

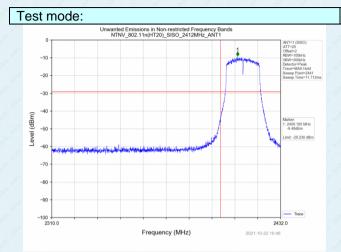
Global United Technology Services Co., Ltd.

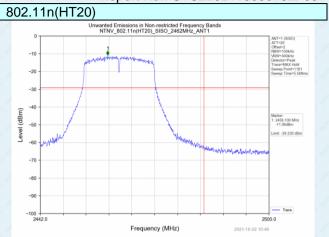
Lowest channel

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Highest channel



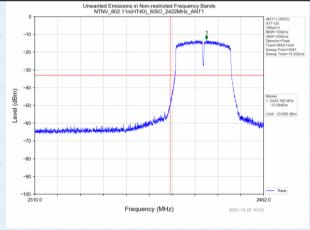




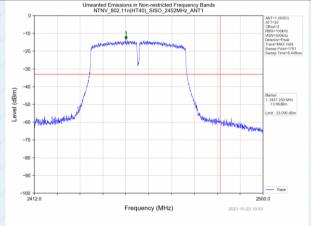
Lowest channel

Highest channel

Test mode:



802.11n(HT40)



Lowest channel

Highest channel



7.6.2 Radiated Emission Method

7.6.2 Radiated Ellission Me		1 1 2 2 2 2	1.45.005					
Test Requirement:	FCC Part15 C S		and 15.205					
Test Method:	ANSI C63.10: 2							
Test Frequency Range:	2500MHz) data	was showed.	ested, only	the worst b	and's (2310MHz to			
Test site:	Measurement D	istance: 3m	2 6 8	1 1 1				
Receiver setup:	Frequency	Detector	RBW	VBW	Value			
	Above 1GHz	Peak	1MHz	3MHz	Peak			
	Above 1912 Average 1MHz 3MHz Average							
Limit:	Freque	ency	Limit (dBuV/	/m @3m)	Value			
	Above 1	GH ₇	54.0	0	Average			
	Above	OFFE	74.0	0	Peak			
	Tum Table	EUT+	Test Antenna-	amplifier _e				
				(A)				
Test Procedure:	the ground a determine the 2. The EUT was antenna, whis tower. 3. The antenna ground to de horizontal an measuremer 4. For each sus and then the and the rotathe maximum 5. The test-recesspecified Ba 6. If the emission the limit specified Ba 6. If the rotathe limit specified Ba 7. The radiation And found the the second specified Ba	t a 3 meter came position of the set 3 meters a ch was mounted theight is varied termine the mand vertical polarist. Spected emission antenna was turned an reading. Silver system was now identified, then testified, then testified, then testified age method as a measurement.	aber. The talk highest race away from the don the top of the from one naximum value zations of the from 0 decreases as to Pear aximum Hole UT in peaking could be also the could be also the from 0 decreases are performing which in the talk of the from the	ole was rotadiation. The interferer of a variable of the field one antenna was arrangehts from 1 regrees to 360 at Detect Fold Mode, mode was stopped and then reported in X, Y t is worse of the interference of the control of the co	r meters above the distrength. Both are set to make the ed to its worst case meter to 4 meters 0 degrees to find function and 10dB lower than and the peak values sions that did not using peak, quasi-			
Test Instruments:	Refer to section		2 2 2	2 1 1				
Test mode:	Refer to section	5.2 for details		8 8 8				
Test results:	Pass							



Measurement data:

Report No.: GTSL202110000182F03

Test mode:	802.11g	Test channel:	Lowest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
2390	66.28	-5.68	60.60	74.00	-13.40	Horizontal	
2390	65.31	-5.68	59.63	74.00	-14.37	Vertical	
			17711	1111	1111		

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Average value:

Frequency (MHz)			Level (dBuV/m) Limit (dBuV		Over Limit (dB)	Polarization	
2390	46.71	-5.68	41.03	54.00	-12.97	Horizontal	
2390	45.88	-5.68	40.20	54.00	-13.80	Vertical	
			1111	1111		1111	

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier.



Test mode:	802.11g	Test channel:	Highest
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Peak value:

Frequency (MHz)			Factor (dB) Level (dBu\//m)		Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
2483.5	66.71	-5.85	60.86	74.00	-13.14	Horizontal		
2483.5	65.49	-5.65	59.84	74.00	-14.16	Vertical		
7777		977		1777		1111		

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Average value:

Frequency (MHz)	Read Level (dBuV/m) Factor (dB) Level (dBuV/m) Limit Line (dBuV/m)			Over Limit (dB)	Polarization		
2483.5	46.21	-5.85	40.36	54.00	-13.64	Horizontal	
2483.5	45.28	-5.65	39.63	54.00	-14.37	Vertical	

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier.

Remarks:

- 1. Antenna 1 and antenna 2 have been tested to show only the worst antenna 1 test data.
- 2. The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.
- 3. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 4. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 5. During the test, pre-scan the 802.11b/802.11g/802.11n (H20)/802.11n (H40) modulation, and found the 802.11g modulation which it is worse case.



7.7 Spurious Emission

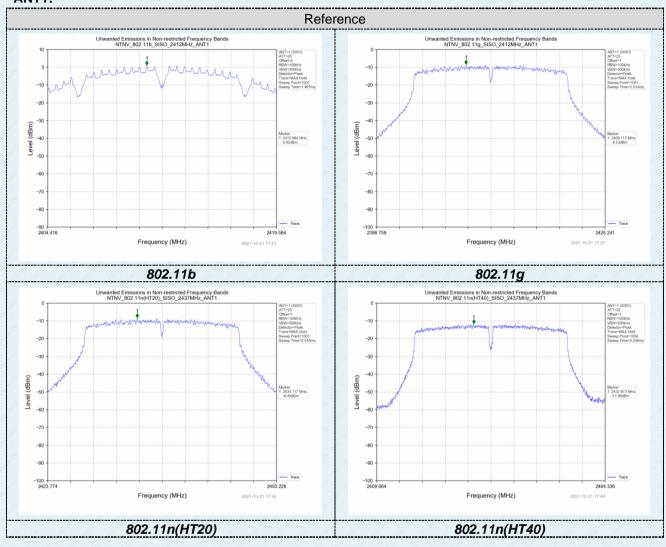
7.7.1 Conducted Emission Method

24 T								
	Test Requirement:	FCC Part15 C Section 15.247 (d)						
	Test Method:	KDB558074 D01 15.247 Meas Guidance v05r02						
	Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.						
	Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane						
2	Test Instruments:	Refer to section 6.0 for details						
	Test mode:	Refer to section 5.2 for details						
	Test results:	Pass						



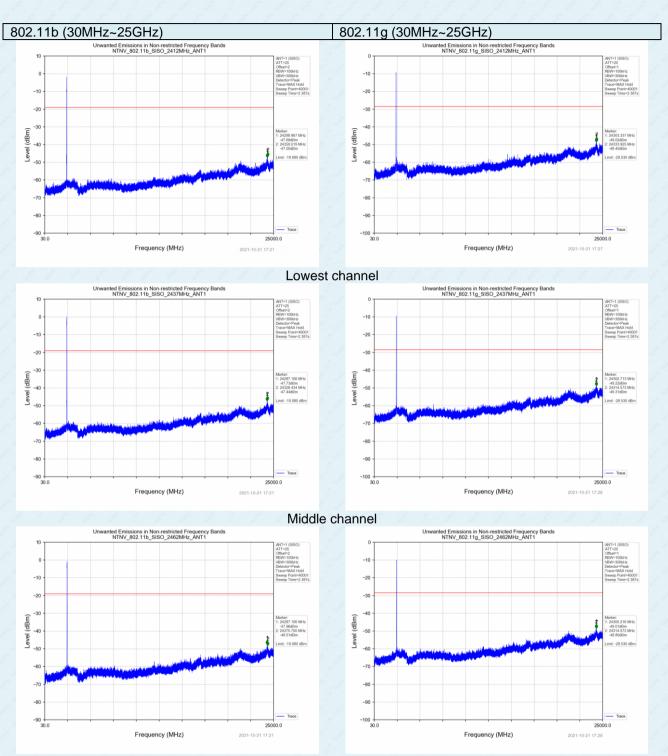
Test plot as follows:

ANT1:



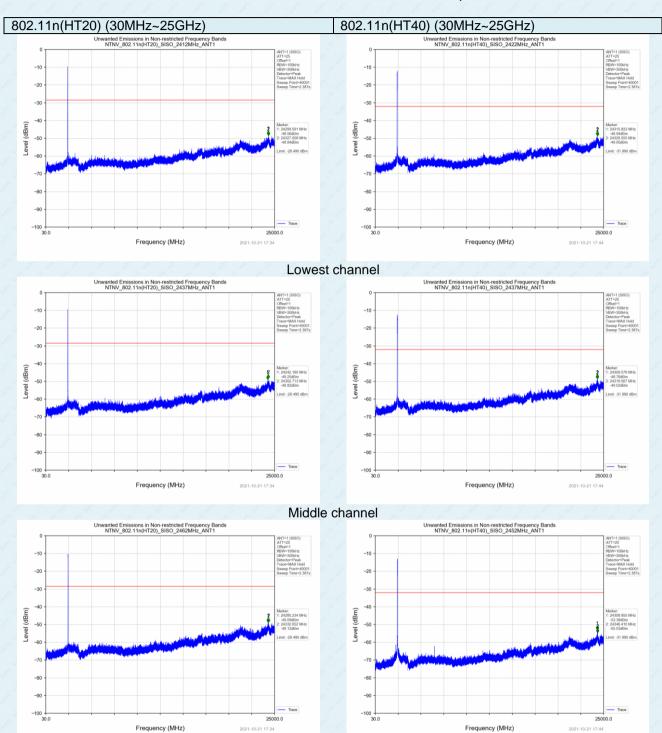
Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102 Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960





Highest channel



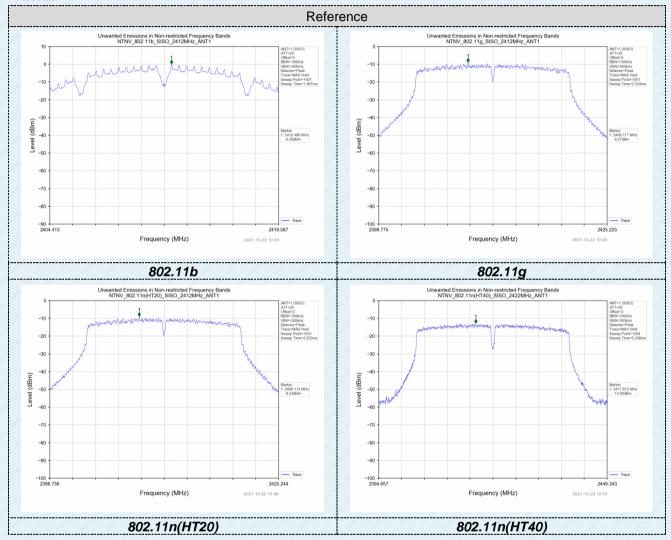


Highest channel

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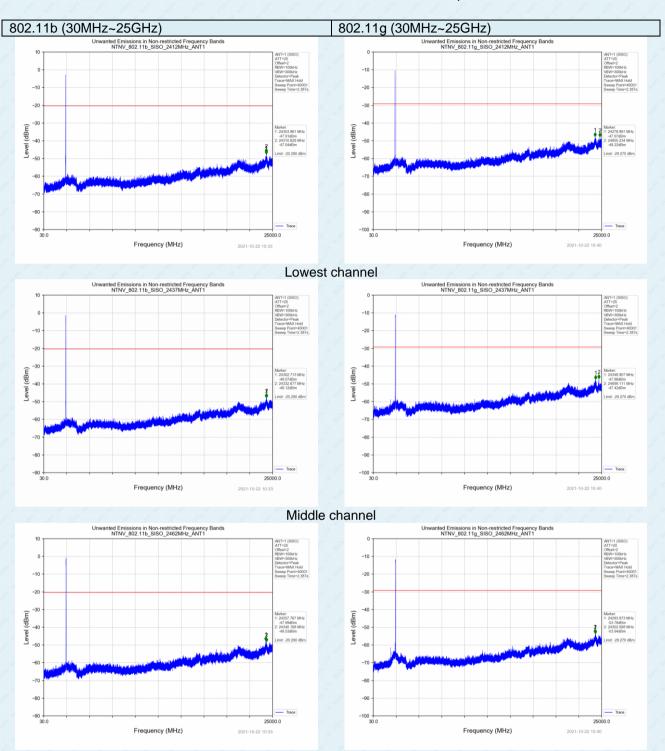


ANT2:



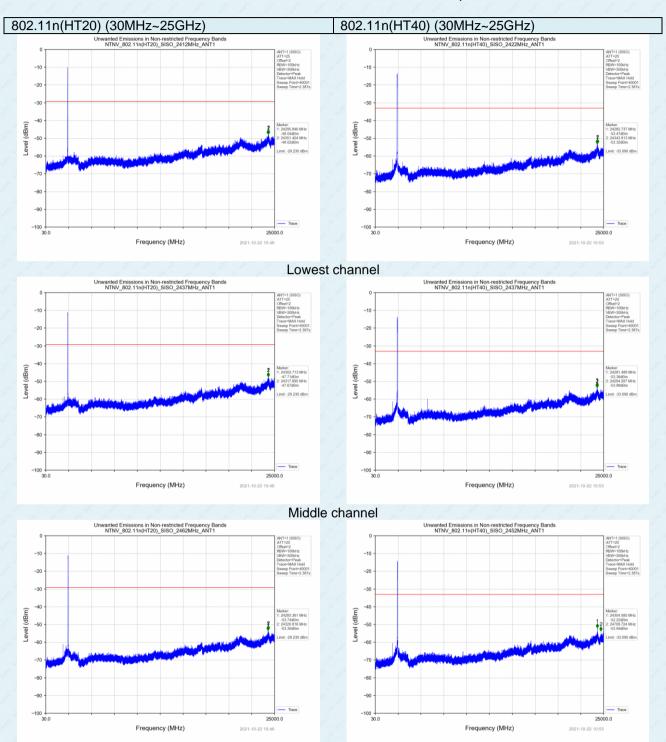
Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102 Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960





Highest channel





Highest channel



7.7.2 Radiated Emission Method

FCC Part15 C Section	on 15.	.209						
ANSI C63.10: 2013	ANSI C63.10: 2013							
9kHz to 25GHz	9kHz to 25GHz							
Measurement Distar	nce: 3	m	5 30					
Frequency	Frequency Dete				VBW	Value	25	
9KHz-150KHz	Qua	asi-peak	200H	Ιz	600Hz	z Quasi-pea	ak	
150KHz-30MHz	Qua	asi-peak	9KH	z	30KH:	z Quasi-pea	ak	
30MHz-1GHz	Qua	asi-peak	100K	Hz	300KH	Iz Quasi-pea	ak	
Above 1CHz	e s	Peak	1MH	lz	3MHz	z Peak	1	
Above IGHZ	e s	Peak	1MH	lz	10Hz	Average		
Frequency		Limit (u\	//m)	٧	alue	Measuremer Distance	nt	
0.009MHz-0.490M	lHz	2400/F(k	(Hz)	2	QP	300m		
0.490MHz-1.705M	lHz	24000/F(I	KHz)	(Hz)		300m	1	
1.705MHz-30MH	1.705MHz-30MHz 30			QP	30m	ř.,		
30MHz-88MHz	5	100 150		QP				
88MHz-216MHz	2			QP				
216MHz-960MH	Z	200	200		QP	3m		
960MHz-1GHz	8	500 A		QP		3m		
Above 1CHz				Av	erage	11111		
Above IGHZ	d'	5000	1 1	F	eak	1 1 1 1	1	
For radiated emiss	sions	from 9kH	z to 30	MH:	Z		4	
< 80cm >			atenna O	11111	1111111111			
	ANSI C63.10: 2013 9kHz to 25GHz Measurement Distar Frequency 9KHz-150KHz 150KHz-30MHz 30MHz-1GHz Above 1GHz Frequency 0.009MHz-0.490M 0.490MHz-1.705M 1.705MHz-30MH 30MHz-88MHz 88MHz-216MHz 216MHz-960MH 960MHz-1GHz Above 1GHz For radiated emiss	ANSI C63.10: 2013 9kHz to 25GHz Measurement Distance: 3 Frequency 9KHz-150KHz Qua 150KHz-30MHz Qua 30MHz-1GHz Qua Above 1GHz Frequency 0.009MHz-0.490MHz 0.490MHz-1.705MHz 1.705MHz-30MHz 30MHz-88MHz 88MHz-216MHz 216MHz-960MHz 960MHz-1GHz Above 1GHz For radiated emissions	9kHz to 25GHz	ANSI C63.10: 2013	ANSI C63.10: 2013 9kHz to 25GHz Measurement Distance: 3m Frequency	ANSI C63.10: 2013 9kHz to 25GHz Measurement Distance: 3m Frequency Detector RBW VBW 9KHz-150KHz Quasi-peak 200Hz 600Hz 150KHz-30MHz Quasi-peak 9KHz 30KHz 30MHz-1GHz Quasi-peak 100KHz 300KHz Above 1GHz Peak 1MHz 10Hz Frequency Limit (uV/m) Value 0.009MHz-0.490MHz 2400/F(KHz) QP 0.490MHz-1.705MHz 24000/F(KHz) QP 1.705MHz-30MHz 30 QP 30MHz-88MHz 100 QP 88MHz-216MHz 150 QP 216MHz-960MHz 200 QP 960MHz-1GHz 500 QP Above 1GHz 500 Average 5000 Peak For radiated emissions from 9kHz to 30MHz	ANSI C63.10: 2013	



Report No.: GTSL202110000182F03 < 3m > Test Antenna < 1m ... 4m > EUT. Tum Table < 80cm Receiver₽ Preamplifier. For radiated emissions above 1GHz Test Antenna < 1m ... 4m > EUT. Tum Table -150cm Receiver Preamplifier-Test Procedure: The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Test Instruments: Refer to section 6.0 for details Test mode: Refer to section 5.2 for details



				Report No.	: GTSL202110	0000182F03		
Test voltage:	AC120V 6	AC120V 60Hz						
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar		
Test voltage:	AC 120V,	60Hz	1 1 1 1		1111			
Test results:	Pass			1 1 1				

Remarks:

- 1. Antenna 1 and antenna 2 have been tested to show only the worst antenna 1 test data.
- 2. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

Measurement data:

■ 9kHz~30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.



■ Below 1GHz

Horizontal:

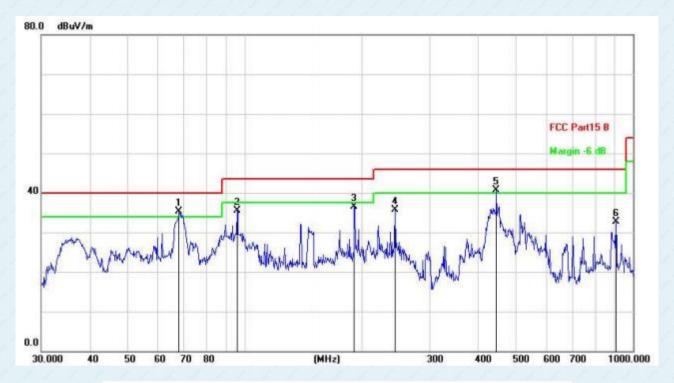


			Reading	Correct	Measure-	Limit	Over	
No.	Mk.	Freq.	Level	Factor	ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		66.9668	49.37	-19.58	29.79	40.00	-10.21	QP
2		146.3735	49.74	-17.93	31.81	43.50	-11.69	QP
3		250.3009	53.38	-19.13	34.25	46.00	-11.75	QP
4		297.2241	54.70	-18.38	36.32	46.00	-9.68	QP
5	*	444.8514	57.31	-16.15	41.16	46.00	-4.84	QP
6		595.1326	46.79	-13.34	33.45	46.00	-12.55	QP

Final Level =Receiver Read level + Correct Factor



Vertical:



	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
-			MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
8	1	*	67.9128	54.89	-19.68	35.21	40.00	-4.79	QP
3	2		95.7622	56.40	-20.85	35.55	43.50	-7.95	QP
ŝ	3		191.7450	56.43	-19.94	36.49	43.50	-7.01	QP
٤	4		244.2321	55.16	-19.51	35.65	46.00	-10.35	QP
è	5	!	444.8514	56.78	-16.15	40.63	46.00	-5.37	QP
<i>z</i>	6		903.3093	42.15	-9.54	32.61	46.00	-13.39	QP

Final Level = Receiver Read level + Correct Factor



■ Above 1GHz

Note: During the test, pre-scan the 802.11b/802.11g/802.11n (H20)/802.11n (H40) modulation of antenna 1 and antenna 2, and found the 802.11b modulation of antenna 1 which it is worse case.

est mode: 802.11b		Test channel:		Lowest	
1 1 1 1	1111	1111	1111		
Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
61.58	-3.67	57.91	74.00	-16.09	Vertical
60.07	-0.90	59.17	74.00	-14.83	Vertical
60.79	-3.67	57.12	74.00	-16.88	Horizontal
59.86	-0.90	58.96	74.00	-15.04	Horizontal
					£ 5
	Read Level (dBuV) 61.58 60.07 60.79	Read Level (dBuV) Factor(dB) 61.58 -3.67 60.07 -0.90 60.79 -3.67 59.86 -0.90	Read Level (dBuV) Factor(dB) Level (dBuV/m) 61.58 -3.67 57.91 60.07 -0.90 59.17 60.79 -3.67 57.12 59.86 -0.90 58.96	Read Level (dBuV) Factor(dB) Level (dBuV/m) Limit Line (dBuV/m) 61.58 -3.67 57.91 74.00 60.07 -0.90 59.17 74.00 60.79 -3.67 57.12 74.00 59.86 -0.90 58.96 74.00	Read Level (dBuV) Factor(dB) Level (dBuV/m) Limit Line (dBuV/m) Over Limit (dB) 61.58 -3.67 57.91 74.00 -16.09 60.07 -0.90 59.17 74.00 -14.83 60.79 -3.67 57.12 74.00 -16.88 59.86 -0.90 58.96 74.00 -15.04

Average value:

Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824	46.77	-3.64	43.13	54.00	-10.87	Vertical
7236	45.94	-0.90	45.04	54.00	-8.96	Vertical
4824	46.08	-3.64	42.44	54.00	-11.56	Horizontal
7236	45.60	-0.90	44.70	54.00	-9.30	Horizontal
		7,4/				
		1 1 <u>-</u> 1 1		11-11		

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "*", means this data is the too weak instrument of signal is unable to test.



Test mode: 802.11b Test channel: Middle	
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Peak value:

Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874	61.38	-3.53	57.85	74.00	-16.15	Vertical
7311	60.77	-0.85	59.92	74.00	-14.08	Vertical
4874	61.16	-3.53	57.63	74.00	-16.37	Horizontal
7311	60.40	-0.85	59.55	74.00	-14.45	Horizontal
	11-1	11-11	11-11	11 <u>-</u> 11	11-1-11	<u> </u>
	111-11	1 / <u>-</u> / /	1 1 <u>-</u> 1 1	11-11	111-11	1/ 4/ /

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Average value:

Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874	46.77	-3.53	43.24	54.00	-10.76	Vertical
7311	45.82	-0.85	44.97	54.00	-9.03	Vertical
4874	46.21	-3.53	42.68	54.00	-11.32	Horizontal
7311	45.44	-0.85	44.59	54.00	-9.41	Horizontal
	1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 / <u>-</u> 1 / 1		1 1 <u>-</u> 1 1		/ = /
<u> </u>	<u> </u>		1 1 <u>1</u> 1 1		1 1 <u>-</u> 1 1	1 <u></u> 1

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier.

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "*", means this data is the too weak instrument of signal is unable to test.



Peak value:

Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924	61.28	-3.49	57.79	74.00	-16.21	Vertical
7386	60.21	-0.78	59.43	74.00	-14.57	Vertical
4924	61.07	-3.49	57.58	74.00	-16.42	Horizontal
7386	60.12	-0.78	59.34	74.00	-14.66	Horizontal
	11-	11-	11-11	11 <u>-</u> 17	11-1-11	1 <u>-</u>
	1121	1111	/ / / /	11-11	/ / <u>-</u> / /	11 11

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Average value:

Frequency (MHz)	Read Level (dBuV)	Factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924	46.53	-3.49	43.04	54.00	-10.96	Vertical
7386	45.55	-0.78	44.77	54.00	-9.23	Vertical
4924	46.21	-3.49	42.72	54.00	-11.28	Horizontal
7386	45.11	-0.78	44.33	54.00	-9.67	Horizontal
<u> </u>		1 / <u>-</u> 1 / 1		1 1 <u>-</u> 1 1	1 1 - 1 1	1-1
12/	(<u>, </u>	1 2 /	1 1 <u>1</u> 1 1		11-27	2 <u></u> 2

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier.

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. "*", means this data is the too weak instrument of signal is unable to test.



8 Test Setup Photo

Reference to the appendix I for details.

9 EUT Constructional Details

Reference to the appendix II for details.

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