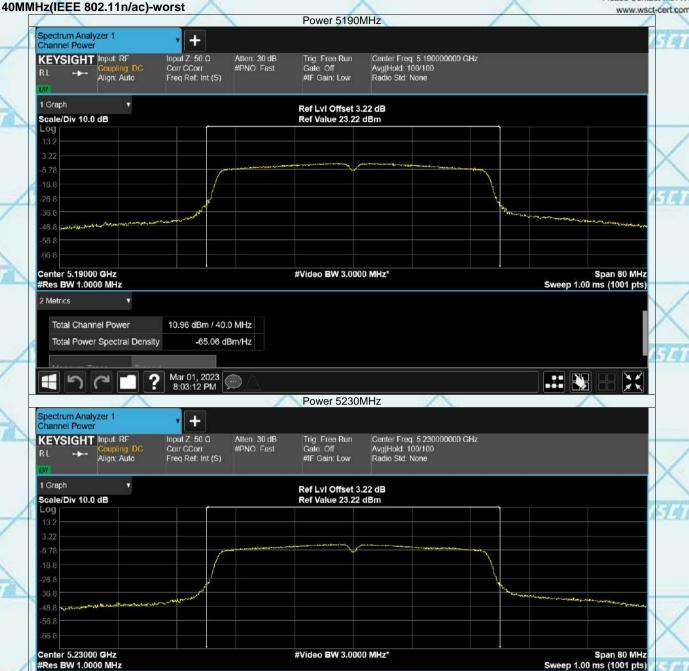




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Total Channel Power

Total Power Spectral Density

10.65 dBm / 40.0 MHz -65.37 dBm/Hz

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Sweep 1.00 ms (1001 pts)









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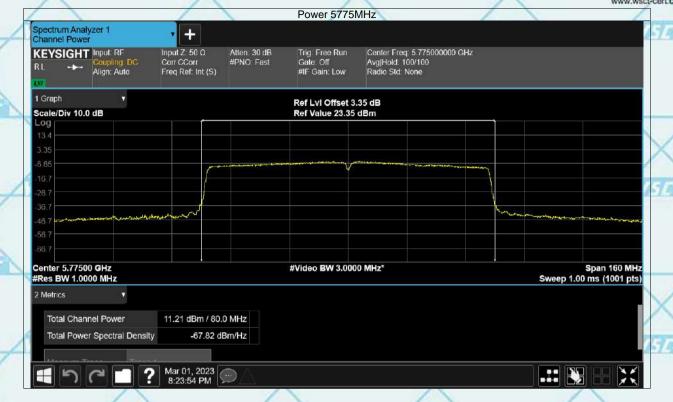
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