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802.11b High CH



802.11g low CH





FCS

802.11g high CH



802.11n20 Low CH





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802.11n20 High CH

	ght Spec		nalyzer - Swept SA								
RL		RF	50 Ω AC		S	ENSE:PULSE		ALIGN AUTO	: Log-Pwr	04:0	8:17 PM Nov 28, 202 TRACE 1 2 3 4 5
ente	er⊦n	eq 2	.4710000		PNO: Fast FGain:Low	⊃ Trig: Fr #Atten:		Avg Type	: Log-Pwr		TYPE M WWWW DET P P P P P
0 dB/	div		Offset 0.5 dB 4.62 dBm	i.					្រា		5.380 dBn
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5.4						-	1				-25.38 dE
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5.4 -	Long	handling	Monoral				A .M.	In white and me	matum	and manufactures and the second	mannan
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5.4 —				8						<u>5</u>	
L	2.442	200 0	SHz	8						Stop	2.50000 GH
tart	2.442 BW 1				#VE	300 ki			Swe		
tart Res		100 k	(Hz	x	Y				Swe		ms (1001 pt
tart Res RBM0	BW 1	100 k 9 591	(Hz 2	.462 126 GHz	Y -5.38	0 dBm		FUNCTION WIDTH	Swe	ep 5.600	ms (1001 pt
tart Res Res 1 N 2 N 3 N	BW 1	100 k f f f	(Hz 2 2 2 2	.462 126 GHz .483 528 GHz .487 878 GHz	-5.38 -51.48 -50.28	0 dBm 7 dBm 8 dBm		UNCTION WIDTH	Swe	ep 5.600	ms (1001 pt
tart Res 1 N 2 N 3 N 4 N	BW 1	100 k Set f f	(Hz 2 2 2 2	.462 126 GHz .483 528 GHz	-5.38 -51.48 -50.28	0 dBm 7 dBm 8 dBm			Swe	ep 5.600	ms (1001 pt
tart Res 1 N 2 N 3 N 5 6	BW 1	100 k f f f	(Hz 2 2 2 2	.462 126 GHz .483 528 GHz .487 878 GHz	-5.38 -51.48 -50.28	0 dBm 7 dBm 8 dBm		FUNCTION WIDTH	Swe	ep 5.600	ms (1001 pt
tart Res 1 N 2 N 3 N 4 N 5 6 7	BW 1	100 k f f f	(Hz 2 2 2 2	.462 126 GHz .483 528 GHz .487 878 GHz	-5.38 -51.48 -50.28	0 dBm 7 dBm 8 dBm		FUNCTION WIDTH	Swe	ep 5.600	ms (1001 pt
tart Res 1 N 2 N 3 N 4 N 5 6 7 8 9	BW 1	100 k f f f	(Hz 2 2 2 2	.462 126 GHz .483 528 GHz .487 878 GHz	-5.38 -51.48 -50.28	0 dBm 7 dBm 8 dBm		UNCTION WIDTH	Swe	ep 5.600	ms (1001 pt
tart Res 1 N 2 N 3 N 4 N 5 6 7 8 9 0	BW DDE TRO N 1 N 1 N 1	100 k f f f	(Hz 2 2 2 2	.462 126 GHz .483 528 GHz .487 878 GHz	-5.38 -51.48 -50.28	0 dBm 7 dBm 8 dBm			Swe	ep 5.600	ms (1001 pt
Res KRMC 1 N 2 N 3 N	BW DDE TRO N 1 N 1 N 1	100 k f f f	(Hz 2 2 2 2	.462 126 GHz .483 528 GHz .487 878 GHz	-5.38 -51.48 -50.28	0 dBm 7 dBm 8 dBm			Swe	ep 5.600	2.50000 GH ns (1001 pts



6.6 Spurious emissions

(802.11b) Lowest channel

Keysight S	pectrur	n Analyzer - Swept S	A						
RL			AC CORREC	SENSE:PUL	SE	ALIGN AUTO		04:12:3	5 PM Nov 28, 20
enter F	rec	12.515000	PN		g: Free Run ten: 30 dB	Avg Type:	Log-Pwr		RACE 1 2 3 4 TYPE MWWW DET P P P P
dB/div		ef Offset 0.5 dl ef0.42 dBr						Mkr1 2.4 -10.	05 9 GH 419 dB
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4									
			5						-24.69 0
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4									
4		2							
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art 0.0 es BW				#VBW 30	0 kHz		Swee	Stop p 2.387 s	25.00 GI (40001 p
MODE	TRC S	CL	X	Y	FUNCTION	FUNCTION WIDTH	50	JNCTION VALUE	
N		f	2.405 9 GHz 3.266 7 GHz	-10.419 dBm -52.944 dBm					
N	1	f	5.718 8 GHz	-52.949 dBm					
N	1	f	24.411 3 GHz	-41.022 dBm					
					ш				

30MHz-25GHz

802.11b Middle CH, 2437MHz

		Spect		nalyzer - Swept							
	(L		RF	50 Ω	AC CORREC	SE	INSE:PULSE	ALIGN AUTO	e: Log-Pwr		PM Nov 28, 2022
Cer	nter	Fre	ed 1	2.51500	00000 GHz	PNO: Fast IFGain:Low	Trig: Free Run #Atten: 30 dB	Avgiyp	e. Log-rwi		TYPE M WWWWW DET P P P P P P
	IB/div			Offset 0.5 (-0.60 dB							37 7 GHz .596 dBm
Log -10.6				1			Y I				
-20.8										2	-23.49 dBm
-30.6	-										1
-40.8				2					dest taket setting		
-50.8		. In	-	V.		In Inducedure					
-80.6	-			a di se	2						
-80.8			0		~					~	
-90.8	; <u> </u>		-		0		C 9.			8	
			GHz I 00 k	Hz		#VB	W 300 kHz		Swe	Stop ep 2.387 s	25.00 GHz (40001 pts)
MKR	MODE	TRC			Х	Y	FUNCTION	N FUNCTION WIDTH		FUNCTION VALUE	
1 2 3	N N	1 1 1	f f f		2.437 7 GH 3.248 0 GH 5.973 5 GH	z -54.141 z -53.305	dBm dBm				
4	N	1	f		24.713 5 GH	z -40.457	dBm				E
67											
8 9 10											
11							m				
< l		_					m	STATUS			•



802.11b High CH, 2462MHz 30MHz-25GHz



802.11g Low CH, 2412MHz 30MHz-25GHz

	ight Sp	pectrur	n Analyze		SA													
RL						ORREC		SEN	SE:PULSE				AUTO			01		Nov 28, 202
ente	er F	rec	12.5	1500	0000		PNO: Fast FGain:Low	Ģ		Free Ru n: 36 dE			Avg Ty	be: Log-Pv	vr		TYP	E 1 2 3 4 5 E M WWWA T P P P P P
) dBi	/div		ef Offse ef -3.6												1	Mkr1	2.419 13.67	6 GH 2 dBr
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.7 -								2										
7 -					<u> </u>											<u>.</u>		
	0.03 BW		iz 0 kHz				;	#VBV	V 300	kHz					Swee			5.00 Gł 0001 pi
	DDE T				х		I	Y		FUNCTI	ON	FUNCTIO	N WIDTH		FL	INCTION V	ALUE	
	N	1	F		3.17	9 6 GHz 3 7 GHz	-47	3.672 c	Bm									
		1				2 5 GHz 0 9 GHz		6.904 c 3.665 c										
5																		
-										11								



802.11g Middle CH, 2437MHz 30MHz-25GHz



802.11g High CH, 2462MHz 30MHz-25GHz

	t Spect		nalyzer - Swept SA							
RL		RF	50 Ω AC COR		SENSE:PULSE		ALIGN AUTO			5 PM Nov 28, 20
enter	Fre	eq 1	2.515000000 G		Trig: Fre	Run	Avg Type	: Log-Pwr		RACE 1 2 3 4
				PNO: Fast IFGain:Low	#Atten:					DETPPP
				il Gameon					141 4 0 4	
		Ref	Offset 0.5 dB						Mkr1 2.4	
dB/di			-0.97 dBm						-10	970 dB
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art O	.03 (GHz								25.00 G
es B	SW 1	00 I	Hz	#V	/BW 300 kH	z		Swe	eep 2.387 s	(40001 p
MOD	E TRC	I SCLI	×	Y	-	JNCTION	FUNCTION WIDTH		FUNCTION VALUE	
N	1	f	2.465 8		70 dBm					
N	1	f	2.787 3	GHz -48.1	65 dBm					
N	1	f	5.586 4 24.644 2		33 dBm 72 dBm					
N	14		24.044 2	-34.0						
	_									
					m					•



802.11n 20 Low CH, 2412MHz 30MHz-25GHz

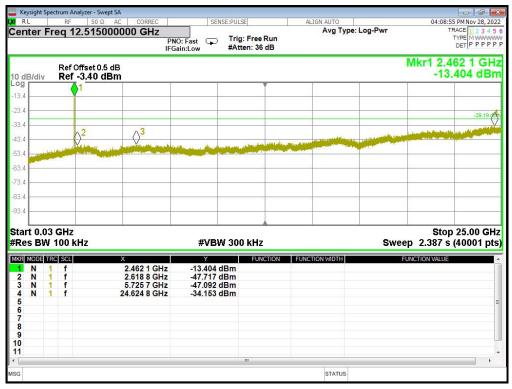


802.11n 20 Middle CH, 2437MHz 30MHz-25GHz

	t Spect		alyzer - Swept S							
RL		RF		C CORREC	SEN	ISE:PULSE	ALIGN AUTO			53 PM Nov 28, 20
enter	r Fre	eq 1:	2.515000	DOOD GHZ	NO: Fast 🖵 Gain:Low	Trig: Free Run #Atten: 36 dB	Avg Type	: Log-Pwr	13	TYPE MWWW DET P P P P
dB/di			offset 0.5 dB -1.29 dBn						Mkr1 2.4 -11	40 2 GH .292 dB
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art 0 es B			Hz	- L	#VB\	N 300 kHz		Swe	Stop eep 2.387 s	o 25.00 G (40001 p
R MOD	E TRC	SCL		X 2.440 2 GHz	-11.292		FUNCTION WIDTH		FUNCTION VALUE	
NNN	1 1 1	f f f		2.635 0 GHz 5.739 4 GHz 24.971 3 GHz	-46.964 -46.540 -34.650	dBm dBm				
		-				m				



802.11n 20 High CH, 2462MHz 30MHz-25GHz



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7 RADIATED EMISSION MEASUREMENT

7.1 RADIATED EMISSION LIMITS

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205(a)&209(a) limit in the table and according to ANSI C63.10-2013 below has to be followed

LIMITS OF RADIATED EMISSION MEASUREMENT (0.009MHz - 1000MHz)

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	200	3		
Above 960	500	3		

LIMITS OF RADIATED EMISSION MEASUREMENT (1GHz-25 GHz)

FREQUENCY (MHz)	(dBuV/m) (at 3M)				
	PEAK	AVERAGE			
Above 1000	74	54			

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).

For Radiated Emission

Spectrum Parameter	Setting		
Attenuation	Auto		
Detector	Peak/AV		
Start Frequency	1000 MHz(Peak/AV)		
Stop Frequency	10th carrier hamonic(Peak/AV)		
RB / VB (emission in restricted			
band)	PK=1MHz / 1MHz, AV=1 MHz /10 Hz		

For Band edge

Spectrum Parameter	Setting			
Detector	Peak/AV			
Stort/Stop Frequency	Lower Band Edge: 2300 to 2403 MHz			
Start/Stop Frequency	Upper Band Edge: 2479 to 2500 MHz			
RB / VB (emission in restricted band)	PK=1MHz / 1MHz, AV=1 MHz / 10 Hz			



Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

7.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz,and above 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment shall be 0.8 m(above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. 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 QuasiPeak 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:

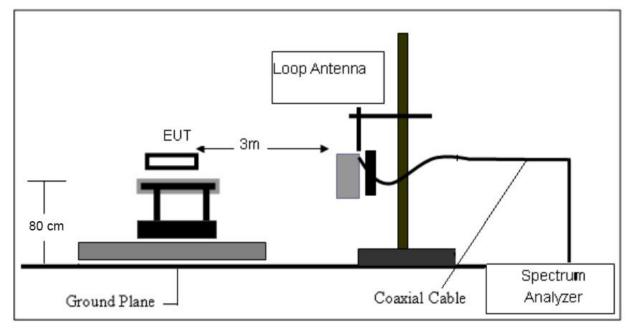
Both horizontal and vertical antenna polarities were tested

and performed pretest to three orthogonal axis. The worst case emissions were reported

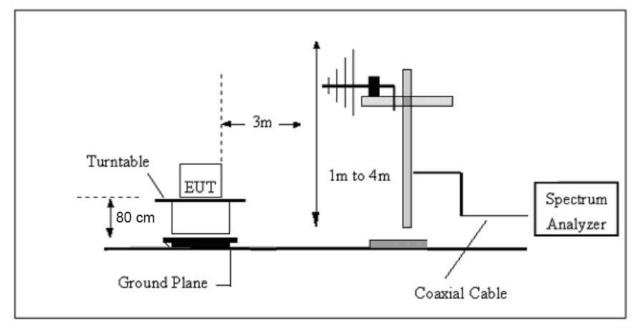


7.3 TESTSETUP

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

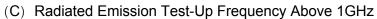


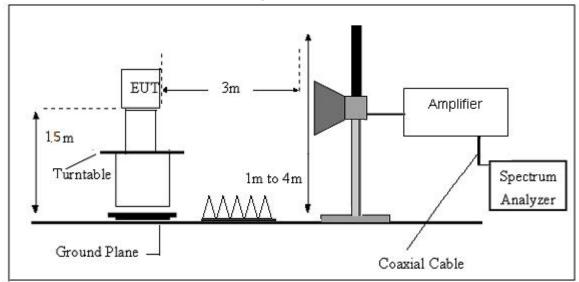
(B) Radiated Emission Test-Up Frequency 30MHz~1GHz





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7.4. TEST RESULTS

(9KHz-30MHz)

Temperature:	22.7°C	Relative Humidity:	61%
Test Voltage:	DC 3.7V	Test Mode:	802.11b

Freq.	Reading	Limit	Margin	State	Test Result	
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F	restresult	
					PASS	
					PASS	

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

Limit line = specific limits (dBuv) + distance extrapolation factor.



(30MHz-1000MHz)

		1				T		
Гетре	erature:	24.7°C		Relative	Humidity:	61%		
Fest V	/oltage:	DC 3.7V		Phase:		Horizontal		
Fest M	/lode:	802.11b(wo	rst)					
80.0	dBuV							
70								
io			8	-				
io 🔔						FCC_PART15	_B_03m_QP	
		r			*	5	× i	
		ſ	ž	Mundeline Al		M.		
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:0 •• ••••• •	mun ume wall	. Martin	MM Marine Marine					
	must ment the	they way and the man						
10								
20 30.00	0	60.00	[(MHz)	300.00		1000.00	
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark	
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
1	74.9191	54.95	-32.25	22.70	40.00	- 17.30	QP	
2	135.0318	65.61	-32.26	33.35	43.50	- 10.15	QP	
3	222.9502	74.41	-32.18	42.23	46.00	-3.77	QP	
4	297.2240	73.34	-32.10	41.24	46.00	-4.76	QP	
5	446.4140	70.12	-31.95	38. 17	46.00	-7.83	QP	
	705 000 (74.04	04.50	40.70	40.00	0.00		

Note: 1. Margin = Result (Result = Reading + Factor)-Limit

74.24

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

-31.52

46.00

42.72

-3.28

QP

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

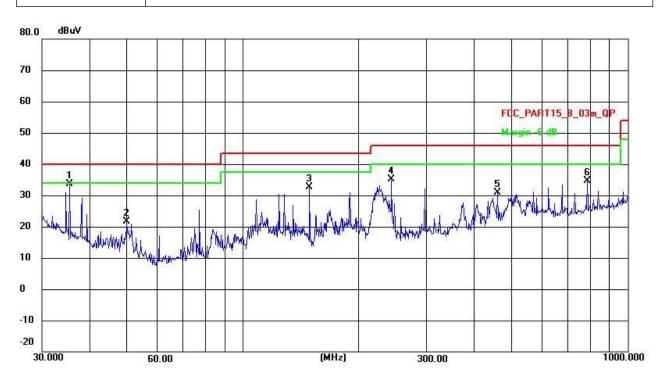
Flux Compliance Service Laboratory

785.0934

6



Temperature:	22.7°C	Relative Humidity:	61%
Test Voltage:	DC 5V	Phase:	Vertical
Test Mode:	802.11b(worst)		



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	35.3750	44.57	- 10.85	33.72	40.00	-6.28	QP
2	49.8813	39.56	- 17.85	21.71	40.00	- 18.29	QP
3	148.9624	64.90	-32.25	32.65	43.50	- 10.85	QP
4	243.3771	67.37	-32.16	35.21	46.00	- 10.79	QP
5	459.1143	62.76	-31.94	30.82	46.00	- 15.18	QP
6	785.0933	66. 12	-31.52	34.60	46.00	- 1 1.40	QP

Note: 1. Margin = Result (Result = Reading + Factor)-Limit

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.



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(1GHz~25GHz) Restricted band and Spurious emission Requirements

Peak value:			002.					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	37.73	31.85	8.66	32.12	46.12	74.00	-27.88	Vertical
7311.00	33.26	36.37	11.71	31.91	49.43	74.00	-24.57	Vertical
9748.00	33.00	38.27	14.25	31.56	53.96	74.00	-20.04	Vertical
12185.00	*					74.00		Vertical
14622.00	*					74.00		Vertical
17059.00	*					74.00		Vertical
4874.00	38.46	31.85	8.66	32.12	46.85	74.00	-27.15	Horizontal
7311.00	32.03	36.37	11.71	31.91	48.20	74.00	-25.80	Horizontal
9748.00	32.95	38.27	14.25	31.56	53.91	74.00	-20.09	Horizontal
12185.00	*					74.00		Horizontal
14622.00	*					74.00		Horizontal
17059.00	*					74.00		Horizontal

802.11b(Worst)-Low

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4874.00	28.71	31.85	8.66	32.12	37.10	54.00	-16.90	Vertical
7311.00	21.61	36.37	11.71	31.91	37.78	54.00	-16,22	Vertical
9748.00	22.28	38.27	14.25	31.56	43.24	54.00	-10.76	Vertical
12185.00	*					54.00		Vertical
14622.00	*					54.00		Vertical
17059.00	*					54.00		Vertical
4874.00	28.66	31.85	8.66	32.12	37.05	54.00	-16.95	Horizontal
7311.00	21.15	36.37	11.71	31.91	37.32	54.00	-16.68	Horizontal
9748.00	22.68	38.27	14.25	31.56	43.64	54.00	-10.36	Horizontal
12185.00	*					54.00		Horizontal
14622.00	*					54.00		Horizontal
17059.00	*					54.00		Horizontal

Notes:

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:

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i oun vuido.								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	42.08	31.90	8.70	32.15	50.53	74.00	-23.47	Vertical
7386.00	33.20	36.49	11.76	31.83	49.62	74.00	-24.38	Vertical
9848.00	35.76	38.62	14.31	31.77	56.92	74.00	-17.08	Vertical
12310.00	*					74.00		Vertical
14772.00	*					74.00		Vertical
17234.00	*					74.00		Vertical
4924.00	41.82	31.90	8.70	32.15	50.27	74.00	-23.73	Horizontal
7386.00	32.32	36.49	11.76	31.83	48.74	74.00	-25.26	Horizontal
9848.00	32.03	38.62	14.31	31.77	53.19	74.00	-20.81	Horizontal
12310.00	*					74.00		Horizontal
14772.00	*					74.00		Horizontal
17234.00	*					74.00		Horizontal
Average val Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4924.00	33.22	31.90	8.70	32.15	41.67	54.00	-12.33	Vertical
7386.00	23.17	36.49	11.76	31.83	39.59	54.00	-14.41	Vertical
9848.00	24.32	38.62	14.31	31.77	45.48	54.00	-8.52	Vertical
12310.00	*		- 	2		54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	32.33	31.90	8.70	32.15	40.78	54.00	-13.22	Horizontal
7386.00	21.76	36.49	11.76	31.83	38.18	54.00	-15.82	Horizontal
9848.00	21.33	38.62	14.31	31.77	42.49	54.00	-11.51	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal

54.00

Horizontal

802.11b(Worst)-Middle

Notes:

17234.00

*

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.



P	ac	e	48	of	5	6

802.11b(W	/orst)-High
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Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
4824.00	37.50	31.79	8.62	32.10	45.81	74.00	-28.19	Vertical
7236.00	32.45	36.19	11.68	31.97	48.35	74.00	-25.65	Vertical
9648.00	31.45	38.07	14.16	31.56	52.12	74.00	-21.88	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	36.60	31.79	8.62	32.10	44.91	74.00	-29.09	Horizontal
7236.00	32.42	36.19	11.68	31.97	48.32	74.00	-25.68	Horizontal
9648.00	31.13	38.07	14.16	31.56	51.80	74.00	-22.20	Horizontal
12060.00	*					74.00		Horizontal
14472.00	*		2			74.00		Horizontal
16884.00	*	8	8			74.00	0	Horizontal
Frequency (MHz)	Read Level (dBuV)	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	
4824.00		(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	· · · · · · · · · · · · · · · · · · ·	polarization
4024.00	26.80	(dB/m) 31.79	(dB) 8.62	(dB) 32 . 10	(dBuV/m) 35.11	(dBuV/m) 54.00	(dB) -18.89	Vertical
7236.00			2 Secondard	1 1			(dB)	•••••
	26.80	31.79	8.62	32.10	35.11	54.00	(dB) -18.89	Vertical
7236.00	26.80 21.38	31.79 36.19	8.62 11.68	32.10 31.97	35.11 37.28	54.00 54.00	(dB) -18.89 -16.72	Vertical Vertical
7236.00 9648.00	26.80 21.38 21.85	31.79 36.19	8.62 11.68	32.10 31.97	35.11 37.28	54.00 54.00 54.00	(dB) -18.89 -16.72	Vertical Vertical Vertical
7236.00 9648.00 12060.00	26.80 21.38 21.85 *	31.79 36.19	8.62 11.68	32.10 31.97	35.11 37.28	54.00 54.00 54.00 54.00	(dB) -18.89 -16.72	Vertical Vertical Vertical Vertical
7236.00 9648.00 12060.00 14472.00	26.80 21.38 21.85 * *	31.79 36.19	8.62 11.68	32.10 31.97	35.11 37.28	54.00 54.00 54.00 54.00 54.00	(dB) -18.89 -16.72	Vertical Vertical Vertical Vertical Vertical Vertica
7236.00 9648.00 12060.00 14472.00 16884.00	26.80 21.38 21.85 * *	31.79 36.19 38.07	8.62 11.68 14.16	32.10 31.97 31.56	35.11 37.28 42.52	54.00 54.00 54.00 54.00 54.00 54.00	(dB) -18.89 -16.72 -11.48	Vertical Vertical Vertical Vertical
7236.00 9648.00 12060.00 14472.00 16884.00 4824.00	26.80 21.38 21.85 * * * 26.29	31.79 36.19 38.07 31.79	8.62 11.68 14.16 8.62	32.10 31.97 31.56 32.10	35.11 37.28 42.52 34.60	54.00 54.00 54.00 54.00 54.00 54.00 54.00	(dB) -18.89 -16.72 -11.48 -19.40	Vertical Vertical Vertical Vertical Vertical Vertica Horizontal
7236.00 9648.00 12060.00 14472.00 16884.00 4824.00 7236.00	26.80 21.38 21.85 * * * 26.29 21.05	31.79 36.19 38.07 31.79 36.19	8.62 11.68 14.16 8.62 11.68	32.10 31.97 31.56 32.10 31.97	35.11 37.28 42.52 34.60 36.95	54.00 54.00 54.00 54.00 54.00 54.00 54.00 54.00	(dB) -18.89 -16.72 -11.48 -11.48 -11.48 -19.40 -17.05	Vertical Vertical Vertical Vertical Vertical Vertica Horizontal Horizontal Horizontal
7236.00 9648.00 12060.00 14472.00 16884.00 4824.00 7236.00 9648.00	26.80 21.38 21.85 * * 26.29 21.05 20.92	31.79 36.19 38.07 31.79 36.19	8.62 11.68 14.16 8.62 11.68	32.10 31.97 31.56 32.10 31.97	35.11 37.28 42.52 34.60 36.95	54.00 54.00 54.00 54.00 54.00 54.00 54.00 54.00 54.00	(dB) -18.89 -16.72 -11.48 -11.48 -11.48 -19.40 -17.05	Vertical Vertical Vertical Vertical Vertical Vertica Horizontal Horizontal

Notes:

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.



802.11 b low CH

Peak value:

Frequency (MHz)	Read Leve l (dBuV)	Antenna Factor (dB/m)	Cab l e Loss (dB)	Preamp Factor (dB)	Leve l (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	48.89	27.59	5.38	34.01	47.85	74.00	-26.15	Horizontal
2400.00	54.73	27.58	5.39	34.01	53.69	74.00	-20.31	Horizontal
2390.00	47.76	27.59	5.38	34.01	46.72	74.00	-27.28	Vertical
2400.00	51.59	27.58	5.39	34.01	50.55	74.00	-23.45	Vertical

Average value:

Frequency (MHz)	Read Leve l (dBuV)	Antenna Factor (dB/m)	Cab l e Loss (dB)	Preamp Factor (dB)	Leve l (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2390.00	37.90	27.59	5.38	34.01	36.86	54.00	-17.14	Horizontal
2400.00	43.82	27.58	5.39	34.01	42.78	54.00	-11.22	Horizontal
2390.00	36.12	27.59	5.38	34.01	35.08	54.00	-18.92	Vertical
2400.00	40.68	27.58	5.39	34.01	39.64	54.00	-14.36	Vertical

802.11 b High CH

Peak value:

Frequency (MHz)	Read Leve l (dBuV)	Antenna Factor (dB/m)	Cab l e Loss (dB)	Preamp Factor (dB)	Leve l (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	48.23	27.53	5.47	33.92	47.31	74.00	-26.69	Horizontal
2500.00	45.87	27.55	5.49	29.93	48.98	74.00	-25.02	Horizontal
2483.50	47.68	27.53	5.47	33.92	46.76	74.00	- 27.24	Vertical
2500.00	44.05	27.55	5.49	29.93	47.16	74.00	-26.84	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Leve l (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	37.14	27.53	5.47	33.92	36.22	54.00	- 17.78	Horizontal
2500.00	34.14	27.55	5.49	29.93	37.25	54.00	-16.75	Horizontal
2483.50	35.29	27.53	5.47	33.92	34.37	54.00	-19.63	Vertical
2500.00	32.40	27.55	5.49	29.93	35.51	54.00	-18.49	Vertical



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802.11 g Low CH

Peak value:		1 / 1 245					and a state of the state	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	40.97	27.61	5.38	34.01	39.95	74.00	-34.05	Horizontal
2400.00	54.47	27.59	5.40	34.01	53,45	74.00	-20.55	Horizontal
2310.00	41.34	27.61	5.38	34.01	40.32	74.00	-33.68	Vertical
2400.00	57.09	27.59	5.40	34.01	56.07	74.00	-17.93	Vertical
Average va	ue:							
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	33.52	27.61	5.38	34.01	32.50	54.00	-21.50	Horizontal
2400.00	39.87	27.59	5.40	34.01	38.85	54.00	-15.15	Horizontal
2310.00	34.26	27.61	5.38	34.01	33.24	54.00	-20.76	Vertical
2400.00	41.79	27.59	5.40	34.01	40.77	54.00	-13.23	Vertical
02.11 g Hig	h CH	x x - 1999		÷		r. r.		**
Peak value:								
Frequency (MHz)	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Polarizatior

Frequency (MHz)	Level (dBuV)	Factor (dB/m)	Loss (dB)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Limit (dB)	Polarization
2483.50	54.32	27.53	5.47	33.92	53.40	74.00	-20.60	Horizontal
2500.00	49.69	27.55	5.49	29.93	52.80	74.00	-21.20	Horizontal
2483.50	56.86	27.53	5.47	33.92	55.94	74.00	-18.06	Vertical
2500.00	52.47	27.55	5.49	29.93	55.58	74.00	-18.42	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	39.99	27.53	5.47	33.92	39.07	54.00	-14.93	Horizontal
2500.00	35.82	27.55	5.49	29.93	38.93	54.00	-15.07	Horizontal
2483.50	42.06	27.53	5.47	33.92	41.14	54.00	-12.86	Vertical
2500.00	37.76	27.55	5.49	29.93	40.87	54.00	-13.13	Vertical

Notes:

1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

2. The emission levels of other frequencies are very lower than the limit and not show in test report.



802.11 N 20 Low CH

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2310.00	39.67	27.61	5.38	34.01	38.65	74.00	-35.35	Horizontal
2400.00	52.75	27.59	5.40	34.01	51.73	74.00	-22.27	Horizontal
2310.00	39.96	27.61	5.38	34.01	38.94	74.00	-35.06	Vertical
2400.00	55.02	27.59	5.40	34.01	54.00	74.00	-20.00	Vertical
Average va	lue:							
Frequency	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Polarization

(MHz)	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Polarization
2310.00	32.60	27.61	5.38	34.01	31.58	54.00	-22.42	Horizontal
2400.00	38.81	27.59	5.40	34.01	37.79	54.00	-16.21	Horizontal
2310.00	33.24	27.61	5.38	34.01	32.22	54.00	-21.78	Vertical
2400.00	40.63	27.59	5.40	34.01	39.61	54.00	-14.39	Vertical

802.11 N 20 High CH

Peak value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	52.47	27.53	5.47	33.92	51.55	74.00	-22.45	Horizontal
2500.00	48.26	27.55	5.49	29.93	51.37	74.00	-22.63	Horizontal
2483.50	54.75	27.53	5.47	33.92	53.83	74.00	-20.17	Vertical
2500.00	50.79	27.55	5.49	29.93	53.90	74.00	-20.10	Vertical

Average value:

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
2483.50	38.87	27.53	5.47	33.92	37.95	54.00	-16.05	Horizontal
2500.00	34.95	27.55	5.49	29.93	38.06	54.00	-15.94	Horizontal
2483.50	40.83	27.53	5.47	33.92	39.91	54.00	-14.09	Vertical
2500.00	36.84	27.55	5.49	29.93	39.95	54.00	-14.05	Vertical

Notes:

1. Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

2. The emission levels of other frequencies are very lower than the limit and not show in test report.





8 CONDUCTED EMISSION TEST

8.1.1 POWER LINE CONDUCTED EMISSION LIMITS

Operating frequency band. In case the emission fall within the restricted band specified on Part 207(a) limit in the table below has to be followed.

	Conducted Emissionlimit (dBuV)				
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			

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

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz



8.1.2 TEST PROCEDURE

- a. The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical 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.

Vertical Reference Ground Plane EUT 40cm EUT 80cm N Horizontal Reference Ground Plane

8.1.3 TEST SETUP

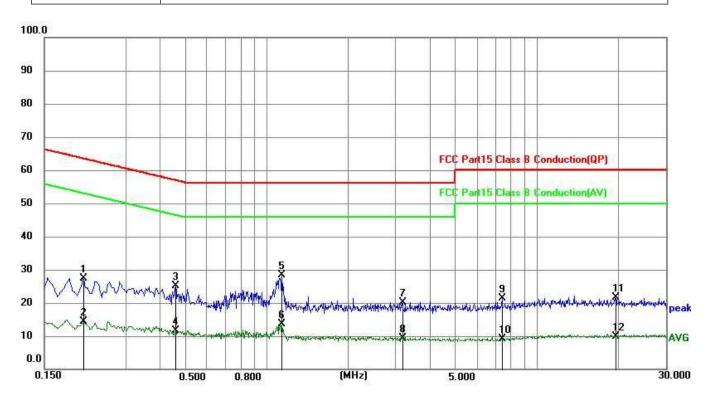
Note: 1.Support units were connected to second LISN.

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



8.1.4 TEST RESULT

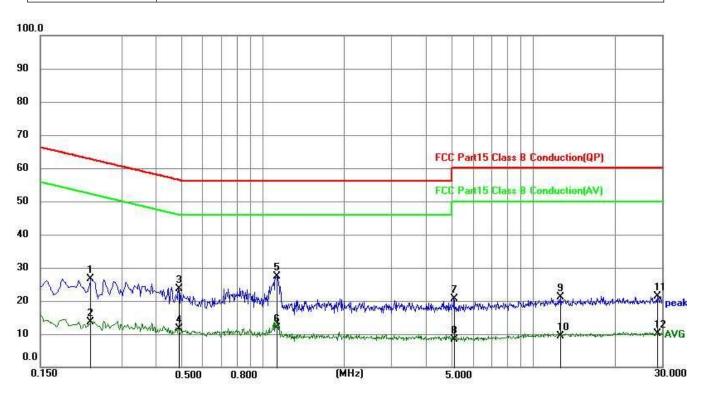
Temperature:	22.1 °C	Relative Humidity:	56%
Test Voltage:	DC 5V by adapter	Phase:	L
Test Mode:	802.11b(worst)		



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.2085	17.37	10.07	27.44	63.26	35.82	QP
2	0.2085	4.23	10.07	14.30	53.26	38.96	AVG
3	0.4605	15.07	10.02	25.09	56.68	31.59	QP
4	0.4605	1.49	10.02	11.51	46.68	35. 17	AVG
5	1. 1400	18.40	10.00	28.40	56.00	27.60	QP
6	1. 1400	3.64	10.00	13.64	46.00	32.36	AVG
7	3. 1605	10.31	9.94	20.25	56.00	35.75	QP
8	3. 1605	-0.62	9.94	9.32	46.00	36.68	AVG
9	7.4220	11.53	9.83	21.36	60.00	38.64	QP
10	7.4220	-0.68	9.83	9. 15	50.00	40.85	AVG
11	19.4730	11.78	9.94	21.72	60.00	38.28	QP
12	19.4730	-0. 12	9.94	9.82	50.00	40. 18	AVG



Temperature:	22.1 °C	Relative Humidity:	56%
Test Voltage:	DC 5V by adapter	Phase:	Ν
Test Mode:	802.11b(worst)		



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.2310	16.63	10.05	26.68	62.41	35.73	QP
2	0.2310	3.52	10.05	13.57	52.41	38.84	AVG
3	0.4875	13.72	10.01	23.73	56.21	32.48	QP
4	0.4875	1.55	10.01	11.56	46.21	34.65	AVG
5	1. 1265	17.48	9.99	27.47	56.00	28.53	QP
6	1. 1265	1.94	9.99	11.93	46.00	34.07	AVG
7	5. 1045	10.77	9.88	20.65	60.00	39.35	QP
8	5. 1045	- 1.55	9.88	8.33	50.00	41.67	AVG
9	12.7140	11.31	9.82	21. 13	60.00	38.87	QP
10	12.7140	-0.39	9.82	9.43	50.00	40.57	AVG
11	28.8960	11.43	9.98	21.41	60.00	38.59	QP
12	28.8960	0.04	9.98	10.02	50.00	39.98	AVG



9. ANTENNA REQUIREMENT

9.1 STANDARD REQUIREMENT

For intentional device, according to FCC 47 CFR Section 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

9.2 RESULT

The antennas used for this product are FPC Antenna and other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 2.88dBi.

******END OF THE REPORT*****