

# Partial FCC RF Test Report

**APPLICANT** : Motion Computing Incorporated  
**EQUIPMENT** : J3500  
**BRAND NAME** : Motion Computing Incorporated  
**MODEL NAME** : T008  
**FCC ID** : Q3QIHWM633ANH  
**STANDARD** : FCC Part 15 Subpart C §15.247  
**CLASSIFICATION** : Digital Transmission System (DTS)

This is a partial report which is only valid combined with the WLAN module (Brand name: Intel / Model name: 633ANHMW) report. The product was integrated the WLAN Module (Brand Name: Intel / Model Name: 633ANHMW, FCC ID: PD9633ANH) during the test.

The product was received on May 12, 2010 and completely tested on May 24, 2010. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Roy Wu / Manager



**SPORTON INTERNATIONAL INC.**

No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



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### SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.2	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 6.8 dB at 0.174 MHz
3.3	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 2.62 dB at 2483.5 MHz
3.4	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



# 1 General Description

## 1.1 Applicant

Motion Computing Incorporated

8601 Ranch Road 2222; Bldg.2; Austin, Texas 78730 USA

## 1.2 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	J3500
Brand Name	Motion Computing Incorporated
Model Name	T008
FCC ID	Q3QIHWM633ANH
Tx/Rx Frequency Range	802.11b/g/n : 2400 MHz ~ 2483.5 MHz 802.11a/n : 5725 MHz ~ 5850 MHz
Maximum Output Power to Antenna	802.11b : 16.49 dBm 802.11g : 16.50 dBm 802.11n (2.4GHz) : 16.53 dBm (BW 20MHz) 802.11n (2.4GHz) : 16.55 dBm (BW 40MHz) 802.11a : 16.73 dBm 802.11n (5GHz) : 16.68 dBm (BW 20MHz) 802.11n (5GHz) : 16.54 dBm (BW 40MHz)
Antenna Type	802.11b/g/n : PIFA Antenna with gain 1.45 dBi 802.11a/n : PIFA Antenna with gain 1.66 dBi
HW Version	LA-6111P
SW Version	X.17
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

**Remark:**

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

### 1.3 Testing Site

<b>Test Site</b>	SPORTON INTERNATIONAL INC.		
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
<b>Test Site No.</b>	<b>Sporton Site No.</b>		<b>FCC/IC Registration No.</b>
	CO05-HY	03CH03-HY	TW1022/4086B-1

### 1.4 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issue 7

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.

### 1.5 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
4.	Earphone	Ergotech	ET-E200	FCC DoC	Unshielded, 1.8 m	N/A
5.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A

## 2 Test Configuration of Equipment Under Test

### 2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

**Note:** The average power is measured conducted, using power meter with average power sensor. The output power is measured conducted, using spectrum analyzer.

Band	802.11b			802.11g		
Data Rate	1M			6M		
Channel	1	6	11	1	6	11
Frequency (MHz)	2412	2437	2462	2412	2437	2462
<b>Average Power</b>						
Power (Port A)	15.71	15.74	15.62	14.79	15.68	13.76
Power (Port B)	16.04	15.78	15.94	13.96	16.21	13.96
Power (Port C)	15.89	15.87	15.81	14.68	15.74	13.93
<b>Output Power</b>						
Power (Port A)	16.21	16.24	16.13	15.02	16.04	14.19
Power (Port B)	16.49	16.3	16.42	14.23	16.5	14.27
Power (Port C)	16.32	16.3	16.26	15.25	16.12	14.26

Band	802.11n (BW 20MHz)			802.11n (BW 40MHz)		
Data Rate	6M			6M		
Channel	1	6	11	3	6	9
Frequency (MHz)	2412	2437	2462	2422	2437	2452
<b>Average Power</b>						
Power (Port A)	13.54	15.90	13.77	11.27	15.82	11.39
Power (Port B)	13.70	15.86	13.52	11.30	16.13	11.53
Power (Port C)	14.93	15.62	15.15	11.47	15.73	11.26
Power (Port A+B)	15.58	15.80	15.56	15.66	15.65	15.74
Power (Port A+C)	15.63	15.67	15.68	15.77	15.74	15.74
Power (Port B+C)	15.82	15.67	15.69	15.71	15.62	15.70
Power (Port A+B+C)	14.37	16.17	14.18	11.84	16.25	11.87
<b>Output Power</b>						
Power (Port A)	14.37	16.21	13.99	11.70	16.26	12.12
Power (Port B)	14.24	16.43	14.15	11.88	16.49	12.21
Power (Port C)	15.29	16.10	15.49	11.96	16.21	11.99
Power (Port A+B)	15.84	16.36	15.76	16.48	16.55	16.19
Power (Port A+C)	15.73	15.79	15.92	16.26	16.23	16.13
Power (Port B+C)	16.01	15.85	15.78	16.22	16.23	16.29
Power (Port A+B+C)	14.43	16.53	14.51	12.06	16.37	11.99



Band	802.11a		
Data Rate	6M		
Channel	149	157	165
Frequency (MHz)	5745	5785	5825
Average Power			
Power (Port A)	16.1	16.04	16.01
Power (Port B)	15.79	16.05	15.98
Power (Port C)	16.15	16.11	15.98
Output Power			
Power (Port A)	16.34	16.58	16.23
Power (Port B)	16.19	16.14	16.73
Power (Port C)	16.28	16.18	16.21

Band	802.11n (BW 20MHz)			802.11n (BW 40MHz)	
Average Power					
Data Rate	HT0			HT0	
Channel	149	157	165	151	159
Frequency (MHz)	5745	5785	5825	5755	5795
Power (Port A)	16.36	16.11	15.87	15.95	15.94
Power (Port B)	15.70	16.41	16.39	15.85	15.87
Power (Port C)	16.09	16.33	15.81	16.01	15.74
Data Rate	HT8			HT8	
Power (Port A+B)	15.89	15.32	15.31	15.80	15.76
Power (Port A+C)	15.81	15.27	14.95	15.86	15.65
Power (Port B+C)	15.27	15.30	14.88	15.81	15.94
Data Rate	HT16			HT16	
Power (Port A+B+C)	16.44	16.01	16.04	16.14	16.21
Output Power					
Data Rate	HT0			HT0	
Channel	149	157	165	151	159
Frequency (MHz)	5745	5785	5825	5755	5795
Power (Port A)	16.58	16.36	16.13	16.33	16.54
Power (Port B)	15.93	16.80	16.57	16.22	16.34
Power (Port C)	16.26	16.68	16.22	16.49	16.32
Data Rate	HT8			HT8	
Power (Port A+B)	16.06	15.42	15.61	16.33	16.29
Power (Port A+C)	15.98	15.46	15.27	16.50	16.38
Power (Port B+C)	15.64	15.61	15.02	16.54	16.49
Data Rate	HT16			HT16	
Power (Port A+B+C)	16.51	16.40	16.28	16.21	16.46

Remark: The EUT is programmed to transmit signals continuously for all testing.

## 2.2 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

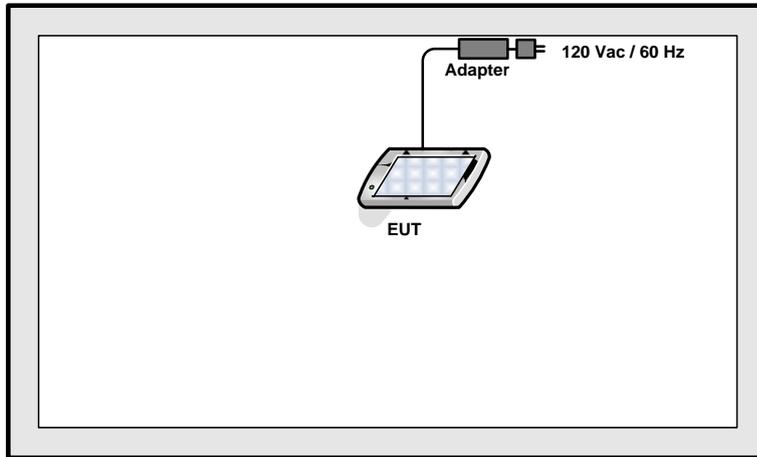
Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, tablet modes.

The following table is showing the total pre-scanned test modes, and the worst modes are recorded in this report only.

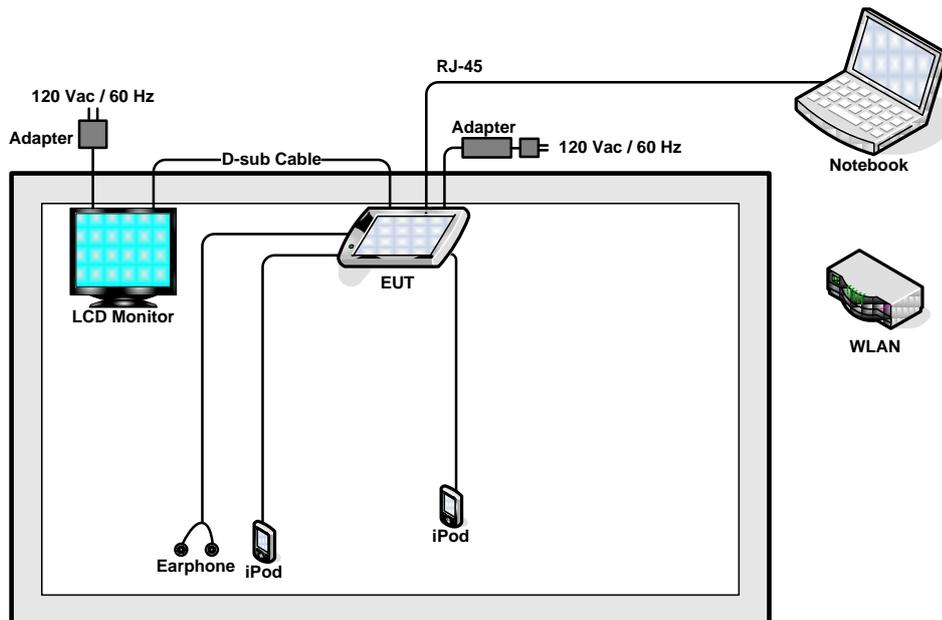
Test Cases		
Test Item	802.11b (Modulation : DSSS) 802.11g/n (Modulation : OFDM)	802.11a/n (Modulation : OFDM)
<b>Radiated TCs</b>	Mode 1: 802.11b_CH01_2412 MHz Mode 2: 802.11b_CH06_2437 MHz Mode 3: 802.11b_CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n_CH01_2412 MHz (BW 20M) Mode 8: 802.11n_CH06_2437 MHz (BW 20M) Mode 9: 802.11n_CH11_2462 MHz (BW 20M) Mode 10: 802.11n_CH03_2422 MHz (BW 40M) Mode 11: 802.11n_CH06_2437 MHz (BW 40M) Mode 12: 802.11n_CH09_2452 MHz (BW 40M)	Mode 13: 802.11a_CH149_5745 MHz Mode 14: 802.11a_CH157_5785 MHz Mode 15: 802.11a_CH165_5825 MHz Mode 16: 802.11n_CH149_5745 MHz (BW 20M) Mode 17: 802.11n_CH157_5785 MHz (BW 20M) Mode 18: 802.11n_CH165_5825 MHz (BW 20M) Mode 19: 802.11n_CH151_5755 MHz (BW 40M) Mode 20: 802.11n_CH159_5795 MHz (BW 40M)
<b>AC Conducted Emission</b>	Mode 1 : WLAN Link + TC + Adapter	
<b>Remark:</b> <ol style="list-style-type: none"> <li>The power setting was based on the WLAN Intel/633ANHMW module report.</li> <li>TC stands for Test Configuration, and consists of iPod, monitor, earphone, and RJ-45.</li> <li>Mode 4~9, 13~15, and 19~20 of radiated emission only verify bandedge.</li> <li>Only the radiated emission and AC conducted emission tests of the WLAN module on this Notebook Computer was performed in this report and the conducted test results can be referred to the integrated WLAN module (Brand Name: Intel / Model Name: 633ANHMW, FCC ID: PD9633ANH) report.</li> </ol>		

## 2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<EUT with TC Mode>



## 2.4 RF Utility

The programmed RF utility “CRTU” is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.



### **3 Test Result**

#### **3.1 Band Edges Measurement**

##### **3.1.1 Limit of Band Edges**

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB.

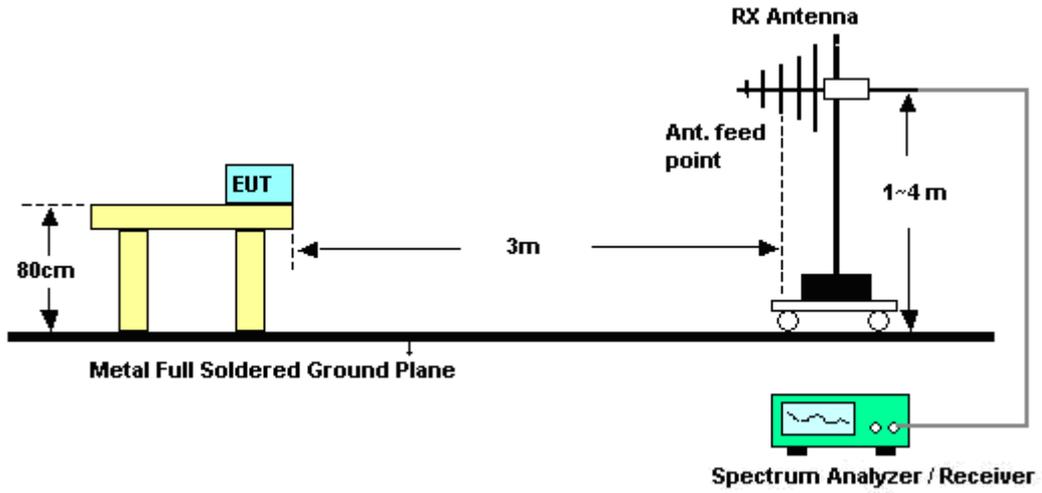
##### **3.1.2 Measuring Instruments**

See list of measuring instruments of this test report.

##### **3.1.3 Test Procedures**

1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

### 3.1.4 Test Setup





3.1.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	43~45%
Test Channel :	01	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2385.81	51.45	-22.55	74.00	53.13	28.17	2.19	32.04	100	255	Peak
2385.81	42.78	-11.22	54.00	44.46	28.17	2.19	32.04	100	255	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2385.81	48.07	-25.93	74.00	49.75	28.17	2.19	32.04	100	74	Peak
2385.81	38.63	-15.37	54.00	40.31	28.17	2.19	32.04	100	74	Average

Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	43~45%
Test Channel :	11	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	48.93	-25.07	74.00	50.22	28.36	2.25	31.9	100	127	Peak
2483.5	39.79	-14.21	54.00	41.08	28.36	2.25	31.9	100	127	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	46.39	-27.61	74.00	47.68	28.36	2.25	31.9	121	328	Peak
2483.5	35.84	-18.16	54.00	37.13	28.36	2.25	31.9	121	328	Average



Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	43~45%
Test Channel :	01	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.99	67.83	-6.17	74.00	69.47	28.17	2.19	32	100	252	Peak
2389.99	47.95	-6.05	54.00	49.59	28.17	2.19	32	100	252	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.99	63.65	-10.35	74.00	65.29	28.17	2.19	32	100	73	Peak
2389.99	43.69	-10.31	54.00	45.33	28.17	2.19	32	100	73	Average

Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	43~45%
Test Channel :	11	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	66.04	-7.96	74.00	67.33	28.36	2.25	31.9	100	122	Peak
2483.5	47.82	-6.18	54.00	49.11	28.36	2.25	31.9	100	122	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	63.4	-10.6	74.00	64.69	28.36	2.25	31.9	139	336	Peak
2483.5	45.68	-8.32	54.00	46.97	28.36	2.25	31.9	139	336	Average



Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	43~45%
Test Channel :	01	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	66.21	-7.79	74.00	65.71	31.86	36.08	4.72	132	111	Peak
2390	50.33	-3.67	54.00	49.83	31.86	36.08	4.72	132	111	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	61.05	-12.95	74.00	60.55	31.86	36.08	4.72	100	78	Peak
2390	45.37	-8.63	54.00	44.87	31.86	36.08	4.72	100	78	Average

Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	43~45%
Test Channel :	11	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	67.9	-6.1	74.00	69.19	28.36	2.25	31.9	100	141	Peak
2483.5	51.38	-2.62	54.00	52.67	28.36	2.25	31.9	100	141	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2484.42	64.88	-9.12	74.00	66.17	28.36	2.25	31.9	117	102	Peak
2484.42	47.98	-6.02	54.00	49.27	28.36	2.25	31.9	117	102	Average



Test Mode :	Mode 10	Temperature :	24~26°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	43~45%
Test Channel :	03	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.99	70.05	-3.95	74.00	71.69	28.17	2.19	32	101	137	Peak
2389.99	52.05	-1.95	54.00	53.69	28.17	2.19	32	101	137	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.99	65.53	-8.47	74.00	67.17	28.17	2.19	32	100	96	Peak
2389.99	47.74	-6.26	54.00	49.38	28.17	2.19	32	100	96	Average

Test Mode :	Mode 12	Temperature :	24~26°C
Test Band :	802.11n (BW 40MHz)	Relative Humidity :	43~45%
Test Channel :	09	Test Engineer :	Elvis Chen

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2484.42	70.17	-3.83	74.00	71.46	28.36	2.25	31.9	100	140	Peak
2484.42	52.15	-1.85	54.00	53.44	28.36	2.25	31.9	100	140	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2484.61	67.19	-6.81	74.00	68.48	28.36	2.25	31.9	100	92	Peak
2484.61	48.55	-5.45	54.00	49.84	28.36	2.25	31.9	100	92	Average

## 3.2 AC Conducted Emission Measurement

### 3.2.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

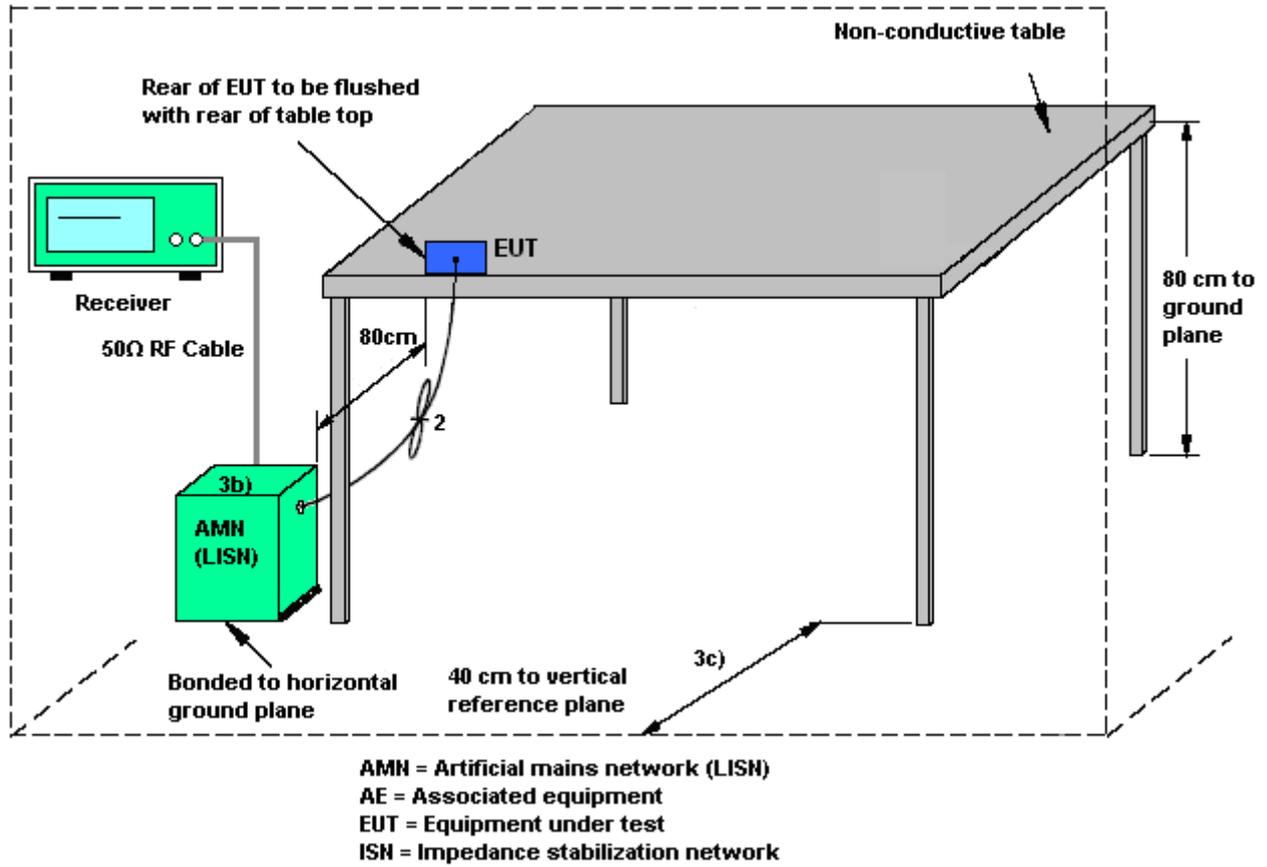
### 3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.2.3 Test Procedures

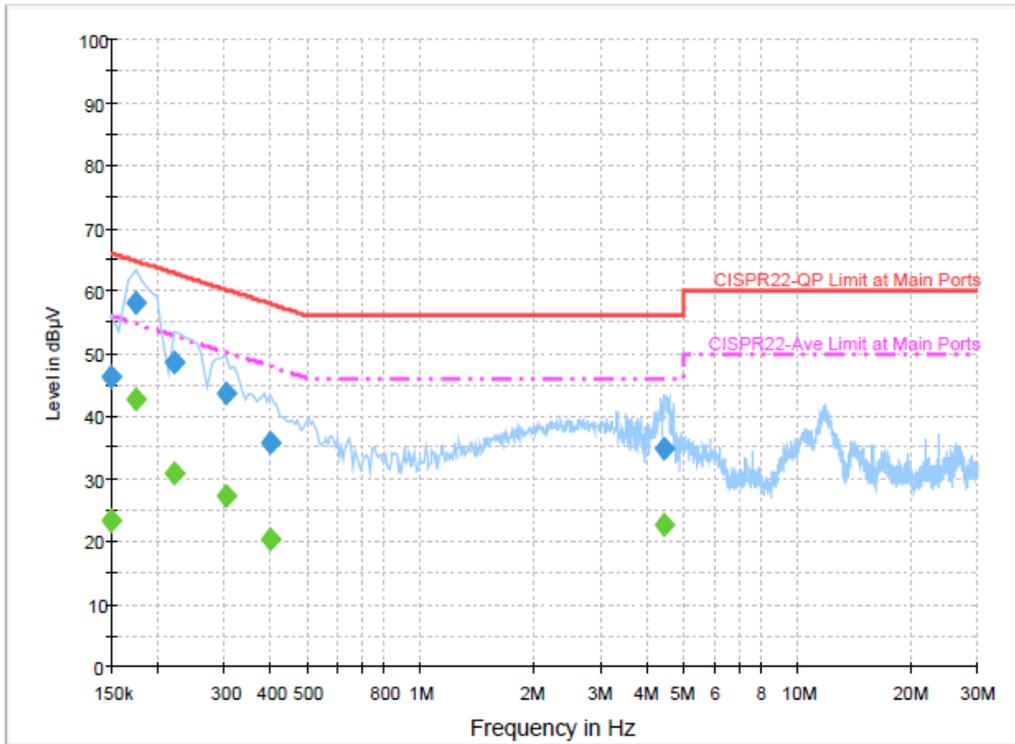
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

### 3.2.4 Test Setup



3.2.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Jiang	Relative Humidity :	34~36%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Link + TC + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

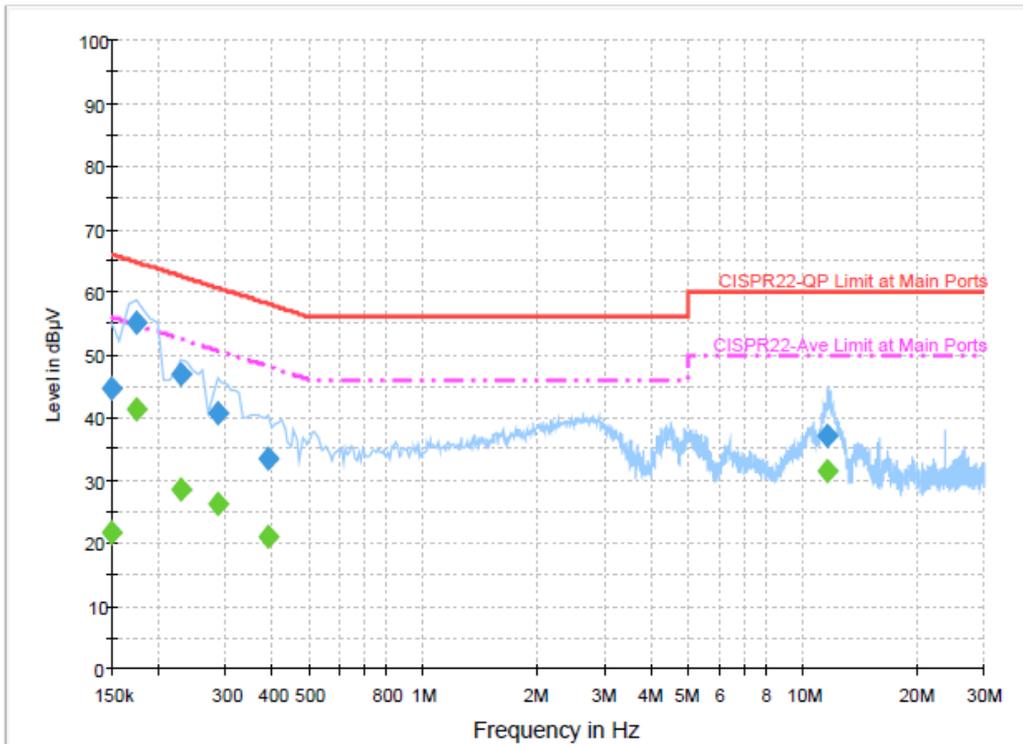
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	46.1	Off	L1	19.5	19.9	66.0
0.174000	58.0	Off	L1	19.5	6.8	64.8
0.222000	48.6	Off	L1	19.6	14.1	62.7
0.302000	43.8	Off	L1	19.5	16.4	60.2
0.398000	35.9	Off	L1	19.5	22.0	57.9
4.398000	34.9	Off	L1	19.5	21.1	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	23.4	Off	L1	19.5	32.6	56.0
0.174000	42.5	Off	L1	19.5	12.3	54.8
0.222000	30.8	Off	L1	19.6	11.9	52.7
0.302000	27.3	Off	L1	19.5	22.9	50.2
0.398000	20.4	Off	L1	19.5	27.5	47.9
4.398000	22.7	Off	L1	19.5	23.3	46.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Jiang	Relative Humidity :	34~36%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Link + TC + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	44.6	Off	N	19.5	21.4	66.0
0.174000	55.1	Off	N	19.5	9.7	64.8
0.230000	46.9	Off	N	19.5	15.5	62.4
0.286000	40.7	Off	N	19.4	19.9	60.6
0.390000	33.5	Off	N	19.4	24.6	58.1
11.566000	37.2	Off	N	19.6	22.8	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	21.7	Off	N	19.5	34.3	56.0
0.174000	41.4	Off	N	19.5	13.4	54.8
0.230000	28.6	Off	N	19.5	23.8	52.4
0.286000	26.2	Off	N	19.4	24.4	50.6
0.390000	21.1	Off	N	19.4	27.0	48.1
11.566000	31.5	Off	N	19.6	18.5	50.0

### 3.3 Radiated Emission Measurement

#### 3.3.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (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

#### 3.3.2 Measuring Instruments

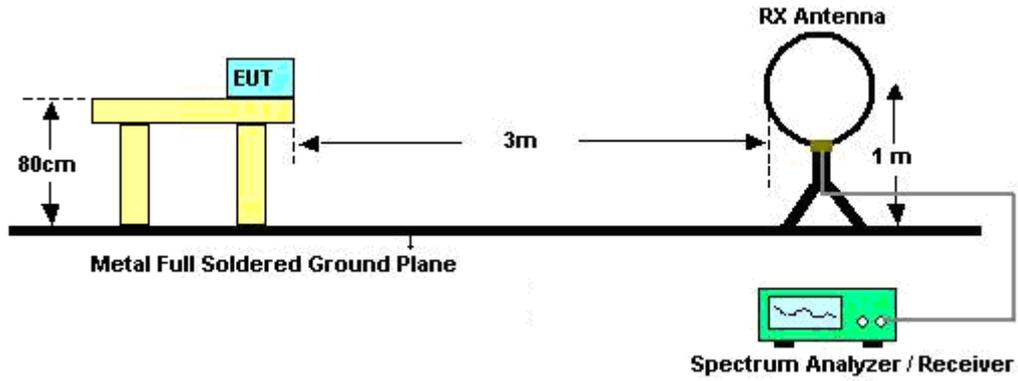
See list of measuring instruments of this test report.

#### 3.3.3 Test Procedures

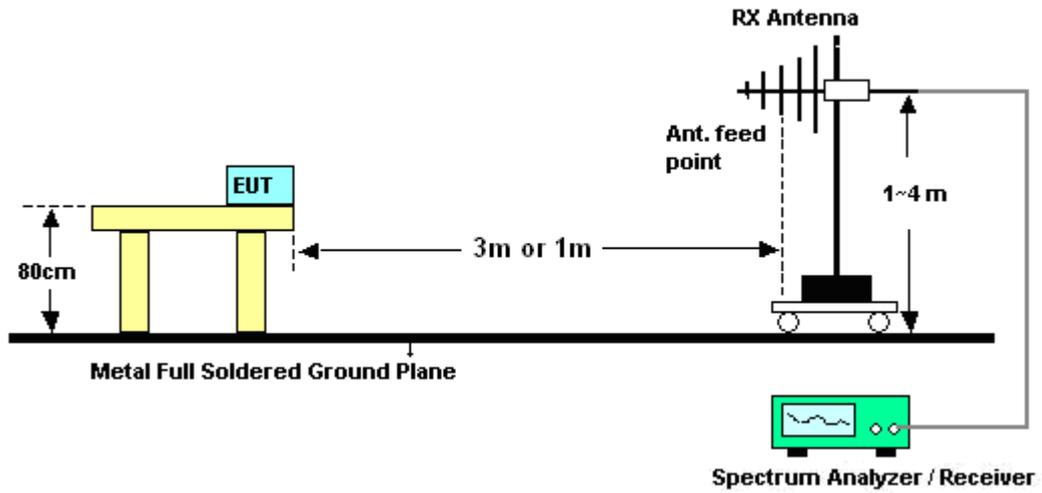
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
  - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz; VBW  $\geq$  RBW; Sweep = auto; Detector function = peak; Trace = max hold.
  - (2) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.  
 Distance extrapolation factor =  $20 \log(\text{specific distance [3m]} / \text{test distance [1m]})$  (dB)
3. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

### 3.3.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz





3.3.5 Test Results of Radiated Emissions (9kHz ~ 30MHz)

Test Engineer :	Elvis Chen	Temperature :	24~26°C	
		Relative Humidity :	43~45%	
Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

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

Distance extrapolation factor =  $40 \log(\text{specific distance} / \text{test distance})$  (dB);

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



3.3.6 Test Result of Radiated Emission (30MHz ~ 10<sup>th</sup> Harmonic)

Test Mode :	Mode 1	Temperature :	24~26°C
Test Channel :	01	Relative Humidity :	43~45%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
31.89	24.83	-15.17	40	35.09	17.3	0.75	28.31	-	-	Peak
186.06	19.88	-23.62	43.5	36.59	9.13	2.25	28.09	-	-	Peak
250.05	34.06	-11.94	46	46.39	12.68	2.75	27.76	100	36	Peak
455.4	23.97	-22.03	46	31.66	17.2	3.68	28.57	-	-	Peak
799.8	27.42	-18.58	46	31.06	20.75	5.08	29.47	-	-	Peak
934.2	26.8	-19.2	46	29.46	21.24	5.78	29.68	-	-	Peak
2385.81	42.78	-11.22	54	44.46	28.17	2.19	32.04	100	255	Average
2385.81	51.45	-22.55	74	53.13	28.17	2.19	32.04	100	255	Peak
2412	105.24	-	-	106.84	28.21	2.19	32	100	255	Peak
2412	101.53	-	-	103.13	28.21	2.19	32	100	255	Average
2492	43.65	-30.35	74	44.86	28.4	2.25	31.86	100	255	Peak
2492	31.55	-22.45	54	32.76	28.4	2.25	31.86	100	255	Average
8829	55.51	-18.49	74	44.85	37.97	4.88	32.19	100	0	Peak
8829	43.22	-10.78	54	32.56	37.97	4.88	32.19	100	0	Average



<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30.54	25.33	-14.67	40	35.12	17.89	0.74	28.42	-	-	Peak
68.61	28.09	-11.91	40	48.41	6.02	1.33	27.67	100	95	Peak
95.61	31.21	-12.29	43.5	46.97	10.35	1.62	27.73	-	-	Peak
525.4	25.66	-20.34	46	32.21	18.71	4.02	29.28	-	-	Peak
685.7	26.57	-19.43	46	31.39	19.87	4.64	29.33	-	-	Peak
934.2	27.82	-18.18	46	30.48	21.24	5.78	29.68	-	-	Peak
2385.81	38.63	-15.37	54	40.31	28.17	2.19	32.04	100	74	Average
2385.81	48.07	-25.93	74	49.75	28.17	2.19	32.04	100	74	Peak
2412	102.18	-	-	103.78	28.21	2.19	32	100	74	Peak
2412	98.66	-	-	100.26	28.21	2.19	32	100	74	Average
2492	41.71	-32.29	74	42.92	28.4	2.25	31.86	100	74	Peak
2492	29.54	-24.46	54	30.75	28.4	2.25	31.86	100	74	Average
8682	55.48	-18.52	74	44.77	37.67	5.15	32.11	100	0	Peak
8682	42.86	-11.14	54	32.15	37.67	5.15	32.11	100	0	Average



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
31.62	22.52	-17.48	40	32.83	17.3	0.75	28.36	-	-	Peak
116.13	18.46	-25.04	43.5	31.76	12.54	1.85	27.69	-	-	Peak
254.37	34.17	-11.83	46	46.13	13.08	2.78	27.82	100	34	Peak
466.6	26.01	-19.99	46	33.47	17.5	3.75	28.71	-	-	Peak
799.8	27.25	-18.75	46	30.89	20.75	5.08	29.47	-	-	Peak
934.2	26.11	-19.89	46	28.77	21.24	5.78	29.68	-	-	Peak
2388	44.4	-29.6	74	46.08	28.17	2.19	32.04	100	267	Peak
2388	32.47	-21.53	54	34.15	28.17	2.19	32.04	100	267	Average
2437	105.01	-	-	106.51	28.25	2.22	31.97	100	267	Peak
2437	101.5	-	-	102.96	28.29	2.22	31.97	100	267	Average
2486	31.33	-22.67	54	32.62	28.36	2.25	31.9	100	267	Average
2486	43.44	-30.56	74	44.73	28.36	2.25	31.9	100	267	Peak
8133	54.22	-19.78	74	44.69	36.79	4.91	32.17	100	0	Peak
8133	41.83	-12.17	54	32.3	36.79	4.91	32.17	100	0	Average



<b>Test Mode :</b>	Mode 2	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30.54	25.02	-14.98	40	34.81	17.89	0.74	28.42	-	-	Peak
68.61	28.37	-11.63	40	48.69	6.02	1.33	27.67	100	95	Peak
96.42	29.81	-13.69	43.5	45.37	10.52	1.63	27.71	-	-	Peak
533.8	32.25	-13.75	46	38.62	18.92	4.05	29.34	-	-	Peak
617.8	26.71	-19.29	46	32.36	19.42	4.6	29.67	-	-	Peak
934.2	26.13	-19.87	46	28.79	21.24	5.78	29.68	-	-	Peak
2380	42.34	-31.66	74	44.09	28.13	2.16	32.04	100	318	Peak
2380	29.75	-24.25	54	31.5	28.13	2.16	32.04	100	318	Average
2437	97.94	-	-	99.4	28.29	2.22	31.97	100	318	Average
2437	101.49	-	-	102.99	28.25	2.22	31.97	100	318	Peak
2484	29.32	-24.68	54	30.61	28.36	2.25	31.9	100	318	Average
2484	40.98	-33.02	74	42.27	28.36	2.25	31.9	100	318	Peak
8130	54.34	-19.66	74	44.83	36.77	4.91	32.17	100	0	Peak
8130	41.87	-12.13	54	32.36	36.77	4.91	32.17	100	0	Average



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
31.89	25.53	-14.47	40	35.79	17.3	0.75	28.31	-	-	Peak
36.21	21.53	-18.47	40	33.81	14.94	0.83	28.05	-	-	Peak
254.37	33.95	-12.05	46	45.91	13.08	2.78	27.82	100	34	Peak
724.9	25.01	-20.99	46	29.6	20.34	4.78	29.71	-	-	Peak
799.8	28.39	-17.61	46	32.03	20.75	5.08	29.47	-	-	Peak
934.2	27.4	-18.6	46	30.06	21.24	5.78	29.68	-	-	Peak
2382	43.66	-30.34	74	45.41	28.13	2.16	32.04	100	127	Peak
2382	30.9	-23.1	54	32.65	28.13	2.16	32.04	100	127	Average
2462	104.5	-	-	105.89	28.32	2.22	31.93	100	127	Peak
2462	100.47	-	-	101.86	28.32	2.22	31.93	100	127	Average
2483.5	39.79	-14.21	54	41.08	28.36	2.25	31.9	100	127	Average
2483.5	48.93	-25.07	74	50.22	28.36	2.25	31.9	100	127	Peak
8586	55.39	-18.61	74	44.71	37.47	5.28	32.07	100	0	Peak
8586	42.99	-11.01	54	32.31	37.47	5.28	32.07	100	0	Average



<b>Test Mode :</b>	Mode 3	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
69.69	28.24	-11.76	40	48.44	5.98	1.34	27.52	-	-	Peak
75.09	29.15	-10.85	40	48.95	6.57	1.37	27.74	100	74	Peak
95.61	30.81	-12.69	43.5	46.57	10.35	1.62	27.73	-	-	Peak
531	31.95	-14.05	46	38.38	18.85	4.04	29.32	-	-	Peak
719.3	26.73	-19.27	46	31.36	20.25	4.75	29.63	-	-	Peak
934.2	27.23	-18.77	46	29.89	21.24	5.78	29.68	-	-	Peak
2382	41.3	-32.7	74	43.05	28.13	2.16	32.04	121	328	Peak
2382	29.03	-24.97	54	30.78	28.13	2.16	32.04	121	328	Average
2462	103	-	-	104.39	28.32	2.22	31.93	121	328	Peak
2462	99.05	-	-	100.44	28.32	2.22	31.93	121	328	Average
2483.5	35.84	-18.16	54	37.13	28.36	2.25	31.9	121	328	Average
2483.5	46.39	-27.61	74	47.68	28.36	2.25	31.9	121	328	Peak
8370	55.2	-18.8	74	44.86	37.13	5.29	32.08	100	0	Peak
8370	42.91	-11.09	54	32.57	37.13	5.29	32.08	100	0	Average



Test Mode :	Mode 4	Temperature :	24~26°C
Test Channel :	01	Relative Humidity :	43~45%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.99	47.95	-6.05	54	49.59	28.17	2.19	32	100	252	Average
2389.99	67.83	-6.17	74	69.47	28.17	2.19	32	100	252	Peak
2412	108.8	-	-	110.4	28.21	2.19	32	100	252	Peak
2412	98.25	-	-	99.85	28.21	2.19	32	100	252	Average
2500	45.54	-28.46	74	46.75	28.4	2.25	31.86	100	252	Peak
2500	33.13	-20.87	54	34.34	28.4	2.25	31.86	100	252	Average



Test Mode :	Mode 4	Temperature :	24~26°C
Test Channel :	01	Relative Humidity :	43~45%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.99	63.65	-10.35	74	65.29	28.17	2.19	32	100	73	Peak
2389.99	43.69	-10.31	54	45.33	28.17	2.19	32	100	73	Average
2412	105.12	-	-	106.72	28.21	2.19	32	100	73	Peak
2412	95.18	-	-	96.78	28.21	2.19	32	100	73	Average
2492	42.9	-31.1	74	44.11	28.4	2.25	31.86	100	73	Peak
2492	30.47	-23.53	54	31.68	28.4	2.25	31.86	100	73	Average



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	67.79	-6.21	74	69.43	28.17	2.19	32	127	256	Peak
2390	44.56	-9.44	54	46.2	28.17	2.19	32	127	256	Average
2437	104.98	-	-	106.44	28.29	2.22	31.97	127	256	Average
2437	111.87	-	-	113.37	28.25	2.22	31.97	127	256	Peak
2484	41.09	-12.91	54	42.38	28.36	2.25	31.9	127	256	Average
2484	60.97	-13.03	74	62.26	28.36	2.25	31.9	127	256	Peak



<b>Test Mode :</b>	Mode 5	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	64.39	-9.61	74	66.03	28.17	2.19	32	148	333	Peak
2390	40.57	-13.43	54	42.21	28.17	2.19	32	148	333	Average
2437	102.41	-	-	103.87	28.29	2.22	31.97	148	333	Average
2437	111.61	-	-	113.07	28.29	2.22	31.97	148	333	Peak
2484	37	-17	54	38.29	28.36	2.25	31.9	148	333	Average
2484	55.7	-18.3	74	56.99	28.36	2.25	31.9	148	333	Peak



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	46.72	-27.28	74	48.36	28.17	2.19	32	100	122	Peak
2390	33.39	-20.61	54	35.03	28.17	2.19	32	100	122	Average
2462	108.02	-	-	109.41	28.32	2.22	31.93	100	122	Peak
2462	97.93	-	-	99.32	28.32	2.22	31.93	100	122	Average
2483.5	47.82	-6.18	54	49.11	28.36	2.25	31.9	100	122	Average
2483.5	66.04	-7.96	74	67.33	28.36	2.25	31.9	100	122	Peak



<b>Test Mode :</b>	Mode 6	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2366	42.31	-31.69	74	44.09	28.1	2.16	32.04	139	336	Peak
2366	30.13	-23.87	54	31.91	28.1	2.16	32.04	139	336	Average
2462	106.13	-	-	107.46	28.32	2.25	31.9	139	336	Peak
2462	95.82	-	-	97.21	28.32	2.22	31.93	139	336	Average
2483.5	45.68	-8.32	54	46.97	28.36	2.25	31.9	139	336	Average
2483.5	63.4	-10.6	74	64.69	28.36	2.25	31.9	139	336	Peak



Test Mode :	Mode 7	Temperature :	24~26°C
Test Channel :	01	Relative Humidity :	43~45%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	66.21	-7.79	74	65.71	31.86	36.08	4.72	132	111	Peak
2390	50.33	-3.67	54	49.83	31.86	36.08	4.72	132	111	Average
2412	108.68	-	-	108.13	31.88	36.08	4.75	132	111	Peak
2412	94.84	-	-	94.29	31.88	36.08	4.75	132	111	Average
2486	47.08	-26.92	74	46.36	31.98	36.1	4.84	132	111	Peak
2486	32.99	-21.01	54	32.27	31.98	36.1	4.84	132	111	Average



<b>Test Mode :</b>	Mode 7	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	61.05	-12.95	74	60.55	31.86	36.08	4.72	100	78	Peak
2390	45.37	-8.63	54	44.87	31.86	36.08	4.72	100	78	Average
2412	90.87	-	-	90.32	31.88	36.08	4.75	100	78	Average
2412	104.07	-	-	103.52	31.88	36.08	4.75	100	78	Peak
2486	44.28	-29.72	74	43.56	31.98	36.1	4.84	100	78	Peak
2486	31.34	-22.66	54	30.62	31.98	36.1	4.84	100	78	Average



Test Mode :	Mode 8	Temperature :	24~26°C
Test Channel :	06	Relative Humidity :	43~45%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	51.11	-22.89	74	52.75	28.17	2.19	32	100	139	Peak
2390	33.47	-20.53	54	35.11	28.17	2.19	32	100	139	Average
2437	97.67	-	-	99.13	28.29	2.22	31.97	100	139	Average
2437	111.43	-	-	112.89	28.29	2.22	31.97	100	139	Peak
2484	33.97	-20.03	54	35.26	28.36	2.25	31.9	100	139	Average
2484	50.18	-23.82	74	51.47	28.36	2.25	31.9	100	139	Peak



<b>Test Mode :</b>	Mode 8	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	45.75	-28.25	74	47.39	28.17	2.19	32	100	106	Peak
2390	31.14	-22.86	54	32.78	28.17	2.19	32	100	106	Average
2437	94.12	-	-	95.58	28.29	2.22	31.97	100	106	Average
2437	107.49	-	-	108.99	28.25	2.22	31.97	100	106	Peak
2484	31.93	-22.07	54	33.22	28.36	2.25	31.9	100	106	Average
2484	48.03	-25.97	74	49.32	28.36	2.25	31.9	100	106	Peak



<b>Test Mode :</b>	Mode 9	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	43.21	-30.79	74	44.85	28.17	2.19	32	100	141	Peak
2390	34.32	-19.68	54	35.96	28.17	2.19	32	100	141	Average
2462	95.79	-	-	97.18	28.32	2.22	31.93	100	141	Average
2462	109.88	-	-	111.27	28.32	2.22	31.93	100	141	Peak
2483.5	51.38	-2.62	54	52.67	28.36	2.25	31.9	100	141	Average
2483.5	67.9	-6.1	74	69.19	28.36	2.25	31.9	100	141	Peak



Test Mode :	Mode 9	Temperature :	24~26°C
Test Channel :	11	Relative Humidity :	43~45%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2342	41.96	-32.04	74	43.85	28.06	2.13	32.08	117	102	Peak
2342	33.5	-20.5	54	35.39	28.06	2.13	32.08	117	102	Average
2462	106.74	-	-	108.13	28.32	2.22	31.93	117	102	Peak
2462	93.32	-	-	94.71	28.32	2.22	31.93	117	102	Average
2484.42	47.98	-6.02	54	49.27	28.36	2.25	31.9	117	102	Average
2484.42	64.88	-9.12	74	66.17	28.36	2.25	31.9	117	102	Peak



<b>Test Mode :</b>	Mode 10	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2422 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
32.97	17.98	-22.02	40	28.77	16.71	0.76	28.26	-	-	Peak
200.1	19.07	-24.43	43.5	35.26	9.63	2.38	28.2	-	-	Peak
252.21	32.03	-13.97	46	44.18	12.88	2.76	27.79	100	47	Peak
304.9	25.39	-20.61	46	37.03	13.76	3.08	28.48	-	-	Peak
799.8	29.06	-16.94	46	32.7	20.75	5.08	29.47	-	-	Peak
934.2	25.82	-20.18	46	28.48	21.24	5.78	29.68	-	-	Peak
2389.99	52.05	-1.95	54	53.69	28.17	2.19	32	101	137	Average
2389.99	70.05	-3.95	74	71.69	28.17	2.19	32	101	137	Peak
2422	104.04	-	-	105.54	28.25	2.22	31.97	101	137	Peak
2422	88.68	-	-	90.21	28.25	2.19	31.97	101	137	Average
2484	47.96	-26.04	74	49.25	28.36	2.25	31.9	101	137	Peak
2484	32.88	-21.12	54	34.17	28.36	2.25	31.9	101	137	Average
8622	55.04	-18.96	74	44.32	37.53	5.28	32.09	100	0	Peak
8622	42.77	-11.23	54	32.05	37.53	5.28	32.09	100	0	Average



<b>Test Mode :</b>	Mode 10	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2422 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30.54	25.2	-14.8	40	34.99	17.89	0.74	28.42	-	-	Peak
75.9	28.12	-11.88	40	47.8	6.68	1.4	27.76	100	63	Peak
95.61	30.69	-12.81	43.5	46.45	10.35	1.62	27.73	-	-	Peak
531.7	32	-14	46	38.4	18.88	4.04	29.32	-	-	Peak
719.3	26.34	-19.66	46	30.97	20.25	4.75	29.63	-	-	Peak
934.2	26.5	-19.5	46	29.16	21.24	5.78	29.68	-	-	Peak
2389.99	47.74	-6.26	54	49.38	28.17	2.19	32	100	96	Average
2389.99	65.53	-8.47	74	67.17	28.17	2.19	32	100	96	Peak
2422	99.25	-	-	100.75	28.25	2.22	31.97	100	96	Peak
2422	84.97	-	-	86.5	28.25	2.19	31.97	100	96	Average
2484	45.6	-28.4	74	46.89	28.36	2.25	31.9	100	96	Peak
2484	30.6	-23.4	54	31.89	28.36	2.25	31.9	100	96	Average
8610	54.69	-19.31	74	43.96	37.53	5.28	32.08	100	0	Peak
8610	43.27	-10.73	54	32.54	37.53	5.28	32.08	100	0	Average



<b>Test Mode :</b>	Mode 11	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
31.89	23.22	-16.78	40	33.48	17.3	0.75	28.31	-	-	Peak
203.61	18.95	-24.55	43.5	35.18	9.55	2.4	28.18	-	-	Peak
251.94	33.9	-12.1	46	46.03	12.88	2.76	27.77	100	81	Peak
307.7	25.23	-20.77	46	36.72	13.87	3.09	28.45	-	-	Peak
799.8	27.62	-18.38	46	31.26	20.75	5.08	29.47	-	-	Peak
934.2	27.45	-18.55	46	30.11	21.24	5.78	29.68	-	-	Peak
2390	69.51	-4.49	74	71.15	28.17	2.19	32	125	135	Peak
2390	51.13	-2.87	54	52.77	28.17	2.19	32	125	135	Average
2437	93.56	-	-	95.02	28.29	2.22	31.97	125	135	Average
2437	108.79	-	-	110.21	28.29	2.22	31.93	125	135	Peak
2484	49.27	-4.73	54	50.56	28.36	2.25	31.9	125	135	Average
2484	69.39	-4.61	74	70.68	28.36	2.25	31.9	125	135	Peak
8601	55.47	-18.53	74	44.77	37.5	5.28	32.08	100	0	Peak
8601	43.32	-10.68	54	32.62	37.5	5.28	32.08	100	0	Average



<b>Test Mode :</b>	Mode 11	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30.54	25.2	-14.8	40	34.99	17.89	0.74	28.42	-	-	Peak
76.17	28.47	-11.53	40	48.15	6.68	1.4	27.76	100	46	Peak
95.61	31.45	-12.05	43.5	47.21	10.35	1.62	27.73	-	-	Peak
531.7	32.64	-13.36	46	39.04	18.88	4.04	29.32	-	-	Peak
617.8	26.4	-19.6	46	32.05	19.42	4.6	29.67	-	-	Peak
934.2	27.67	-18.33	46	30.33	21.24	5.78	29.68	-	-	Peak
2390	64.39	-9.61	74	66.03	28.17	2.19	32	122	106	Peak
2390	47.34	-6.66	54	48.98	28.17	2.19	32	122	106	Average
2437	89.94	-	-	91.4	28.29	2.22	31.97	122	106	Average
2437	104.88	-	-	106.38	28.25	2.22	31.97	122	106	Peak
2484	45.35	-8.65	54	46.64	28.36	2.25	31.9	122	106	Average
2484	62.31	-11.69	74	63.6	28.36	2.25	31.9	122	106	Peak
8706	56.01	-17.99	74	45.36	37.7	5.08	32.13	100	0	Peak
8706	43.47	-10.53	54	32.82	37.7	5.08	32.13	100	0	Average



<b>Test Mode :</b>	Mode 12	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2452 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
31.89	23.55	-16.45	40	33.81	17.3	0.75	28.31	-	-	Peak
191.73	18.48	-25.02	43.5	35.03	9.29	2.3	28.14	-	-	Peak
253.29	34.06	-11.94	46	46.12	12.98	2.77	27.81	100	91	Peak
326.6	25.2	-20.8	46	35.77	14.47	3.19	28.23	-	-	Peak
799.8	27.3	-18.7	46	30.94	20.75	5.08	29.47	-	-	Peak
934.2	25.75	-20.25	46	28.41	21.24	5.78	29.68	-	-	Peak
2390	47.81	-26.19	74	49.45	28.17	2.19	32	100	140	Peak
2390	35.08	-18.92	54	36.72	28.17	2.19	32	100	140	Average
2452	103.11	-	-	104.53	28.29	2.22	31.93	100	140	Peak
2452	89.42	-	-	90.84	28.29	2.22	31.93	100	140	Average
2484.42	52.15	-1.85	54	53.44	28.36	2.25	31.9	100	140	Average
2484.42	70.17	-3.83	74	71.46	28.36	2.25	31.9	100	140	Peak
8913	55.04	-18.96	74	44.42	38.1	4.74	32.22	100	0	Peak
8913	42.99	-11.01	54	32.37	38.1	4.74	32.22	100	0	Average



<b>Test Mode :</b>	Mode 12	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2452 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
32.7	25.35	-14.65	40	36.14	16.71	0.76	28.26	-	-	Peak
69.69	28.17	-11.83	40	48.37	5.98	1.34	27.52	100	114	Peak
95.61	30.91	-12.59	43.5	46.67	10.35	1.62	27.73	-	-	Peak
525.4	31.81	-14.19	46	38.36	18.71	4.02	29.28	-	-	Peak
884.5	26.36	-19.64	46	29.24	20.97	5.44	29.29	-	-	Peak
934.2	27.75	-18.25	46	30.41	21.24	5.78	29.68	-	-	Peak
2390	44.95	-29.05	74	46.59	28.17	2.19	32	100	92	Peak
2390	30.4	-23.6	54	32.04	28.17	2.19	32	100	92	Average
2452	100.8	-	-	102.22	28.29	2.22	31.93	100	92	Peak
2452	85.92	-	-	87.34	28.29	2.22	31.93	100	92	Average
2484.61	48.55	-5.45	54	49.84	28.36	2.25	31.9	100	92	Average
2484.61	67.19	-6.81	74	68.48	28.36	2.25	31.9	100	92	Peak
8841	54.89	-19.11	74	44.23	37.97	4.88	32.19	100	0	Peak
8841	43.3	-10.7	54	32.64	37.97	4.88	32.19	100	0	Average



<b>Test Mode :</b>	Mode 13	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	149	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5745 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725	92.44	-3.12	95.56	86.79	34.13	3.52	32	163	213	Peak
5745	105.09	-	-	99.48	34.14	3.48	32.01	163	213	Average
5745	115.56	-	-	109.95	34.14	3.48	32.01	163	213	Peak
5850	55.1	-40.46	95.56	49.57	34.21	3.4	32.08	163	213	Peak



Test Mode :	Mode 13	Temperature :	24~26°C
Test Channel :	149	Relative Humidity :	43~45%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	5745 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725	88.75	-4.59	93.34	83.1	34.13	3.52	32	100	287	Peak
5745	102.82	-	-	97.21	34.14	3.48	32.01	100	287	Average
5745	113.34	-	-	107.73	34.14	3.48	32.01	100	287	Peak
5850	50.75	-42.59	93.34	45.22	34.21	3.4	32.08	100	287	Peak



<b>Test Mode :</b>	Mode 14	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	157	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5785 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725	59.09	-35.58	94.67	53.44	34.13	3.52	32	162	213	Peak
5785	104.17	-	-	98.6	34.17	3.44	32.04	162	213	Average
5785	114.67	-	-	109.1	34.17	3.44	32.04	162	213	Peak
5850	57.29	-37.38	94.67	51.76	34.21	3.4	32.08	162	213	Peak



<b>Test Mode :</b>	Mode 14	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	157	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5785 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725	58.79	-33.21	92	53.14	34.13	3.52	32	100	279	Peak
5785	101.42	-	-	95.85	34.17	3.44	32.04	100	279	Average
5785	112	-	-	106.43	34.17	3.44	32.04	100	279	Peak
5850	54.72	-37.28	92	49.19	34.21	3.4	32.08	100	279	Peak



<b>Test Mode :</b>	Mode 15	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	165	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5825 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level (dBuV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725	54.86	-38.84	93.7	49.21	34.13	3.52	32	152	245	Peak
5825	103.68	-	-	98.14	34.2	3.4	32.06	152	245	Average
5825	113.7	-	-	108.16	34.2	3.4	32.06	152	245	Peak
5850	79.28	-14.42	93.7	73.75	34.21	3.4	32.08	152	245	Peak



Test Mode :	Mode 15	Temperature :	24~26°C
Test Channel :	165	Relative Humidity :	43~45%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	5825 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725	53.86	-36.4	90.26	48.21	34.13	3.52	32	100	279	Peak
5825	100.05	-	-	94.51	34.2	3.4	32.06	100	279	Average
5825	110.26	-	-	104.72	34.2	3.4	32.06	100	279	Peak
5850	77.24	-13.02	90.26	71.71	34.21	3.4	32.08	100	279	Peak



<b>Test Mode :</b>	Mode 16	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	149	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5745 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
32.97	21.19	-18.81	40	31.98	16.71	0.76	28.26	-	-	Peak
91.02	21.97	-21.53	43.5	38.96	9.67	1.58	28.24	-	-	Peak
253.29	32.22	-13.78	46	44.28	12.98	2.77	27.81	100	200	Peak
531	28.5	-17.5	46	34.93	18.85	4.04	29.32	-	-	Peak
719.3	29.25	-16.75	46	33.88	20.25	4.75	29.63	-	-	Peak
934.2	27.64	-18.36	46	30.3	21.24	5.78	29.68	-	-	Peak
5725	71.29	-18.94	90.23	65.64	34.13	3.52	32	166	216	Peak
5745	96.53	-	-	90.92	34.14	3.48	32.01	166	216	Average
5745	110.23	-	-	104.62	34.14	3.48	32.01	166	216	Peak
5850	49.42	-40.81	90.23	43.89	34.21	3.4	32.08	166	216	Peak
8742	55.69	-18.31	74	45.06	37.77	5.01	32.15	100	360	Peak
8742	42.99	-11.01	54	32.36	37.77	5.01	32.15	100	360	Average



<b>Test Mode :</b>	Mode 16	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	149	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5745 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30.54	26.4	-13.6	40	36.19	17.89	0.74	28.42	-	-	Peak
68.34	28.79	-11.21	40	49.23	6.05	1.33	27.82	-	-	Peak
75.09	28.8	-11.2	40	48.6	6.57	1.37	27.74	100	360	Peak
528.2	28.03	-17.97	46	34.52	18.78	4.03	29.3	-	-	Peak
934.2	26.25	-19.75	46	28.91	21.24	5.78	29.68	-	-	Peak
957.3	28.28	-17.72	46	30.82	21.27	5.91	29.72	-	-	Peak
5725	72.19	-16.1	88.29	66.54	34.13	3.52	32	117	319	Peak
5745	95.22	-	-	89.61	34.14	3.48	32.01	117	319	Average
5745	108.29	-	-	102.68	34.14	3.48	32.01	117	319	Peak
5850	48.48	-39.81	88.29	42.95	34.21	3.4	32.08	117	319	Peak
8654	55.5	-18.5	74	44.79	37.6	5.21	32.1	100	360	Peak
8654	43.54	-10.46	54	32.83	37.6	5.21	32.1	100	360	Average



<b>Test Mode :</b>	Mode 17	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	157	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5785 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
36.21	16.54	-23.46	40	28.82	14.94	0.83	28.05	-	-	Peak
198.21	20.49	-23.01	43.5	36.72	9.6	2.36	28.19	-	-	Peak
258.69	32.42	-13.58	46	43.93	13.58	2.8	27.89	100	2	Peak
528.2	31.04	-14.96	46	37.53	18.78	4.03	29.3	-	-	Peak
727	28.53	-17.47	46	33.11	20.37	4.79	29.74	-	-	Peak
799.8	27.51	-18.49	46	31.15	20.75	5.08	29.47	-	-	Peak
5725	49.97	-39.83	89.8	44.32	34.13	3.52	32	163	213	Peak
5785	96.09	-	-	90.52	34.17	3.44	32.04	163	213	Average
5785	109.8	-	-	104.23	34.17	3.44	32.04	163	213	Peak
5850	48.78	-41.02	89.8	43.25	34.21	3.4	32.08	163	213	Peak
8644	55.54	-18.46	74	44.83	37.6	5.21	32.1	100	360	Peak
8644	43.49	-10.51	54	32.78	37.6	5.21	32.1	100	360	Average



<b>Test Mode :</b>	Mode 17	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	157	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5785 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
30.54	25.12	-14.88	40	34.91	17.89	0.74	28.42	-	-	Peak
69.42	28.2	-11.8	40	48.55	5.98	1.34	27.67	-	-	Peak
75.09	28.24	-11.76	40	48.04	6.57	1.37	27.74	100	74	Peak
528.9	28.63	-17.37	46	35.1	18.81	4.03	29.31	-	-	Peak
799.8	25.08	-20.92	46	28.72	20.75	5.08	29.47	-	-	Peak
934.2	25.84	-20.16	46	28.5	21.24	5.78	29.68	-	-	Peak
5725	48.97	-38.53	87.5	43.32	34.13	3.52	32	101	283	Peak
5785	94.48	-	-	88.91	34.17	3.44	32.04	101	283	Average
5785	107.5	-	-	101.93	34.17	3.44	32.04	101	283	Peak
5850	48.6	-38.9	87.5	43.07	34.21	3.4	32.08	101	283	Peak
8588	55.94	-18.06	74	45.27	37.47	5.28	32.08	100	360	Peak
8588	43.62	-10.38	54	32.95	37.47	5.28	32.08	100	360	Average



<b>Test Mode :</b>	Mode 18	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	165	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5825 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
32.97	17.02	-22.98	40	27.81	16.71	0.76	28.26	-	-	Peak
200.1	21.51	-21.99	43.5	37.7	9.63	2.38	28.2	-	-	Peak
256.53	32.26	-13.74	46	44.04	13.28	2.79	27.85	100	62	Peak
525.4	31.57	-14.43	46	38.12	18.71	4.02	29.28	-	-	Peak
719.3	28.89	-17.11	46	33.52	20.25	4.75	29.63	-	-	Peak
799.8	28.72	-17.28	46	32.36	20.75	5.08	29.47	-	-	Peak
5725	50.54	-37.03	87.57	44.89	34.13	3.52	32	100	270	Peak
5825	94.67	-	-	89.13	34.2	3.4	32.06	100	270	Average
5825	107.57	-	-	102.03	34.2	3.4	32.06	100	270	Peak
5850	65.7	-21.87	87.57	60.17	34.21	3.4	32.08	100	270	Peak
8676	56.64	-17.36	74	45.93	37.67	5.15	32.11	100	360	Peak
8676	43.86	-10.14	54	33.15	37.67	5.15	32.11	100	360	Average



<b>Test Mode :</b>	Mode 18	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	165	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5825 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
69.42	28.47	-11.53	40	48.82	5.98	1.34	27.67	-	-	Peak
75.9	28.92	-11.08	40	48.6	6.68	1.4	27.76	100	63	Peak
95.61	28.71	-14.79	43.5	44.47	10.35	1.62	27.73	-	-	Peak
525.4	28.22	-17.78	46	34.77	18.71	4.02	29.28	-	-	Peak
934.2	25.01	-20.99	46	27.67	21.24	5.78	29.68	-	-	Peak
957.3	26.1	-19.9	46	28.64	21.27	5.91	29.72	-	-	Peak
5725	50.98	-35.94	86.92	45.33	34.13	3.52	32	100	284	Peak
5825	94.13	-	-	88.59	34.2	3.4	32.06	100	284	Average
5825	106.92	-	-	101.38	34.2	3.4	32.06	100	284	Peak
5850	64.22	-22.7	86.92	58.69	34.21	3.4	32.08	100	284	Peak
8636	56.82	-17.18	74	46.13	37.57	5.21	32.09	100	0	Peak
8636	43.63	-10.37	54	32.94	37.57	5.21	32.09	100	0	Average



<b>Test Mode :</b>	Mode 19	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	151	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	5755 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725	73.43	-14.34	87.77	67.78	34.13	3.52	32	151	269	Peak
5755	93.38	-	-	87.75	34.16	3.48	32.01	151	269	Average
5755	107.77	-	-	102.14	34.16	3.48	32.01	151	269	Peak
5850	49.29	-38.48	87.77	43.76	34.21	3.4	32.08	151	269	Peak



<b>Test Mode :</b>	Mode 19	<b>Temperature :</b>	24~26°C
<b>Test Channel :</b>	151	<b>Relative Humidity :</b>	43~45%
<b>Test Engineer :</b>	Elvis Chen	<b>Polarization :</b>	Vertical
<b>Remark :</b>	5755 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725	72.67	-14.02	86.69	67.02	34.13	3.52	32	101	291	Peak
5755	92.25	-	-	86.62	34.16	3.48	32.01	101	291	Average
5755	106.69	-	-	101.06	34.16	3.48	32.01	101	291	Peak
5850	49.63	-37.06	86.69	44.1	34.21	3.4	32.08	101	291	Peak



Test Mode :	Mode 20	Temperature :	24~26°C
Test Channel :	159	Relative Humidity :	43~45%
Test Engineer :	Elvis Chen	Polarization :	Horizontal
Remark :	5795 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725	55.17	-31.37	86.54	49.52	34.13	3.52	32	159	275	Peak
5795	92.18	-	-	86.6	34.18	3.44	32.04	159	275	Average
5795	106.54	-	-	100.96	34.18	3.44	32.04	159	275	Peak
5850	54.95	-31.59	86.54	49.42	34.21	3.4	32.08	159	275	Peak



Test Mode :	Mode 20	Temperature :	24~26°C
Test Channel :	159	Relative Humidity :	43~45%
Test Engineer :	Elvis Chen	Polarization :	Vertical
Remark :	5795 MHz is Fundamental Signals which can be ignored.		

Frequency ( MHz )	Level ( dBuV/m )	Over Limit ( dB )	Limit Line ( dBuV/m )	Read Level ( dBuV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
5725	56.72	-29.23	85.95	51.07	34.13	3.52	32	101	285	Peak
5795	91.39	-	-	85.81	34.18	3.44	32.04	101	285	Average
5795	105.95	-	-	100.37	34.18	3.44	32.04	101	285	Peak
5850	56.48	-29.47	85.95	50.95	34.21	3.4	32.08	101	285	Peak



## **3.4 Antenna Requirements**

### **3.4.1 Standard Applicable**

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

### **3.4.2 Antenna Connected Construction**

The antennas type used in this product is PIFA Antenna and it is considered to meet antenna requirement.

### **3.4.3 Antenna Gain**

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 05, 2009	Aug. 04, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9kHz~30MHz	Nov. 30, 2009	Nov. 29, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 23, 2009	Nov. 22, 2010	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30 MHz~1 GHz 3m	Jun. 07, 2009	Jun. 06, 2010	Radiation (03CH03-HY)
Amplifier	SCHAFFNER	COA9231A	18667	9 kHz~2 GHz	Jan. 24, 2010	Jan. 23, 2011	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A0212 0	1 GHz~26.5 GHz	Jul. 21, 2009	Jul. 20, 2010	Radiation (03CH03-HY)
Amplifier	MITEQ	AMF-6F-2604 00	9121372	26.5 GHz - 40 GHz	Apr. 06, 2009*	Apr. 05, 2011	Radiation (03CH03-HY)
Spectrum Analyzer	R&S	FSP40	100004	9 kHz - 40 GHz	Oct. 03, 2009	Oct. 02, 2010	Radiation (03CH03-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 28, 2008*	Jul. 28, 2010	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30 MHz~1 GHz	Sep. 26, 2009	Sep. 25, 2010	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz~18GHz	Apr. 28, 2010	Apr. 27, 2011	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170 154	15 GHz~40 GHz	Jan. 11, 2010	Jan. 10, 2011	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30 MHz~1 GHz	Jan. 05, 2010	Jan. 04, 2011	Radiation (03CH03-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1 GHz~40 GHz	Jan. 05, 2010	Jan. 04, 2011	Radiation (03CH03-HY)
Turn Table	HD	DS 420	420/650/00	0~360 degree	N/A	N/A	Radiation (03CH03-HY)
Antenna Mast	HD	MA 240	240/560/00	1 m~4 m	N/A	N/A	Radiation (03CH03-HY)

## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.13</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.26</b>		

### Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.27</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.54</b>		



**Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)**

Contribution	Uncertainty of $X_i$		$u(X_i)$	$C_i$	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>2.36</b>				
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>4.72</b>				



## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP051224 as below.