

Global United Technology Services Co., Ltd.

Report No: GTSE12020009501

FCC REPORT

Applicant: Shenzhen Ogemray Technology Co.,Ltd

Address of Applicant: 3/F,No.9 Bldg.Minxing Industrial Park.Minkang Rd.Minzhi St.

Baoan District. Shenzhen

Equipment Under Test (EUT)

Product Name: Wireless USB Adaptor

Model No.: GWF-3S4T

FCC ID: YWTWF3SXXT

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247:2010

Date of sample receipt: Feb. 20, 2012

Date of Test: Feb. 21- 27, 2012

Date of report issued: Mar. 02, 2012

Test Result: PASS *

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

Authorized Signature:



Stephen Guo Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	Mar. 02, 2012	Original

	Reviewer			
Check By:	Hams. Hu	Date:	Mar. 02, 2012	
	Project Engineer			
Prepared By:	Collan. He	Date:	Mar. 02, 2012	

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3 Contents

			Page
1	COV	ER PAGE	1
2	VER	SION	
3	CON	TENTS	3
4	TES	T SUMMARY	4
5	GEN	ERAL INFORMATION	5
	5.1	CLIENT INFORMATION	5
	5.2	GENERAL DESCRIPTION OF E.U.T.	
	5.3	TEST MODE	
	5.4	TEST FACILITY	
	5.5	TEST LOCATION	7
	5.6	OTHER INFORMATION REQUESTED BY THE CUSTOMER	
	5.7	DESCRIPTION OF SUPPORT UNITS	
	5.8	TEST INSTRUMENTS LIST	8
6	TES	T RESULTS AND MEASUREMENT DATA	9
	6.1	ANTENNA REQUIREMENT:	
	6.2	CONDUCTED EMISSIONS	
	6.3	CONDUCTED PEAK OUTPUT POWER	
	6.4	EMISSION BANDWIDTH	
	6.5	POWER SPECTRAL DENSITY	
	6.6 6.6.1	BAND EDGES	
	6.6.2		
	6.7	SPURIOUS EMISSION	
	6.7.1		
	6.7.2		
7	TES	T SETUP PHOTO	57
0	EUT	CONSTRUCTIONAL DETAILS	50

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Occupied Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

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

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5 General Information

5.1 Client Information

Applicant:	Shenzhen Ogemray Technology Co.,Ltd
Address of Applicant:	3/F,No.9 Bldg.Minxing Industrial Park.Minkang Rd.Minzhi St. Baoan District. Shenzhen
Manufacturer: Shenzhen Ogemray Technology Co.,Ltd	
Address of Manufacturer/	3/F,No.9 Bldg.Minxing Industrial Park.Minkang Rd.Minzhi St. Baoan District. Shenzhen
Factory: Shenzhen Ogemray Technology Co.,Ltd	
Address of Factory: 3/F,No.9 Bldg.Minxing Industrial Park.Minkang Rd.Minzhi St. Baoan Distri	

5.2 General Description of E.U.T.

Product Name:	Wireless USB Adaptor	
Model No.:	GWF-3S4T	
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(H20))	
	2422MHz~2452MHz (802.11n(H40))	
Channel numbers:	11 for 802.11b/802.11g /802.11n(H20)	
	7 for 802.11(H40)	
Channel separation:	5MHz	
Modulation technology:	Direct Sequence Spread Spectrum (DSSS)	
(IEEE 802.11b)		
Modulation technology:	Orthogonal Frequency Division Multiplexing(OFDM)	
(IEEE 802.11g/802.11n)		
Antenna Type:	Dipole Antenna(undetachable antenna)	
Antenna gain:	2dBi(declare by Applicant)	
Power supply:	DC 5V by USB Port	

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Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

802.11b/802.11g/802.11n(H20)

Channel	Frequency
The lowest channel	2412MHz
The middle channel	2437MHz
The Highest channel	2462MHz

802.11n(H40)

Channel	Frequency
The lowest channel	2422MHz
The middle channel	2437MHz
The Highest channel	2452MHz

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Project No.: GTSE120200095RF

Page 6 of 61



Project No.: GTSE120200095RF

5.3 Test mode

Transmitting mode	Keep transmitting mode.
-------------------	-------------------------

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(H20)	6.5Mbps
802.11n(H40)	13.0Mbps

Final Test Mode:

According to ANSI C63.4 standards, the test results are both the "worst case" and "worst setup" 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(H20), 13Mbps for 802.11n(H40)

5.4 Test Facility

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

• FCC —Registration No.: 600491

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and

fuly described in a report filed with the (FCC) Federal Communications Commission.

The acceptance letter from the FCC is maintained in out files. Registration 600491, July 20, 2010.

• Industry Canada (IC)

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. Has been

Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-1.

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China

Tel: 0755-27798480 Fax: 0755-27798960

5.6 Other Information Requested by the Customer

None.

5.7 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
IBM	Notebook	T42	GTS209	DoC
IBM	AC Adapter	92P1024	N/A	DoC
HP	MOUSE	SF-8360	N/A	DoC
HP	KEYBOARD	WB365PA	N/A	DoC

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Project No.: GTSE120200095RF

5.8 Test Instruments list

Radi	iated Emission:					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 30 2011	Mar. 29 2012
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jul. 04 2011	Jul. 03 2012
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Feb. 25 2012	Feb. 24 2013
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 30 2011	June 29 2012
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2011	Mar. 29 2012
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	Apr. 01 2011	Mar. 31 2012
9	Coaxial Cable	GTS	N/A	GTS211	Apr. 01 2011	Mar. 31 2012
10	Coaxial cable	GTS	N/A	GTS210	Apr. 01 2011	Mar. 31 2012
11	Coaxial Cable	GTS	N/A	GTS212	Apr. 01 2011	Mar. 31 2012
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jul. 04 2011	Jul. 03 2012
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jul. 04 2011	Jul. 03 2012
14	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 30 2011	June 29 2012
15	Band filter	Amindeon	82346	GTS219	June 30 2011	June 29 2012

Con	Conducted Emission:								
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)			
1	Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS252	Jul. 04 2011	Jul. 03 2012			
2	EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	Jul. 04 2011	Jul. 03 2012			
3	10dB Pulse Limit	Rohde & Schwarz	N/A	GTS224	Jul. 04 2011	Jul. 03 2012			
4	LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	Jul. 04 2011	Jul. 03 2012			
5	LISN	ETS-LINDGREN	3816/2	GTS232	Jul. 04 2011	Jul. 03 2012			
6	Coaxial Cable	GTS	N/A	GTS227	Apr. 01 2011	Mar. 31 2012			
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A			

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6 Test results and Measurement Data

6.1 Antenna requirement:

Standard requirement: FCC Part15 C Section 15.203 /247(c)

15.203 requirement:

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, 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.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The antenna is undetahable antenna, the best case gain of the antenna is 2dBi



Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 9 of 61



Project No.: GTSE120200095RF

6.2 Conducted Emissions

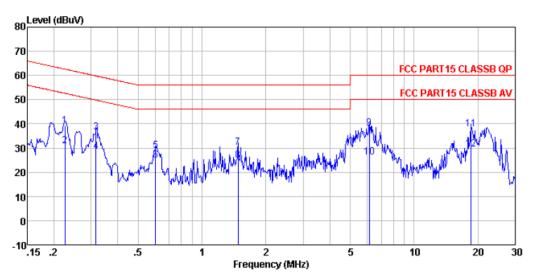
	Conducted Enfocione							
Test Requirement:	FCC Part15 C Section 15.207	FCC Part15 C Section 15.207						
Test Method:	ANSI C63.4:2003	ANSI C63.4:2003						
Test Frequency Range:	150KHz to 30MHz							
Class / Severity:	Class B							
Receiver setup:	RBW=9KHz, VBW=30KHz, Swee	ep time=auto						
Limit:	Frequency range (MHz)	Frequency range (MHz) Contact Service						
		0.15-0.5 66 to 56* 56 to 46*						
	0.5-5	56	46					
	* Decreases with the logarithm of	60	50					
Test setup:	Reference Plane							
	AUX Equipment Test table/Insulation plane Remark E.U.T. Equipment Under Test LISN: Line Impedence Stabilization Network Test table height=0.8m	LISN 40cm 80cm Filter AC power Equipment E.U.T EMI Receiver Remark E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Network						
Test procedure:	impedance stabilization netwo coupling impedance for the median impedance for the median impedance for the median impedance for the peripheral devices are also that provides a 50ohm/50uH of (Please refer to the block dianguage). 3. Both sides of A.C. line are che order to find the maximum em	 The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on 						
Test Instruments:	Refer to section 5.8 for details							
Test mode:	Refer to section 5.3 for details							
Test results:	Pass							

Measurement data:

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Line:



Condition : FCC PART15 CLASSB QP LISN(2011) LINE

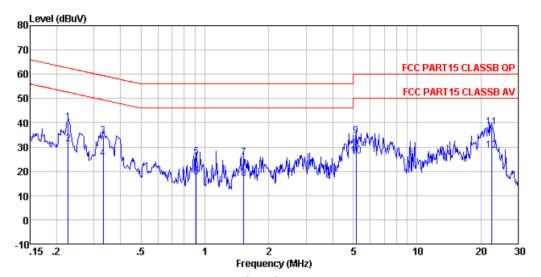
Job No : 095RF Test mode : WIFI mode Test engineer: Collin

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBu₹	dB	dB	dBuV	dBuV	dB	
1	0.226	38.51	0.64	0.10	39.25	62.61	-23.36	QP
2 3	0.226	30.14	0.64	0.10	30.88	52.61	-21.73	Average
3	0.317	35.63	0.60	0.10	36.33	59.80	-23.47	QP
4	0.317	27.98	0.60	0.10	28.68	49.80	-21.12	Average
5	0.604	28.20	0.53	0.10	28.83	56.00	-27.17	QP
6 7	0.604	24.30	0.53	0.10	24.93	46.00	-21.07	Average
7	1.480	29.70	0.43	0.10	30.23	56.00	-25.77	QP
8 9	1.480	24.31	0.43	0.10	24.84	46.00	-21.16	Average
9	6.153	37.68	0.28	0.12	38.08	60.00	-21.92	QP
10	6.153	25.64	0.28	0.12	26.04	50.00	-23.96	Average
11	18.622	37.30	0.15	0.21	37.66		-22.34	
12	18.622	29.26	0.15	0.21	29.62	50.00	-20.38	Average

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Neutral:



Condition : FCC PART15 CLASSB QP LISN(2011) NEUTRAL

Job No : 095RF Test mode : WIFI mode Test engineer: Collin

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBu₹	dB	d₿	dBuV	dBuV	dB	
1	0.227	39.51	0.64	0.10	40.25	62.57	-22.32	QP
2	0.227	30.33	0.64	0.10	31.07	52.57	-21.50	Average
2 3	0.332	33.85	0.60	0.10	34.55	59.40	-24.85	QP
4	0.332	24.58	0.60	0.10	25.28	49.40	-24.12	Average
4 5	0.909	25.12	0.49	0.10	25.71	56.00	-30.29	QP
6 7	0.909	16.89	0.49	0.10	17.48	46.00	-28.52	Average
7	1.527	25.09	0.43	0.10	25.62	56.00	-30.38	QP
8 9	1.527	16.51	0.43	0.10	17.04	46.00	-28.96	Average
9	5.166	34.02	0.30	0.10	34.42	60.00	-25.58	QP
10	5.166	25.81	0.30	0.10	26.21	50.00	-23.79	Average
11	22.535	37.89	0.13	0.21	38. 23	60.00	-21.77	QP _
12	22.535	28.11	0.13	0.21	28.45	50.00	-21.55	Average

Notes:

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

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 12 of 61



6.3 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.4:2003 and KDB558074 D01 Meas Guidance
Limit:	30dBm
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data

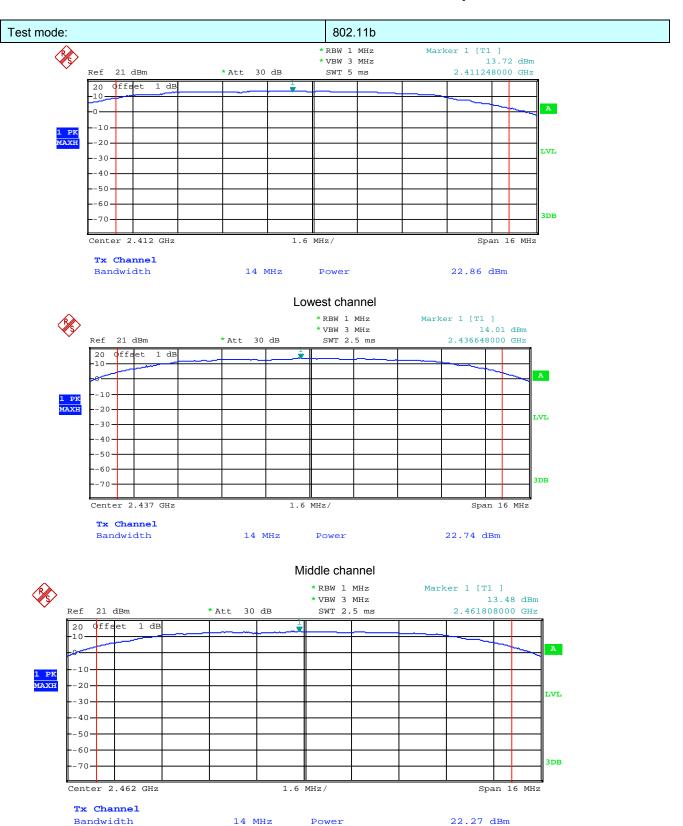
Test CH		Peak Output	Limit(dBm)	Result		
Test CIT	802.11b	802.11g	802.11n(H20)	802.11n(H40)	Lillit(dBill)	Result
Lowest	22.86	22.49	20.88	20.14		Pass
Middle	22.74	22.26	21.29	20.08	30.00	
Highest	22.27	22.32	21.03	20.04		

Test CH		Average Outpu	Limit(dBm)	Result		
Test CIT	802.11b	802.11g	802.11n(H20)	802.11n(H40)	Lillit(dBill)	Nesuit
Lowest	18.81	15.79	14.42	14.00		Pass
Middle	18.74	15.53	14.53	13.95	30.00	
Highest	18.39	15.65	14.49	13.92		

Test plot as follows:

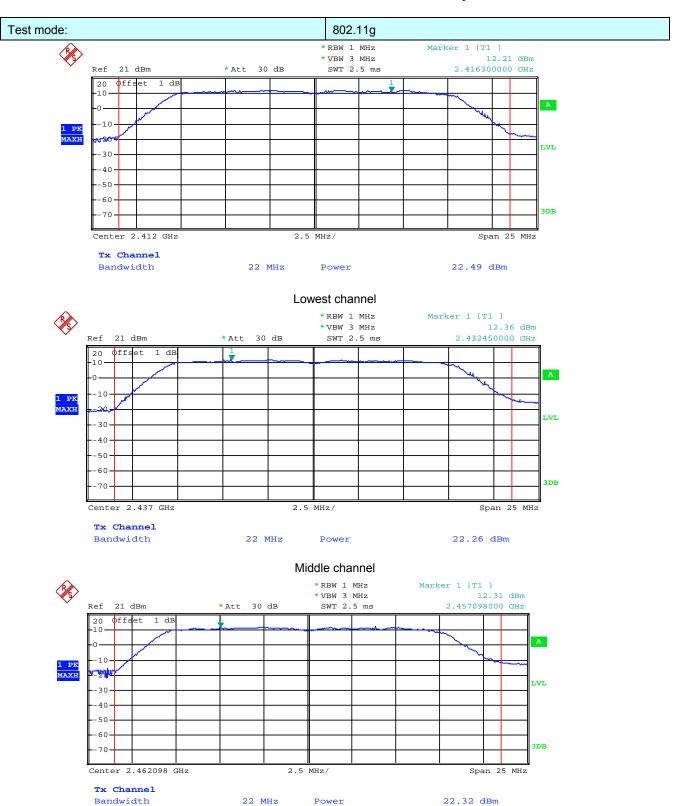
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Highest channel

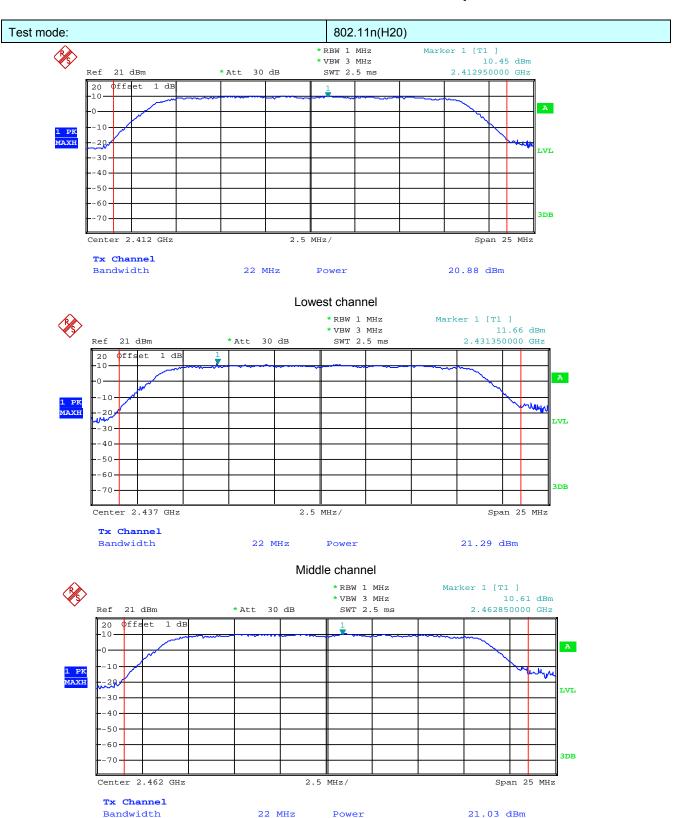




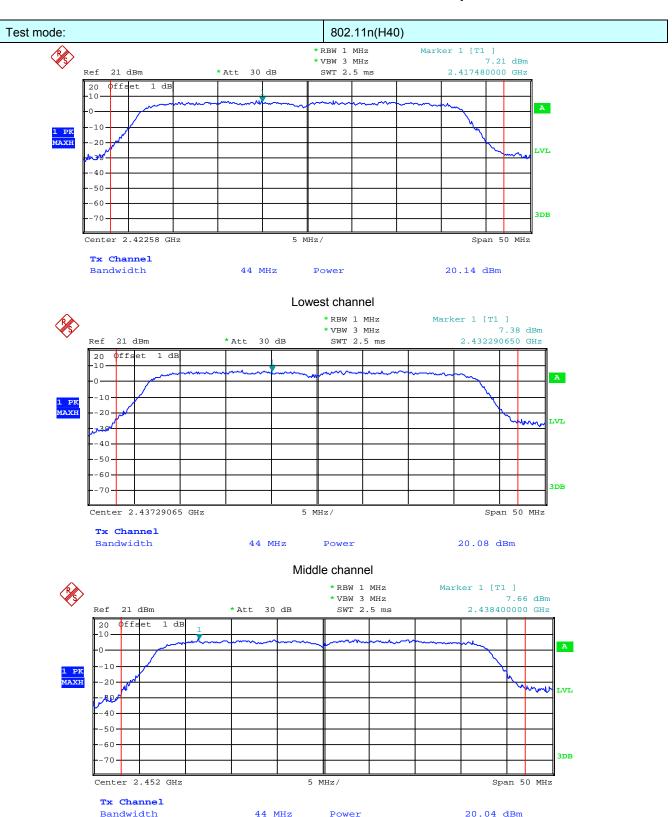
Highest channel

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Project No.: GTSE120200095RF

Highest channel



6.4 Emission Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)			
Test Method:	ANSI C63.4:2003 and KDB558074 D01 Meas Guidance			
Limit:	>500KHz			
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane			
Test Instruments:	Refer to section 5.8 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Pass			

Measurement Data

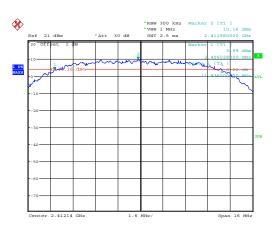
Test CH		Emission Ban	Limit(KHz)	Result		
Test CIT	802.11b	802.11g	802.11n(H20)	802.11n(H40)	Lillit(KHZ)	Result
Lowest	11.93	16.60	17.45	35.70		Pass
Middle	11.97	16.55	17.45	35.70	>500	
Highest	11.97	16.55	17.40	35.40		

Test plot as follows:

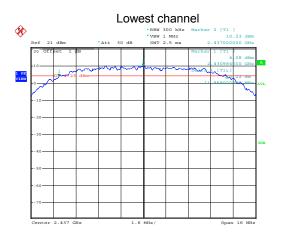
Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 18 of 61



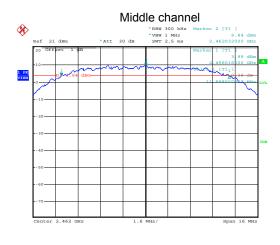
Test mode: 802.11b



Date: 25.FEB.2012 05:01:57



Date: 27.FEB.2012 05:26:56

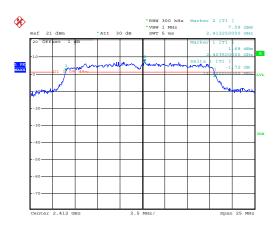


Date: 27.FEB.2012 05:33:00

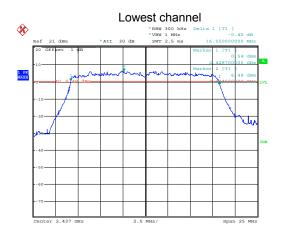
Highest channel



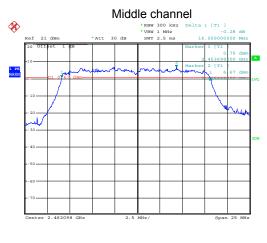
Test mode: 802.11g



Date: 29.FEB.2012 10:08:37



Date: 27.FEB.2012 05:59:30

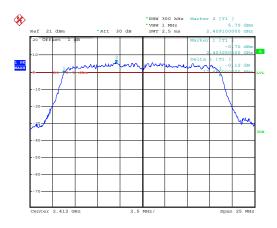


Date: 27.FEB.2012 06:06:34

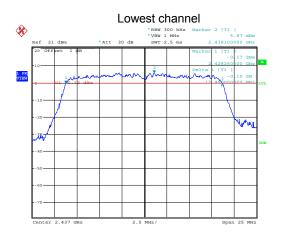
Highest channel



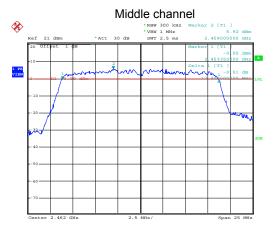
Test mode: 802.11n(H20)



Date: 27.FEB.2012 06:13:35



Date: 27.FEB.2012 06:20:56

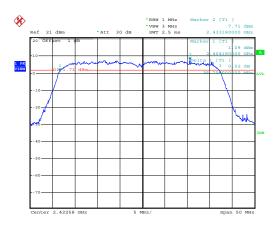


Date: 27.FEB.2012 06:25:46

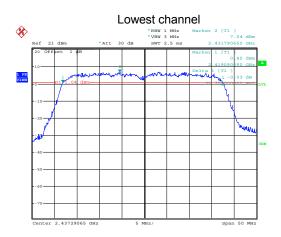
Highest channel



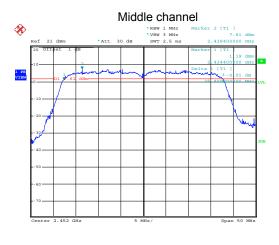
Test mode: 802.11n(H40)



Date: 27.FEB.2012 06:32:47



Date: 27.FEB.2012 06:38:18



Date: 27.FEB.2012 06:41:39

Highest channel



6.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)				
Test Method:	ANSI C63.4:2003 and KDB558074 D01 Meas Guidance				
Limit:	8dBm				
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane				
Test Instruments:	Refer to section 5.8 for details				
Test mode:	Refer to section 5.3 for details				
Test results: Pass					

Measurement Data

Test CH		Power Spectra	Limit(dBm))	Result		
Test CIT	802.11b	802.11g	802.11n(H20)	802.11n(H40)	Limit(dDiii))	Result
Lowest	-7.35	-12.67	-13.91	-17.18		Pass
Middle	-7.47	-13.09	-13.45	-17.40	8.00	
Highest	-7.46	-12.94	-13.80	-17.59		

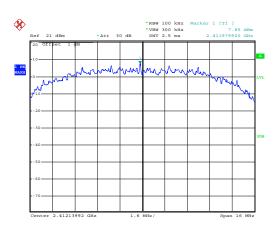
Remark: BWCF = 10log(3 kHz/100 kHz)= -15.2 dB

Test plot as follows:

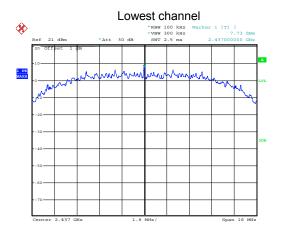
Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 23 of 61



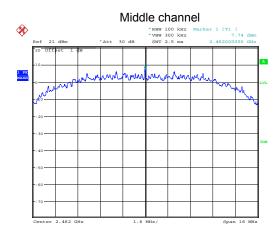
Test mode: 802.11b



Date: 25.FEB.2012 05:04:31



Date: 27.FEB.2012 05:29:44



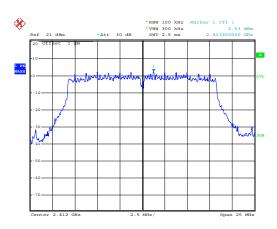
Date: 27.FEB.2012 05:33:50

Highest channel

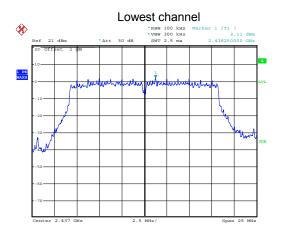
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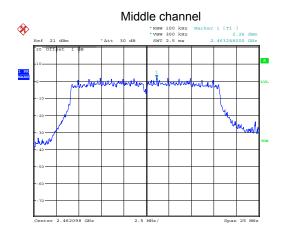
Test mode: 802.11g



Date: 27.FEB.2012 05:40:48



Date: 27.FEB.2012 06:00:35

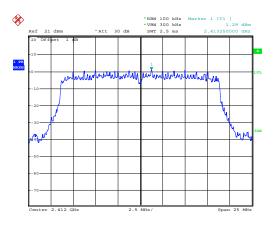


Date: 27.FEB.2012 06:07:15

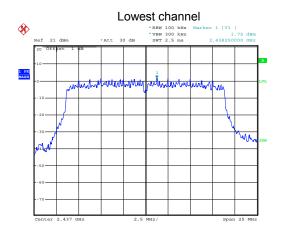
Highest channel



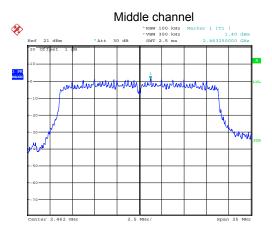
Test mode: 802.11n(H20)



Date: 27.FEB.2012 06:14:08



Date: 27.FEB.2012 06:21:29

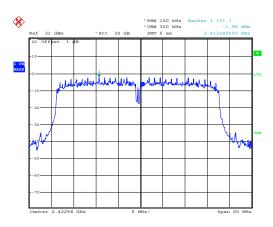


Date: 27.FEB.2012 06:26:20

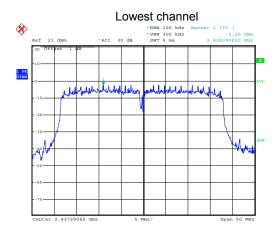
Highest channel



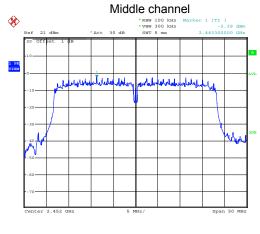
Test mode: 802.11n(H40)



Date: 27.FEB.2012 06:33:27



Date: 27.FEB.2012 06:38:58



Date: 27.FEB.2012 06:42:12

Highest channel



6.6 Band edges

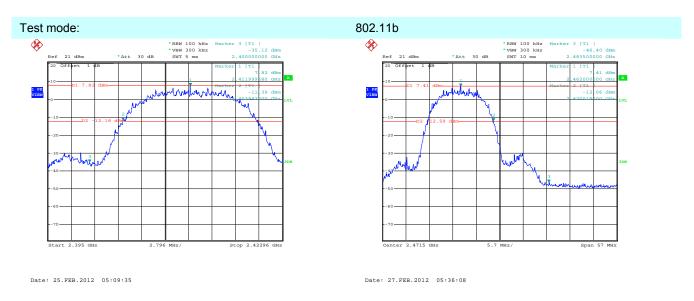
6.6.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074 D01 Meas Guidance
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
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Test plot as follows:

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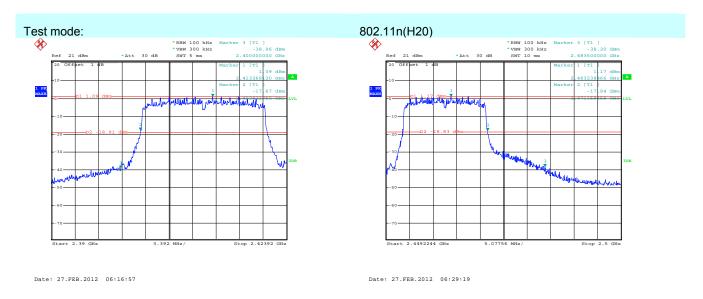


Lowest channel Highest channel

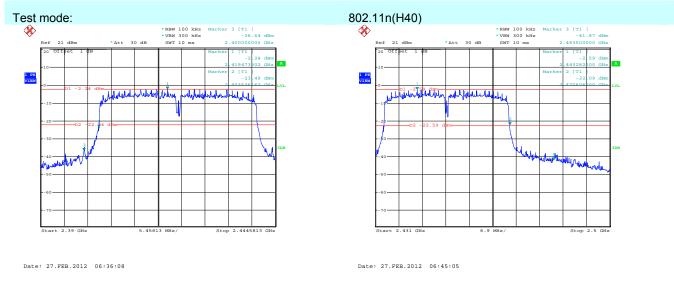


Lowest channel Highest channel





Lowest channel Highest channel



Lowest channel Highest channel



6.6.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Se	ection 15.209 and	15.205					
Test Method:	ANSI C63.4: 200	3						
Test Frequency Range:	2.3GHz to 2.5GH	lz						
Test site:	Measurement Dis	stance: 3m						
Receiver setup:	Frequency	Detector	RBW	VBW	Remark			
	Above 1GHz	Peak	1MHz	3MHz	Peak Value			
	Above 1G112	Peak	1MHz	10Hz	Average Value			
Limit:	Freque	ency	Limit (dBuV/	(m @3m)	Remark			
	Above ²	1GHz	54.0		Average Value			
			74.0	0	Peak Value			
Test setup:	EUT Turn Table	3m		Anteni Horn Ai Spectrum Analyzer				
Test Procedure:	at a 3 meter of position of the position of the 2. The EUT was was mounted 3. The antenna has determine the polarizations of 4. For each suspense the antenna was turned from 5. The test-receis Bandwidth with 6. If the emission specified, their	 The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 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. 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. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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 						
Test Instruments:	Refer to section s							
Test mode:	Refer to section s	5.3 for details						
Test results:	Pass							

Remark:

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:

Global United Technology Services Co., Ltd. 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China 518102

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Lowest

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
2390.00	34.90	27.59	3.33	30.10	35.72	74.00	-38.28	Horizontal
2400.00	34.36	27.58	3.37	30.10	35.21	74.00	-38.79	Horizontal
2390.00	36.13	27.59	3.33	30.10	36.95	74.00	-37.05	Vertical
2400.00	35.58	27.58	3.37	30.10	36.43	74.00	-37.57	Vertical

Test channel:

802.11b

Average value:

Test mode:

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
2390.00	28.24	27.59	3.33	30.10	29.06	54.00	-24.94	Horizontal
2400.00	28.05	27.58	3.37	30.10	28.90	54.00	-25.10	Horizontal
2390.00	29.50	27.59	3.33	30.10	30.32	54.00	-23.68	Vertical
2400.00	29.27	27.58	3.37	30.10	30.12	54.00	-23.88	Vertical

Test mode: 802.11b Test channel: Highest	est mode:	802.11b	Test channel:	Highest
--	-----------	---------	---------------	---------

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	33.82	27.53	3.49	29.93	34.91	74.00	-39.09	Horizontal
2500.00	33.33	27.55	3.52	30.70	33.70	74.00	-40.30	Horizontal
2483.50	35.06	27.53	3.49	29.93	36.15	74.00	-37.85	Vertical
2500.00	34.56	27.55	3.52	30.70	34.93	74.00	-39.07	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	27.26	27.53	3.49	29.93	28.35	54.00	-25.65	Horizontal
2500.00	26.87	27.55	3.52	30.70	27.24	54.00	-26.76	Horizontal
2483.50	28.50	27.53	3.49	29.93	29.59	54.00	-24.41	Vertical
2500.00	28.34	27.55	3.52	30.70	28.71	54.00	-25.29	Vertical

Remark:

- 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.

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Test mode:		802.1	1g		Test	t channel:		Lowest	
Peak value:		·							
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Pream Facto (dB)	r	Level (dBuV/m)	Limit Line (dBuV/m)		Polarization
2390.00	34.79	27.59	3.33	30.10)	35.61	74.00	-38.39	Horizontal
2400.00	34.21	27.58	3.37	30.10)	35.06	74.00	-38.94	Horizontal
2390.00	36.02	27.59	3.33	30.10)	36.84	74.00	-37.16	Vertical
2400.00	35.43	27.58	3.37	30.10)	36.28	74.00	-37.72	Vertical
Average valu	ie:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Pream Factor (dB)	r	Level (dBuV/m)	Limit Line (dBuV/m)		Polarization
2390.00	28.13	27.59	3.33	30.10)	28.95	54.00	-25.05	Horizontal
2400.00	27.90	27.58	3.37	30.10)	28.75	54.00	-25.25	Horizontal
2390.00	29.39	27.59	3.33	30.10)	30.21	54.00	-23.79	Vertical
2400.00	29.12	27.58	3.37	30.10)	29.97	54.00	-24.03	Vertical
Test mode:		802.1	1g		Test	t channel:		Highest	

Peak value:

i cak 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	33.70	27.53	3.49	29.93	34.79	74.00	-39.21	Horizontal
2500.00	33.19	27.55	3.52	30.70	33.56	74.00	-40.44	Horizontal
2483.50	34.94	27.53	3.49	29.93	36.03	74.00	-37.97	Vertical
2500.00	34.42	27.55	3.52	30.70	34.79	74.00	-39.21	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	27.14	27.53	3.49	29.93	28.23	54.00	-25.77	Horizontal
2500.00	26.73	27.55	3.52	30.70	27.10	54.00	-26.90	Horizontal
2483.50	28.38	27.53	3.49	29.93	29.47	54.00	-24.53	Vertical
2500.00	28.20	27.55	3.52	30.70	28.57	54.00	-25.43	Vertical

Remark:

- 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.

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Test mode:		802.1	1n(H20)	Tes	st channel:	L	_owest	
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
2390.00	34.58	27.59	3.33	30.10	35.40	74.00	-38.60	Horizontal
2400.00	34.11	27.58	3.37	30.10	34.96	74.00	-39.04	Horizontal
2390.00	35.81	27.59	3.33	30.10	36.63	74.00	-37.37	Vertical
2400.00	35.33	27.58	3.37	30.10	36.18	74.00	-37.82	Vertical
Average valu	ie:		•		•		•	
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
2390.00	27.92	27.59	3.33	30.10	28.74	54.00	-25.26	Horizontal
2400.00	27.80	27.58	3.37	30.10	28.65	54.00	-25.35	Horizontal
2390.00	29.18	27.59	3.33	30.10	30.00	54.00	-24.00	Vertical
2400.00	29.02	27.58	3.37	30.10	29.87	54.00	-24.13	Vertical
Test mode:		802.1	1n(H20)	Tes	st channel:	ŀ	Highest	
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	33.54	27.53	3.49	29.93	34.63	74.00	-39.37	Horizontal
2500.00	32.99	27.55	3.52	30.70	33.36	74.00	-40.64	Horizontal
2483.50	34.78	27.53	3.49	29.93	35.87	74.00	-38.13	Vertical
2500.00	34.22	07.55	0.50	20.70	04.50	74.00	20.44	Vertical
2000.00	J4.22	27.55	3.52	30.70	34.59	74.00	-39.41	VCHICAI
Average valu		27.55	3.52	30.70	34.59	74.00	-39.41	vertical
		Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
Average value Frequency	ie: Read Level	Antenna Factor	Cable	Preamp Factor	Level	Limit Line	Over Limit	
Frequency (MHz)	Read Level	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
Frequency (MHz) 2483.50	Read Level (dBuV)	Antenna Factor (dB/m) 27.53	Cable Loss (dB)	Preamp Factor (dB) 29.93	Level (dBuV/m) 28.07	Limit Line (dBuV/m) 54.00	Over Limit (dB)	Polarization Horizontal

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Test mode:		802.1	1n(H40)	Tes	st channel:	L	owest	
Peak value:						<u>.</u>		
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
2390.00	34.27	27.59	3.33	30.10	35.09	74.00	-38.91	Horizontal
2400.00	33.79	27.58	3.37	30.10	34.64	74.00	-39.36	Horizontal
2390.00	35.50	27.59	3.33	30.10	36.32	74.00	-37.68	Vertical
2400.00	35.01	27.58	3.37	30.10	35.86	74.00	-38.14	Vertical
Average valu	ie:		•		•			
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
2390.00	27.61	27.59	3.33	30.10	28.43	54.00	-25.57	Horizontal
2400.00	27.48	27.58	3.37	30.10	28.33	54.00	-25.67	Horizontal
2390.00	28.87	27.59	3.33	30.10	29.69	54.00	-24.31	Vertical
2400.00	28.70	27.58	3.37	30.10	29.55	54.00	-24.45	Vertical
Test mode:		802.1	1n(H40)	Tes	st channel:	H	Highest	
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	33.16	27.53	3.49	29.93	34.25	74.00	-39.75	Horizontal
2500.00	32.69	27.55	3.52	30.70	33.06	74.00	-40.94	Horizontal
2483.50	34.40	27.53	3.49	29.93	35.49	74.00	-38.51	Vertical
2500.00	33.92	27.55	3.52	30.70	34.29	74.00	-39.71	Vertical
Average valu	ıe:							
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	26.60	27.53	3.49	29.93	27.69	54.00	-26.31	Horizontal
1	26.23	27.55	3.52	30.70	26.60	54.00	-27.40	Horizontal
2500.00	20.23	21.00						
2500.00 2483.50	27.84	27.53	3.49	29.93	28.93	54.00	-25.07	Vertical

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6.7 Spurious Emission

6.7.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074 D01 Meas Guidance
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
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Test plot as follows:

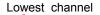
Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 36 of 61

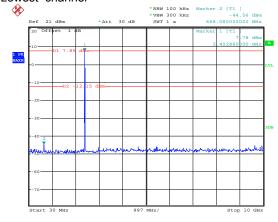


*RBW 100 kHz *VBW 300 kHz SWT 1.5 s

Test mode: 802.11b

%





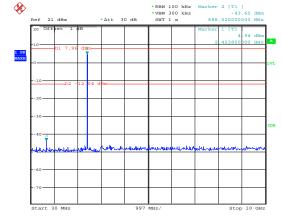
Date: 25.FEB.2012 05:07:08

Date: 25.FEB.2012 05:06:38

Date: 27.FEB.2012 05:28:33

30MHz~10GHz

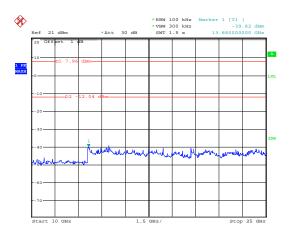
Middle channel



30MHz~10GHz

10GHz~25GHz

10GHz~25GHz

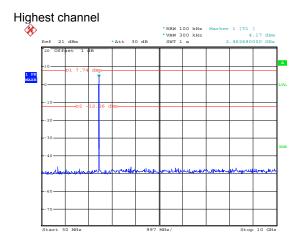


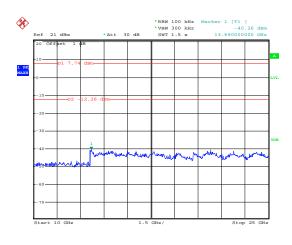
Project No.: GTSE120200095RF

Date: 27.FEB.2012 05:28:49

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 37 of 61







Date: 27.FEB.2012 05:34:48

Date: 27.FEB.2012 05:41:39

Date: 27.FEB.2012 05:34:32

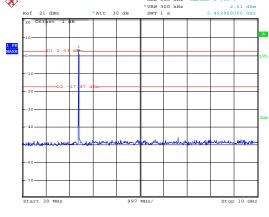
30MHz~10GHz

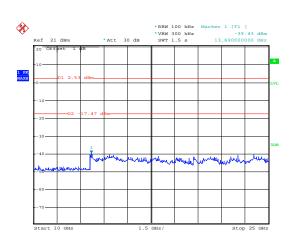
10GHz~25GHz

Test mode: 802.11g



Date: 27.FEB.2012 05:41:25





30MHz~10GHz

10GHz~25GHz

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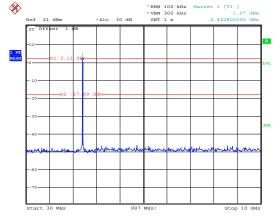
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Project No.: GTSE120200095RF

Page 38 of 61



Middle channel

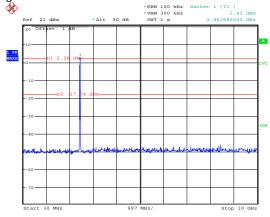


Date: 27.FEB.2012 06:01:32

Date: 27.FEB.2012 06:01:51

30MHz~10GHz

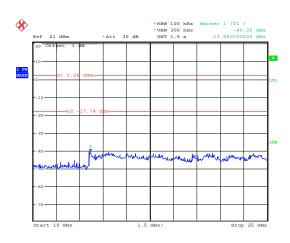
Highest channel



Date: 27.FEB.2012 06:07:51

30MHz~10GHz

10GHz~25GHz



Date: 27.FEB.2012 06:08:10

10GHz~25GHz

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Project No.: GTSE120200095RF

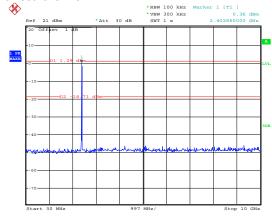
Page 39 of 61



Test mode:

802.11n(H20)

Lowest channel



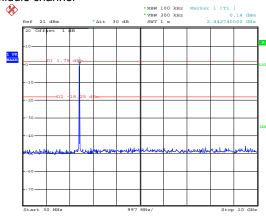
Date: 27.FEB.2012 06:14:53

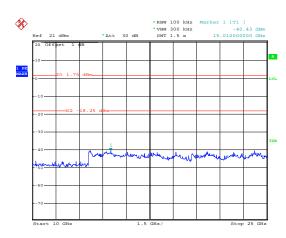
Date: 27.FEB.2012 06:15:14

30MHz~10GHz

10GHz~25GHz

Middle channel





Date: 27.FEB.2012 06:22:09

Date: 27.FEB.2012 06:22:29

30MHz~10GHz

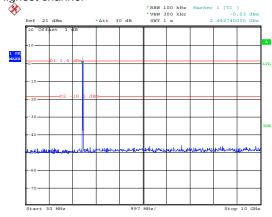
10GHz~25GHz

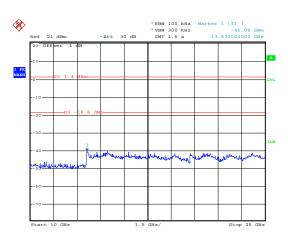
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Project No.: GTSE120200095RF









Date: 27.FEB.2012 06:27:17

Date: 27.FEB.2012 06:27:36

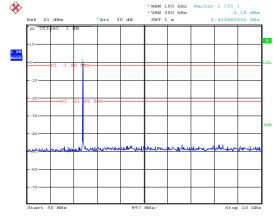
30MHz~10GHz

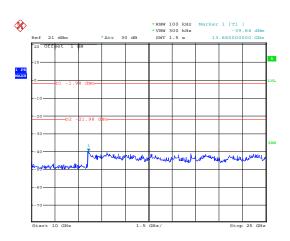
10GHz~25GHz

Test mode:

802.11n(H40)

Lowest channel





Date: 27.FEB.2012 06:34:08

Date: 27.FEB.2012 06:34:23

30MHz~10GHz

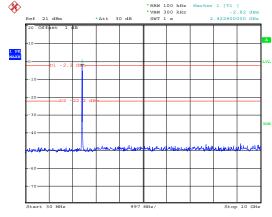
10GHz~25GHz

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Project No.: GTSE120200095RF







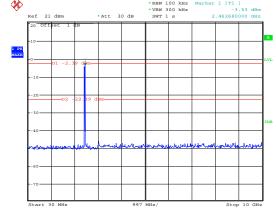
Date: 27.FEB.2012 06:39:24

Date: 27.FEB.2012 06:39:37

%

30MHz~10GHz

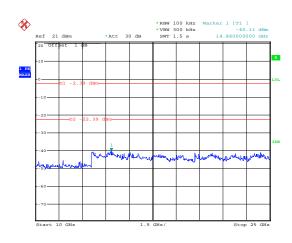




Date: 27.FEB.2012 06:43:21

30MHz~10GHz

10GHz~25GHz



Date: 27.FEB.2012 06:43:35

10GHz~25GHz

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6.7.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Se	ection 15.209						
Test Method:	ANSI C63.4: 200	3						
Test Frequency Range:	30MHz to 25GHz							
Test site:	Measurement Dis	stance: 3m						
Receiver setup:	Frequency	Detector	RBW	VBW	Remark			
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value			
	Above 1GHz	Peak	1MHz	3MHz	Peak Value			
	ABOVE TOTIZ	Peak	1MHz	10Hz	Average Value			
Limit:	Freque	ency	Limit (dBuV/	m @3m)	Remark			
	30MHz-8		40.0		Quasi-peak Value			
	88MHz-2	16MHz	43.5	5	Quasi-peak Value			
	216MHz-9		46.0		Quasi-peak Value			
	960MHz-	1GHz	54.0		Quasi-peak Value Average Value			
	Above 1	Above 1GHz 54.0						
		74.0 Peak Value						
	Tum Table Ground Plane Above 1GHz	4m 0		RF Test Receiver				
	EUT	3m 4m 4m		Horn Antenna Spectrum Analyzer Amplifier				

Project No.: GTSE120200095RF



	110 00111101 010 = 1 = 0 = 0 = 0 = 0 = 0
Test Procedure:	The EUT was placed on the top of a rotating table 0.8 meters 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.
	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 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Remark:

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

■ Below 1GHz

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
34.52	44.05	13.08	0.62	26.46	31.29	40.00	-8.71	Vertical
84.11	45.17	10.33	1.00	26.32	30.18	40.00	-9.82	Vertical
166.65	47.65	8.72	1.61	26.05	31.93	43.50	-11.57	Vertical
364.26	44.87	13.19	2.20	26.23	34.03	46.00	-11.97	Vertical
729.36	42.69	18.09	3.01	27.07	36.72	46.00	-9.28	Vertical
962.16	37.90	20.01	3.43	26.42	34.92	54.00	-19.08	Vertical
40.28	40.90	11.17	0.64	26.44	26.27	40.00	-13.73	Horizontal
99.88	44.17	10.93	1.15	26.34	29.91	43.50	-13.59	Horizontal
166.65	49.86	10.18	1.61	26.05	35.60	43.50	-7.90	Horizontal
364.26	49.58	13.62	2.20	26.23	39.17	46.00	-6.83	Horizontal
729.36	37.62	21.96	3.01	27.07	35.52	46.00	-10.48	Horizontal
962.16	37.50	21.51	3.43	26.42	36.02	54.00	-17.98	Horizontal

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 44 of 61



Lowest

■ Above 1GHz

802.11b

Test mode:

Peak value:								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	•		Over Limit (dB)	polarization
4824.00	36.83	31.79	5.34	24.07	49.89	74.00	-24.11	Vertical
7236.00	33.41	36.19	6.88	26.44	50.04	74.00	-23.96	Vertical
9648.00	27.12	38.07	8.96	25.36	48.79	74.00	-25.21	Vertical
12060.00	*					74.00		Vertical
14472.00	*					74.00		Vertical
16884.00	*					74.00		Vertical
4824.00	35.60	31.79	5.34	24.07	48.66	74.00	-25.34	Horizontal
7236.00	32.17	36.19	6.88	26.44	48.80	74.00	-25.20	Horizontal
9648.00	25.91	38.07	8.96	25.36	47.58	74.00	-26.42	Horizontal
12060.00	*					74.00		Horizontal
14472.00	*					74.00		Horizontal
16884.00	*					74.00		Horizontal

Test channel:

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
4824.00	28.52	31.79	5.34	24.07	41.58	54.00	-12.42	Vertical
7236.00	25.25	36.19	6.88	26.44	41.88	54.00	-12.12	Vertical
9648.00	18.91	38.07	8.96	25.36	40.58	54.00	-13.42	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	27.29	31.79	5.34	24.07	40.35	54.00	-13.65	Horizontal
7236.00	24.01	36.19	6.88	26.44	40.64	54.00	-13.36	Horizontal
9648.00	17.70	38.07	8.96	25.36	39.37	54.00	-14.63	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 45 of 61

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

^{2. &}quot;*", means this data is the too weak instrument of signal is unable to test.



Test mode:		802.11b			Test c	hannel:		Middle	Э	
Peak value:		•			,					
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)		eamp or (dB)	Level (dBuV/m)	Limit (dBu'	_	Over Limit (dB)	polarization
4874.00	35.88	31.85	5.40	24	1.01	49.12	74.	00	-24.88	Vertical
7311.00	34.18	36.37	6.90	26	6.58	50.87	74.	00	-23.13	Vertical
9748.00	29.05	38.27	9.00	25	5.30	51.02	74.	00	-22.98	Vertical
12185.00	*						74.	00		Vertical
14682.00	*						74.	00		Vertical
17179.00	*						74.	00		Vertical
4874.00	34.66	31.85	5.40	24	l.01	47.90	74.	00	-26.10	Horizontal
7311.00	32.96	36.37	6.90	26	6.58	49.65	74.	00	-24.35	Horizontal
9748.00	27.83	38.27	9.00	25	5.30	49.80	74.	00	-24.20	Horizontal
12185.00	*						74.	00		Horizontal
14682.00	*						74.	00		Horizontal
17179.00	*						74.	00		Horizontal

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	27.65	31.85	5.40	24.01	40.89	54.00	-13.11	Vertical
7311.00	26.03	36.37	6.90	26.58	42.72	54.00	-11.28	Vertical
9748.00	20.72	38.27	9.00	25.30	42.69	54.00	-11.31	Vertical
12185.00	*					54.00		Vertical
14682.00	*					54.00		Vertical
17179.00	*					54.00		Vertical
4874.00	26.43	31.85	5.40	24.01	39.67	54.00	-14.33	Horizontal
7311.00	24.81	36.37	6.90	26.58	41.50	54.00	-12.50	Horizontal
9748.00	19.50	38.27	9.00	25.30	41.47	54.00	-12.53	Horizontal
12185.00	*					54.00		Horizontal
14682.00	*					54.00		Horizontal
17179.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 46 of 61

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

^{2. &}quot;*", means this data is the too weak instrument of signal is unable to test.



Report No: GTSE12020009501

Test mode:		802.11b	11b			hannel:		Highest		
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
4924.00	34.35	31.89	5.46	23	.96	47.74	74.	00	-26.26	Vertical
7386.00	33.18	36.49	6.93	26	5.79	49.81	74.	00	-24.19	Vertical
9848.00	29.44	38.62	9.05	25.26		51.85	74.00		-22.15	Vertical
12310.00	*						74.	00		Vertical
14772.00	*						74.	00		Vertical
17234.00	*						74.	00		Vertical
4924.00	33.14	31.89	5.46	23	.96	46.53	74.	00	-27.47	Horizontal
7386.00	31.95	36.49	6.93	26	5.79	48.58	74.	00	-25.42	Horizontal
9848.00	28.23	38.62	9.05	25	5.26	50.64	74.	00	-23.36	Horizontal
12310.00	*						74.	00		Horizontal
14772.00	*						74.	00		Horizontal
17234.00	*				_		74.	00		Horizontal
Average value	Average value:									

Average value:

Avorage value	- 		I				ı	1
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	26.13	31.89	5.46	23.96	39.52	54.00	-14.48	Vertical
7386.00	25.04	36.49	6.93	26.79	41.67	54.00	-12.33	Vertical
9848.00	21.25	38.62	9.05	25.26	43.66	54.00	-10.34	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	24.92	31.89	5.46	23.96	38.31	54.00	-15.69	Horizontal
7386.00	23.81	36.49	6.93	26.79	40.44	54.00	-13.56	Horizontal
9848.00	20.04	38.62	9.05	25.26	42.45	54.00	-11.55	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 47 of 61

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

^{2. &}quot;*", means this data is the too weak instrument of signal is unable to test.



Test mode:		802.11g		Test channel:				lowes	t	
Peak value:										
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)		amp or (dB)	Level (dBuV/m)	Limit Line (dBuV/m)		Over Limit (dB)	polarization
4824.00	36.41	31.79	5.34	24	.07	49.47	74.	00	-24.53	Vertical
7236.00	33.29	36.19	6.88	26	.44	49.92	74.	00	-24.08	Vertical
9648.00	26.94	38.07	8.96	25	.36	48.61	74.	00	-25.39	Vertical
12060.00	*						74.	00		Vertical
14472.00	*						74.	00		Vertical
16884.00	*						74.	00		Vertical
4824.00	35.36	31.79	5.34	24	.07	48.42	74.	00	-25.58	Horizontal
7236.00	31.75	36.19	6.88	26	.44	48.38	74.	00	-25.62	Horizontal
9648.00	25.79	38.07	8.96	25	.36	47.46	74.	00	-26.54	Horizontal
12060.00	*				_		74.	00		Horizontal
14472.00	*						74.	00		Horizontal
16884.00	*						74.	00		Horizontal

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
4824.00	28.27	31.79	5.34	24.07	41.33	54.00	-12.67	Vertical
7236.00	25.07	36.19	6.88	26.44	41.70	54.00	-12.30	Vertical
9648.00	18.70	38.07	8.96	25.36	40.37	54.00	-13.63	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertica
4824.00	26.95	31.79	5.34	24.07	40.01	54.00	-13.99	Horizontal
7236.00	23.76	36.19	6.88	26.44	40.39	54.00	-13.61	Horizontal
9648.00	17.52	38.07	8.96	25.36	39.19	54.00	-14.81	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 48 of 61

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

^{2. &}quot;*", means this data is the too weak instrument of signal is unable to test.



Test mode:		802.11g			Test c	hannel:		Middle	е	
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
4874.00	35.67	31.85	5.40	24	.01	48.91	74.	00	-25.09	Vertical
7311.00	33.94	36.37	6.90	26	.58	50.63	74.	00	-23.37	Vertical
9748.00	28.71	38.27	9.00	25	.30	50.68	74.	00	-23.32	Vertical
12185.00	*						74.	00		Vertical
14472.00	*						74.	00		Vertical
16884.00	*						74.	00		Vertical
4874.00	34.48	31.85	5.40	24	.01	47.72	74.	00	-26.28	Horizontal
7311.00	32.75	36.37	6.90	26	.58	49.44	74.	00	-24.56	Horizontal
9748.00	27.59	38.27	9.00	25	.30	49.56	74.	00	-24.44	Horizontal
12185.00	*						74.	00		Horizontal
14472.00	*						74.	00		Horizontal
16884.00	*						74.	00		Horizontal

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	27.39	31.85	5.40	24.01	40.63	54.00	-13.37	Vertical
7311.00	25.83	36.37	6.90	26.58	42.52	54.00	-11.48	Vertical
9748.00	20.49	38.27	9.00	25.30	42.46	54.00	-11.54	Vertical
12185.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4874.00	26.25	31.85	5.40	24.01	39.49	54.00	-14.51	Horizontal
7311.00	24.55	36.37	6.90	26.58	41.24	54.00	-12.76	Horizontal
9748.00	19.30	38.27	9.00	25.30	41.27	54.00	-12.73	Horizontal
12185.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 49 of 61

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

^{2. &}quot;*", means this data is the too weak instrument of signal is unable to test.



Test mode:		802.11g	Test channel:					Highe	st	
Peak value:										
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)		amp or (dB)	Level (dBuV/m)	Limit (dBu	_	Over Limit (dB)	polarization
4924.00	34.12	31.89	5.46	5.46 23.96		47.51	74.00		-26.49	Vertical
7386.00	33.02	36.49	6.93	26	.79	49.65	74.	00	-24.35	Vertical
9848.00	29.26	38.62	9.05	25	.26	51.67	74.	00	-22.33	Vertical
12310.00	*						74.	00		Vertical
14772.00	*						74.	00		Vertical
17234.00	*						74.	00		Vertical
4924.00	32.94	31.89	5.46	23	.96	46.33	74.	00	-27.67	Horizontal
7386.00	31.72	36.49	6.93	26	.79	48.35	74.	00	-25.65	Horizontal
9848.00	28.07	38.62	9.05	25	.26	50.48	74.	00	-23.52	Horizontal
12310.00	*				_		74.	00		Horizontal
14772.00	*						74.	00		Horizontal
17234.00	*						74.	00		Horizontal

Average value:

Avorage 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
4924.00	25.89	31.89	5.46	23.96	39.28	54.00	-14.72	Vertical
7386.00	24.62	36.49	6.93	26.79	41.25	54.00	-12.75	Vertical
9848.00	21.13	38.62	9.05	25.26	43.54	54.00	-10.46	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	24.68	31.89	5.46	23.96	38.07	54.00	-15.93	Horizontal
7386.00	23.57	36.49	6.93	26.79	40.20	54.00	-13.80	Horizontal
9848.00	19.62	38.62	9.05	25.26	42.03	54.00	-11.97	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 50 of 61

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

^{2. &}quot;*", means this data is the too weak instrument of signal is unable to test.



Report No: GTSE12020009501

Test mode:		802.11n(H2	802.11n(H20) Test of			hannel:		Lowes	st	
Peak value:										
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Loss Preamp		Level (dBuV/m)	Limit (dBu	_	Over Limit (dB)	polarization
4824.00	36.28	31.79	5.34	5.34 24.07		49.34	74.00		-24.66	Vertical
7236.00	32.77	36.19	6.88	26	.44	49.40	74.	00	-24.60	Vertical
9648.00	26.67	38.07	8.96	25	5.36	48.34	74.	00	-25.66	Vertical
12060.00	*						74.	00		Vertical
14472.00	*						74.	00		Vertical
16884.00	*						74.	00		Vertical
4824.00	35.05	31.79	5.34	24	.07	48.11	74.	00	-25.89	Horizontal
7236.00	31.53	36.19	6.88	26	5.44	48.16	74.	00	-25.84	Horizontal
9648.00	25.46	38.07	8.96	25	5.36	47.13	74.	00	-26.87	Horizontal
12060.00	*						74.	00		Horizontal
14472.00	*						74.	00		Horizontal
16884.00	*				·		74.	00		Horizontal

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
4824.00	27.97	31.79	5.34	24.07	41.03	54.00	-12.97	Vertical
7236.00	24.61	36.19	6.88	26.44	41.24	54.00	-12.76	Vertical
9648.00	18.46	38.07	8.96	25.36	40.13	54.00	-13.87	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4824.00	26.74	31.79	5.34	24.07	39.80	54.00	-14.20	Horizontal
7236.00	23.37	36.19	6.88	26.44	40.00	54.00	-14.00	Horizontal
9648.00	17.25	38.07	8.96	25.36	38.92	54.00	-15.08	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 51 of 61

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

[&]quot;*", means this data is the too weak instrument of signal is unable to test.



Test mode:		802.11n(H2	0)		Test c	hannel:		Middle	Э	
Peak value:										
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)		amp or (dB)	Level (dBuV/m)	Limit (dBuʻ	_	Over Limit (dB)	polarization
4874.00	35.32	31.85	5.40	5.40 24.01		48.56	74.	00	-25.44	Vertical
7311.00	33.64	36.37	6.90	26	5.58	50.33	74.	00	-23.67	Vertical
9748.00	28.57	38.27	9.00	25	5.30	50.54	74.	00	-23.46	Vertical
12185.00	*						74.	00		Vertical
14682.00	*						74.	00		Vertical
17179.00	*						74.	00		Vertical
4874.00	34.10	31.85	5.40	24	.01	47.34	74.	00	-26.66	Horizontal
7311.00	32.42	36.37	6.90	26	5.58	49.11	74.	00	-24.89	Horizontal
9748.00	27.35	38.27	9.00	25	5.30	49.32	74.	00	-24.68	Horizontal
12185.00	*						74.	00		Horizontal
14682.00	*						74.	00		Horizontal
17179.00	*						74.	00		Horizontal

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	27.09	31.85	5.40	24.01	40.33	54.00	-13.67	Vertical
7311.00	25.49	36.37	6.90	26.58	42.18	54.00	-11.82	Vertical
9748.00	20.24	38.27	9.00	25.30	42.21	54.00	-11.79	Vertical
12185.00	*					54.00		Vertical
14682.00	*					54.00		Vertical
17179.00	*					54.00		Vertical
4874.00	25.87	31.85	5.40	24.01	39.11	54.00	-14.89	Horizontal
7311.00	24.27	36.37	6.90	26.58	40.96	54.00	-13.04	Horizontal
9748.00	19.02	38.27	9.00	25.30	40.99	54.00	-13.01	Horizontal
12185.00	*					54.00		Horizontal
14682.00	*					54.00		Horizontal
17179.00	*					54.00		Horizontal

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.

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960

Page 52 of 61



Report No: GTSE12020009501

Test mode:		802.11n(H2	11n(H20) Test channel:					Highe	st	
Peak value:										
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)		amp or (dB)	Level (dBuV/m)	Limit (dBuʻ		Over Limit (dB)	polarization
4924.00	33.70	31.89	5.46	5.46 23.96		47.09	74.00		-26.91	Vertical
7386.00	32.72	36.49	6.93	26	5.79	49.35	74.	00	-24.65	Vertical
9848.00	29.07	38.62	9.05	25	5.26	51.48	74.	00	-22.52	Vertical
12310.00	*						74.	00		Vertical
14772.00	*						74.	00		Vertical
17234.00	*						74.	00		Vertical
4924.00	32.49	31.89	5.46	23	3.96	45.88	74.	00	-28.12	Horizontal
7386.00	31.49	36.49	6.93	26	6.79	48.12	74.	00	-25.88	Horizontal
9848.00	27.86	38.62	9.05	25	5.26	50.27	74.	00	-23.73	Horizontal
12310.00	*						74.	00		Horizontal
14772.00	*						74.	00		Horizontal
17234.00	*						74.	00		Horizontal

Average value:

Avorago vara		A . 1	0.11				0	
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	25.48	31.89	5.46	23.96	38.87	54.00	-15.13	Vertical
7386.00	24.58	36.49	6.93	26.79	41.21	54.00	-12.79	Vertical
9848.00	20.88	38.62	9.05	25.26	43.29	54.00	-10.71	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4924.00	24.27	31.89	5.46	23.96	37.66	54.00	-16.34	Horizontal
7386.00	23.35	36.49	6.93	26.79	39.98	54.00	-14.02	Horizontal
9848.00	19.67	38.62	9.05	25.26	42.08	54.00	-11.92	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 53 of 61

Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

[&]quot;*", means this data is the too weak instrument of signal is unable to test.



Test mode:		802.11n(H4	B02.11n(H40) Test channel:					Lowe	st	
Peak value:										
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)		amp or (dB)	Level (dBuV/m)	Limit (dBuʻ	_	Over Limit (dB)	polarization
4844.00	33.76	31.82	5.36	3.36 24.05		46.89	74.	00	-27.11	Vertical
7266.00	33.99	36.28	6.89	26	5.47	50.69	74.	00	-23.31	Vertical
9688.00	27.35	38.13	8.98	25	5.34	49.12	74.	00	-24.88	Vertical
12060.00	*						74.	00		Vertical
14472.00	*						74.	00		Vertical
16884.00	*						74.	00		Vertical
4844.00	32.52	31.82	5.36	24	.05	45.65	74.	00	-28.35	Horizontal
7266.00	32.74	36.28	6.89	26	5.47	49.44	74.	00	-24.56	Horizontal
9688.00	26.11	38.13	8.98	25	5.34	47.88	74.	00	-26.12	Horizontal
12060.00	*						74.	00		Horizontal
14472.00	*						74.	00		Horizontal
16884.00	*						74.	00		Horizontal

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
4844.00	25.61	31.82	5.36	24.05 38.74		54.00	-15.26	Vertical
7266.00	25.74	36.28	6.89	26.47	42.44	54.00	-11.56	Vertical
9688.00	19.01	38.13	8.98	25.34	40.78	54.00	-13.22	Vertical
12060.00	*					54.00		Vertical
14472.00	*					54.00		Vertical
16884.00	*					54.00		Vertical
4844.00	24.37	31.82	5.36	24.05	37.50	54.00	-16.50	Horizontal
7266.00	24.49	36.28	6.89	26.47	41.19	54.00	-12.81	Horizontal
9688.00	17.77	38.13	8.98	25.34	39.54	54.00	-14.46	Horizontal
12060.00	*					54.00		Horizontal
14472.00	*					54.00		Horizontal
16884.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 54 of 61

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

^{2. &}quot;*", means this data is the too weak instrument of signal is unable to test.



Test mode:		802.11n(H4	802.11n(H40) Test channel:				Middle				
Peak value:											
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	oss Preamp Factor (dB)		Level (dBuV/m)	Limit Line (dBuV/m)		Over Limit (dB)	polarization	
4874.00	34.66	31.85	5.40	24.01		47.90	74.	00	-26.10	Vertical	
7311.00	34.22	36.37	6.90	26	.58	50.91	74.	00	-23.09	Vertical	
9748.00	28.21	38.27	9.00	25	.30	50.18	74.	00	-23.82	Vertical	
12185.00	*						74.	00		Vertical	
14682.00	*						74.	00		Vertical	
17179.00	*						74.	00		Vertical	
4874.00	33.44	31.85	5.40	24	.01	46.68	74.	00	-27.32	Horizontal	
7311.00	33.01	36.37	6.90	26	.58	49.70	74.	00	-24.30	Horizontal	
9748.00	27.06	38.27	9.00	25	.30	49.03	74.	00	-24.97	Horizontal	
12185.00	*						74.	00		Horizontal	
14682.00	*						74.	00		Horizontal	
17179.00	*						74.	00		Horizontal	

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	26.40	31.85	5.40	24.01	39.64	54.00	-14.36	Vertical
7311.00	25.98	36.37	6.90	26.58	42.67	54.00	-11.33	Vertical
9748.00	19.92	38.27	9.00	25.30	41.89	54.00	-12.11	Vertical
12185.00	*					54.00		Vertical
14682.00	*					54.00		Vertical
17179.00	*					54.00		Vertical
4874.00	25.18	31.85	5.40	24.01	38.42	54.00	-15.58	Horizontal
7311.00	24.77	36.37	6.90	26.58	41.46	54.00	-12.54	Horizontal
9748.00	18.77	38.27	9.00	25.30	40.74	54.00	-13.26	Horizontal
12185.00	*					54.00		Horizontal
14682.00	*					54.00		Horizontal
17179.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 55 of 61

^{1.} Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

^{2. &}quot;*", means this data is the too weak instrument of signal is unable to test.



Report No: GTSE12020009501

Test mode:		802.11n(H4	802.11n(H40)			Test channel:			Highest		
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	
4904.00	32.95	31.88	5.44	23.97		46.30	74.00		-27.70	Vertical	
7356.00	33.27	36.45	6.91	26.70		49.93	74.00		-24.07	Vertical	
9808.00	28.81	38.52	9.03	25.27		51.09	74.00		-22.91	Vertical	
12310.00	*						74.	00		Vertical	
14772.00	*						74.	00		Vertical	
17234.00	*						74.	00		Vertical	
4904.00	31.72	31.88	5.44	23	.97	45.07	74.	00	-28.93	Horizontal	
7356.00	32.04	36.45	6.91	26	.70	48.70	74.	00	-25.30	Horizontal	
9808.00	27.65	38.52	9.03	25	.27	49.93	74.	00	-24.07	Horizontal	
12310.00	*						74.	00		Horizontal	
14772.00	*	·					74.	00		Horizontal	
17234.00	*						74.	00		Horizontal	

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
4904.00	24.72	31.88	5.44	23.97	38.07	54.00	-15.93	Vertical
7356.00	24.72	36.45	6.91	26.70	41.38	54.00	-12.62	Vertical
9808.00	20.32	38.52	9.03	25.27	42.60	54.00	-11.40	Vertical
12310.00	*					54.00		Vertical
14772.00	*					54.00		Vertical
17234.00	*					54.00		Vertical
4904.00	23.49	31.88	5.44	23.97	36.84	54.00	-17.16	Horizontal
7356.00	23.49	36.45	6.91	26.70	40.15	54.00	-13.85	Horizontal
9808.00	19.16	38.52	9.03	25.27	41.44	54.00	-12.56	Horizontal
12310.00	*					54.00		Horizontal
14772.00	*					54.00		Horizontal
17234.00	*					54.00		Horizontal

Remark:

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960 Page 56 of 61

Final Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

[&]quot;*", means this data is the too weak instrument of signal is unable to test.