FCC Radio Test Report

FCC ID: Z6H-SKT-WAV2

This report concerns (check one) : ■ **Original Grant** □ **Class I Change**

Issued Date	:	Nov. 04, 2011
Project No.	:	R1108006
Equipment	:	5.8G transmitter
Model Name	:	WAV-RFM-001
Applicant	:	SKY Tech Worldwide, Inc.
Address	:	15870 El Prado Rd, Suite B Chino, CA 91708 USA

Tested by: Neutron Engineering Inc. EMC Laboratory

Date of Receipt: Sep. 08, 2011

Date of Test: Sep. 08, 2011 ~ Sep. 22, 2011

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VCCI C-2918 G-91 R-2669 R-2829 T-1666 T-1667

Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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1. CERTIFICATION

Equipment : 5.8G transmitter
Brand Name : SKY Tech
Model No. : WAV-RFM-001
Applicant : SKY Tech Worldwide, Inc.
Date of Test : Sep. 08, 2011 ~ Sep. 22, 2011
Standards : FCC Part15, Subpart C(15.249) / ANCI C63.4 : 2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-R1108006) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15, Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.209	Radiated Emission	PASS	
15.249	Radiated Spurious Emission	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report:

C02: (VCCI RN: C-3477; FCC RN: 614388; FCC DN: TW1054)
1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

CB08: (VCCI RN: G-91; FCC RN: 614388; FCC DN: TW1010;
IC Assigned Code: 4428C-1)
1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95**%.

The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
C02	ANSI	150 kHz ~ 30 MHz	2.59	

B. Radiated Measurement :

Test Site	Item	Measurement Frequency Range		Uncertainty	NOTE
CB08	Radiated Emission at 3m	Horizontal Polarization	30 - 200MHz	3.35 dB	
			200 - 1000MHz	3.11 dB	
			1 - 18GHz	3.97 dB	
			18 - 40GHz	4.01 dB	
		Vertical Polarization	30 - 200MHz	3.22 dB	
			200 - 1000MHz	3.24 dB	
			1 - 18GHz	4.05 dB	
			18 - 40GHz	4.04 dB	

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our U_{lab} values in CISPR 16-4-2 terminology.

Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR}, as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz : 3.6 dB

Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz : 5.2 dB

It can be seen that our U_{lab} values are smaller than U_{CISPR}.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	5.8G transmitter
Brand Name	SKY Tech
Model No.	WAV-RFM-001
OEM Brand/Model No.	N/A
Model Difference	N/A
Product Description	The EUT is an 5.8G transmitter. Operation Frequency: 5790~5847 MHz Modulation Type: FM Bit Rate of Transmitter: 4Mbps Number Of Channel Please see Note 2. Antenna Designation: Please see Note 3. Antenna Gain(Peak) Please see Note 3. Output Power: 105.87 dBuV/m (Max.) Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
Power Source	Supplied from battery.
Power Rating	DC 3.7V
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	N/A
EUT Modification(s)	N/A

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2.

Channel List	
Channel	Frequency (MHz)
01	5790
02	5828
03	5847

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Skytech	WAV-001-TXB-E-120	Circular	U.LF(RoHS)	0.98
2	**Skytech**	**TX_150**	**Circular**	**U.LF(RoHS)**	**1.62**

3.2 DESCRIPTION OF TEST MODES

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

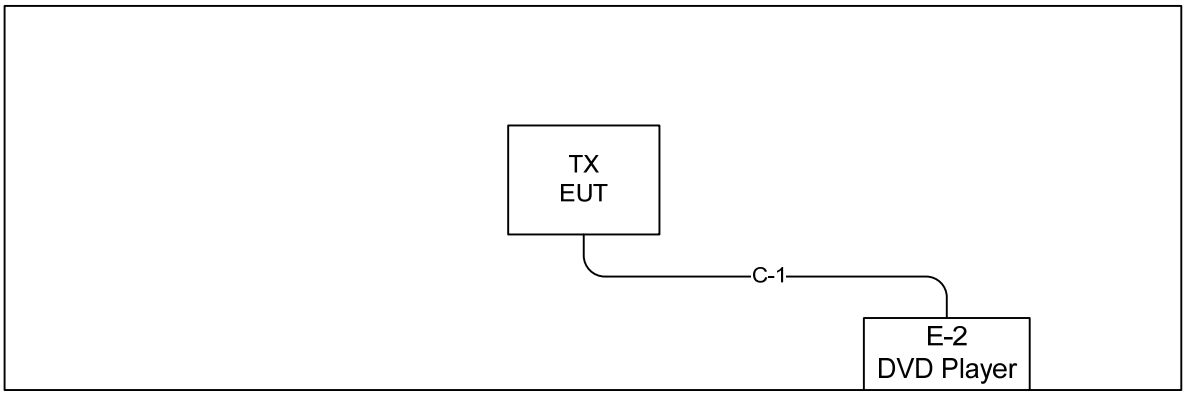
Pretest Test Mode	Description
Mode 1	5790 MHz
Mode 2	5828 MHz
Mode 3	5847 MHz
Mode 4	Charge

For Conducted Test	
Final Test Mode	Description
Mode 4	Charge

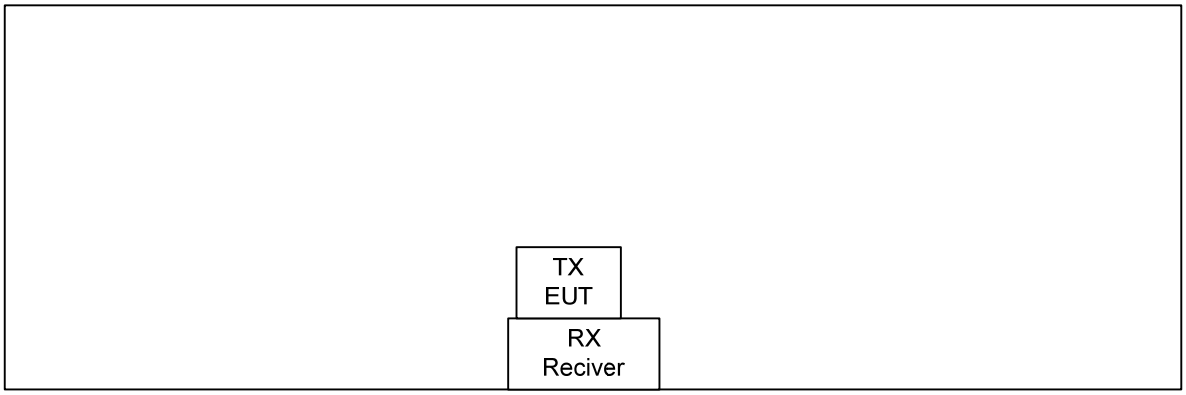
For Radiated Test	
Final Test Mode	Description
Mode 1	5790 MHz
Mode 2	5828 MHz
Mode 3	5847 MHz

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Mode 1~3



Mode 4



3.4 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	5.8G transmitter	SKY Tech	WAV-RFM-001	Z6H-SKT-WAV2	N/A	EUT
E-2	CD/DVD Player	SONY	DVP-NS975V	N/A	2030851 14W	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.8M	Video cable

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION (FREQUENCY RANGE 150 KHZ-30MHZ)

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

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

(3) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
Margin Level = Measurement Value – Limit Value

4.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	TWO-LINE V-NETWORK	R&S	ENV216	101050	Jun. 06, 2012
2	TWO-LINE V-NETWORK	R&S	ENV216	101051	Jun. 06, 2012
3	Test Cable	TIMES	CFD300-NL	130	Jun. 16, 2012
4	EMI Test Receiver	R&S	ESCS30	833364/017	Aug. 02, 2012

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

4.1.3 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

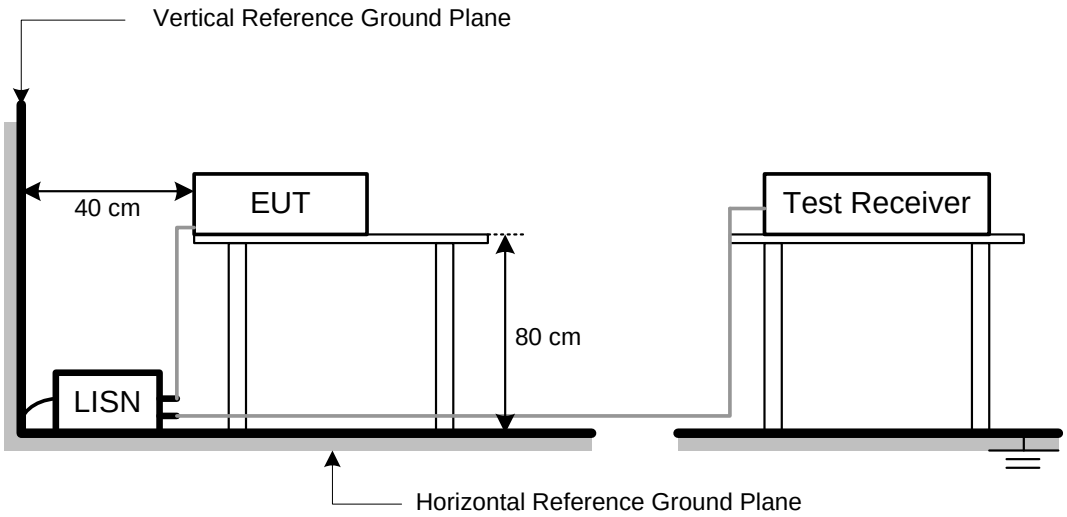
NOTE:

a. Reading in which marked as Peak, QP or AVG means measurements by using are Quasi-Peak or Average Mode with Detector BW=9 kHz; SPA setting in RBW=10 kHz, VBW =10 kHz, Swp. Time = 0.2 sec./ MHz.
b. All readings are Peak Mode value unless otherwise stated QP or AVG in column of Note. If the Peak or QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only Peak or QP Mode was measured, but AVG Mode didn't perform.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



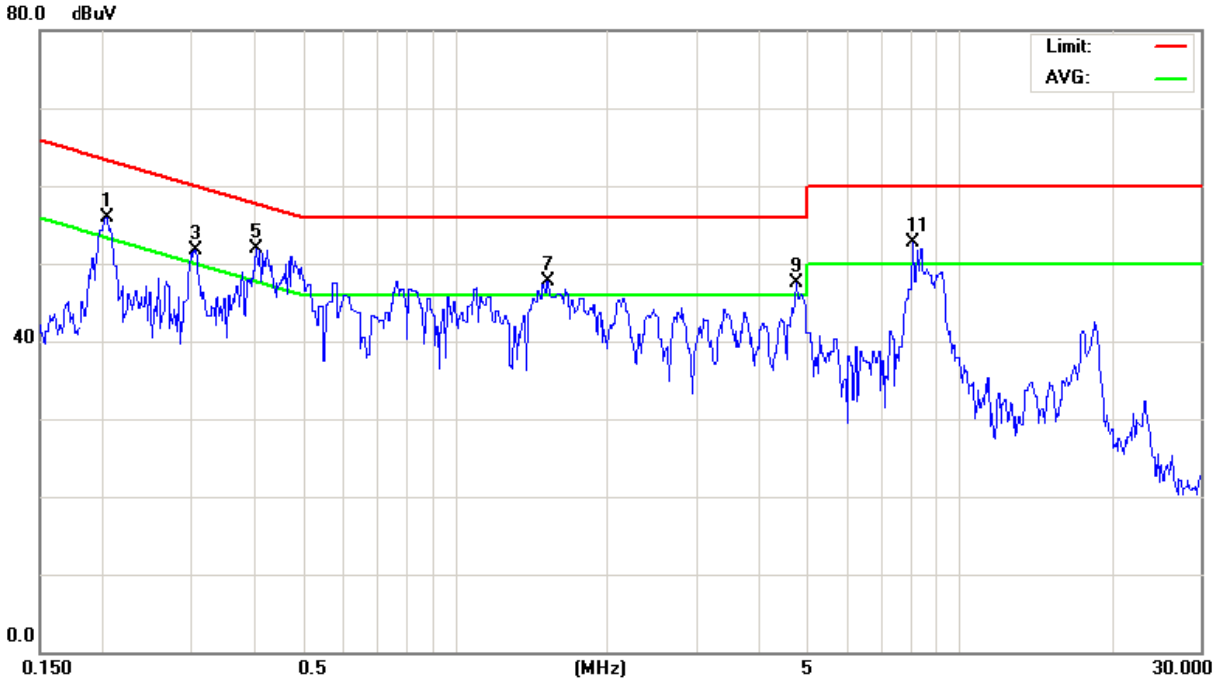
4.1.6 EUT OPERATING CONDITIONS

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

4.1.7 TEST RESULTS

E.U.T :	5.8G transmitter	Model Name :	WAV-RFM-001
Temperature :	24°C	Relative Humidity :	48%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Charge Mode		

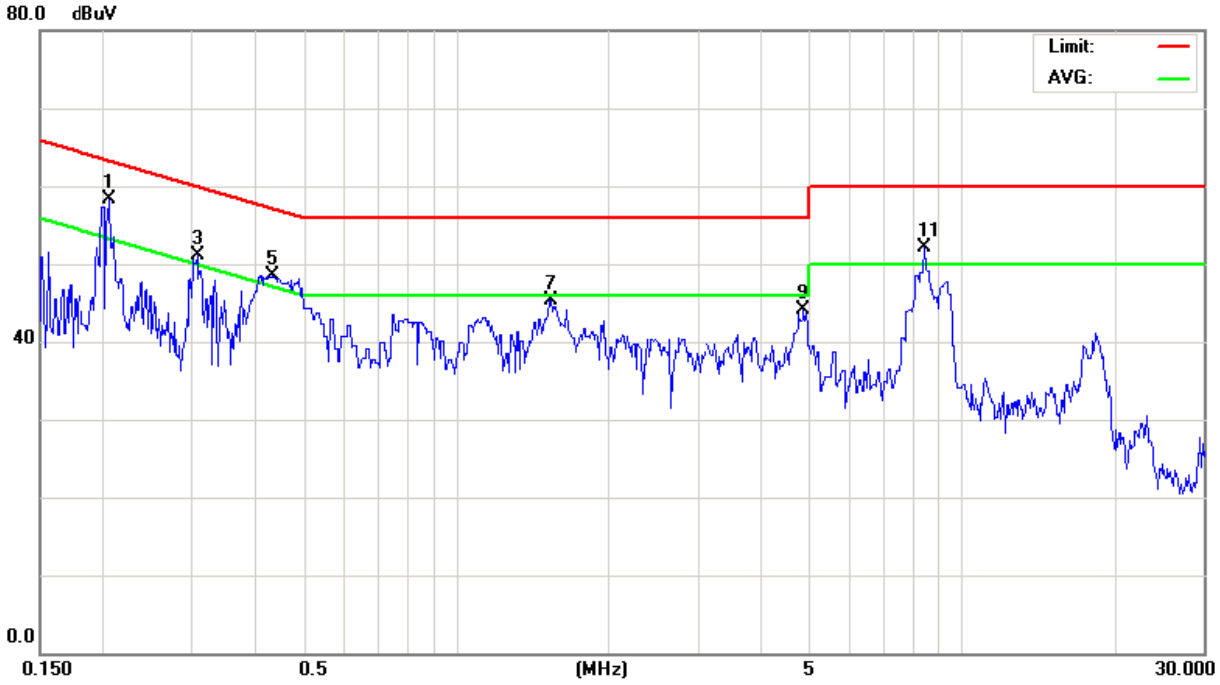
Phase: Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2046	46.21	9.60	55.81	63.42	-7.61	peak	
2		0.2046	28.32	9.60	37.92	53.42	-15.50	AVG	
3		0.3054	42.16	9.61	51.77	60.09	-8.32	peak	
4		0.3054	21.98	9.61	31.59	50.09	-18.50	AVG	
5	*	0.4034	42.23	9.62	51.85	57.78	-5.93	peak	
6		0.4034	19.11	9.62	28.73	47.78	-19.05	AVG	
7		1.5260	37.98	9.63	47.61	56.00	-8.39	peak	
8		1.5260	21.74	9.63	31.37	46.00	-14.63	AVG	
9		4.7480	37.81	9.70	47.51	56.00	-8.49	peak	
10		4.7480	17.27	9.70	26.97	46.00	-19.03	AVG	
11		8.1000	42.84	9.77	52.61	60.00	-7.39	peak	
12		8.1000	21.75	9.77	31.52	50.00	-18.48	AVG	

E.U.T :	5.8G transmitter	Model Name :	WAV-RFM-001
Temperature :	24°C	Relative Humidity :	48%
Test Voltage :	AC 120V/60Hz		
Test Mode :	Charge Mode		

Phase: Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.2067	48.79	9.60	58.39	63.34	-4.95	peak	
2		0.2067	25.54	9.60	35.14	53.34	-18.20	AVG	
3		0.3075	41.40	9.61	51.01	60.04	-9.03	peak	
4		0.3075	23.59	9.61	33.20	50.04	-16.84	AVG	
5		0.4342	38.94	9.61	48.55	57.17	-8.62	peak	
6		0.4342	20.88	9.61	30.49	47.17	-16.68	AVG	
7		1.5350	35.70	9.62	45.32	56.00	-10.68	peak	
8		1.5350	18.37	9.62	27.99	46.00	-18.01	AVG	
9		4.8649	34.37	9.70	44.07	56.00	-11.93	peak	
10		4.8649	12.58	9.70	22.28	46.00	-23.72	AVG	
11		8.4500	42.30	9.78	52.08	60.00	-7.92	peak	
12		8.4500	15.85	9.78	25.63	50.00	-24.37	AVG	

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS (FCC 15.209)

Frequencies (MHz)	Field Strength (micorvolts/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

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC 15.209)

FREQUENCY (MHz)	(dBuV/m) (at 1.5m)	
	PEAK	AVERAGE
Above 1000	80	60

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).
The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m
Distance extrapolation factor = 20 log (3m/1.5m) dB ;
Limit line = specific limits (dBuV) + 6 dB

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

4.2.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Aug. 30, 2012
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-325	Dec. 08, 2011
3	Microwave Pre_amplifier	Agilent	8449B	3008A01714	Apr. 18, 2012
4	Microflex Cable	N/A	N/A	1m	May. 18, 2012
5	Microflex Cable	AISI	S104-SMAP-1	10m	Aug. 21, 2012
6	Microflex Cable	N/A	N/A	3m	Aug. 21, 2012
7	Test Cable	N/A	LMR-400	966_12m	Jun. 16, 2012
8	Test Cable	N/A	LMR-400	966_3m	Jun. 16, 2012
9	Pre-Amplifier	EMC	EMC-330	980001	Jun. 02, 2012
10	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	Jun. 20, 2012
11	Horn Antenna	Schwarzbeck	BBHA 9170	187	Dec. 12, 2011

Remark: ” N/A” denotes No Model No. / Serial No. and No Calibration specified.

4.2.3 TEST PROCEDURE

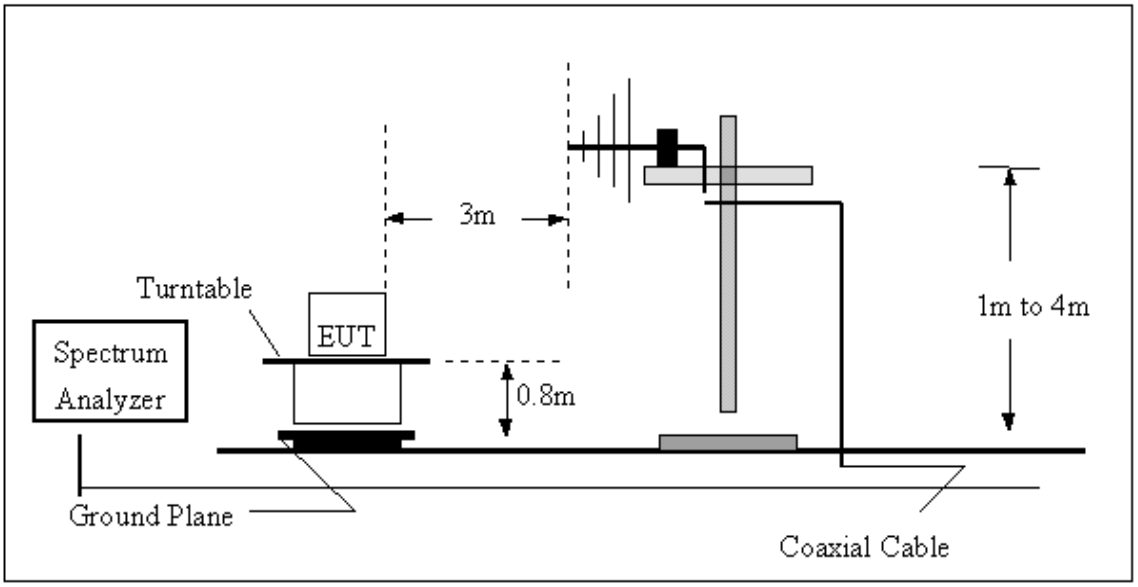
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m meter open area test site. The table was rotated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

4.2.4 DEVIATION FROM TEST STANDARD

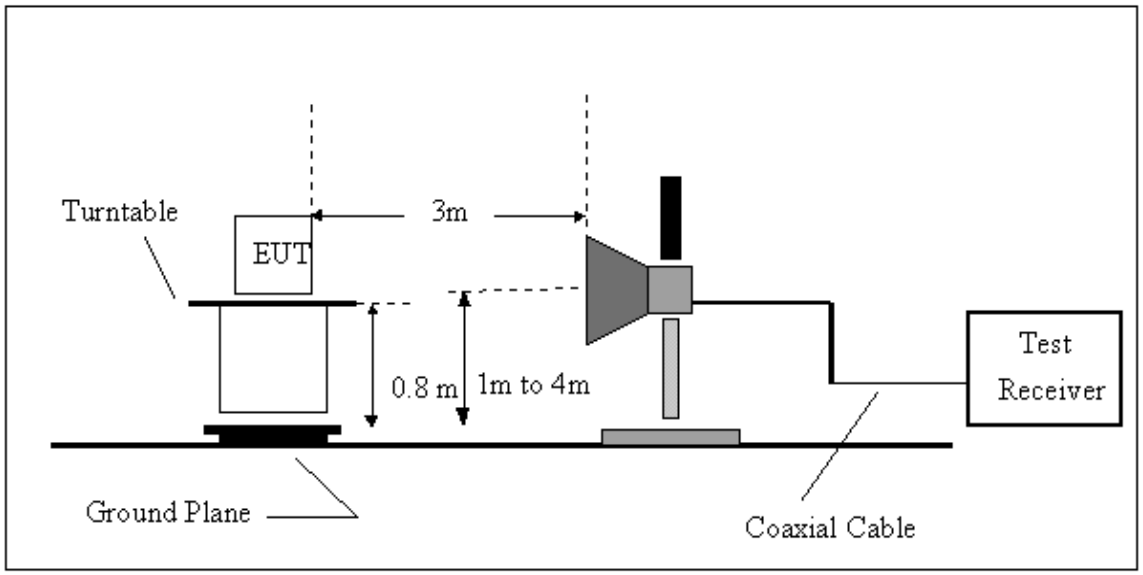
No deviation

4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



4.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.7 TEST RESULTS (Between 30 – 1000 MHz)

E.U.T :	5.8G transmitter	Model Name :	WAV-RFM-001
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3.7V		
Test Mode :	5828 MHz		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
161.9199	V	46.29	-13.27	33.02	43.50	- 10.48	
189.0800	V	43.74	-15.99	27.75	43.50	- 15.75	
216.2400	V	40.04	-15.57	24.47	46.00	- 21.53	
439.3399	V	35.05	-9.03	26.02	46.00	- 19.98	
513.0599	V	34.24	-7.79	26.45	46.00	- 19.55	
549.9199	V	37.06	-7.30	29.76	46.00	- 16.24	

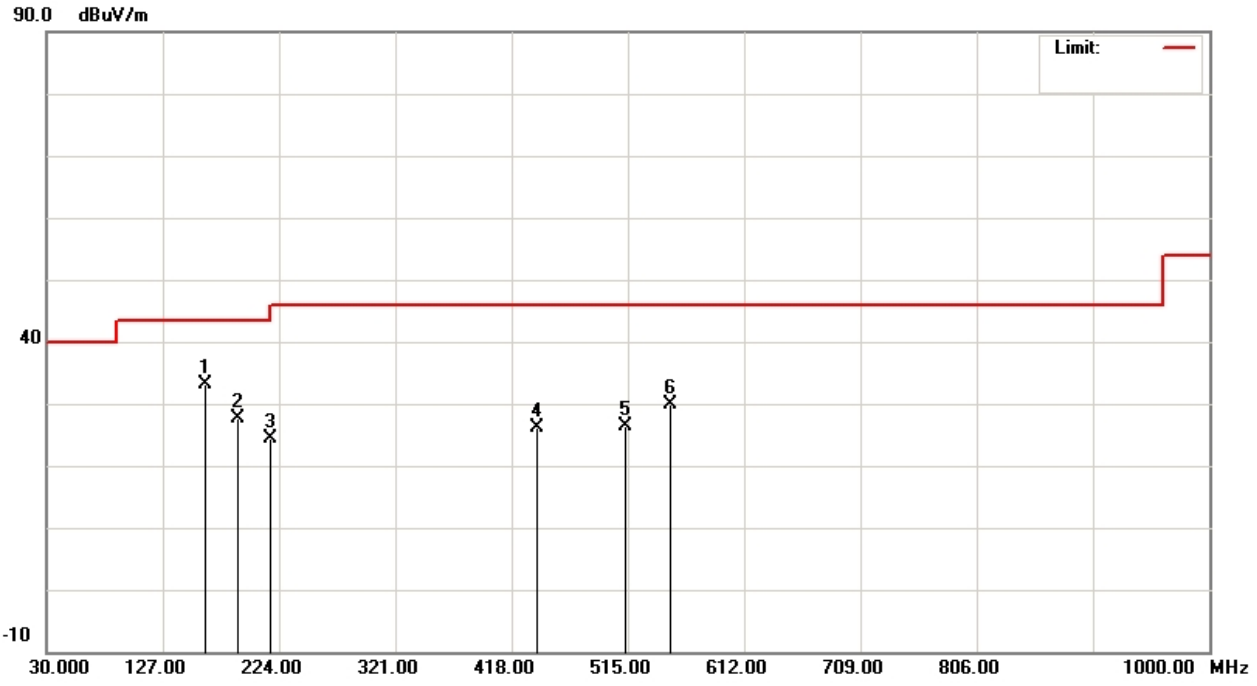
Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; " H" denotes spurious frequency. "E" denotes band edge frequency.

(3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission 。

(4) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



E.U.T :	5.8G transmitter	Model Name :	WAV-RFM-001
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3.7V		
Test Mode :	5828 MHz		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
161.9199	H	45.12	-13.27	31.85	43.50	- 11.65	
189.0800	H	46.36	-15.99	30.37	43.50	- 13.13	
216.2400	H	45.17	-15.57	29.60	46.00	- 16.40	
268.6199	H	38.02	-13.50	24.52	46.00	- 21.48	
338.4599	H	37.31	-11.64	25.67	46.00	- 20.33	
722.5800	H	32.08	-4.05	28.03	46.00	- 17.97	

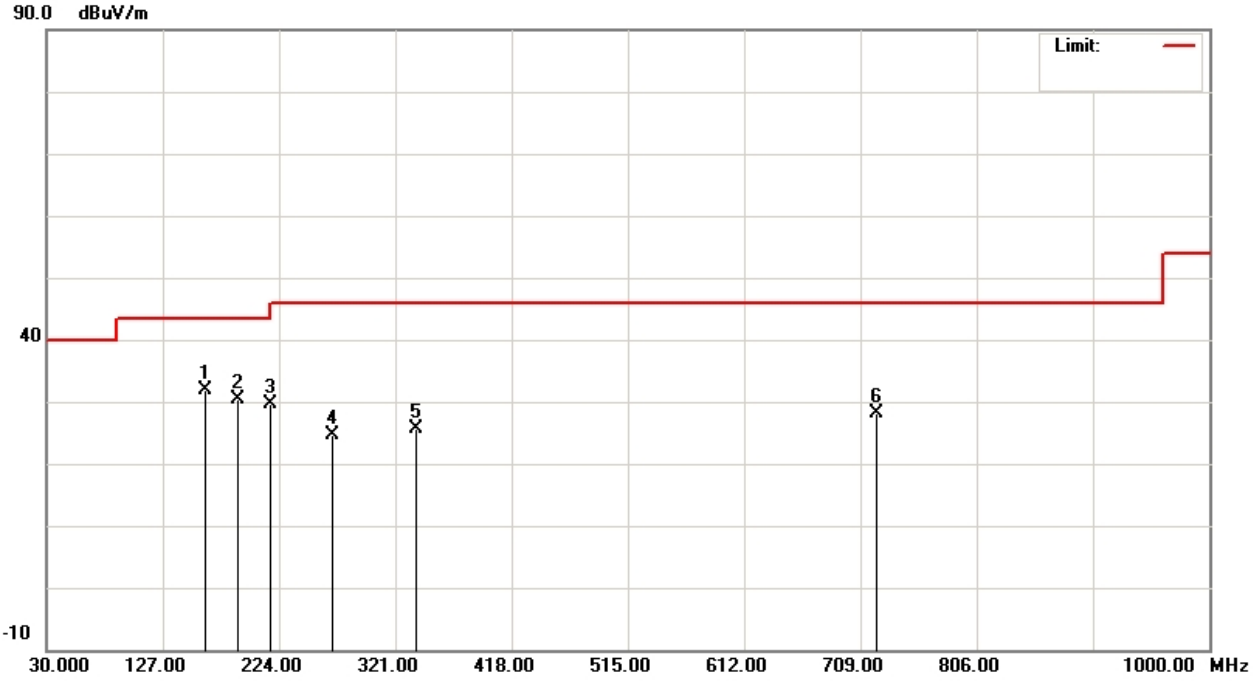
Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; " H" denotes spurious frequency. "E" denotes band edge frequency.

(3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission 。

(4) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.



4.2.8 TEST RESULTS (Above 1000 MHz)

E.U.T :	5.8G transmitter	Model Name :	WAV-RFM-001
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3.7V		
Test Mode :	5790 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV)		Correct Factor(dB)	Measurement(dBuV/m)		Limit(dBuV/m)		Margin (dB)	Note
		Peak	AV		Peak	AV	Peak	AV		
5792.000	V	64.43	53.90	39.89	104.32	93.79	120.00	100.00	- 6.21	X/F
11578.160	V	46.28	34.89	14.45	60.73	49.34	80.00	60.00	- 10.66	X/H
17481.301	V	46.27	34.95	17.54	63.81	52.49	80.00	60.00	- 7.51	X/H
23165.301	V	45.96	34.87	22.99	68.95	57.86	80.00	60.00	- 2.14	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

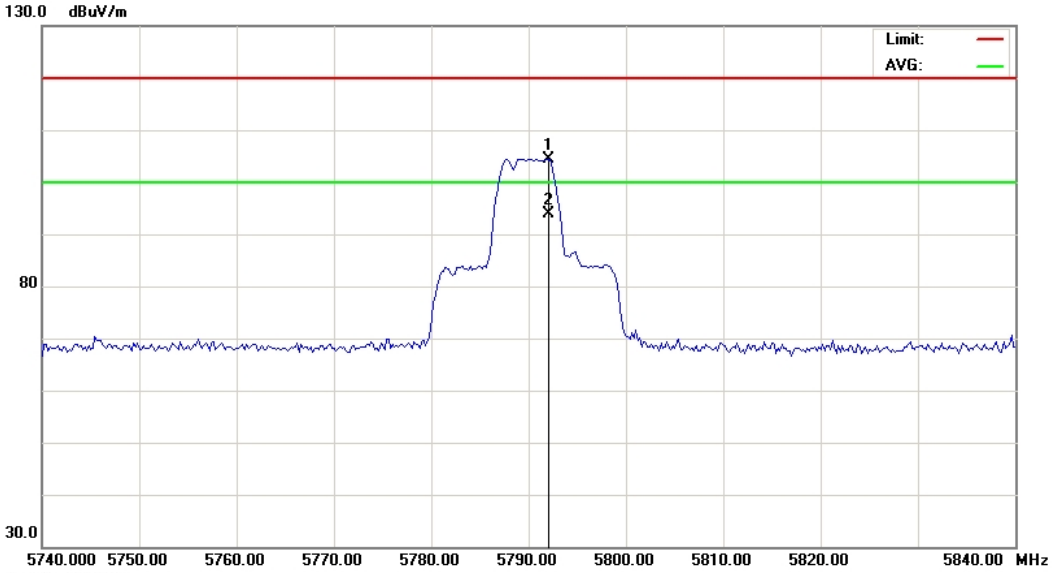
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

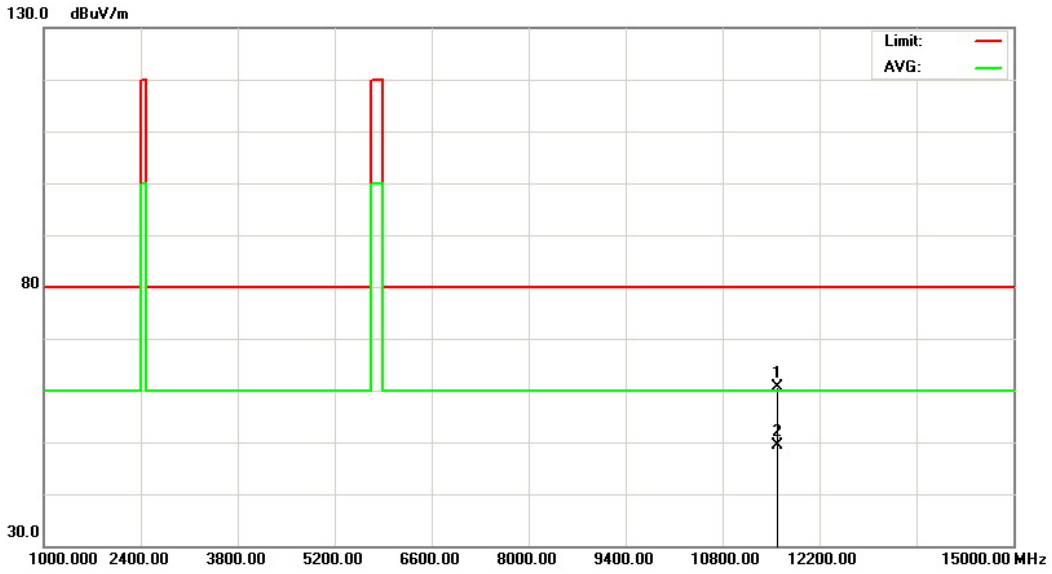
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

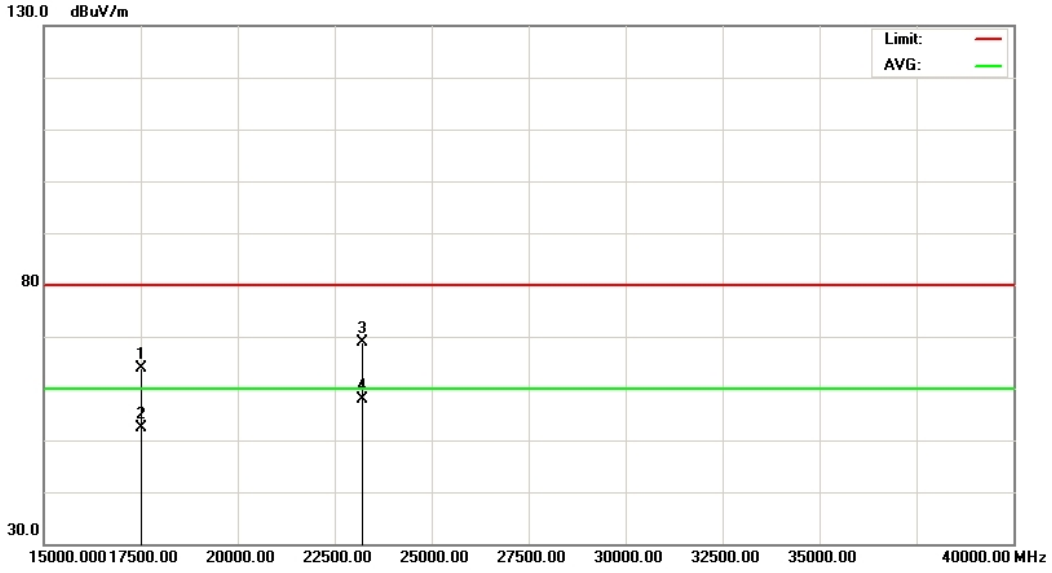
(6) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) Emission level (dBuV/m)=20log Emission level (uV/m).
The limits above 5GHz shall be extrapolated to the specified distance using an Extrapolation factor of 20dB/decade form 3m to 1.5m
Distance extrapolation factor = 20 log (3m/1.5m) dB
Limit line = specific limits (dBuV) + 6 dB

Orthogonal Axes：X
CH01 (Above 1000 MHz, Vertical)







E.U.T :	5.8G transmitter	Model Name :	WAV-RFM-001
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3.7V		
Test Mode :	5790 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV) Peak	Reading Level(dBuV) AV	Correct Factor(dB)	Measurement(dBuV/m) Peak	Measurement(dBuV/m) AV	Limit(dBuV/m) Peak	Limit(dBuV/m) AV	Margin (dB)	Note
5787.600	H	64.25	53.61	39.87	104.12	93.48	120.00	100.00	- 6.52	X/F
11578.240	H	50.29	37.73	14.45	64.74	52.18	80.00	60.00	- 7.82	X/H
17367.199	H	50.86	38.13	17.45	68.31	55.58	80.00	60.00	- 4.42	X/H
23169.100	H	46.88	35.53	22.99	69.87	58.52	80.00	60.00	- 1.48	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

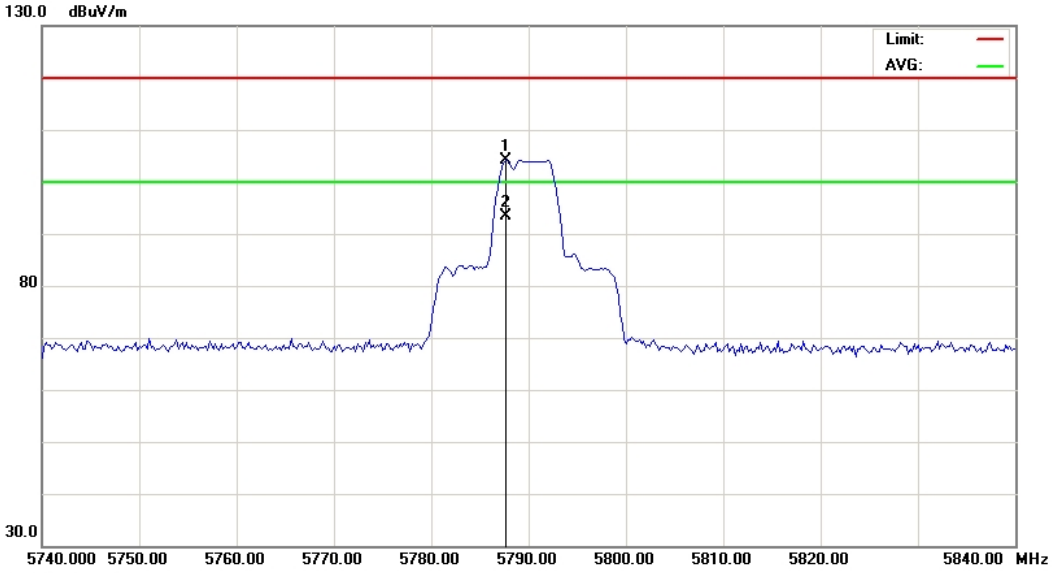
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

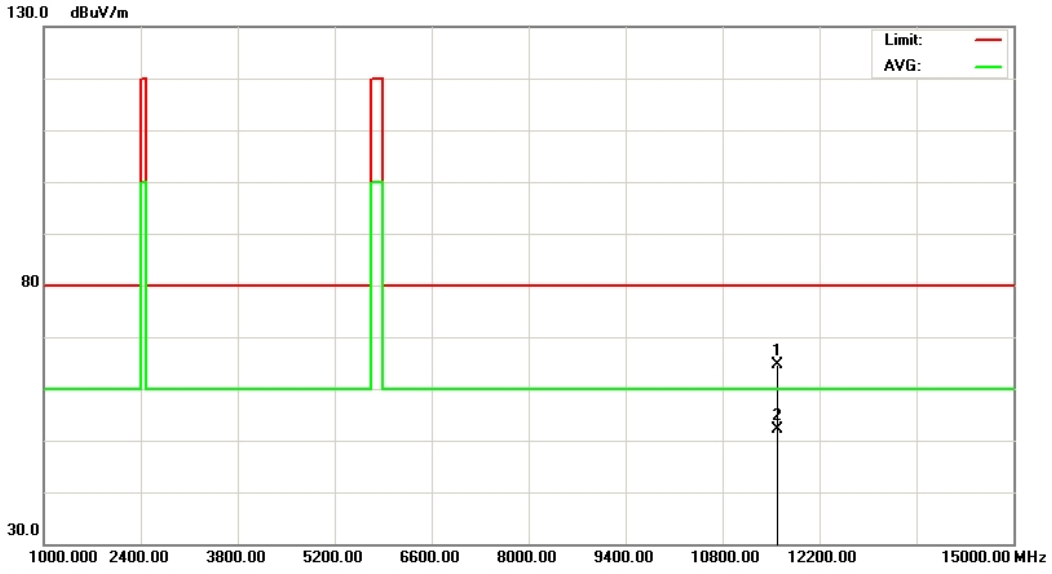
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

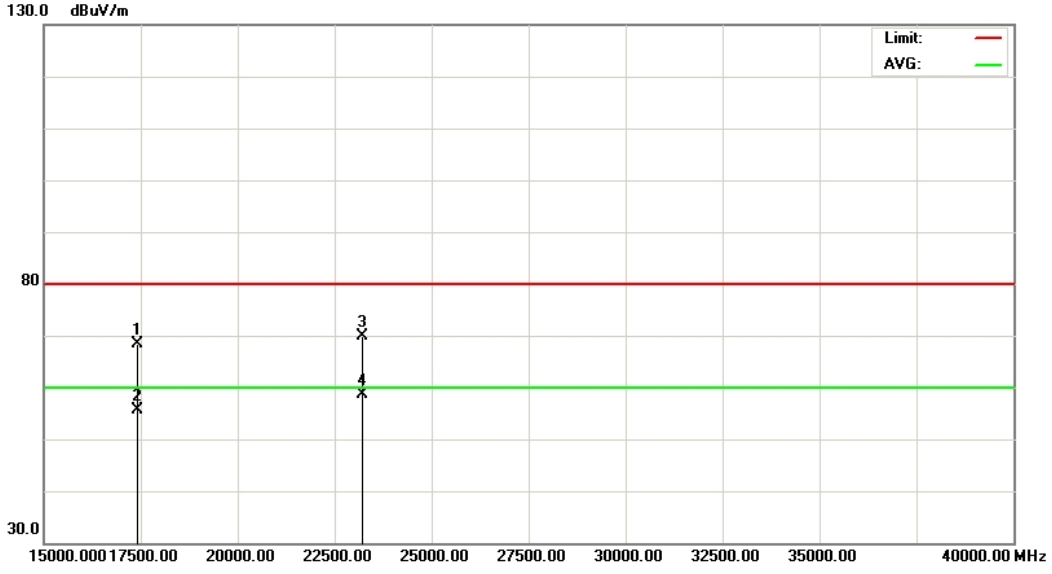
(6) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) Emission level (dBuV/m)=20log Emission level (uV/m).
The limits above 5GHz shall be extrapolated to the specified distance using an Extrapolation factor of 20dB/decade form 3m to 1.5m
Distance extrapolation factor = 20 log (3m/1.5m) dB
Limit line = specific limits (dBuV) + 6 dB

Orthogonal Axes：X
CH01 (Above 1000 MHz, Horizontal)







E.U.T :	5.8G transmitter	Model Name :	WAV-RFM-001
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3.7V		
Test Mode :	5828 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV)		Correct Factor(dB)	Measurement(dBuV/m)		Limit(dBuV/m)		Margin (dB)	Note
		Peak	AV		Peak	AV	Peak	AV		
5830.000	V	65.35	54.77	40.02	105.37	94.79	120.00	100.00	- 5.21	X/F
11654.210	V	46.53	33.81	14.49	61.02	48.30	80.00	60.00	- 11.70	X/H
17481.301	V	46.12	34.56	17.54	63.66	52.10	80.00	60.00	- 7.90	X/H
23309.061	V	48.83	35.97	22.92	71.75	58.89	80.00	60.00	- 1.11	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform ◦

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency◦"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission ◦

(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

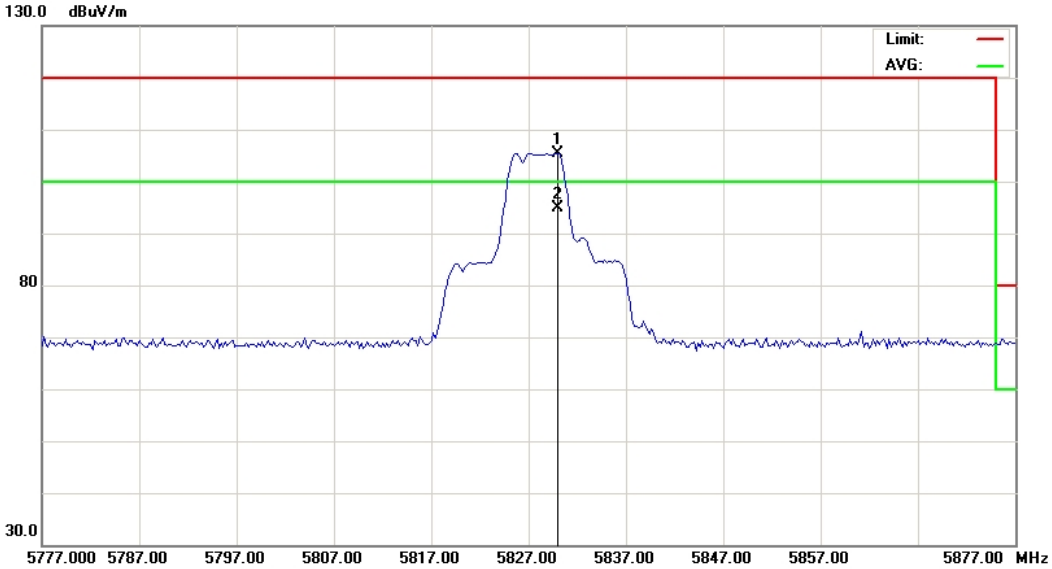
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

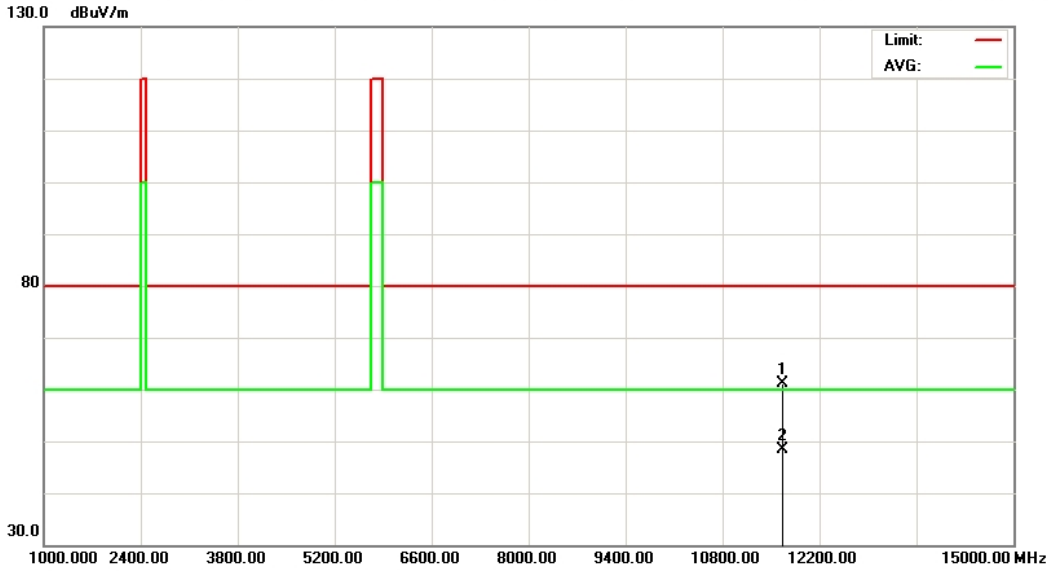
(6) EUT Orthogonal Axes：

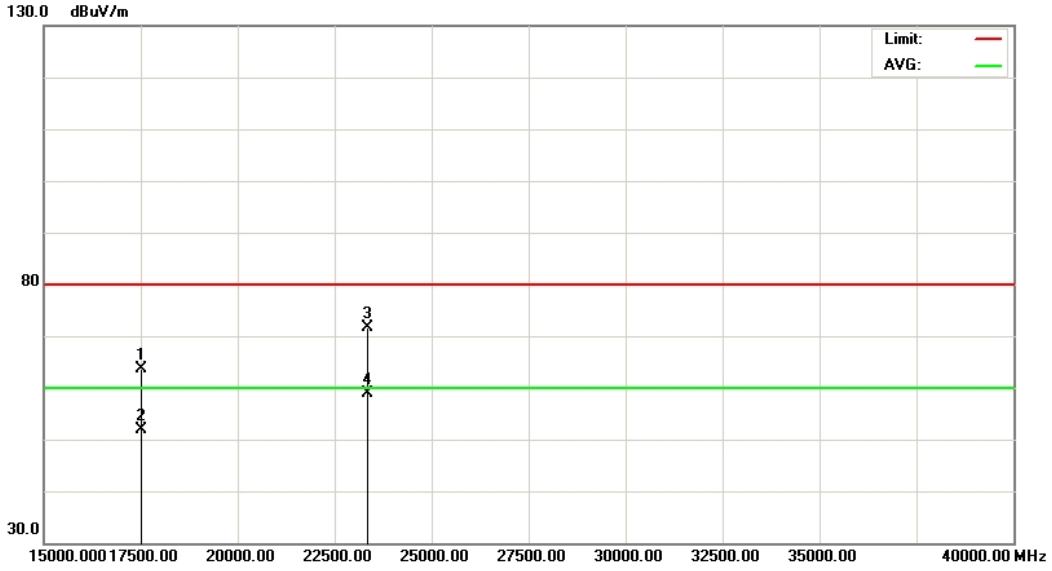
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) Emission level (dBuV/m)=20log Emission level (uV/m).
The limits above 5GHz shall be extrapolated to the specified distance using an Extrapolation factor of 20dB/decade form 3m to 1.5m
Distance extrapolation factor = 20 log (3m/1.5m) dB
Limit line = specific limits (dBuV) + 6 dB

Orthogonal Axes：X
CH02 (Above 1000 MHz, Vertical)







E.U.T :	5.8G transmitter	Model Name :	WAV-RFM-001
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3.7V		
Test Mode :	5828 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV) Peak	Reading Level(dBuV) AV	Correct Factor(dB)	Measurement(dBuV/m) Peak	Measurement(dBuV/m) AV	Limit(dBuV/m) Peak	Limit(dBuV/m) AV	Margin (dB)	Note
5825.800	H	61.42	50.80	40.01	101.43	90.81	120.00	100.00	- 9.19	X/F
11654.320	H	47.64	35.56	14.49	62.13	50.05	80.00	60.00	- 9.95	X/H
17481.020	H	49.19	36.34	17.54	66.73	53.88	80.00	60.00	- 6.12	X/H
23309.061	H	47.58	35.93	22.92	70.50	58.85	80.00	60.00	- 1.15	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

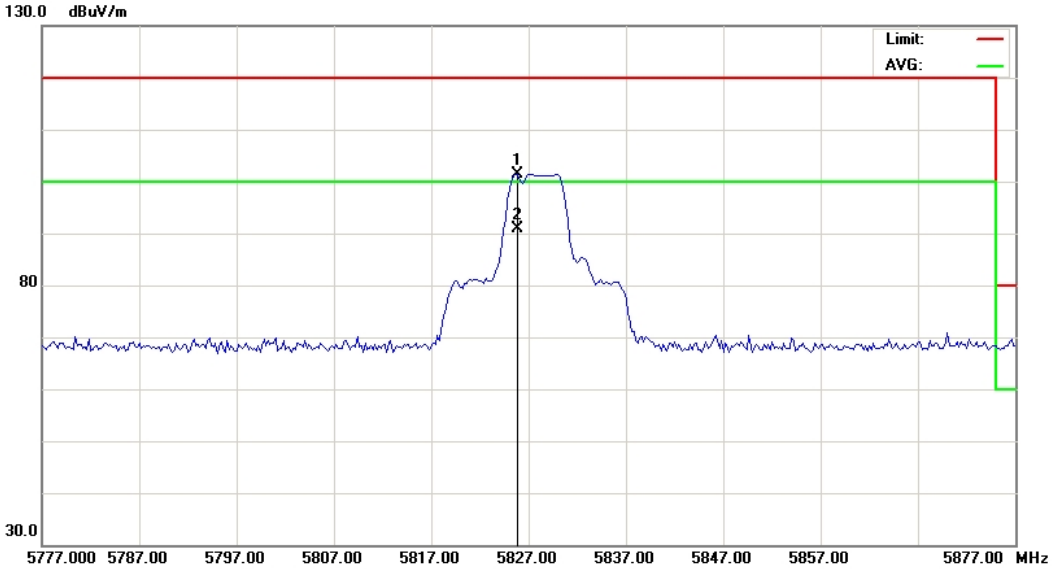
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

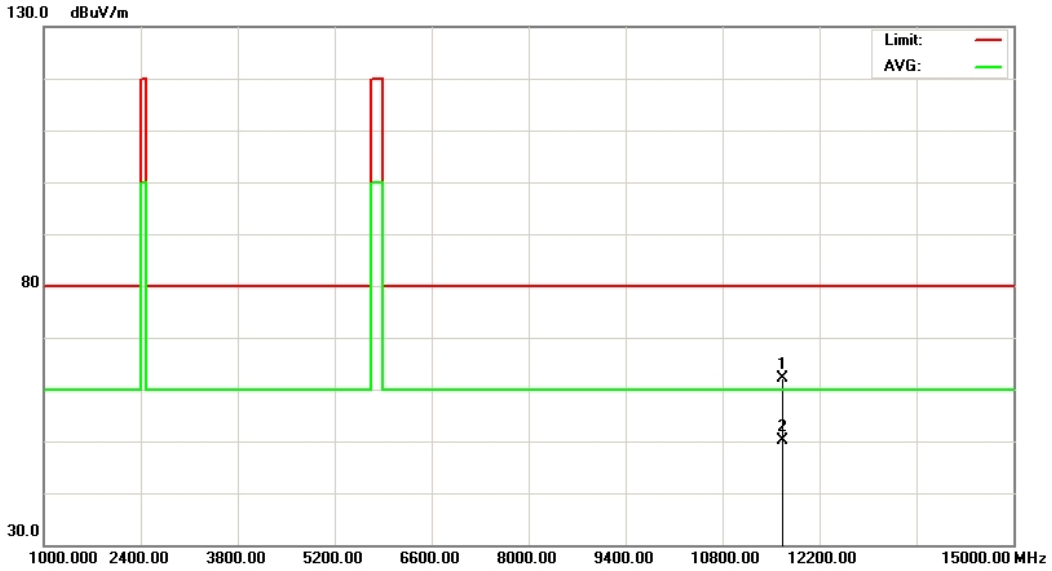
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

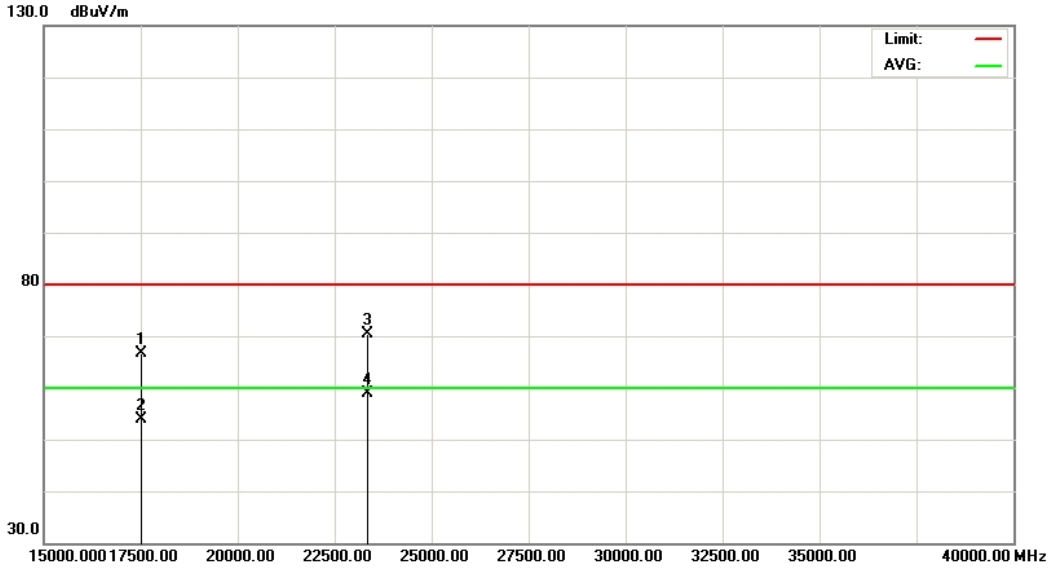
(6) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) Emission level (dBuV/m)=20log Emission level (uV/m).
The limits above 5GHz shall be extrapolated to the specified distance using an Extrapolation factor of 20dB/decade form 3m to 1.5m
Distance extrapolation factor = 20 log (3m/1.5m) dB
Limit line = specific limits (dBuV) + 6 dB

Orthogonal Axes：X
CH02 (Above 1000 MHz, Horizontal)







E.U.T :	5.8G transmitter	Model Name :	WAV-RFM-001
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3.7V		
Test Mode :	5847 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV) Peak	Reading Level(dBuV) AV	Correct Factor(dB)	Measurement(dBuV/m) Peak	Measurement(dBuV/m) AV	Limit(dBuV/m) Peak	Limit(dBuV/m) AV	Margin (dB)	Note
5844.800	V	65.79	55.10	40.08	105.87	95.18	120.00	100.00	- 4.82	X/F
5875.000	V	28.24	16.99	40.18	68.42	57.17	80.00	60.00	- 2.83	X/H
11694.440	V	47.96	36.84	14.51	62.47	51.35	80.00	60.00	- 8.65	X/H
17538.199	V	45.47	34.23	17.58	63.05	51.81	80.00	60.00	- 8.19	X/H
23377.900	V	47.56	35.77	22.88	70.44	58.65	80.00	60.00	- 1.35	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(6) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) Emission level (dBuV/m)=20log Emission level (uV/m).
The limits above 5GHz shall be extrapolated to the specified distance using an Extrapolation factor of 20dB/decade form 3m to 1.5m
Distance extrapolation factor = 20 log (3m/1.5m) dB
Limit line = specific limits (dBuV) + 6 dB

Orthogonal Axes：X
CH03 (Above 1000 MHz, Vertical)

E.U.T :	5.8G transmitter	Model Name :	WAV-RFM-001
Temperature :	26°C	Relative Humidity :	60%
Test Voltage :	DC 3.7V		
Test Mode :	5847 MHz		

Freq. (MHz)	Polarization H/V	Reading Level(dBuV)		Correct Factor(dB)	Measurement(dBuV/m)		Limit(dBuV/m)		Margin (dB)	Note
		Peak	AV		Peak	AV	Peak	AV		
5844.600	H	60.51	49.77	40.08	100.59	89.85	120.00	100.00	- 10.15	X/F
5875.000	H	28.33	17.01	40.18	68.51	57.19	80.00	60.00	- 2.81	X/H
11694.400	H	47.85	39.97	14.51	62.36	54.48	80.00	60.00	- 5.52	X/H
17538.100	H	46.10	34.69	17.58	63.68	52.27	80.00	60.00	- 7.73	X/H
23383.600	H	47.51	36.01	22.88	70.39	58.89	80.00	60.00	- 1.11	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

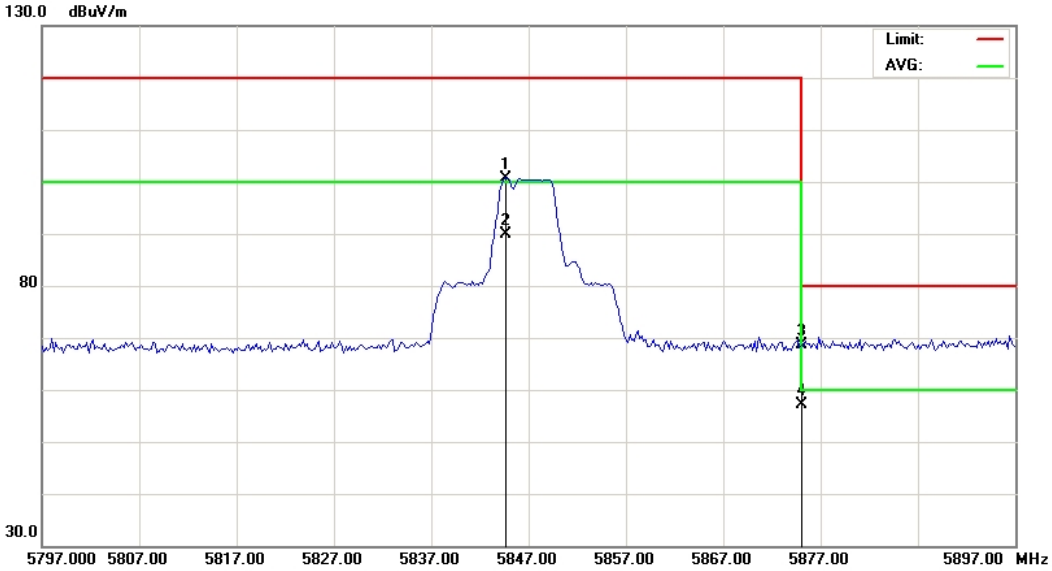
(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

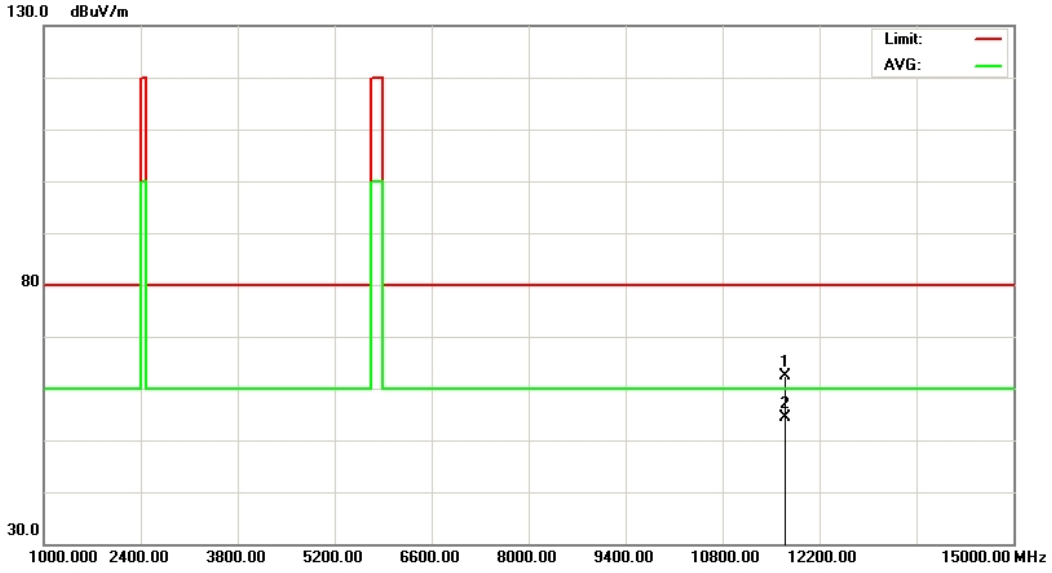
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

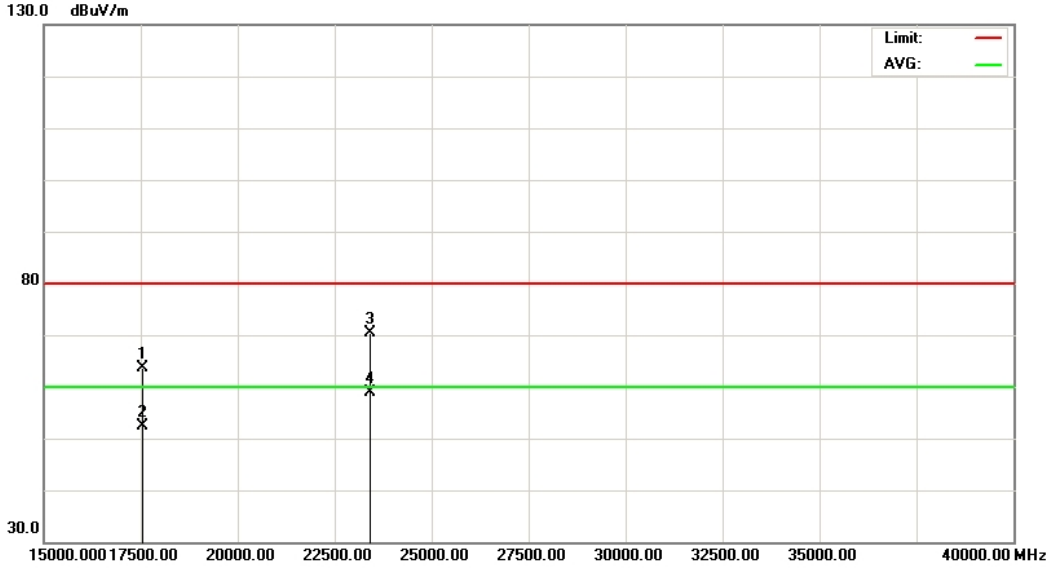
(6) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) Emission level (dBuV/m)=20log Emission level (uV/m).
The limits above 5GHz shall be extrapolated to the specified distance using an Extrapolation factor of 20dB/decade form 3m to 1.5m
Distance extrapolation factor = 20 log (3m/1.5m) dB
Limit line = specific limits (dBuV) + 6 dB

Orthogonal Axes：X
CH03 (Above 1000 MHz, Horizontal)







5. ANTENNA CONDUCTED SPURIOUS EMISSION

5.1 APPLIED PROCEDURES / LIMIT

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

Frequencies (MHz)	Field Strength (micorvolts/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

5.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-40	100129	Aug. 30, 2012

Remark: ” N/A” denotes No Model Name. , Serial No. or No Calibration specified.

5.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = AUTO.

5.1.3 DEVIATION FROM STANDARD

No deviation.

5.1.4 TEST SETUP

5.1.5 EUT OPERATION CONDITIONS

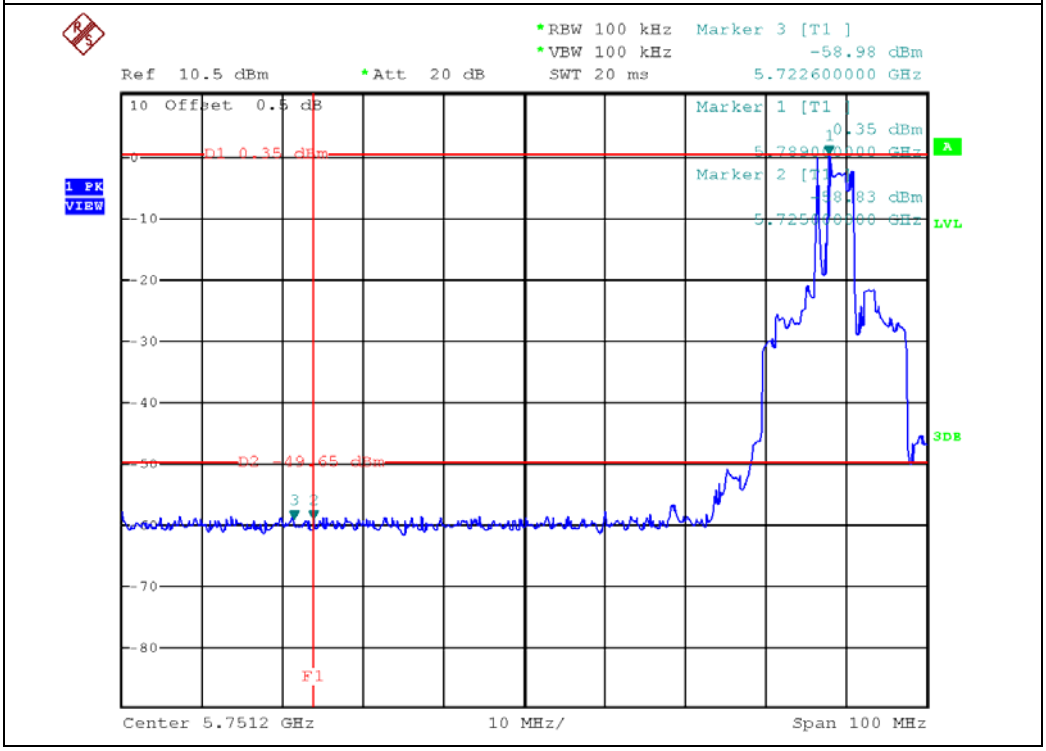
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.6 TEST RESULTS

EUT：	5.8G transmitter	Model Name. ：	WAV-RFM-001
Temperature：	26°C	Relative Humidity：	60%
Test Voltage :	DC 3.7V		
Test Mode ：	TX CH01,CH03		

Channel of Worst Data:			
The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5722.6	-58.98	5883	-57.23
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 50dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.			

TX CH 01



TX CH 03