FCC PART 15C TEST REPORT FOR CERTIFICATION

On Behalf of

Yun Tong Electronic(shenzhen) Co.,Ltd.

Wireless Receiver

Model Number: W-RX

FCC ID: P44W-RX

Prepared for : Yun Tong Electronic(shenzhen) Co.,Ltd.
#1 HuaXing Road ,Shang Heng Lang,Da Lang Street, Bao An Distrct, Shen Zhen City, Guang Dong Province, China.

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Report Number : ACS-F14277
Date of Test : Sep.10 ~ Nov.17, 2014
Date of Report : Nov.27, 2014

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TEST REPORT CERTIFICATION

Applicant : Yun Tong Electronic(shenzhen) Co.,Ltd.

Manufacturer : Yun Tong Electronic(shenzhen) Co.,Ltd.

EUT Description : Wireless Receiver

FCC ID : P44W-RX

(A) MODEL NO. : W-RX
(B) SERIAL NO. : N/A
(C) POWER SUPPLY : AC 100~240V~, 50/60Hz
(D) TEST VOLTAGE : AC 120V/60Hz

Tested for comply with:

FCC Rules and Regulations Part 15 Subpart C: 2013

Test procedure used:
ANSI C63.10:2009

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC Part 15 Subpart C requirements. The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC and IC requirements.

This Report is made under FCC Part 2.1075. No modifications were required during testing to bring this product into compliance.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

Date of Test : Sep.10 ~ Nov.17, 2014 Report of date: Nov.27, 2014

Prepared by : April Tseng
April Tseng / Assistant

Reviewed by :
Sunny Lu / Assistant Manager

AUDIX® 信華科技（深圳）有限公司
Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept. Report
Signature: David Jin 11.27

pproved & Authorized Signer :
David Jin / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1.Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	**Standard**	**Results**
Power Line Conducted Emission	FCC Part 15: 15.207 ANSI C63.10: 2009	PASS
Radiated Emission	FCC Part 15: 15.209 ANSI C63.10: 2009	PASS
Band Edge Compliance	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS
Conducted spurious emissions	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS
6dB Bandwidth	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS
Peak Output Power	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS
Power Spectral Density	FCC Part 15: 15.247 ANSI C63.10: 2009	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

2. GENERAL INFORMATION

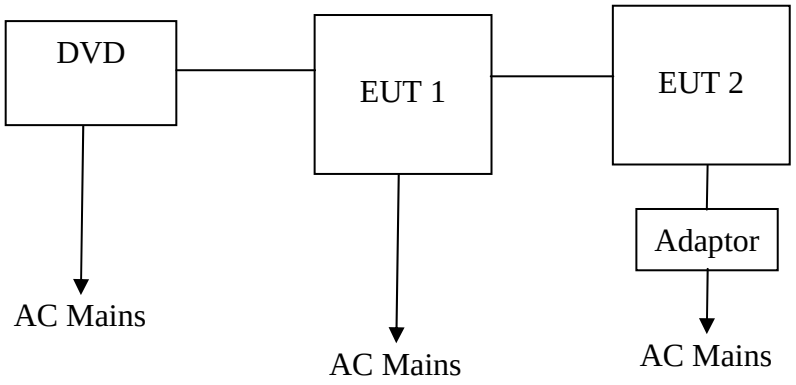
2.1.Description of Device (EUT)

Product Name	: Wireless Receiver
Model No.	: W-RX
FCC ID	: P44W-RX
Radio	: 5.8GHz Transmitter.
Operation Frequency	: 5.8GHz: 5736MHz—5814MHz
Modulation Technology	: 5.8GHz: OFDM(64QAM, 16QAM, QPSK, BPSK)
Antenna Assembly Gain	: 5.8GHz:PCB antenna, 9dBi
Applicant	: Yun Tong Electronic(shenzhen) Co.,Ltd. #1 HuaXing Road ,Shang Heng Lang,Da Lang Street, Bao An Distrct, Shen Zhen City, Guang Dong Province, China.
Manufacturer	: Yun Tong Electronic(shenzhen) Co.,Ltd. #1 HuaXing Road ,Shang Heng Lang,Da Lang Street, Bao An Distrct, shen Zhen City, Guang Dong Province, China.
Adaptor	: Brand:KUANTEN;Model:SSA021F059080USD Power Cable: Shield, Detectable, 1.8m
Date of Test	: Sep.10 ~ Nov.17, 2014
Date of Receipt	: Sep.08, 2014
Sample Type	: Prototype production

2.2.Tested Supporting System Details

No.	Description	ACS No.	Manufacturer	Model	Serial Number	Approved type
1.	DVD Player	ACS-EMC-DVD01	DENON	DVD-3910	4098400342E	☐FCC ID ☐BSMI ID
		Data Cable: Shielded, Detachabled, 1.8m Power Cable: Unshielded, Detachabled , 1.8m				

2.3. Block Diagram of Test Setup



(EUT 1:Soundbar with W-TX; EUT 2: Wireless Receiver)

2.4. Test Facility

Site Description

Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd. No. 6, Ke Feng Rd., 52 Block, Shenzhen Science & Industrial Park,Nantou, Shenzhen, Guangdong, China
3m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 90454 Valid Date: Feb.22, 2015
3m & 10m Anechoic Chamber	:	Certificated by FCC, USA Registration Number: 794232 Valid Date: Oct.31, 2015
EMC Lab.	:	Certificated by Industry Canada Registration Number: IC 5183A-1 Valid Date: May.14, 2017
	:	Certificated by DAkkS, Germany Registration No: D-PL-12151-01-00 Valid Date: Dec.15, 2016
	:	Accredited by NVLAP, USA NVLAP Code: 200372-0 Valid Date: Mar.31, 2015

2.5.Measurement Uncertainty (95% confidence levels, k=2)

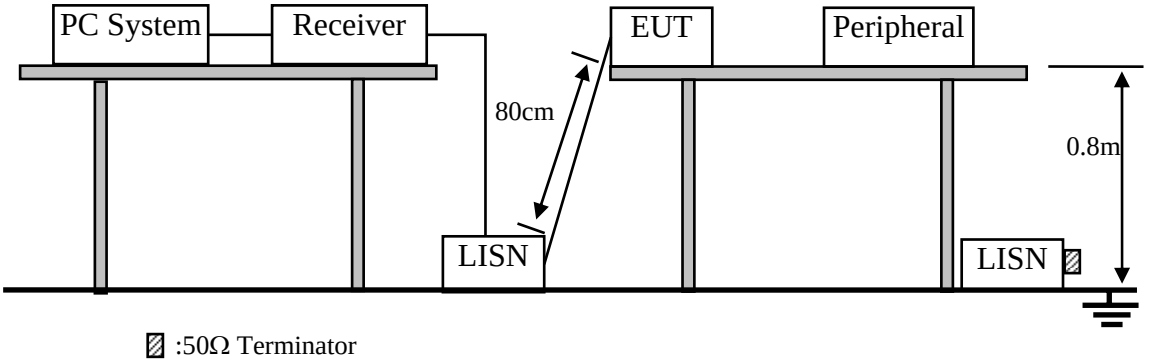
Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	3.10dB (150kHz to 30MHz)
Uncertainty for Radiation Emission test in 3m chamber	3.22dB(30~200MHz, Polarize: H)
	3.23dB(30~200MHz, Polarize: V)
	3.49dB(200M~1GHz, Polarize: H)
	3.39dB(200M~1GHz, Polarize: V)
Uncertainty for Radiation Emission test in 3m chamber (1GHz-18GHz)	4.97dB (1~6GHz, Distance: 3m)
	4.99dB (6~18GHz, Distance: 3m)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.57 dB
Uncertainty for Conduction Spurious emission test	2.00 dB
Uncertainty for Output power test	0.73 dB
Uncertainty for Bandwidth test	83 kHz
Uncertainty for DC power test	0.038 %
Uncertainty for test site temperature and humidity	0.6℃
	3%

3. POWER LINE CONDUCTED EMISSION TEST

3.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	1# Shielding Room	AUDIX	N/A	N/A	Apr.17,14	1 Year
2.	Test Receiver	Rohde & Schwarz	ESHS10	838693/001	Oct.31, 13	1 Year
3.	L.I.S.N.#1	Rohde & Schwarz	ESH2-Z5	100429	Jan.22, 14	1 Year
4.	L.I.S.N.#3	Kyoritsu	KNW-242C	8-1920-1	Apr. 28,14	1 Year
5.	Terminator	Hubersuhner	50Ω	No. 1	Apr. 28,14	1 Year
6.	Terminator	Hubersuhner	50Ω	No. 2	Apr. 28,14	1 Year
7.	RF Cable	Hubersuhner	RG58	0100.6954.20#	Jan. 22, 14	1Year
8.	Coaxial Switch	Anritsu	MP59B	6200298346	Apr. 28,14	1 Year
9.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	101838	Jan.22, 14	1 Year

3.2.Block Diagram of Test Setup



3.3.Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. Wireless Receiver (EUT)

Model Number : W-RX
Serial Number : N/A

3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.2.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turned on the power of all equipment.

3.5.3. PC run test software to control EUT work in Tx mode.

3.6. Test Procedure

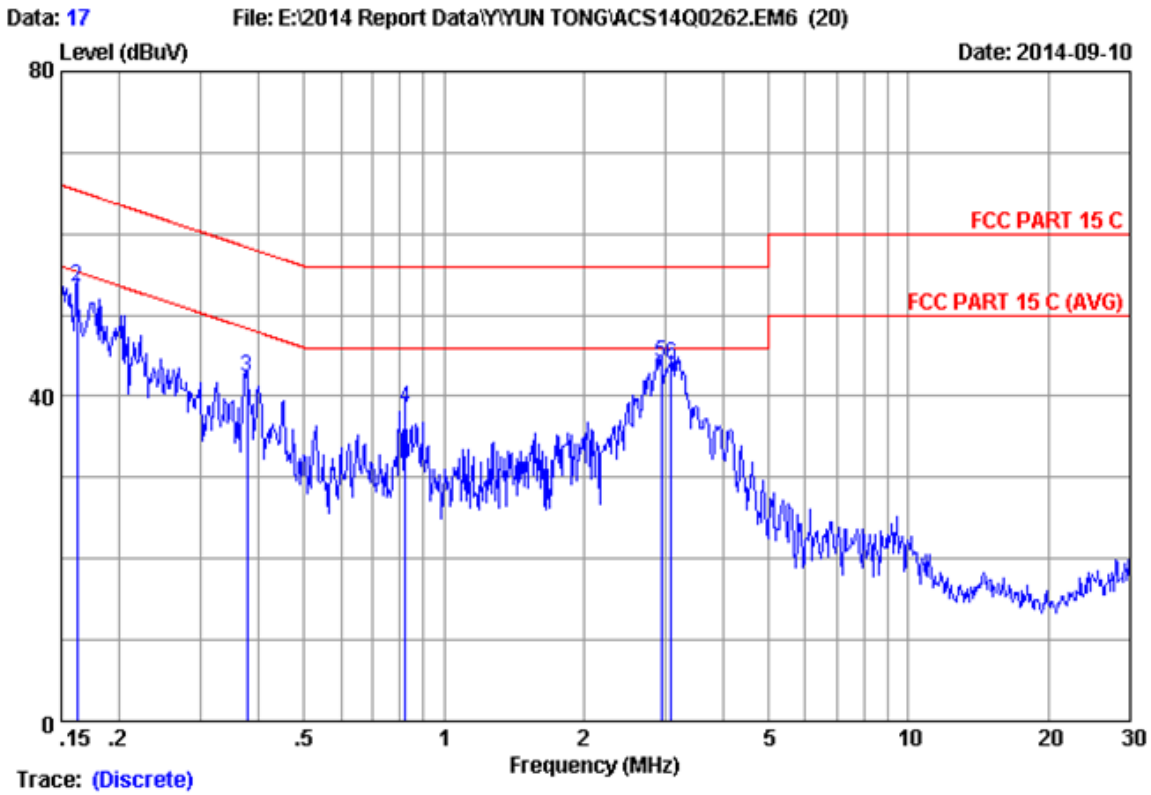
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via PC connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2009 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS10) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.7. Power Line Conducted Emission Test Results

PASS. **(**All emissions not reported below are too low against the prescribed limits.)



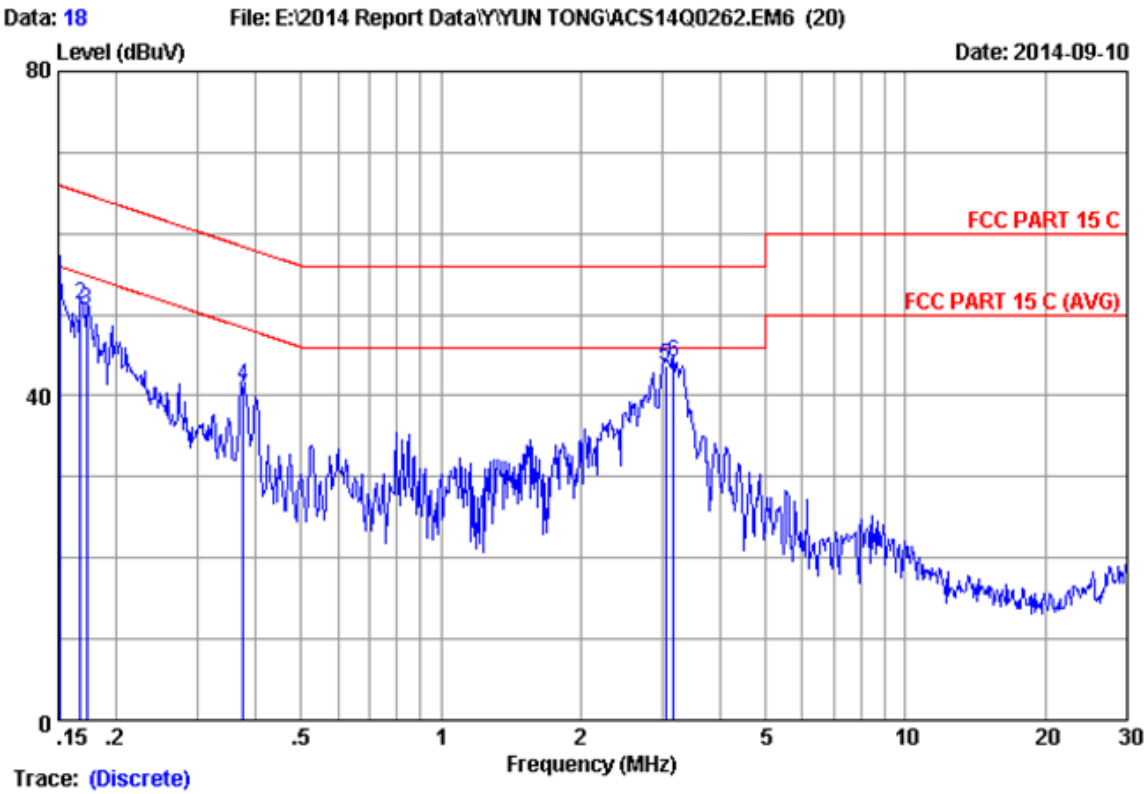
Trace: (Discrete)

Site no :1# Conduction
Dis./Ant. :2014 ESH2-Z5 LINE
Limit :FCC PART 15 C
Env./Ins. :24.6*C/50%
EUT :Wireless receiver
Power Rating :AC 120V/60Hz
Test Mode :Tx Mode
M/N:W-RX

Data No :17
Engineer :Nick_Huang

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15000	0.14	9.89	42.60	52.63	66.00	13.37	QP
2	0.16241	0.14	9.89	43.51	53.54	65.34	11.80	QP
3	0.37711	0.54	9.90	31.84	42.28	58.34	16.06	QP
4	0.82608	0.15	9.91	28.54	38.60	56.00	17.40	QP
5	2.931	0.20	9.94	33.88	44.02	56.00	11.98	QP
6	3.090	0.20	9.94	33.81	43.95	56.00	12.05	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit) +Reading.
2.If the average limit is met when useing a quasi-peak detector. the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



Site no :1# Conduction
Dis./Ant. :2014 ESH2-Z5 NEUTRAL
Limit :FCC PART 15 C
Env./Ins. :24.6*C/50%
EUT :Wireless receiver
Power Rating :AC 120V/60Hz
Test Mode :Tx Mode
M/N:W-RX

Data No :18
Engineer :Nick_Huang

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.15160	0.13	9.89	44.56	54.58	65.91	11.33	QP
2	0.16765	0.13	9.89	41.20	51.22	65.08	13.86	QP
3	0.17307	0.13	9.89	40.55	50.57	64.81	14.24	QP
4	0.37512	0.15	9.90	31.28	41.33	58.39	17.06	QP
5	3.041	0.22	9.94	33.43	43.59	56.00	12.41	QP
6	3.173	0.23	9.94	33.94	44.11	56.00	11.89	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss(Include 10dB pulse limit) +Reading.
2.If the average limit is met when useing a quasi-peak detector. the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1.Test Equipment

4.1.1. For frequency range 30MHz~1000MHz (At Anechoic Chamber)

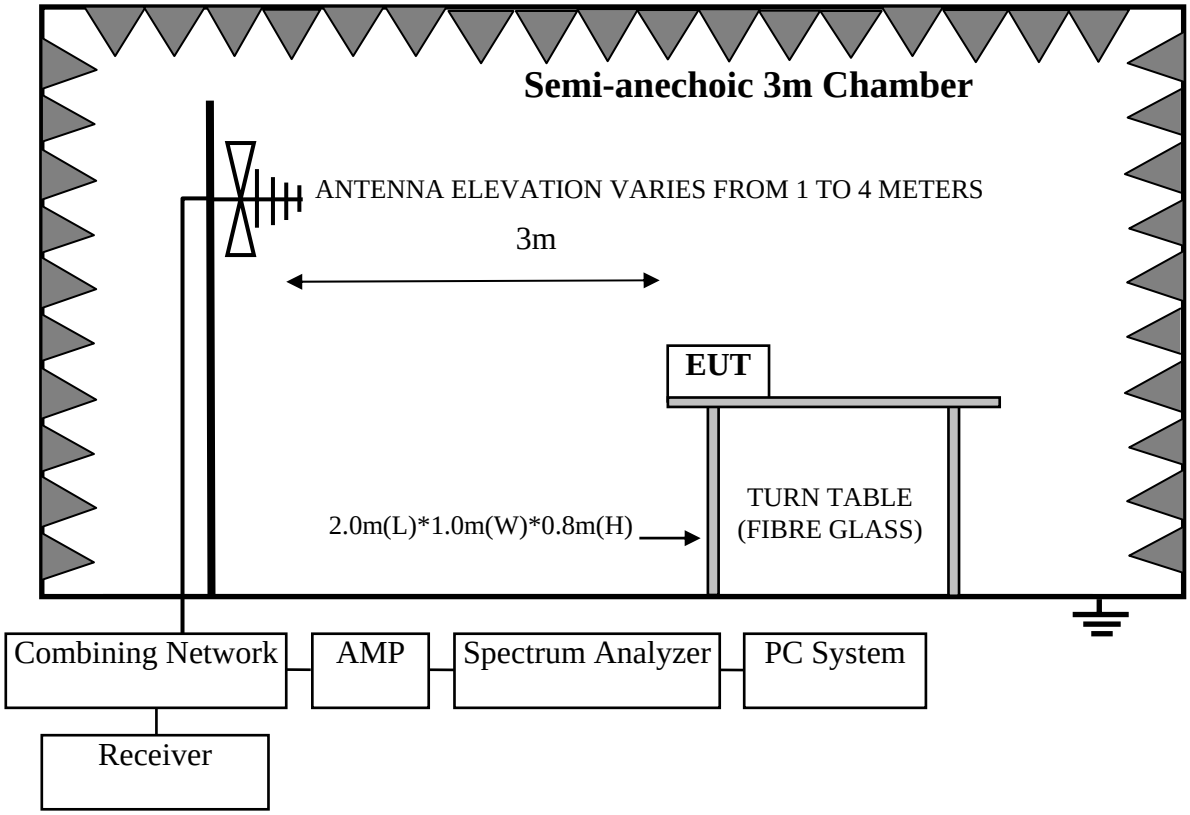
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Nov.24, 13	1 Year
2.	EMI Spectrum	Agilent	E4407B	MY41440292	Apr. 28,14	1 Year
3.	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	Apr. 28,14	1 Year
4.	Amplifier	HP	8447D	2648A04738	Apr. 28,14	1 Year
5.	Bilog Antenna	TESEQ	CBL6112D	35375	Jun. 18, 14	1 Year
6.	RF Cable	MIYAZAKI	CFD400-NL	3# Chamber No.1	Apr. 28,14	1 Year
7.	Coaxial Switch	Anritsu	MP59B	6200313662	Apr. 28,14	1 Year

4.1.2. For frequency range 1GHz~40GHz (At Anechoic Chamber)

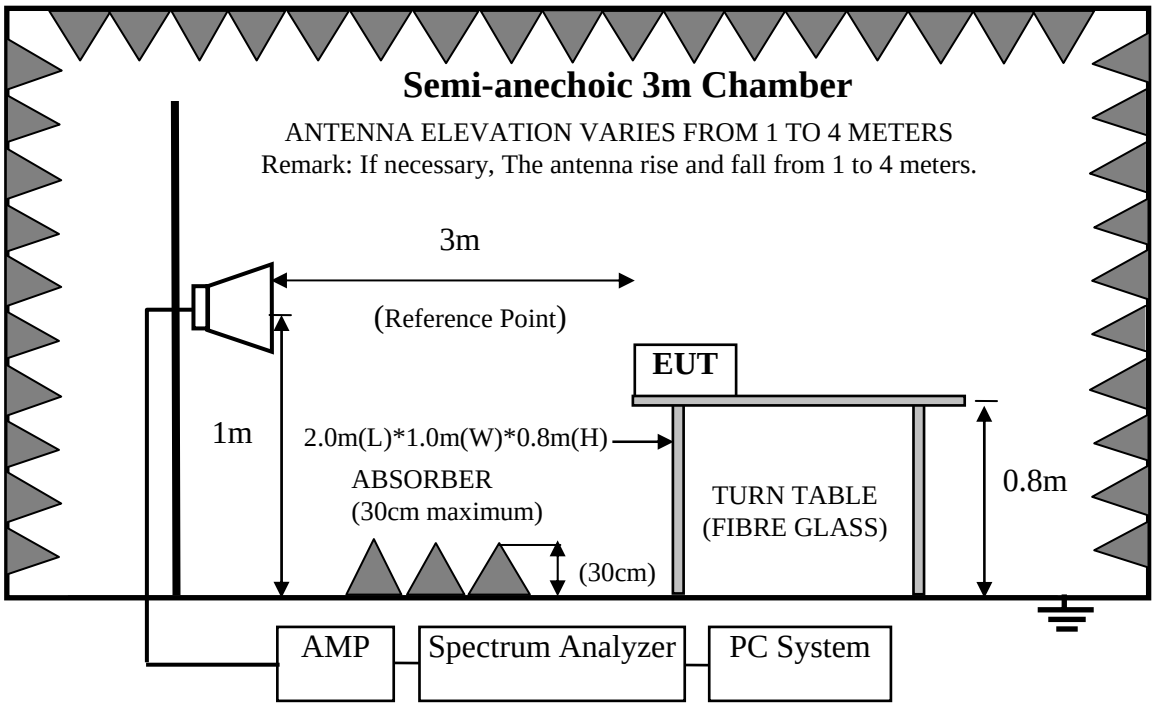
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Nov.02, 14	1 Year
2.	Spectrum Analyzer	Agilent	E4446A	US44300459	Apr. 28,14	1 Year
3.	Horn Antenna	ETS	3115	9607-4877	Sep.20, 14	1 Year
4.	Horn Antenna	ETS	3116	00060089	Sep.20, 14	1 Year
5.	Amplifier	Agilent	8449B	3008A00863	Apr. 28,14	1 Year
6.	RF Cable	Hubersuhner	SUCOFLEX106	77977/6	Apr. 28,14	1 Year
7.	RF Cable	Hubersuhner	SUCOFLEX106	28616/2	Apr. 28,14	1 Year

4.2.Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range 1GHz-40GHz



4.3.Radiated Emission Limit

4.3.1. 15.247&209 limits

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Remark： (1) Emission level dBμV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.3.2. 15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

4.4.EUT Configuration on Test

The configurations of EUT are listed in Section 3.4.

4.5.Operating Condition of EUT

Same as Conducted Emission test that is listed in Section 3.5. except the test set up replaced by Section 4.2.

4.6.Test Procedure

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna are set on test.

This test was performed with EUT in X, Y, Z position, and the worse case was found when EUT in X position as test photo indicated.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

The frequency range from 30MHz to 10th harmonic (40GHz) are checked. and no any emissions were found from 18GHz to 40 GHz, So the radiated emissions from 18GHz to 40GHz were not record.

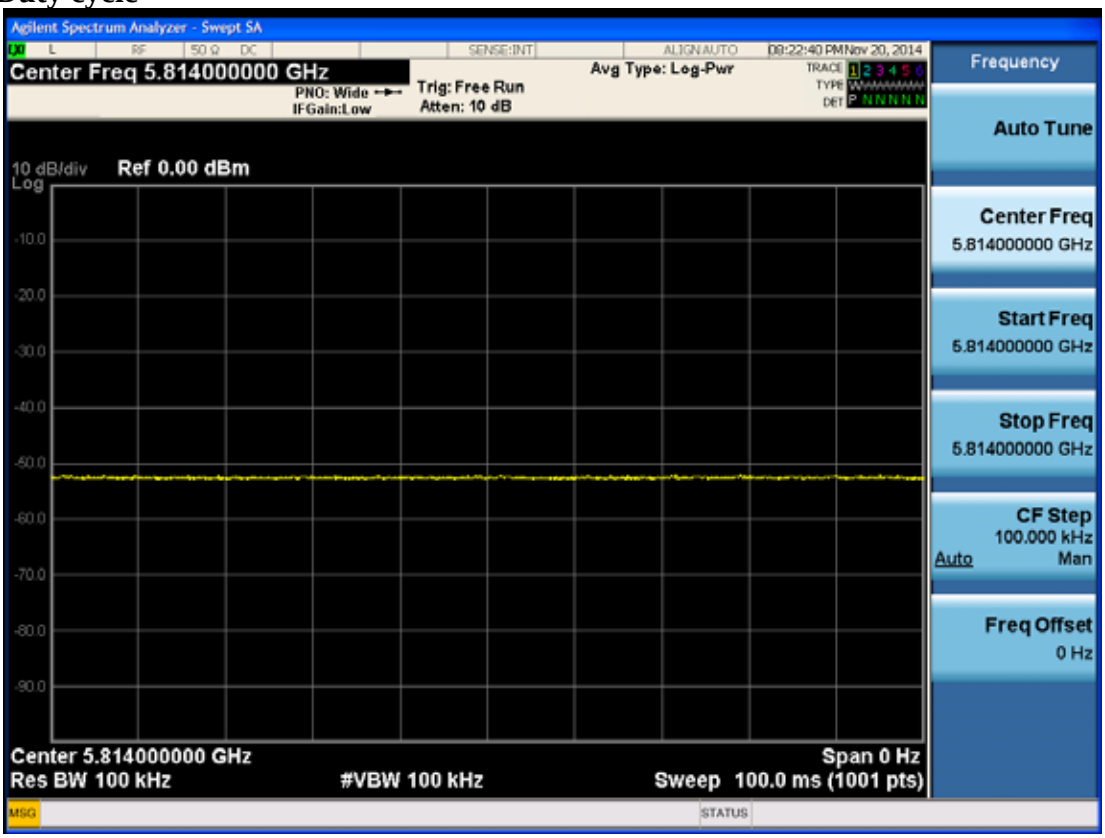
4.7.Radiated Emission Test Results

PASS.

All the emissions from 30MHz to 40 GHz were comply with 15.209 limits.

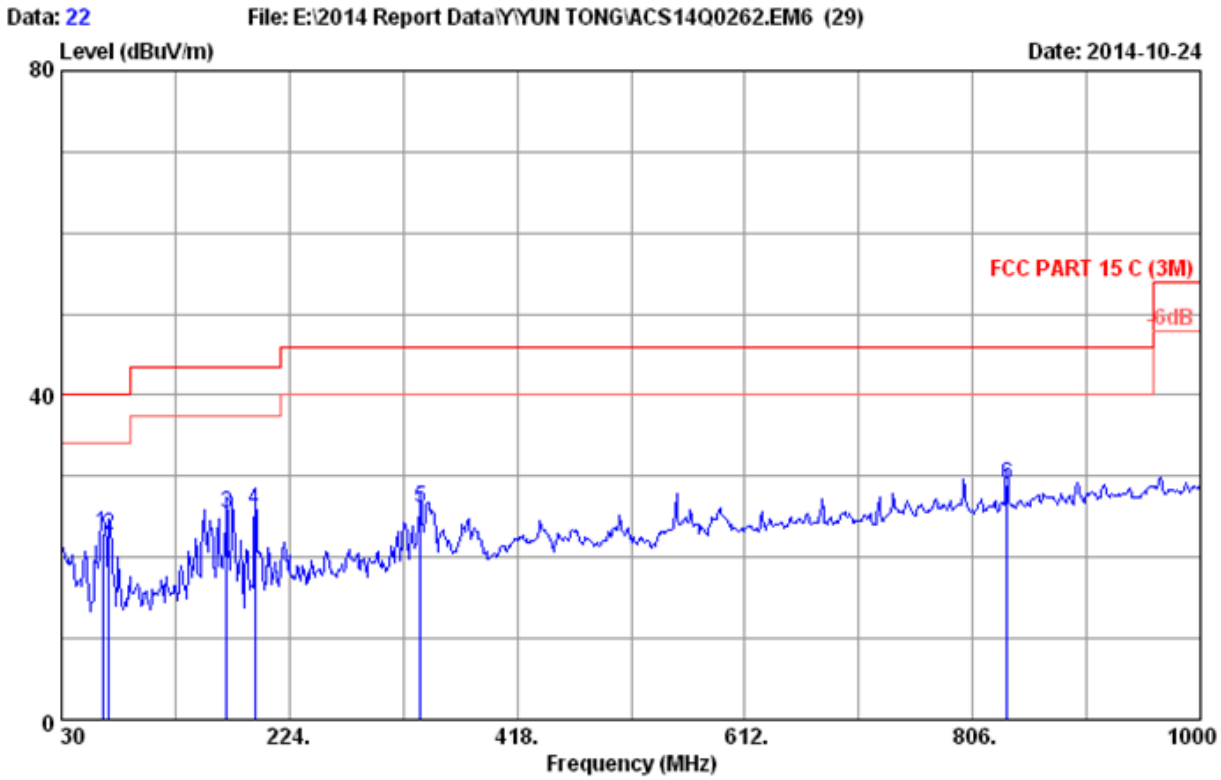
Note: For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

Duty cycle



Note: The Duty Cycle is close to 100%.

Frequency: 30MHz~1GHz

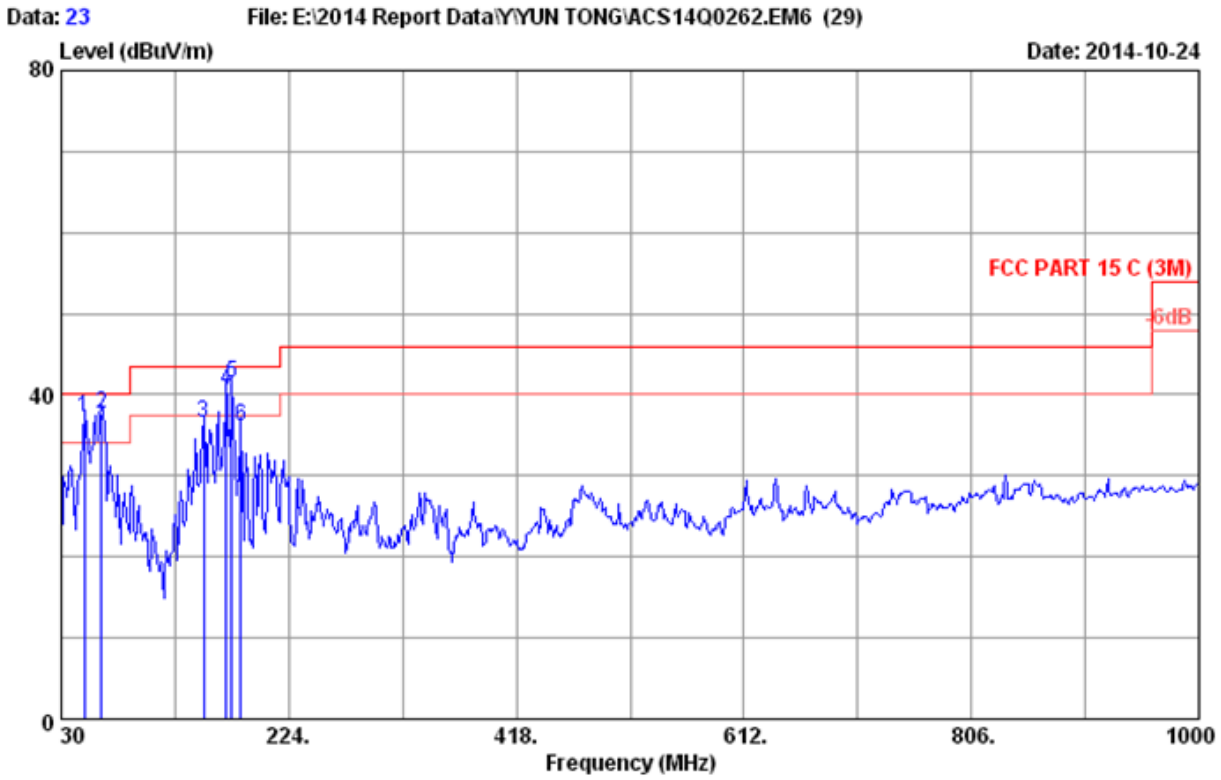


Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 CBL6112D 35375
Limit : FCC PART 15 C (3M)
Env. / Ins. : 24.5*C/48%
EUT : Wireless receiver
Power rating : AC 120V/60Hz
Test Mode : Tx Mode
M/N:W-RX

Data no. : 22
Ant. pol. : HORIZONTAL
Engineer : Berg_Guo

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	64.920	6.35	0.90	43.86	23.01	40.00	16.99	QP
2	70.740	6.71	0.94	43.27	22.83	40.00	17.17	QP
3	170.650	10.07	1.67	41.16	25.39	43.50	18.11	QP
4	194.900	9.95	1.81	41.42	25.76	43.50	17.74	QP
5	335.550	14.81	2.48	36.03	25.99	46.00	20.01	QP
6	835.100	21.30	4.62	30.67	28.90	46.00	17.10	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



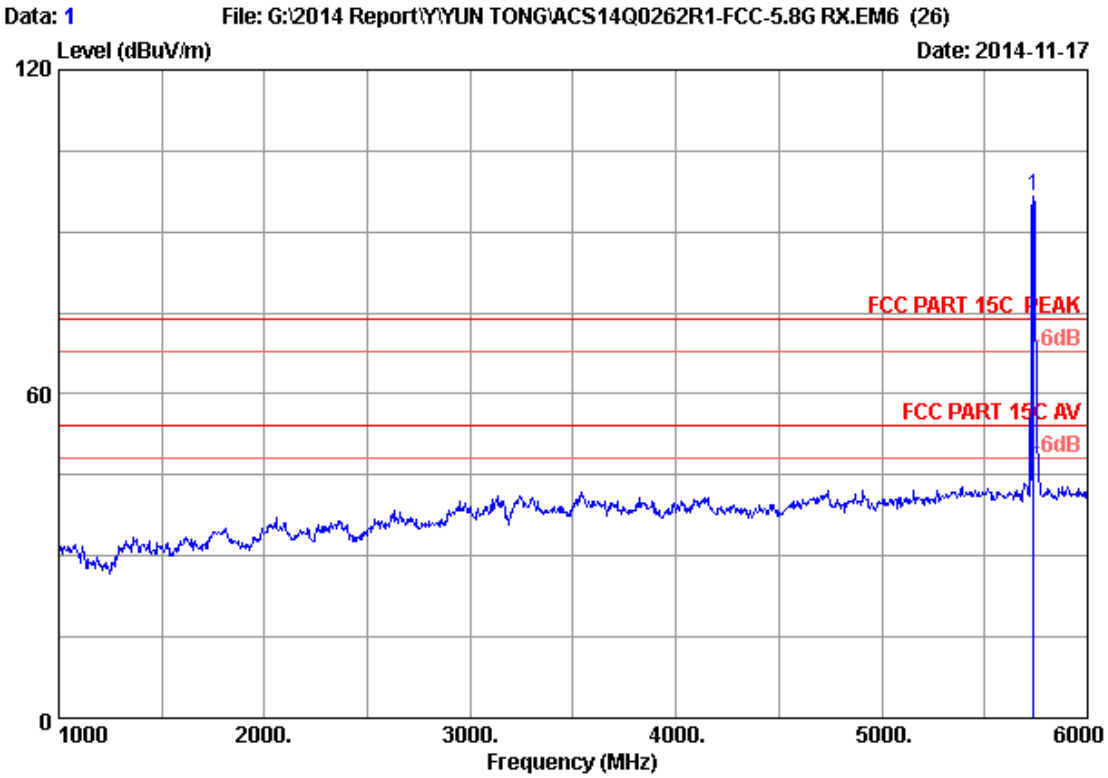
Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 CBL6112D 35375
Limit : FCC PART 15 C (3M)
Env. / Ins. : 24.5*C/48%
EUT : Wireless receiver
Power rating : AC 120V/60Hz
Test Mode : Tx Mode
M/N:W-RX

Data no. : 23
Ant. pol. : VERTICAL
Engineer : Berg_Guo

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	49.400	8.94	0.77	55.64	37.15	40.00	2.85	QP
2	63.950	6.30	0.89	58.67	37.76	40.00	2.24	QP
3	151.250	11.24	1.55	51.26	36.45	43.50	7.05	QP
4	170.650	10.07	1.67	56.39	40.62	43.50	2.88	QP
5	175.500	9.80	1.70	57.43	41.44	43.50	2.06	QP
6	183.260	9.70	1.75	52.14	36.13	43.50	7.37	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Frequency: 1GHz~18GHz

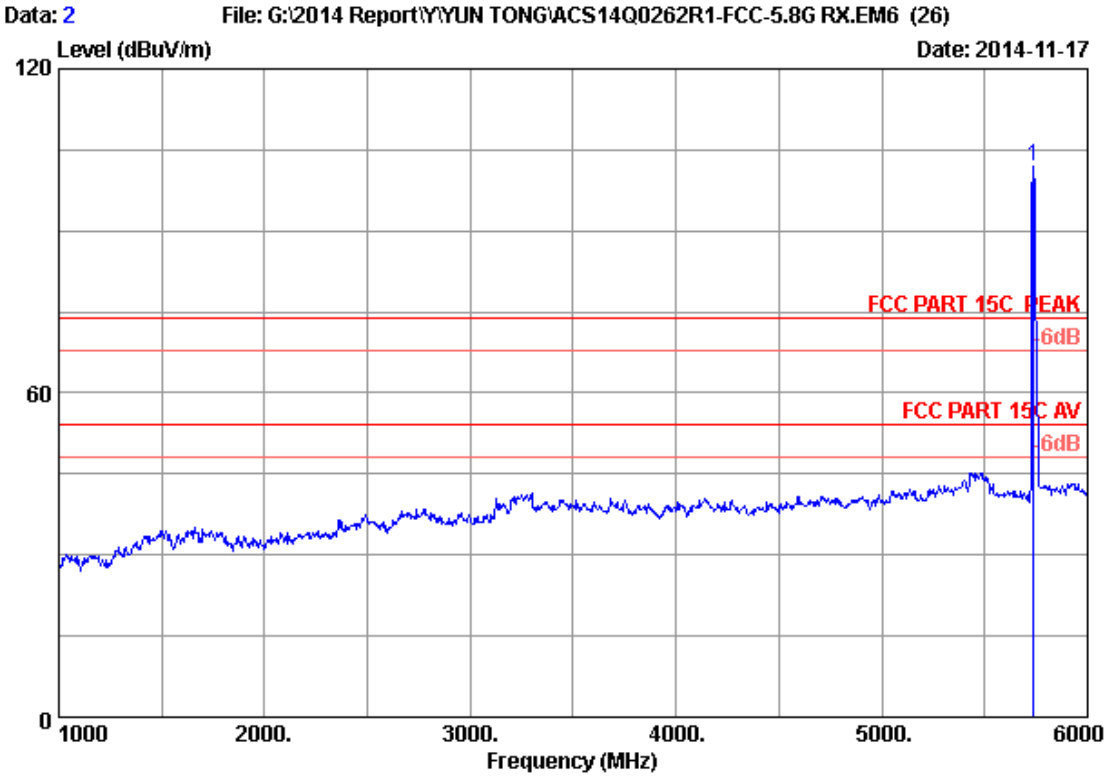


Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 3115 (4580)
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56%
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5736 MHz
M/N : W-RX

Data no. : 1
Ant. pol. : HORIZONTAL
Engineer : Kobe

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5736.000	34.09	9.54	35.70	88.59	96.52	74.00	-22.52	Peak

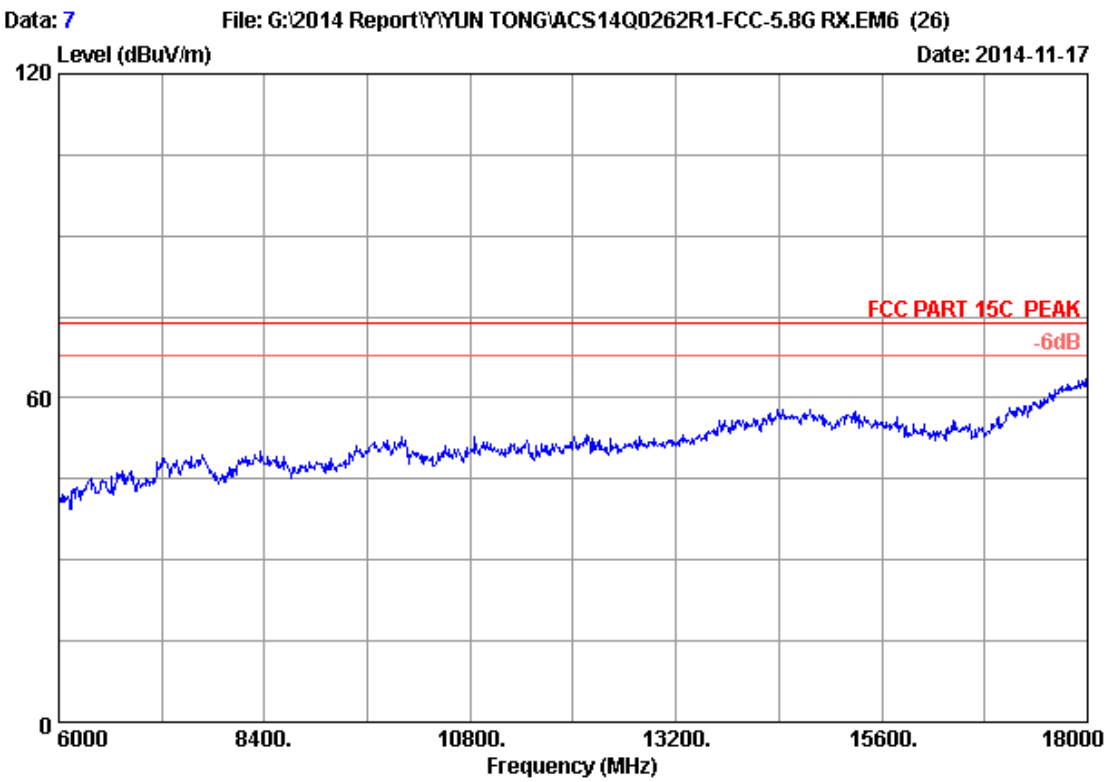
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



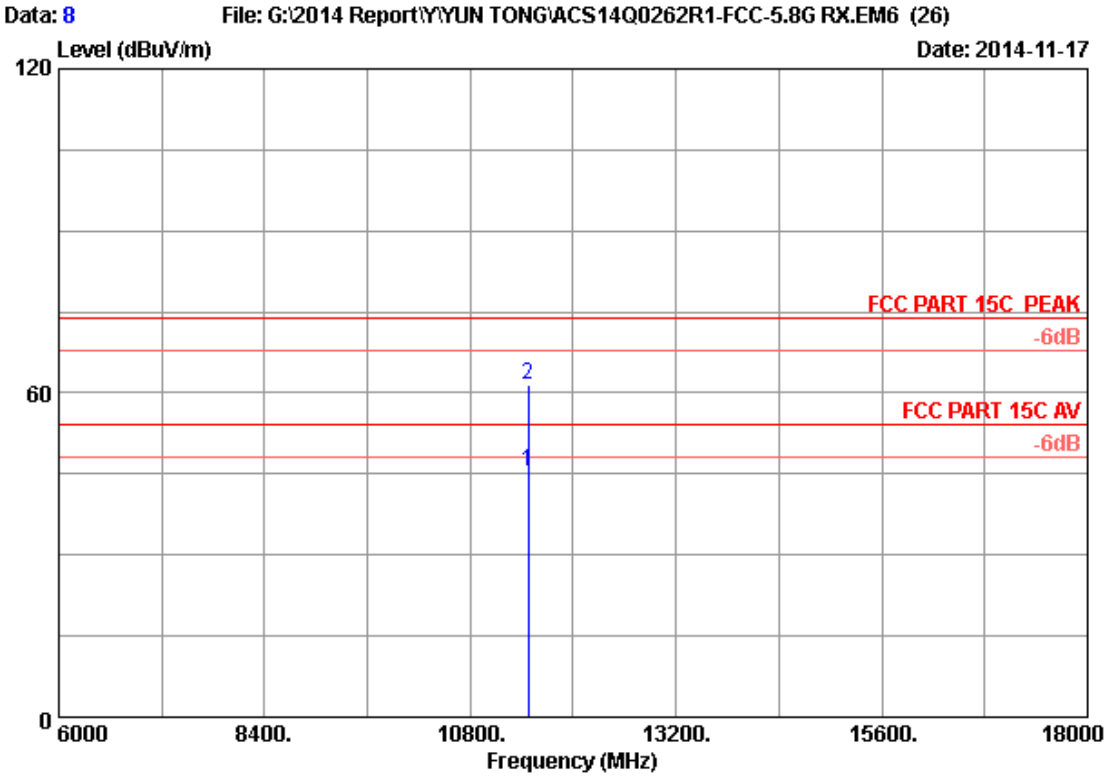
Site no. : 3m Chamber Data no. : 2
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56% Engineer : Kobe
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5736 MHz
M/N : W-RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5736.000	34.09	9.54	35.70	93.89	101.82	74.00	-27.82	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no.	: 3m Chamber	Data no.	: 7
Dis. / Ant.	: 3m 2014 3115 (4580)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 24*C/56%	Engineer	: Kobe
EUT	: Wireless receiver		
Power rating	: AC 120V/60 Hz		
Test Mode	: 11a 5736 MHz		
M/N	: W-RX		

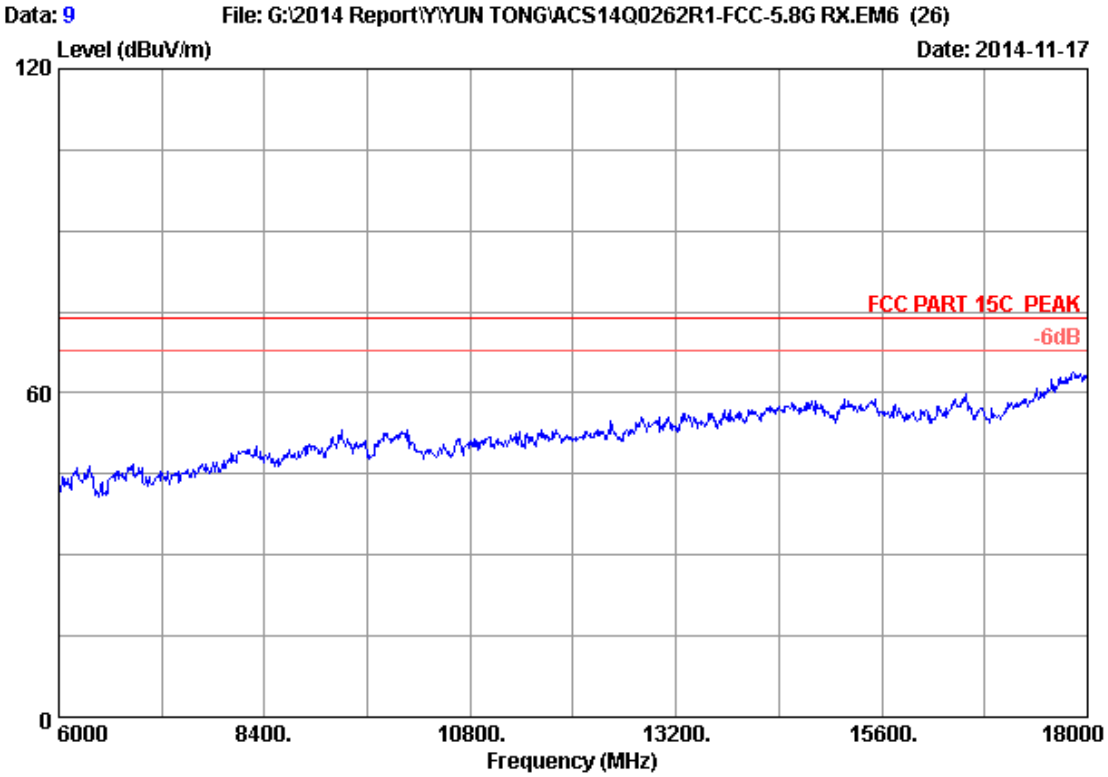


Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 3115 (4580)
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56%
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5736 MHz
M/N : W-RX

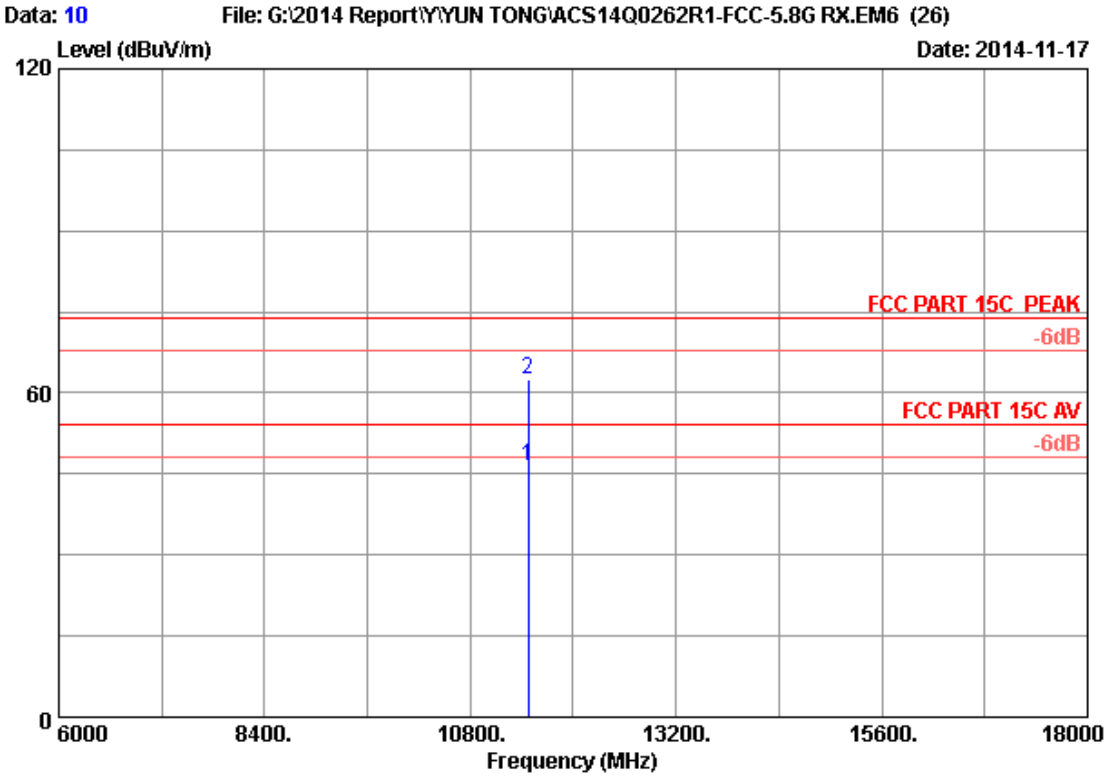
Data no. : 8
Ant. pol. : HORIZONTAL
Engineer : Kobe

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	11472.000	38.68	13.27	35.28	28.75	45.42	54.00	8.58	Average
2	11472.000	38.68	13.27	35.28	44.87	61.54	74.00	12.46	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



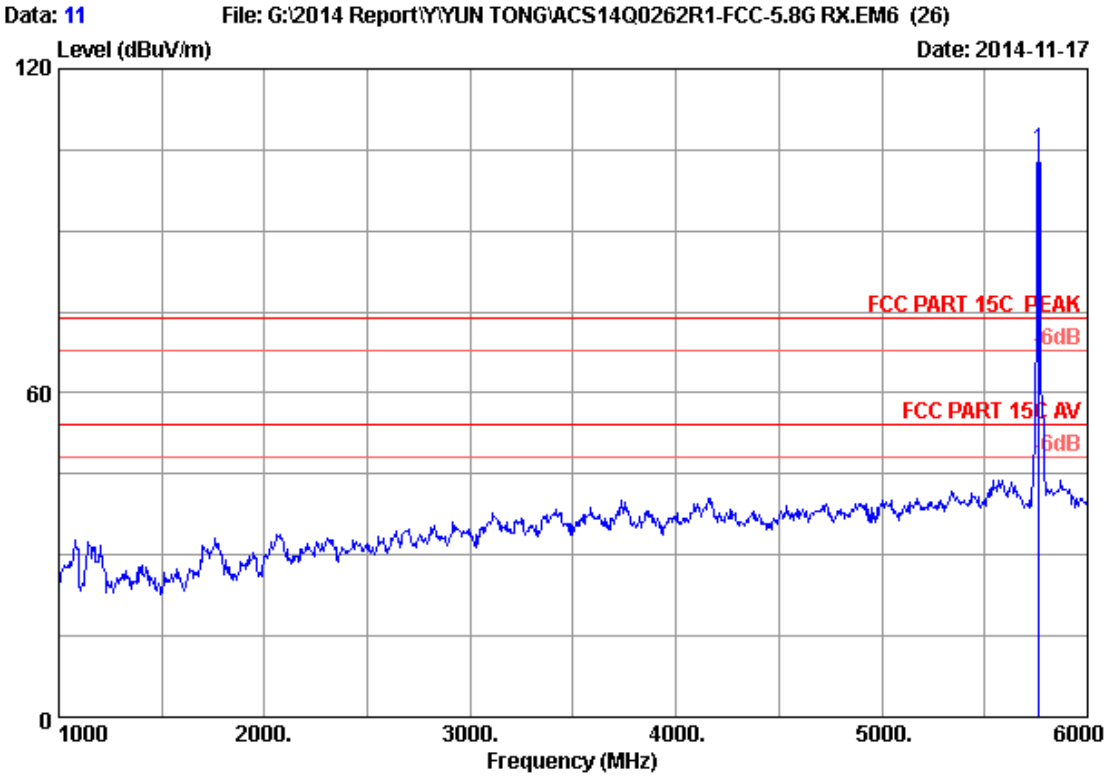
Site no. : 3m Chamber Data no. : 9
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56% Engineer : Kobe
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5736 MHz
M/N : W-RX



Site no. : 3m Chamber Data no. : 10
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56% Engineer : Kobe
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5736 MHz
M/N : W-RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	11472.000	38.68	13.27	35.28	29.78	46.45	54.00	7.55	Average
2	11472.000	38.68	13.27	35.28	45.74	62.41	74.00	11.59	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

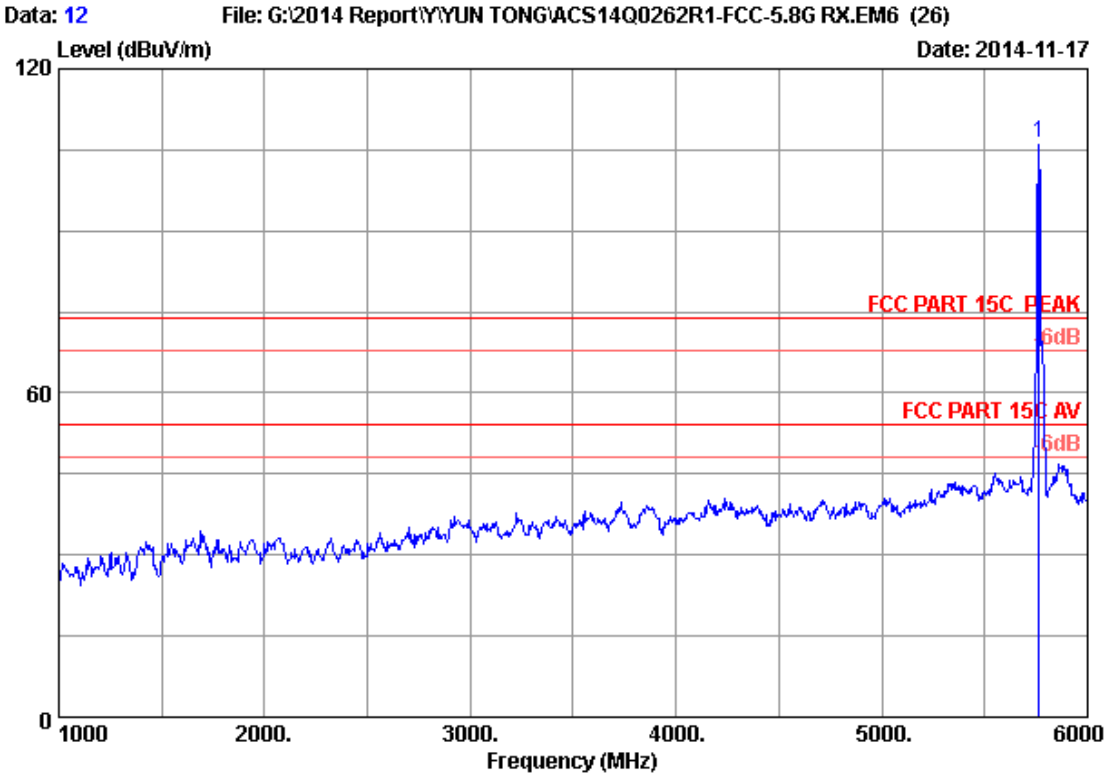


Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 3115 (4580)
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56%
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5762 MHz
M/N : W-RX

Data no. : 11
Ant. pol. : HORIZONTAL
Engineer : Kobe

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5762.000	34.10	9.56	35.70	96.85	104.81	74.00	-30.81	Peak

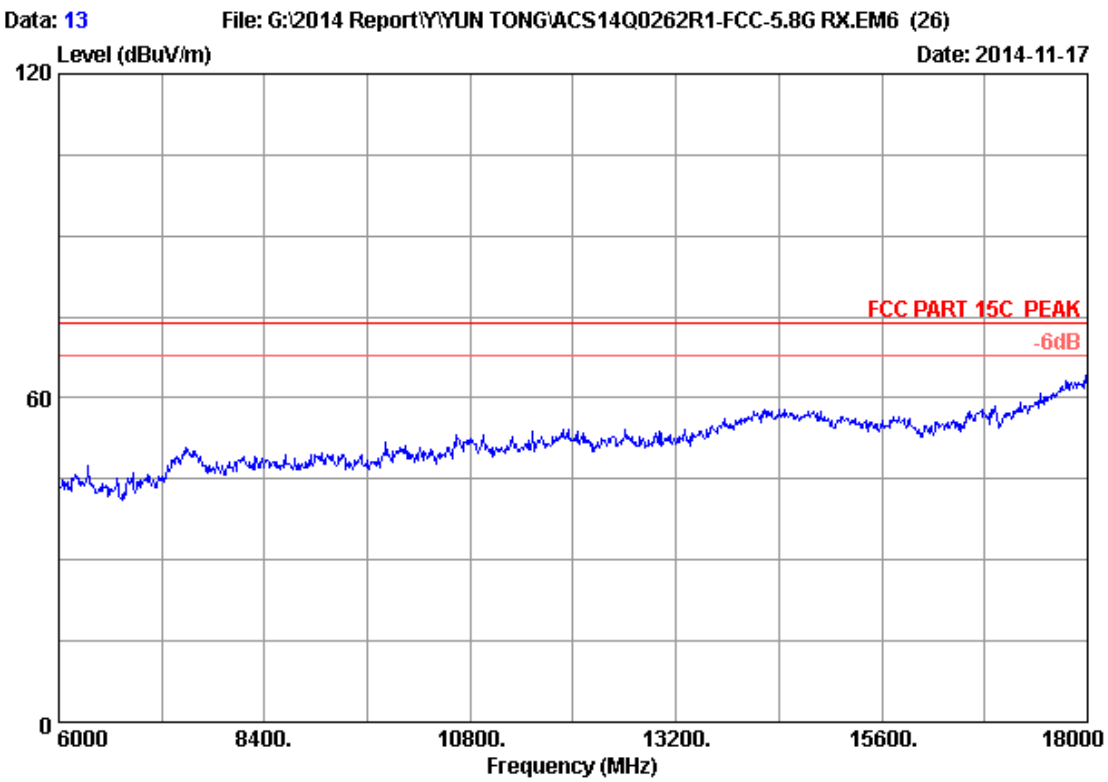
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



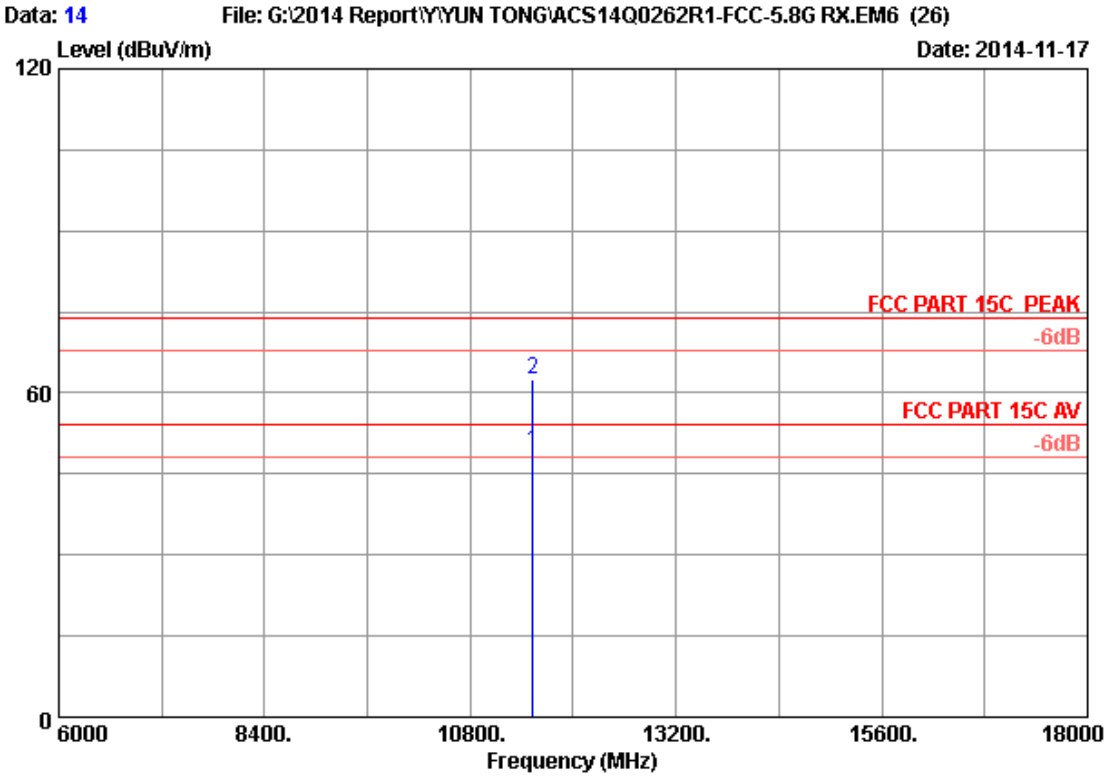
Site no. : 3m Chamber Data no. : 12
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56% Engineer : Kobe
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5762 MHz
M/N : W-RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5762.000	34.10	9.56	35.70	98.17	106.13	74.00	-32.13	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no.	: 3m Chamber	Data no.	: 13
Dis. / Ant.	: 3m 2014 3115 (4580)	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 24*C/56%	Engineer	: Kobe
EUT	: Wireless receiver		
Power rating	: AC 120V/60 Hz		
Test Mode	: 11a 5762 MHz		
M/N	: W-RX		

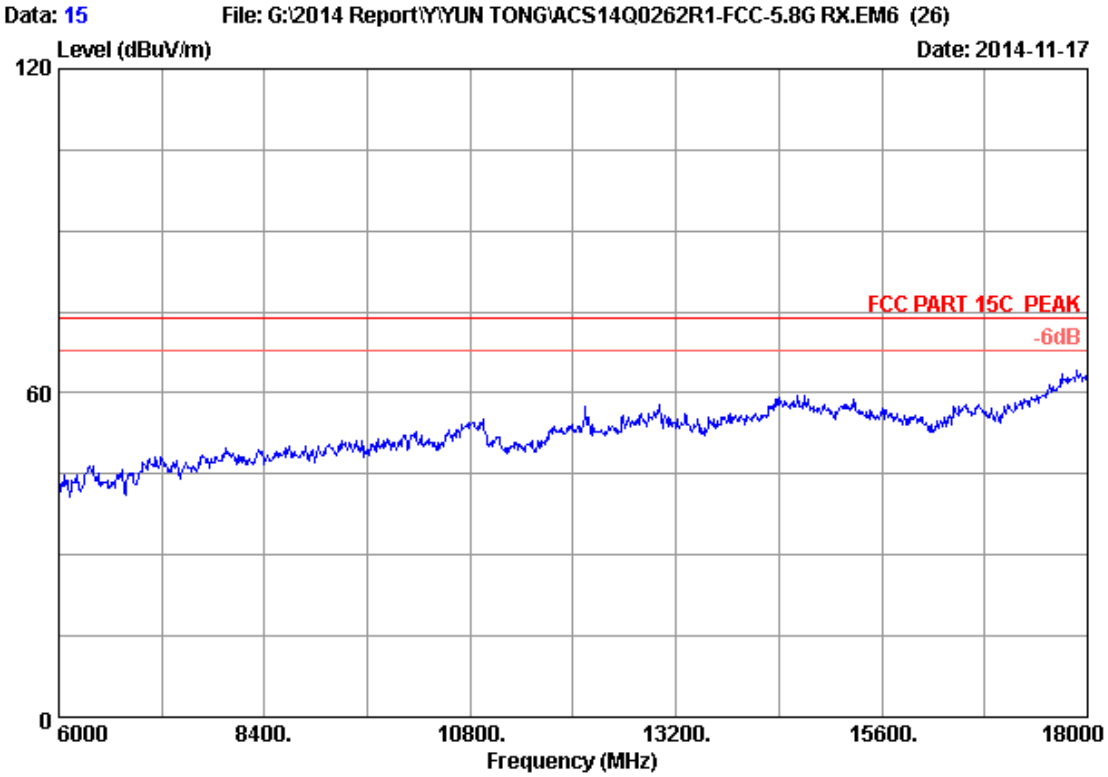


Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 3115 (4580)
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56%
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5762 MHz
M/N : W-RX

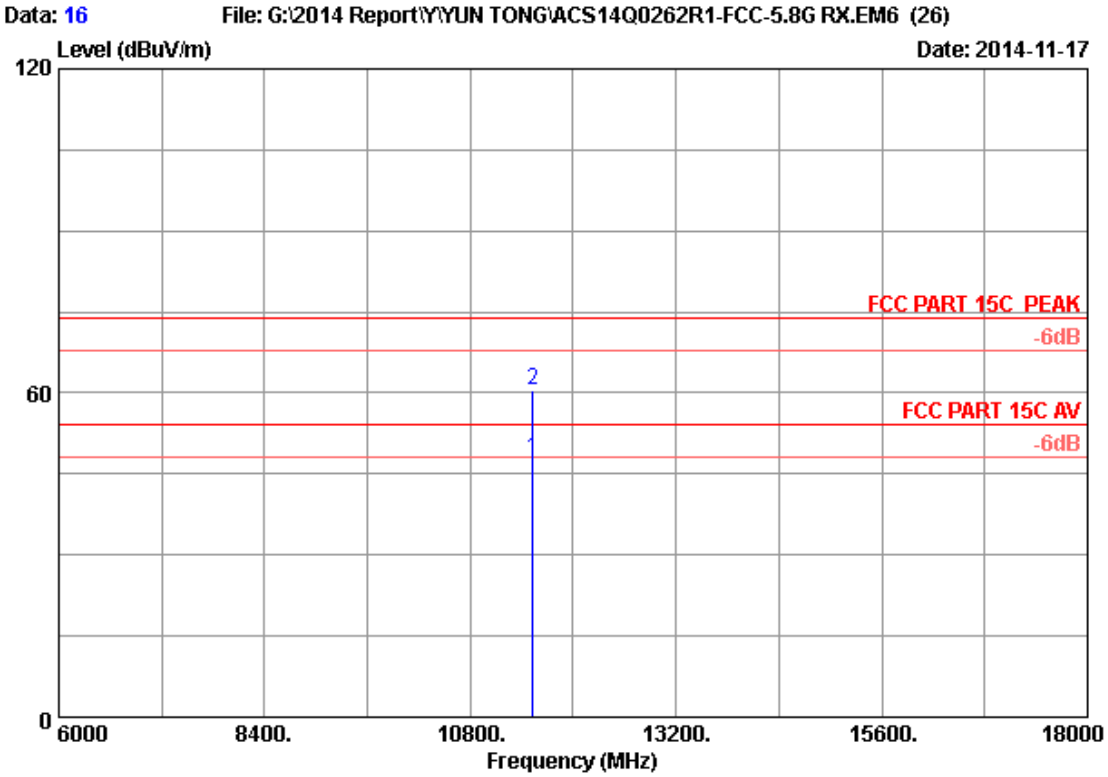
Data no. : 14
Ant. pol. : VERTICAL
Engineer : Kobe

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	11524.000	38.73	13.30	35.27	32.47	49.23	54.00	4.77	Average
2	11524.000	38.73	13.30	35.27	45.65	62.41	74.00	11.59	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no.	: 3m Chamber	Data no.	: 15
Dis. / Ant.	: 3m 2014 3115 (4580)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 24*C/56%	Engineer	: Kobe
EUT	: Wireless receiver		
Power rating	: AC 120V/60 Hz		
Test Mode	: 11a 5762 MHz		
M/N	: W-RX		

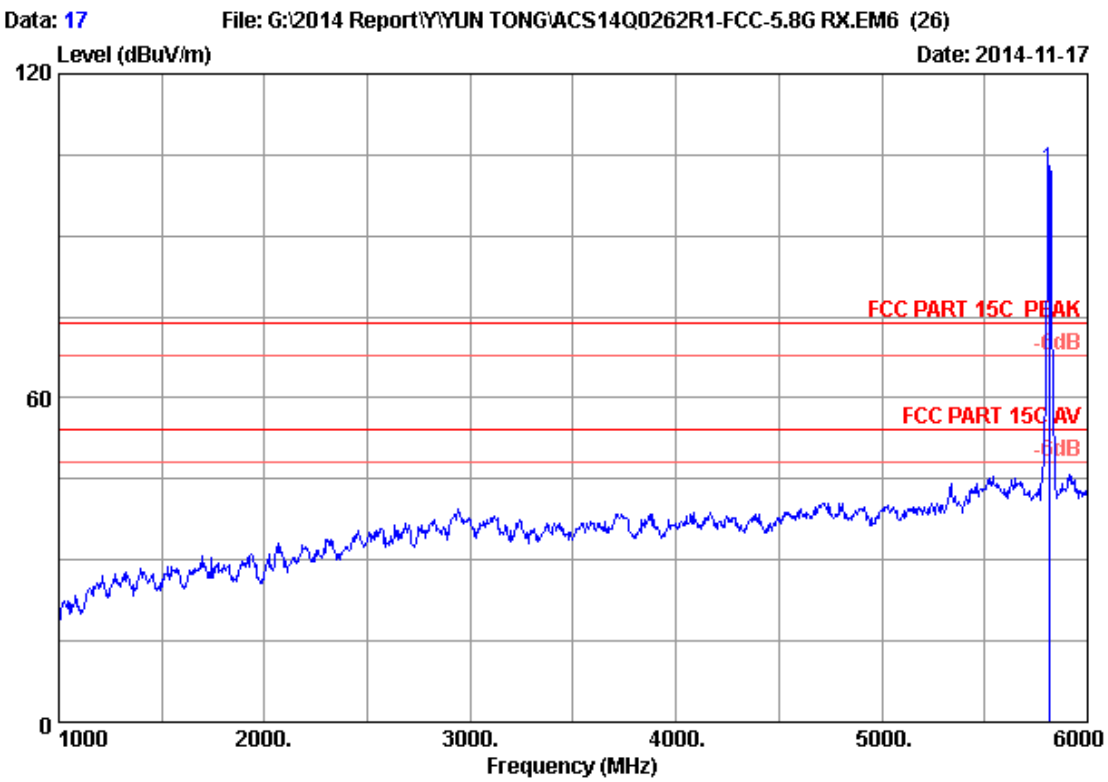


Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 3115 (4580)
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56%
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5762 MHz
M/N : W-RX

Data no. : 16
Ant. pol. : HORIZONTAL
Engineer : Kobe

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	11524.000	38.73	13.30	35.27	31.18	47.94	54.00	6.06	Average
2	11524.000	38.73	13.30	35.27	43.85	60.61	74.00	13.39	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

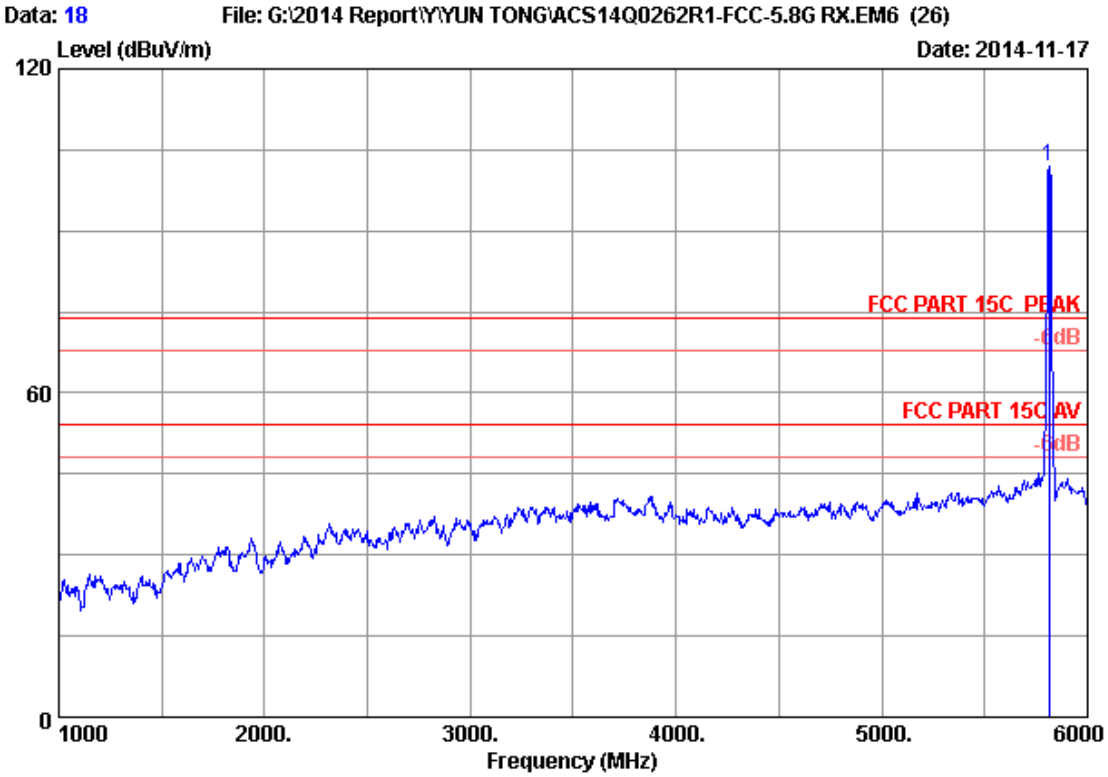


Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 3115 (4580)
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56%
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5814 MHz
M/N : W-RX

Data no. : 17
Ant. pol. : HORIZONTAL
Engineer : Kobe

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5814.000	34.13	9.62	35.70	94.26	102.31	74.00	-28.31	Peak

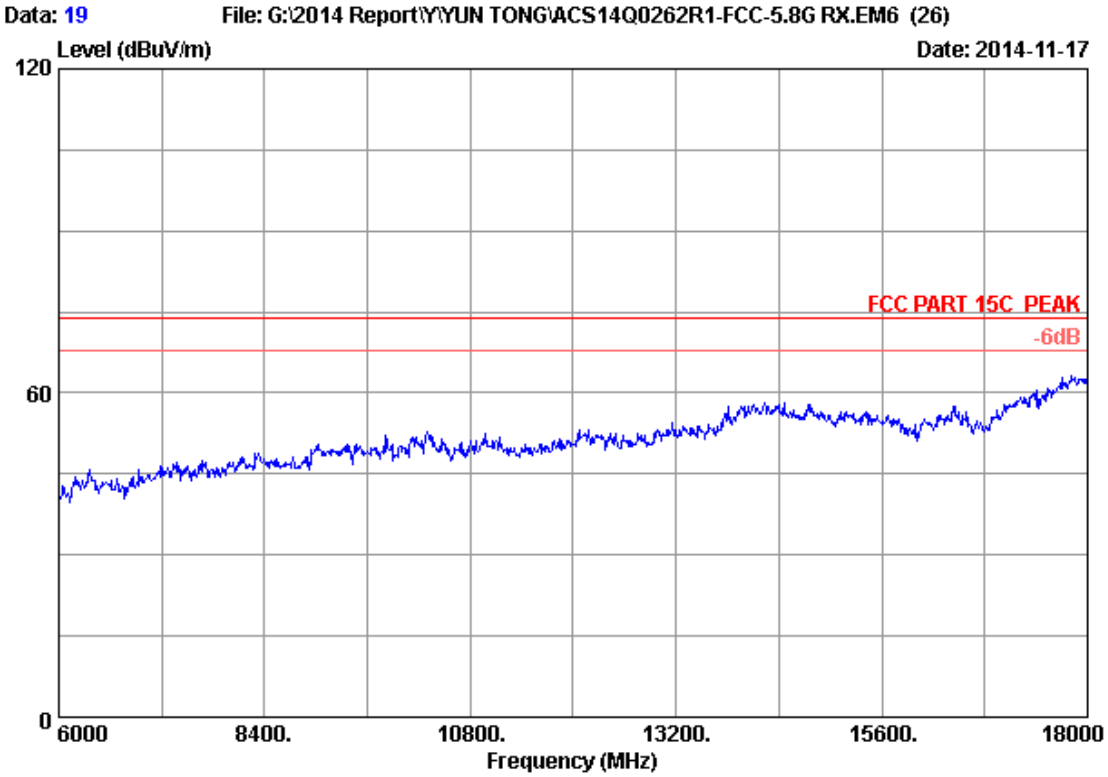
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



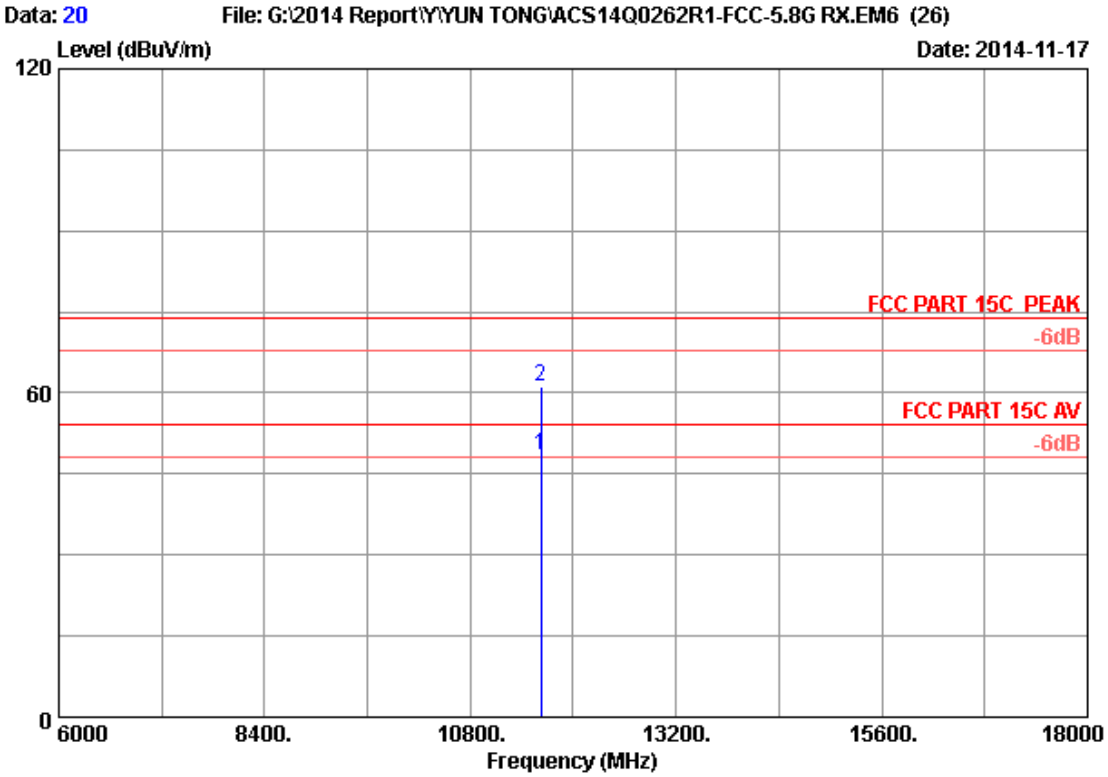
Site no. : 3m Chamber Data no. : 18
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56% Engineer : Kobe
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5814 MHz
M/N : W-RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5814.000	34.13	9.62	35.70	94.02	102.07	74.00	-28.07	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.




```
Site no.      : 3m Chamber                        Data no.   : 19
Dis. / Ant.   : 3m   2014 3115 (4580)        Ant. pol. : VERTICAL
Limit         : FCC PART 15C  PEAK
Env. / Ins.   : 24*C/56%                     Engineer   : Kobe
EUT           : Wireless receiver
Power rating  : AC 120V/60 Hz
Test Mode     : 11a 5814 MHz
M/N           : W-RX
```

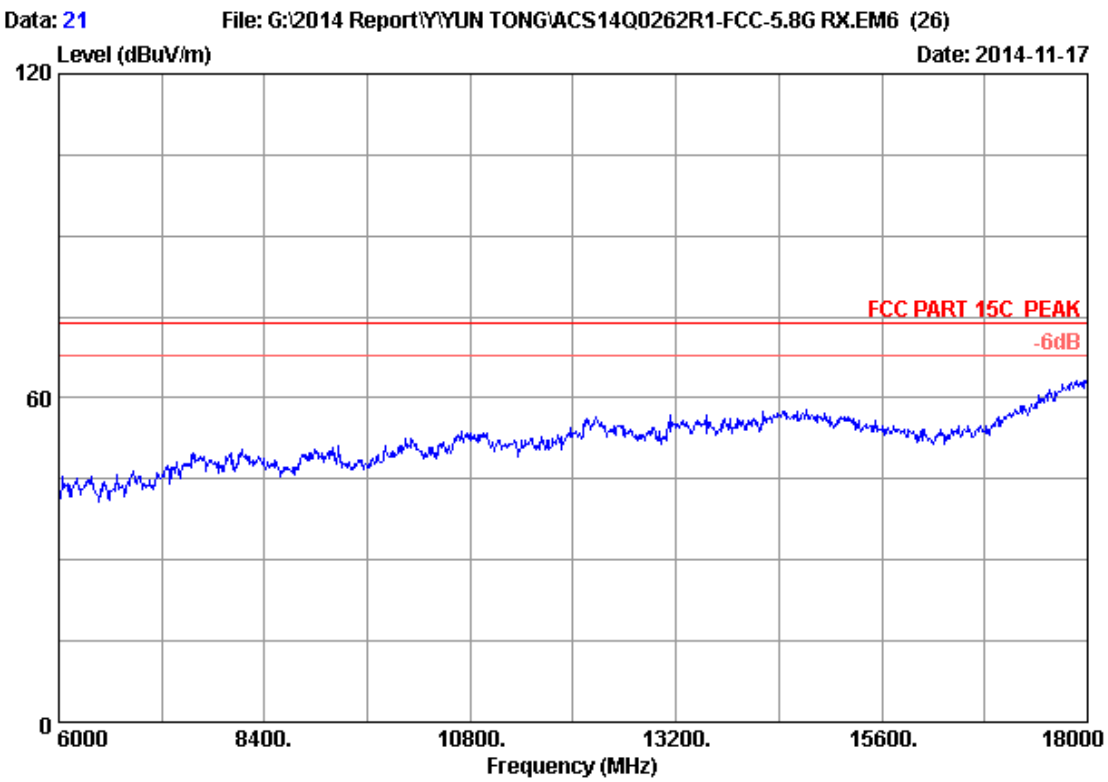


Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 3115 (4580)
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56%
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5814 MHz
M/N : W-RX

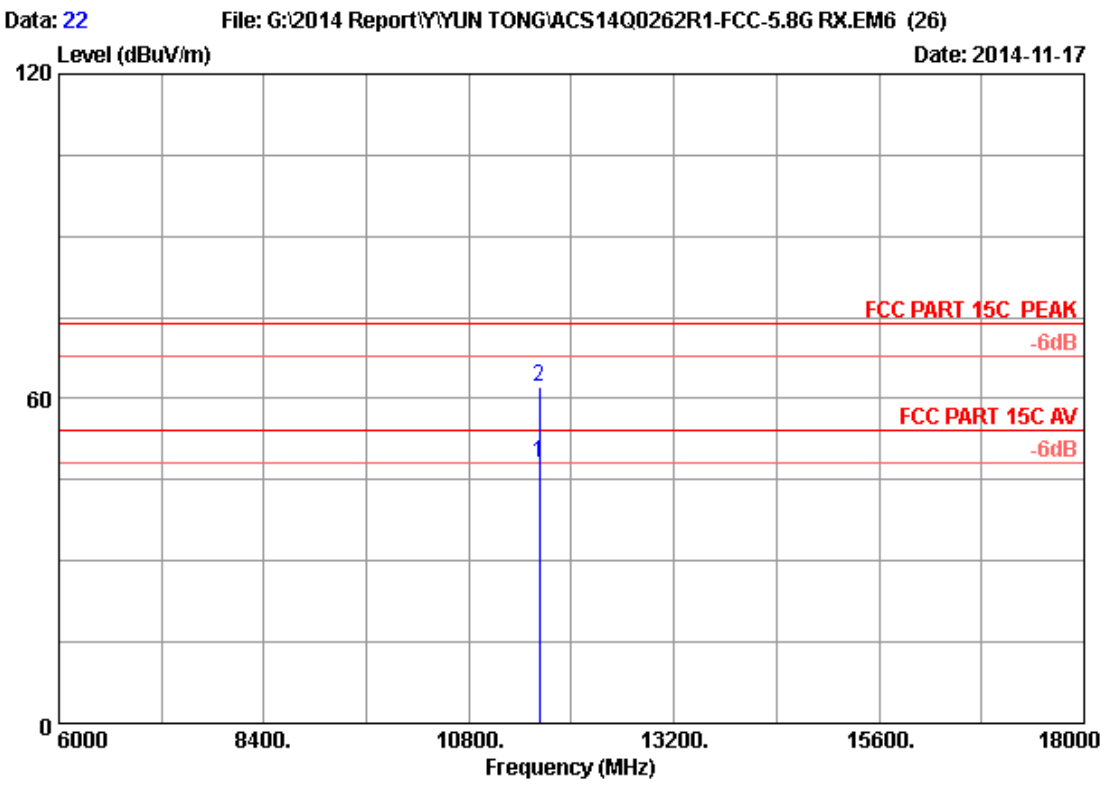
Data no. : 20
Ant. pol. : VERTICAL
Engineer : Kobe

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	11628.000	38.88	13.36	35.26	31.62	48.60	54.00	5.40	Average
2	11628.000	38.88	13.36	35.26	44.18	61.16	74.00	12.84	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no.	: 3m Chamber	Data no.	: 21
Dis. / Ant.	: 3m 2014 3115 (4580)	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 24*C/56%	Engineer	: Kobe
EUT	: Wireless receiver		
Power rating	: AC 120V/60 Hz		
Test Mode	: 11a 5814 MHz		
M/N	: W-RX		



Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 3115 (4580)
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56%
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5814 MHz
M/N : W-RX

Data no. : 22
Ant. pol. : HORIZONTAL
Engineer : Kobe

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	11628.000	38.88	13.36	35.26	31.28	48.26	54.00	5.74	Average
2	11628.000	38.88	13.36	35.26	45.32	62.30	74.00	11.70	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

5. CONDUCTED SPURIOUS EMISSIONS

5.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	Apr. 28,14	1 Year
2.	Spectrum	Agilent	N9030A	MY51380221	Oct. 29, 14	1Year
3.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr. 28,14	1 Year
4.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	Apr. 28,14	1 Year

5.2.Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

5.3.Test Procedure

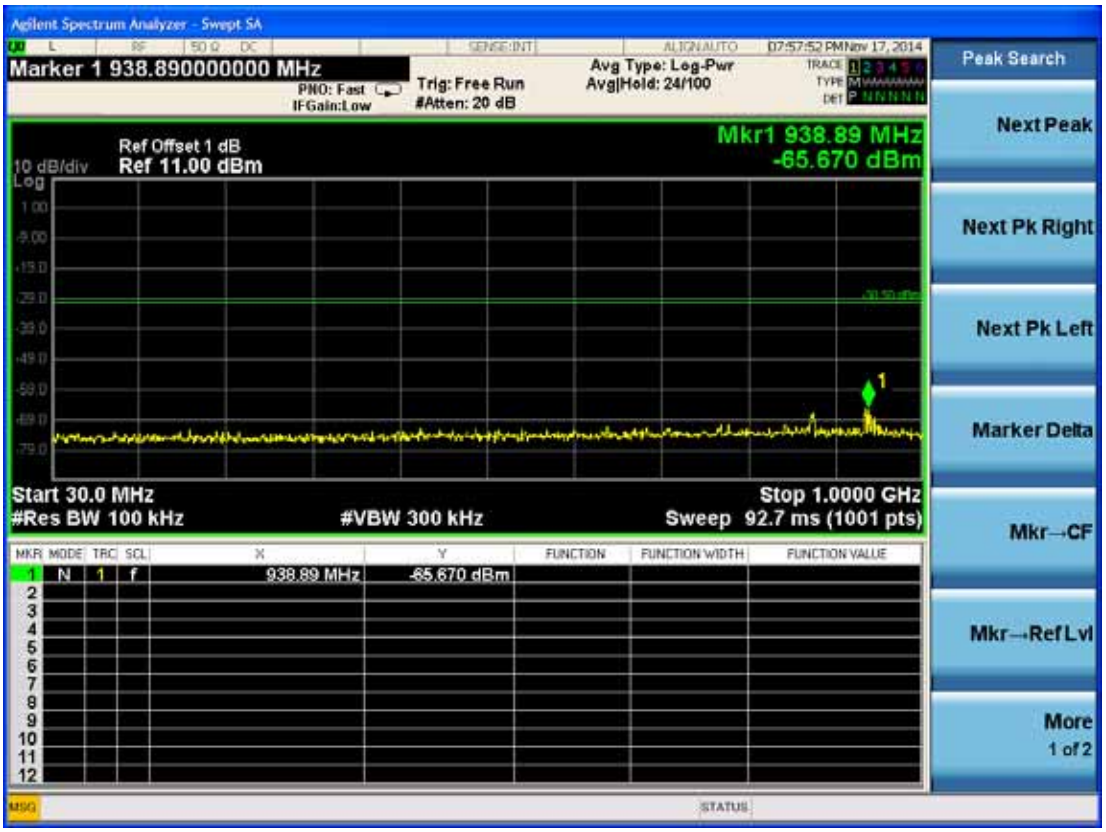
The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions detected.

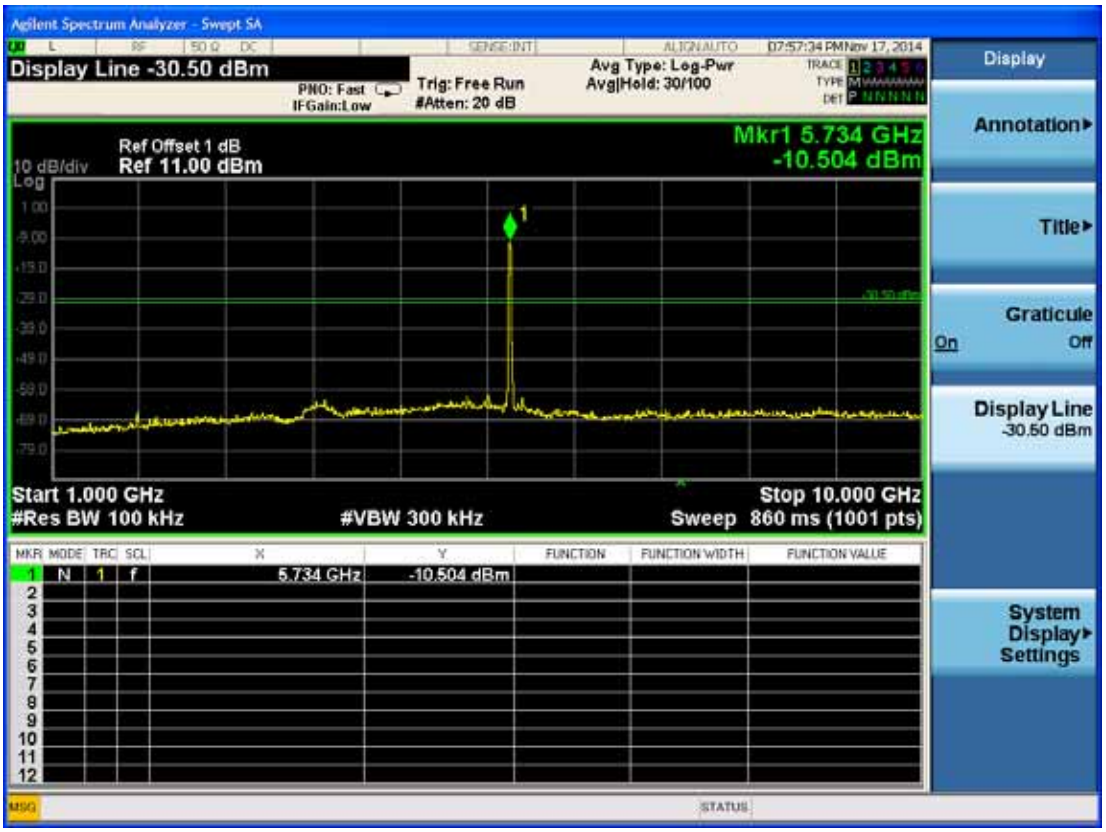
5.4.Test result

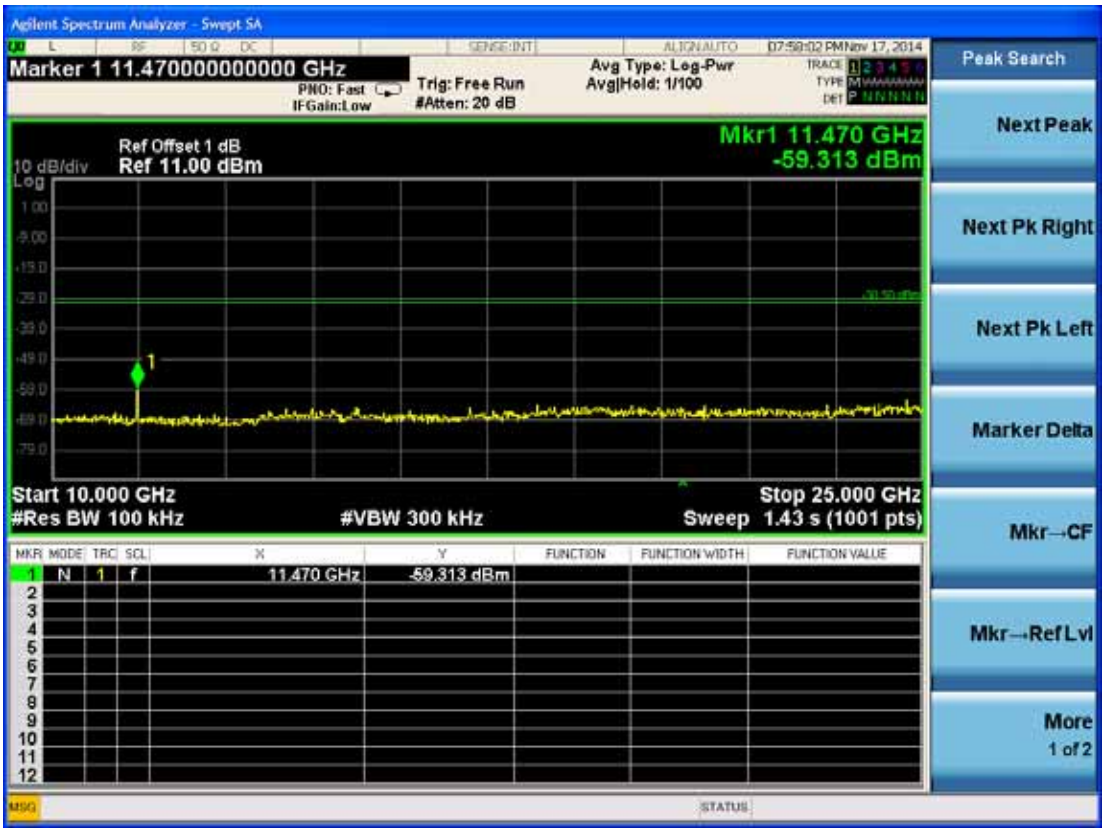
PASS (The testing data was attached in the next pages.)

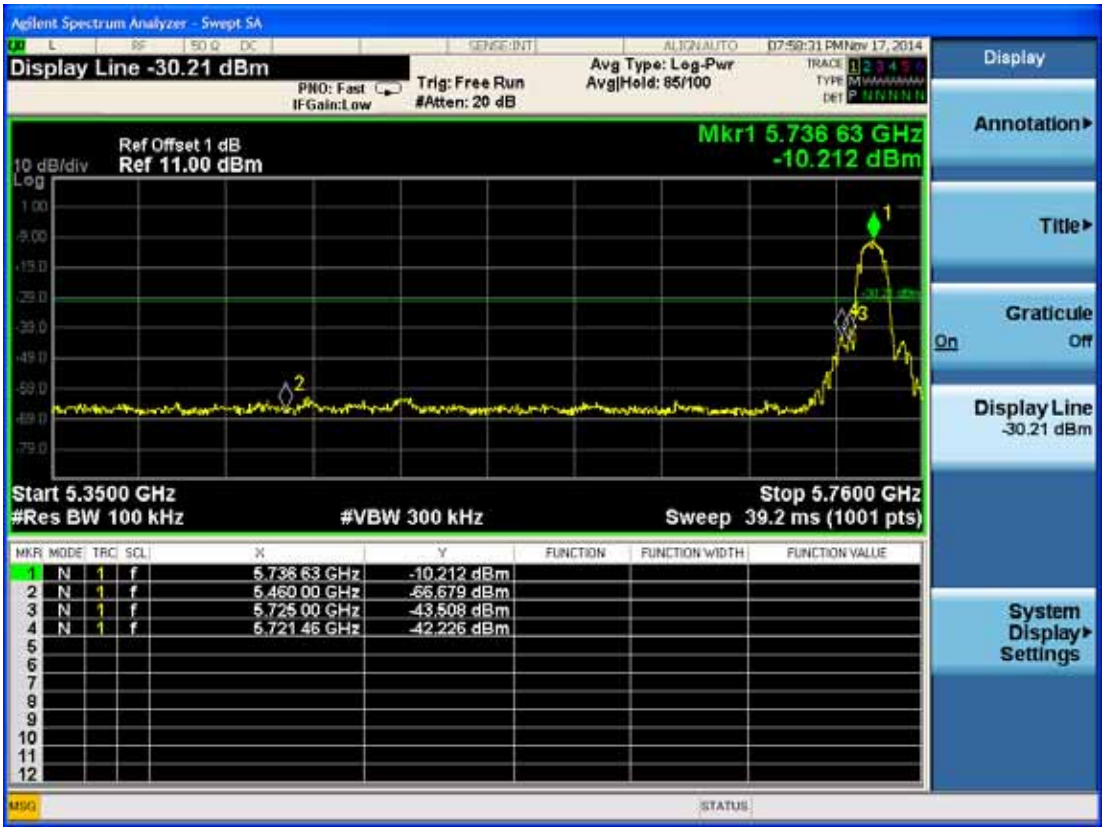
ANT 0:

5736MHz

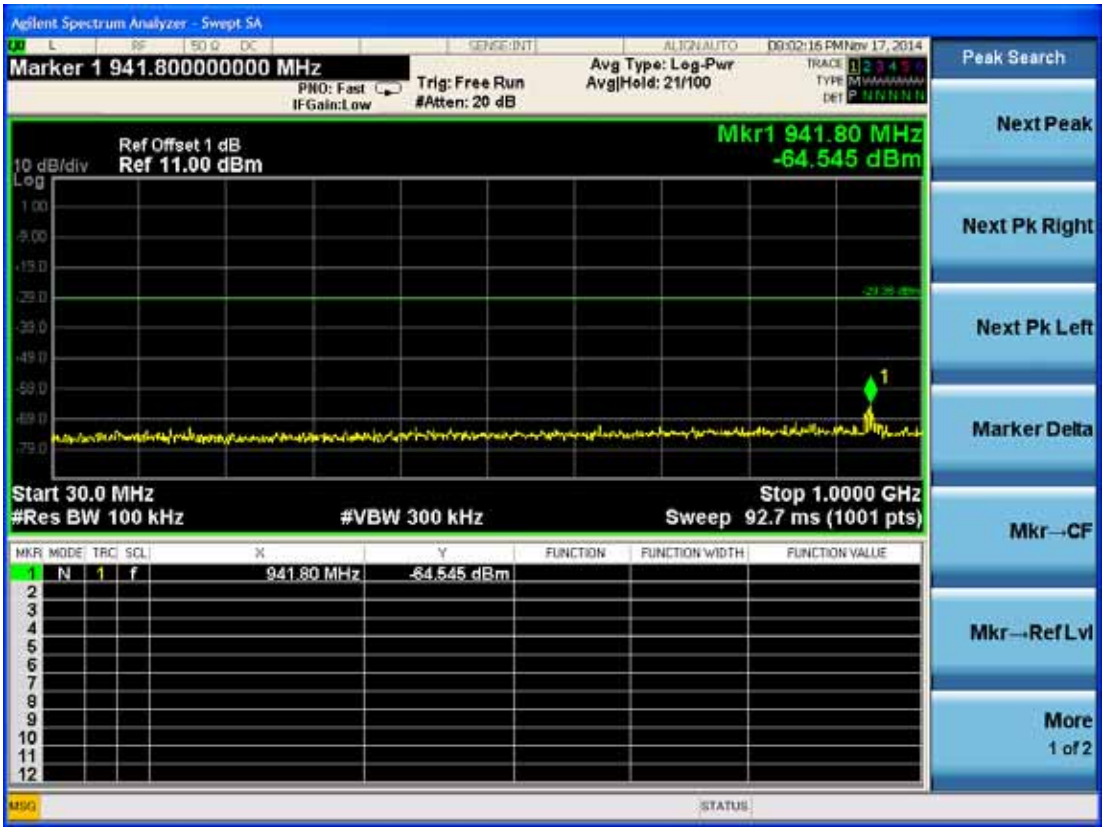


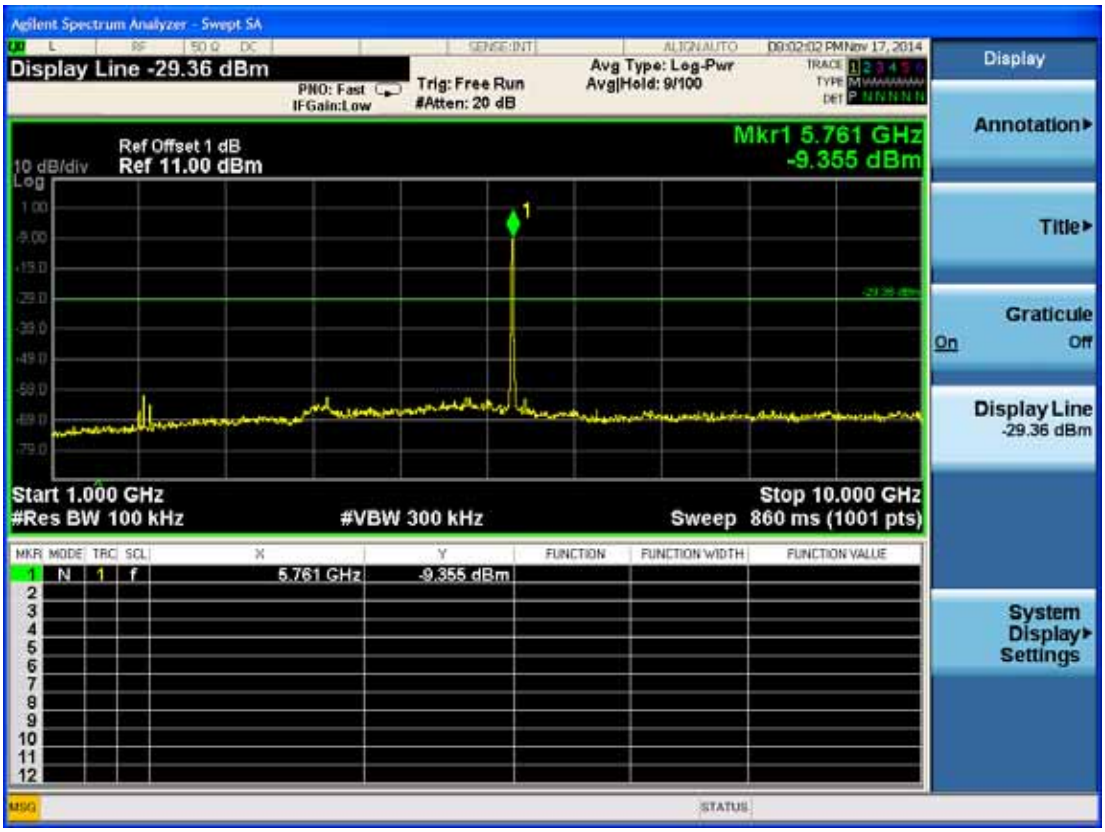


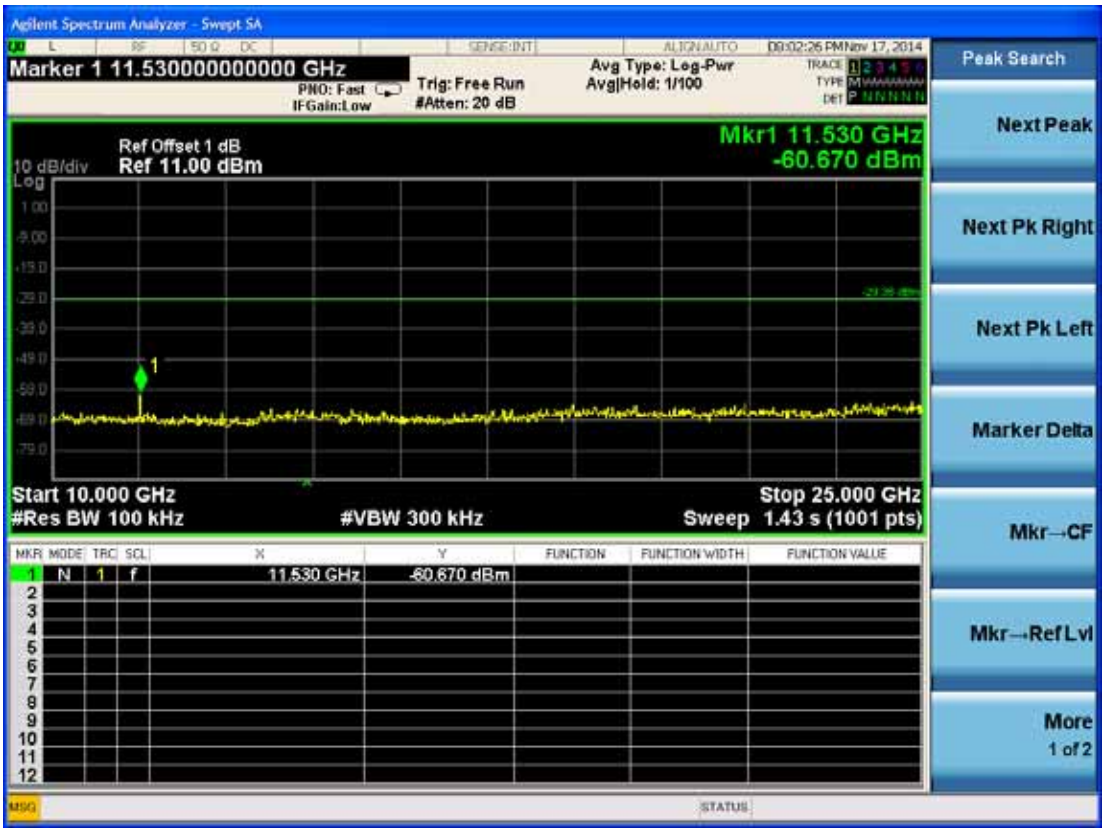

Agilent Spectrum Analyzer - Swept SA
Marker 1 11.470000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 1/100
07:59:02 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 11.470 GHz
-59.313 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 11.470 GHz -59.313 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Display Line -30.21 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 65/100
07:59:31 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 5.736 63 GHz
-10.212 dBm
Start 5.3500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 5.7600 GHz
Sweep 39.2 ms (1001 pts)
1 N 1 f 5.736 63 GHz -10.212 dBm
2 N 1 f 5.460 00 GHz -66.679 dBm
3 N 1 f 5.725 00 GHz -43.508 dBm
4 N 1 f 5.721 46 GHz -42.226 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-30.21 dBm
System Display Settings

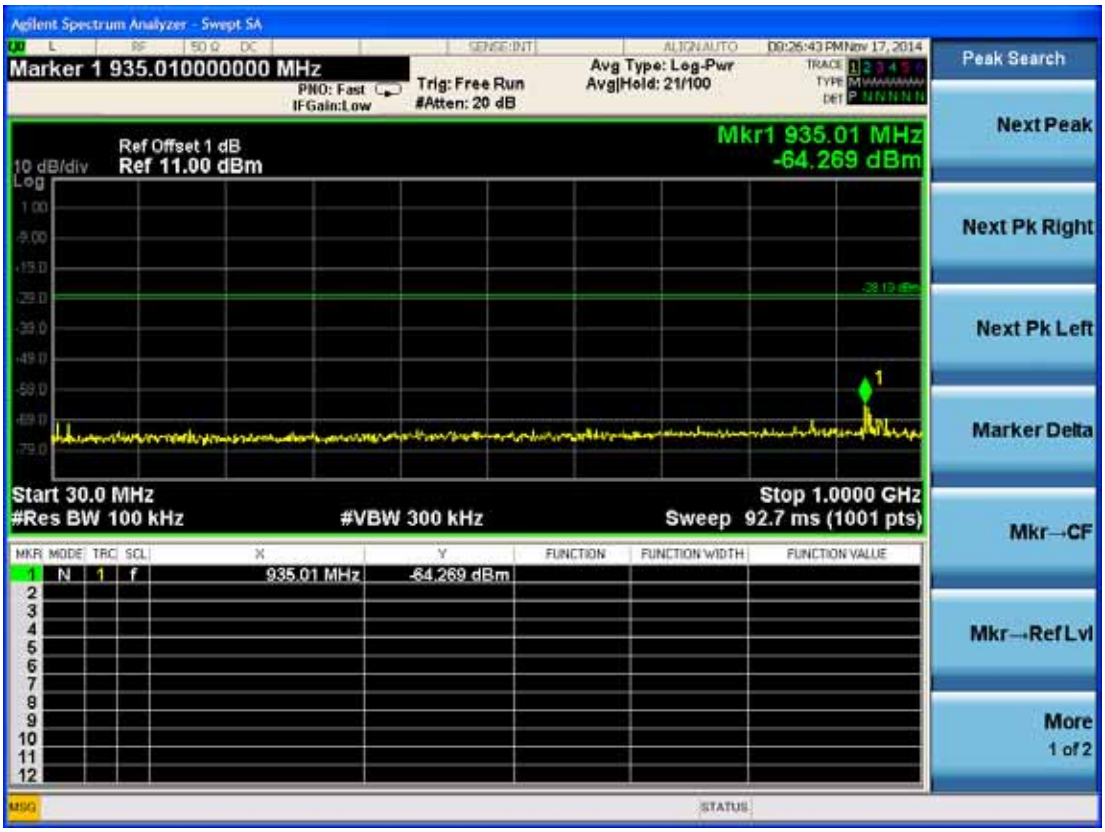
5762MHz

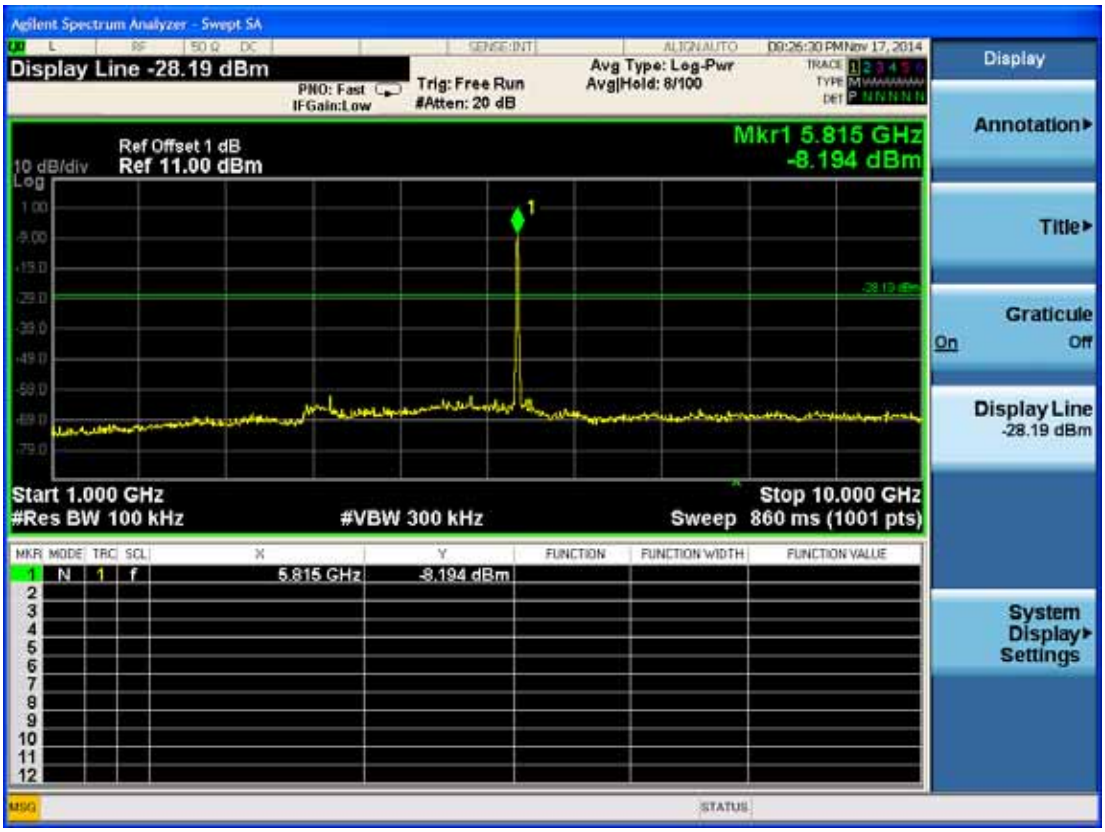

Agilent Spectrum Analyzer - Swept SA
Marker 1 941.800000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 21/100
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 941.80 MHz
-64.545 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.7 ms (1001 pts)
1 N 1 f 941.80 MHz -64.545 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

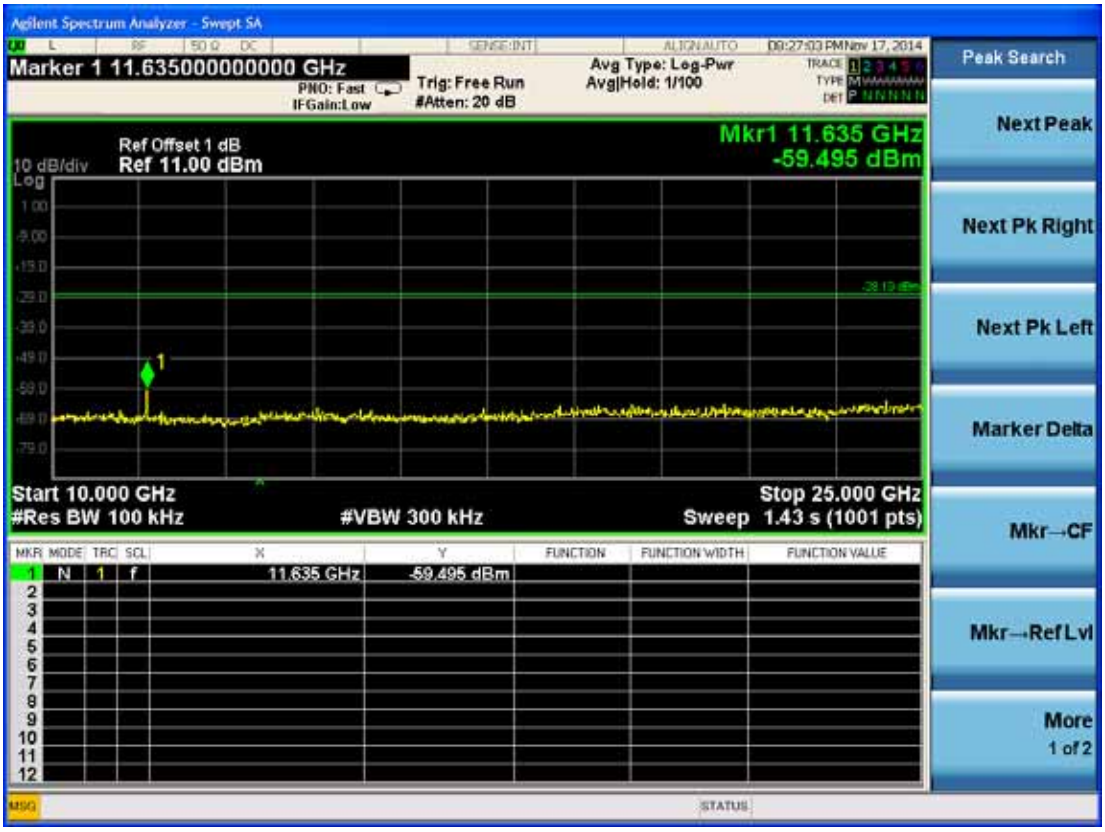

Agilent Spectrum Analyzer - Swept SA
Display Line -29.36 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 9/100
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 5.761 GHz
-9.355 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 860 ms (1001 pts)
1 N 1 f 5.761 GHz -9.355 dBm
Display
Annotation
Title
Graticule
On
Off
Display Line
-29.36 dBm
System Display Settings

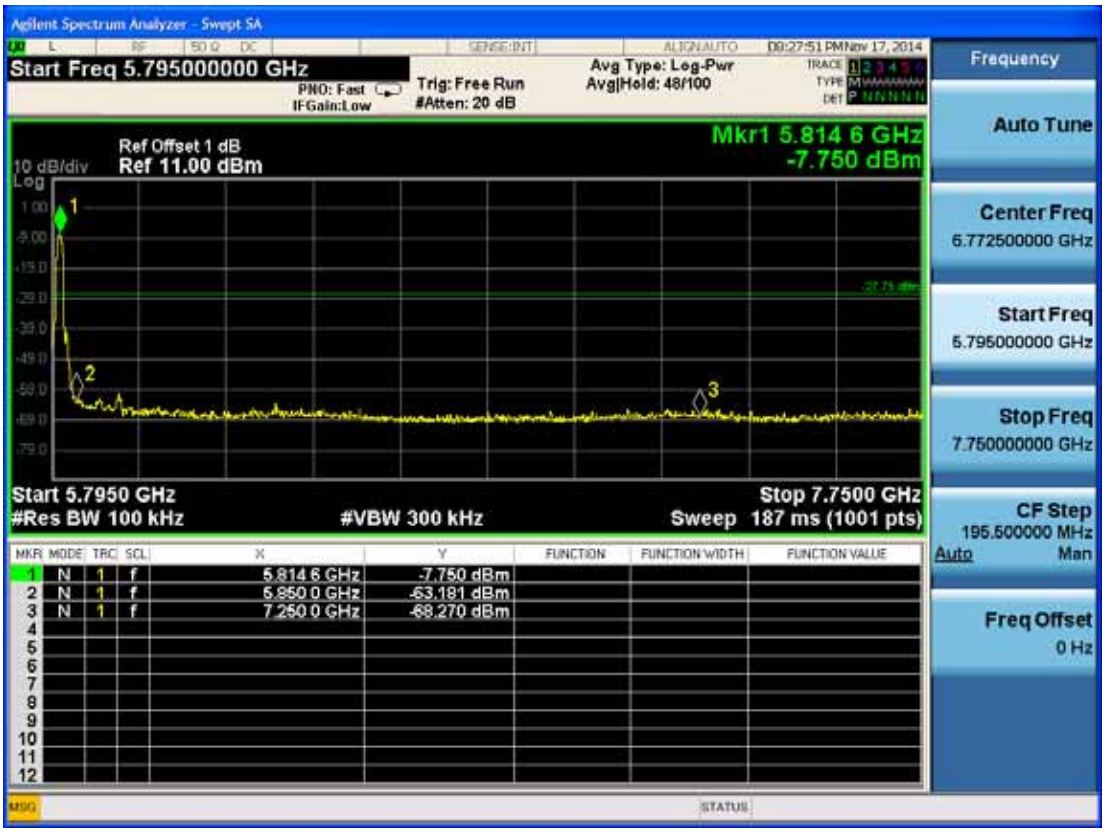

Agilent Spectrum Analyzer - Swept SA
Marker 1 11.530000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 1/100
09:02:26 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Log
Mkr1 11.530 GHz
-60.670 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 11.530 GHz -60.670 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

5814MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 935.010000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 21/100
09:26:43 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Log
Mkr1 935.01 MHz
-64.269 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.7 ms (1001 pts)
1 N 1 f 935.01 MHz -64.269 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

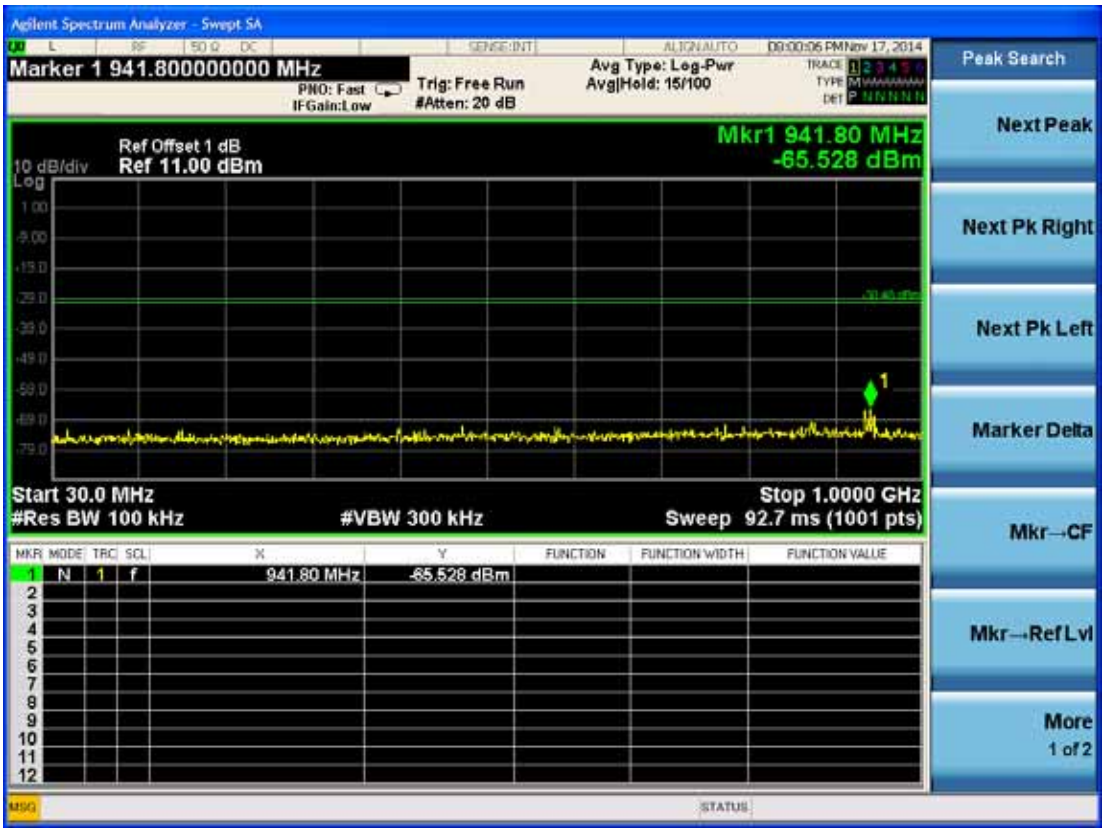

Agilent Spectrum Analyzer - Swept SA
Display Line -28.19 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 8/100
09:26:30 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Log
Mkr1 5.815 GHz
-8.194 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 860 ms (1001 pts)
1 N 1 f 5.815 GHz -8.194 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-28.19 dBm
System Display Settings

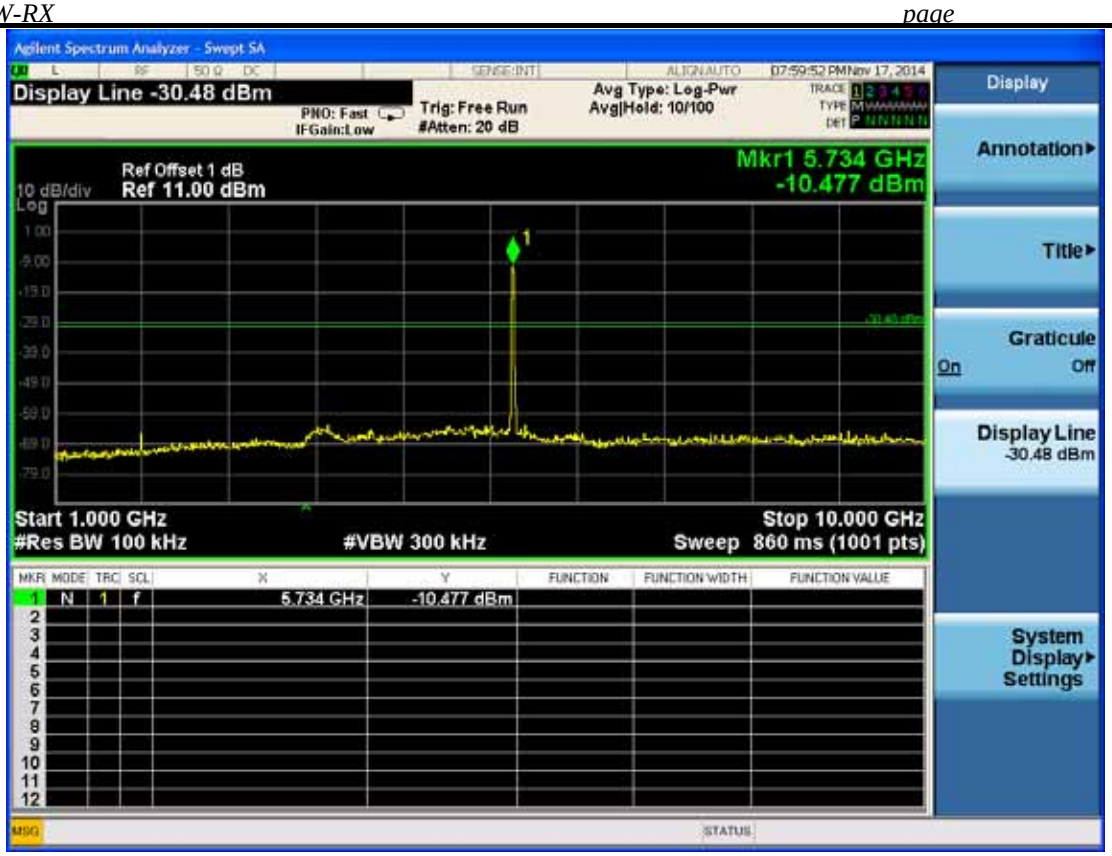

Agilent Spectrum Analyzer - Swept SA
Marker 1 11.635000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 1/100
09:27:03 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Log
Mkr1 11.635 GHz
-59.495 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 11.635 GHz -59.495 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

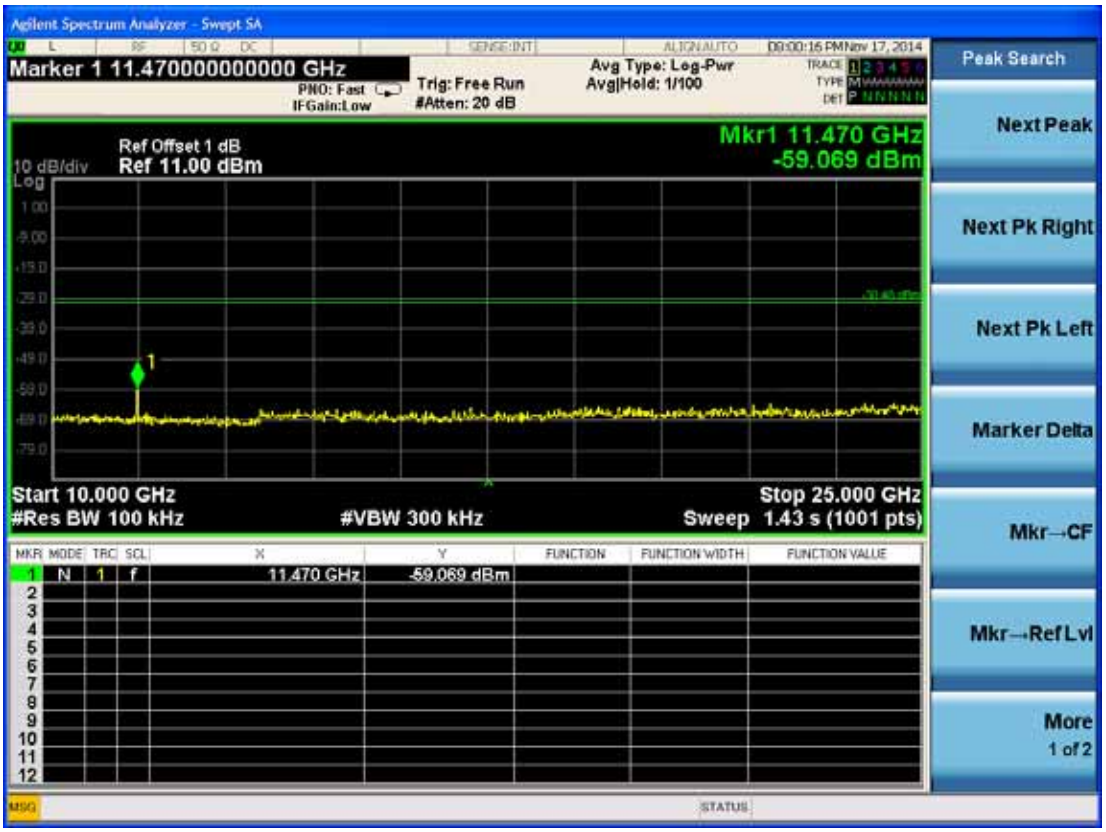


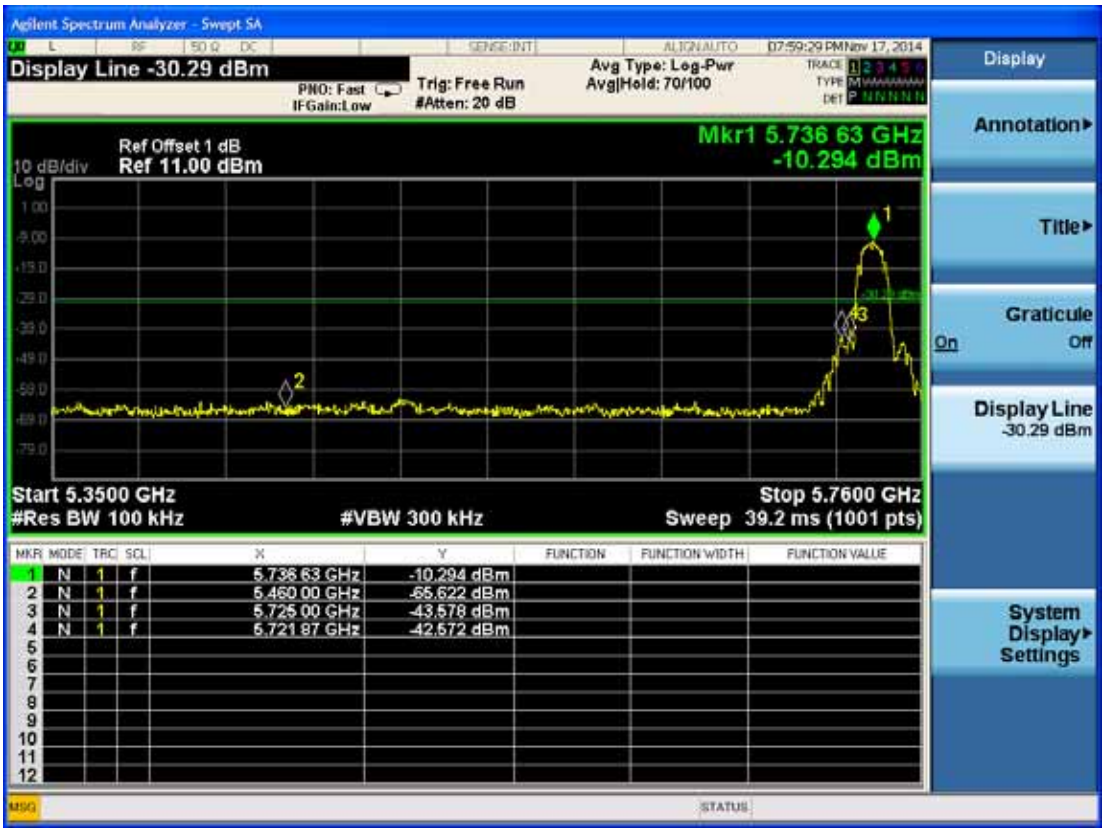
ANT 1:

5736MHz

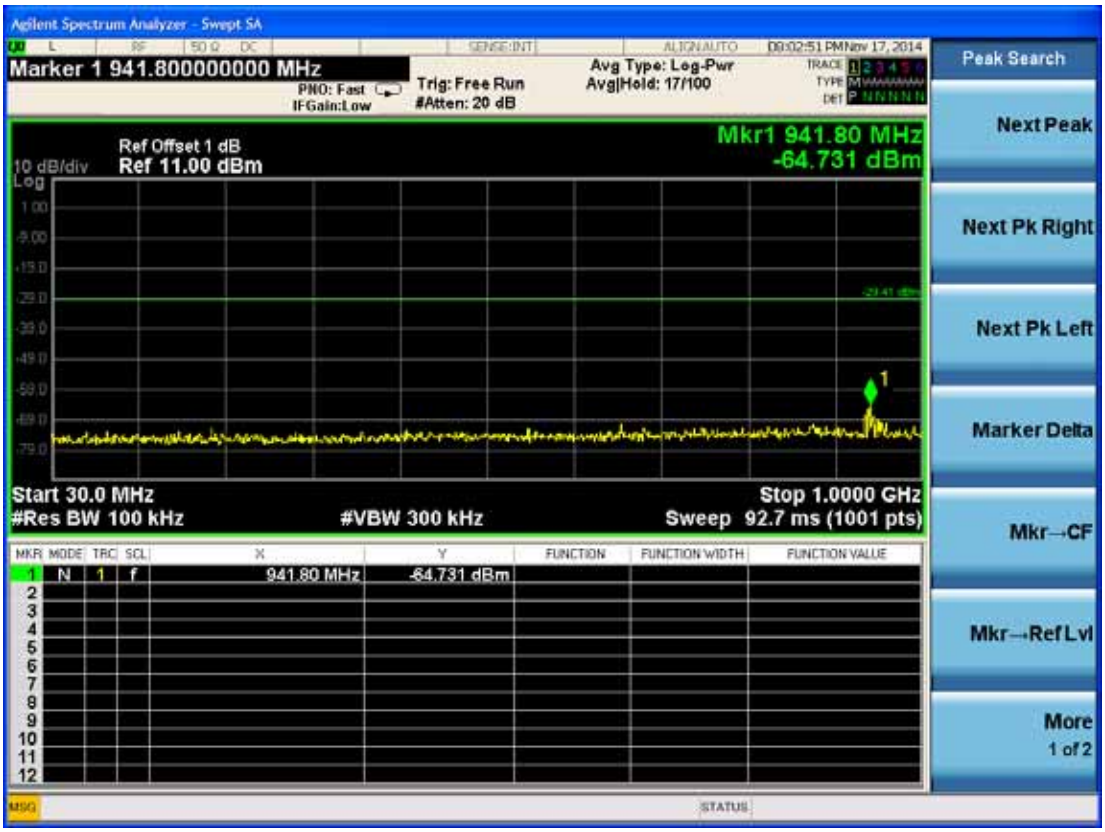


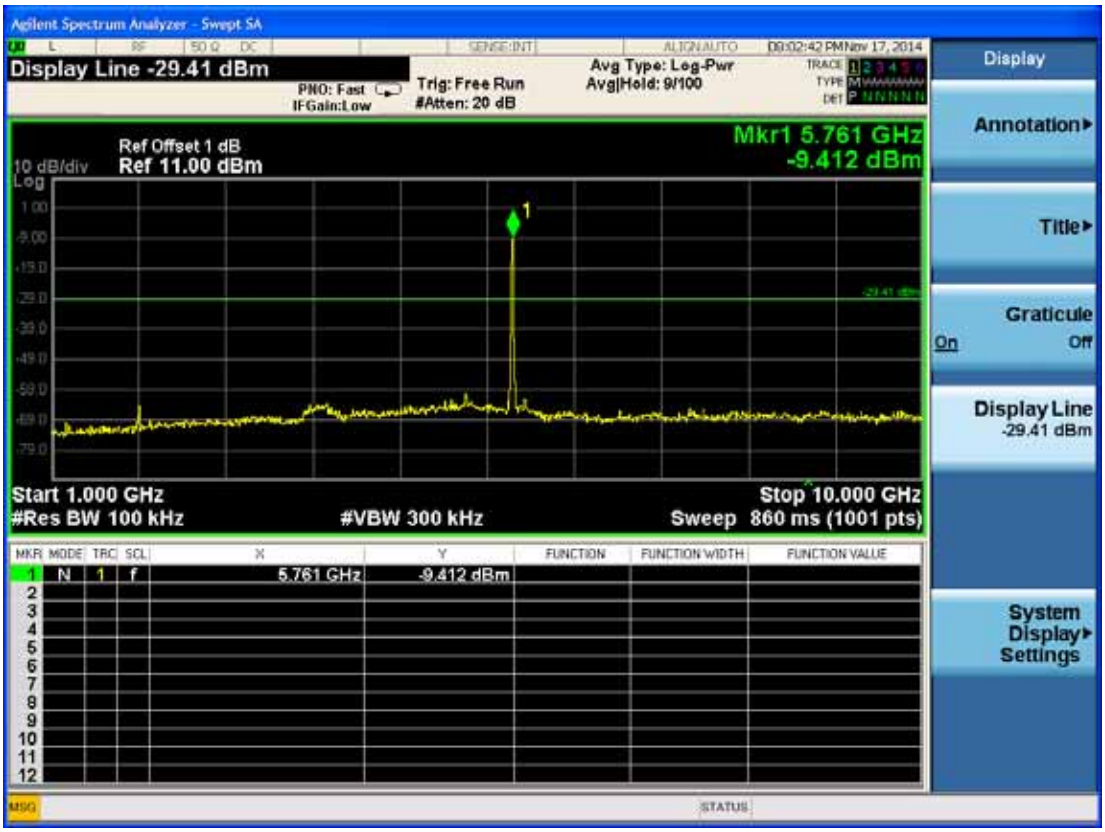

Agilent Spectrum Analyzer - Swept SA
Display Line -30.48 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 10/100
07:59:52 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Log
Mkr1 5.734 GHz
-10.477 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 860 ms (1001 pts)
1 N 1 f 5.734 GHz -10.477 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-30.48 dBm
System Display Settings

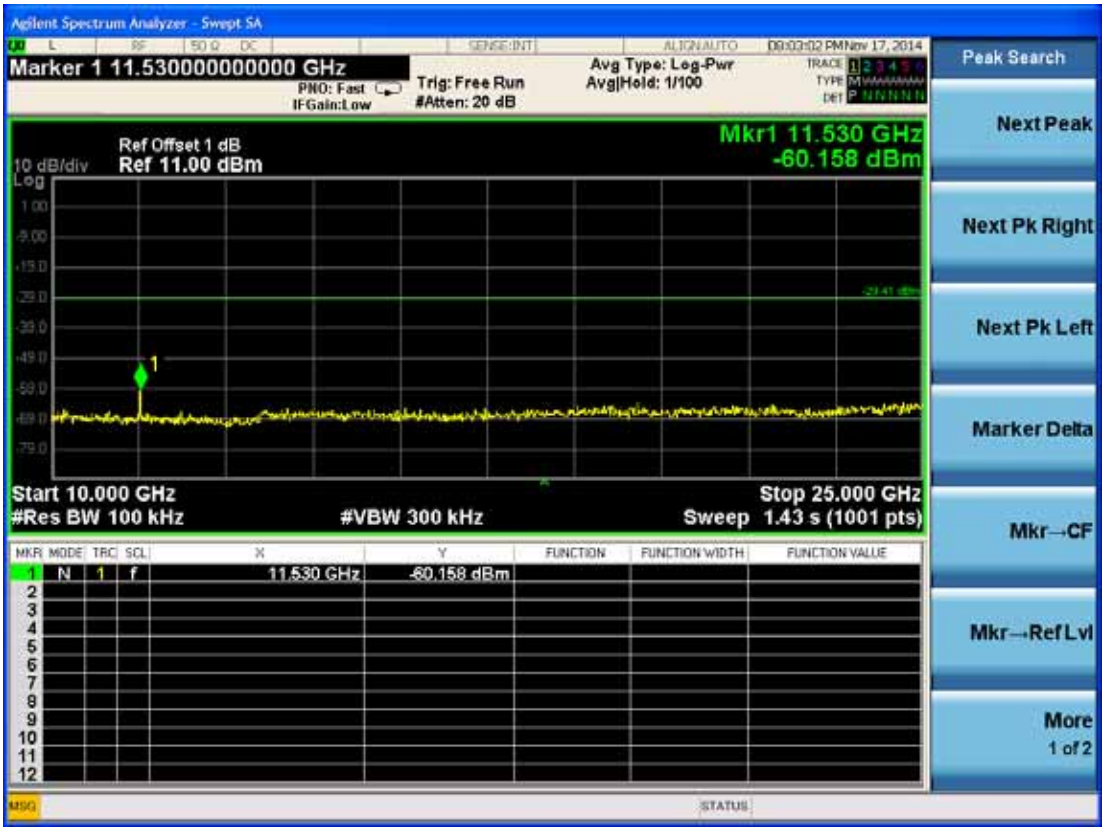

Agilent Spectrum Analyzer - Swept SA
Marker 1 11.470000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 1/100
08:00:16 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Log
Mkr1 11.470 GHz
-59.069 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 11.470 GHz -59.069 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Display Line -30.29 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 70/100
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 5.736 63 GHz
-10.294 dBm
Start 5.3500 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 5.7600 GHz
Sweep 39.2 ms (1001 pts)
1 N 1 f 5.736 63 GHz -10.294 dBm
2 N 1 f 5.460 00 GHz -65.622 dBm
3 N 1 f 5.725 00 GHz -43.578 dBm
4 N 1 f 5.721 87 GHz -42.572 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-30.29 dBm
System Display Settings

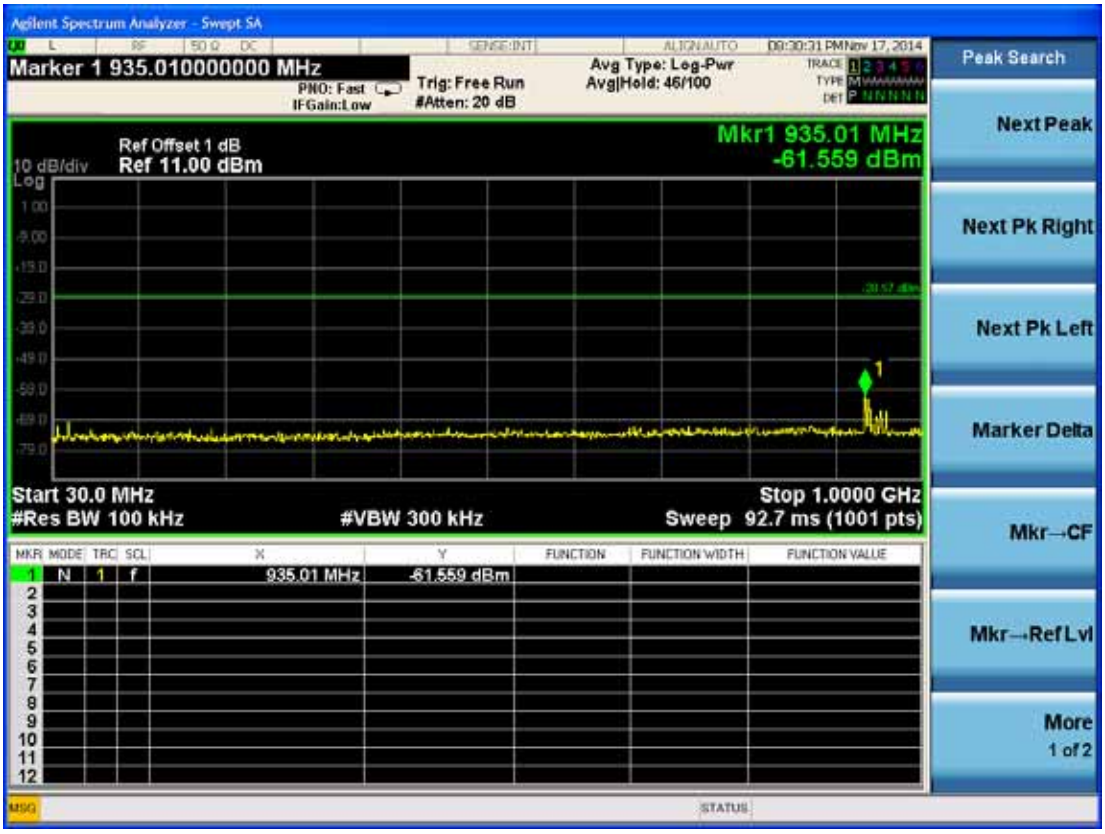
5762MHz

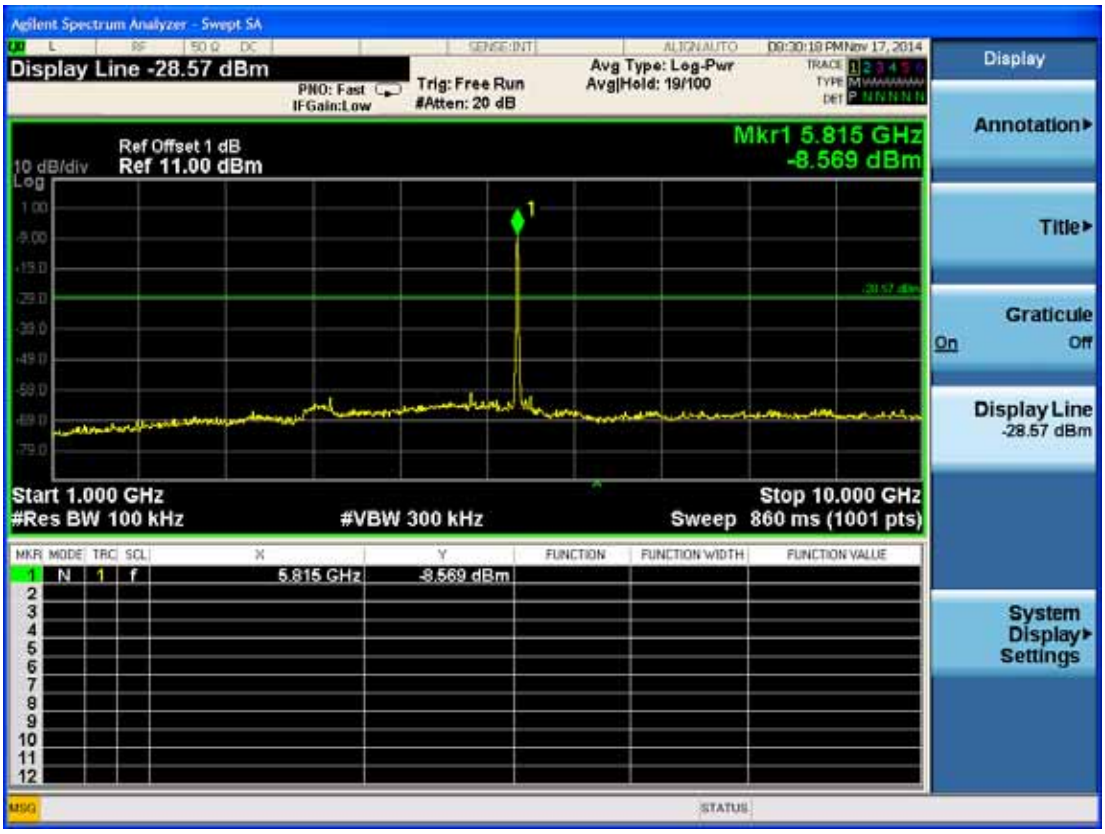

Agilent Spectrum Analyzer - Swept SA
Marker 1 941.800000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 17/100
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 941.80 MHz
-64.731 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.7 ms (1001 pts)
1 N 1 f 941.80 MHz -64.731 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

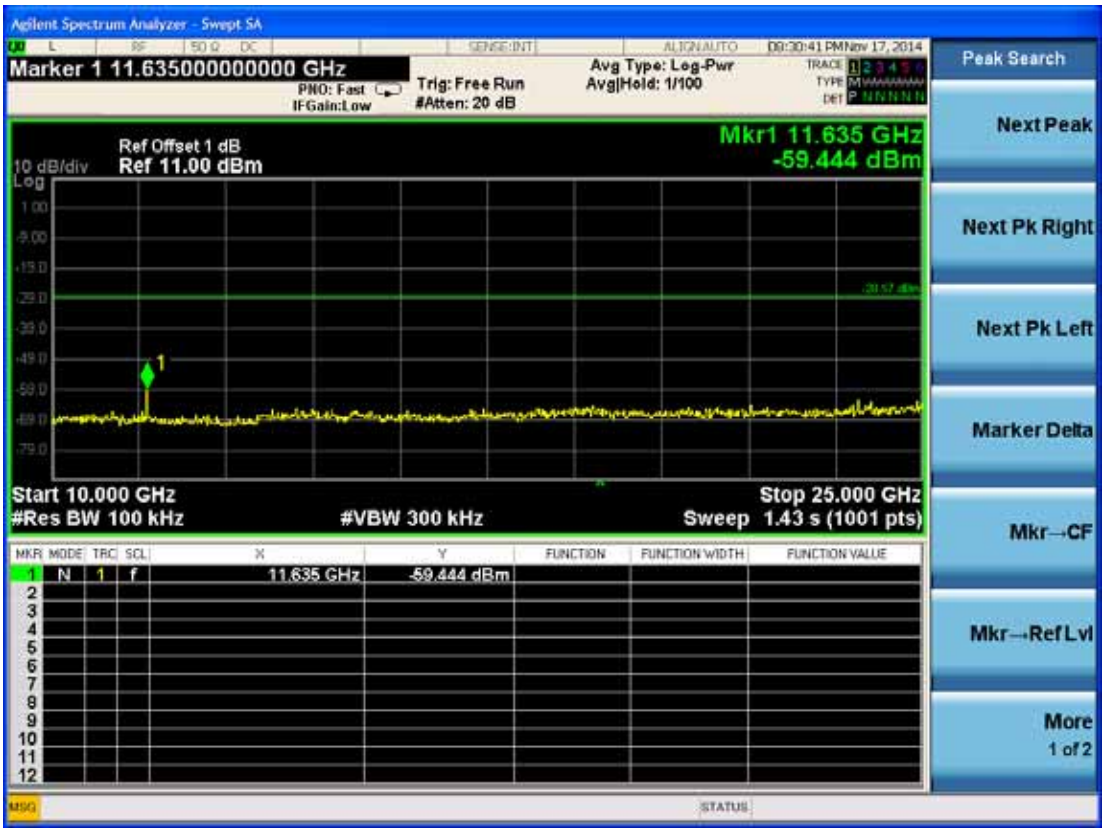

Agilent Spectrum Analyzer - Swept SA
Display Line -29.41 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 9/100
09:02:42 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 5.761 GHz
-9.412 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 860 ms (1001 pts)
1 N 1 f 5.761 GHz -9.412 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-29.41 dBm
System Display Settings

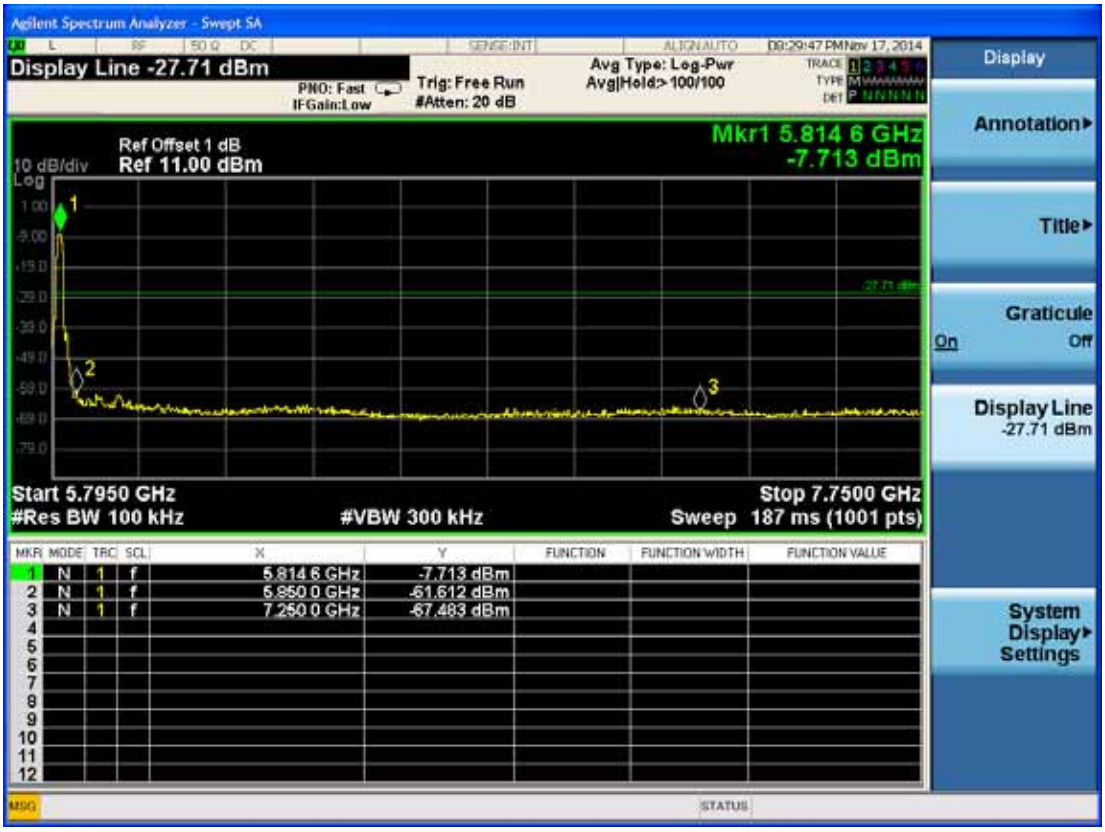

Agilent Spectrum Analyzer - Swept SA
Marker 1 11.530000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 1/100
09:03:02 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 11.530 GHz
-60.158 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 11.530 GHz -60.158 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

5814MHz


Agilent Spectrum Analyzer - Swept SA
Marker 1 935.010000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 46/100
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 935.01 MHz
-61.559 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 92.7 ms (1001 pts)
1 N 1 f 935.01 MHz -61.559 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Display Line -28.57 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 19/100
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 5.815 GHz
-8.569 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 10.000 GHz
Sweep 860 ms (1001 pts)
1 N 1 f 5.815 GHz -8.569 dBm
Display
Annotation
Title
Graticule
On
Off
Display Line
-28.57 dBm
System Display Settings


Agilent Spectrum Analyzer - Swept SA
Marker 1 11.635000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold: 1/100
09:30:41 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 11.635 GHz
-59.444 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 1.43 s (1001 pts)
1 N 1 f 11.635 GHz -59.444 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Display Line -27.71 dBm
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
09:29:47 PM Nov 17, 2014
Ref Offset 1 dB
10 dB/div
Ref 11.00 dBm
Mkr1 5.814 6 GHz
-7.713 dBm
Start 5.7950 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 7.7500 GHz
Sweep 187 ms (1001 pts)
1 N 1 f 5.814 6 GHz -7.713 dBm
2 N 1 f 5.850 0 GHz -61.612 dBm
3 N 1 f 7.250 0 GHz -67.483 dBm
Display
Annotation
Title
Graticule
On Off
Display Line
-27.71 dBm
System Display Settings

6. BAND EDGE COMPLIANCE TEST

6.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Amp	HP	8449B	3008A02495	Apr. 28,14	1 Year
2.	Horn Antenna	ETS	3115	9510-4580	Jun. 06, 14	1 Year
3.	HF Cable	Hubersuhner	Sucoflex104	274094/4	Apr. 28,14	1 Year
4.	RF Cable	Hubersuhner	Sucoflex102	28610/2	Apr. 28,14	1 Year

6.2.Limit

All the lower and upper band-edges emissions appearing within 5.35-5.46GHz and 7.25-7.75GHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 5725MHz to 5850MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

6.3.Test Produce

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.

2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

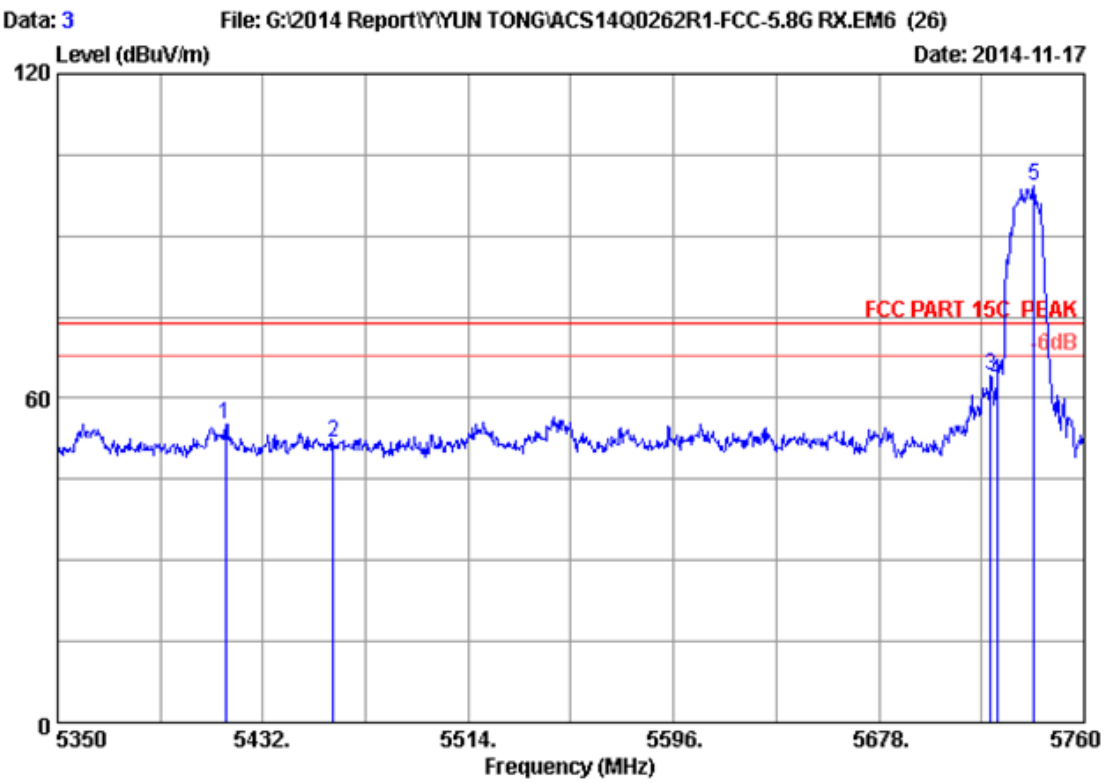
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

(a) PEAK: RBW=1MHz; VBW=3MHz; Sweep=AUTO
(b) AVERAGE: RBW=1MHz; VBW=10Hz; Sweep=AUTO

6.4.Test Results

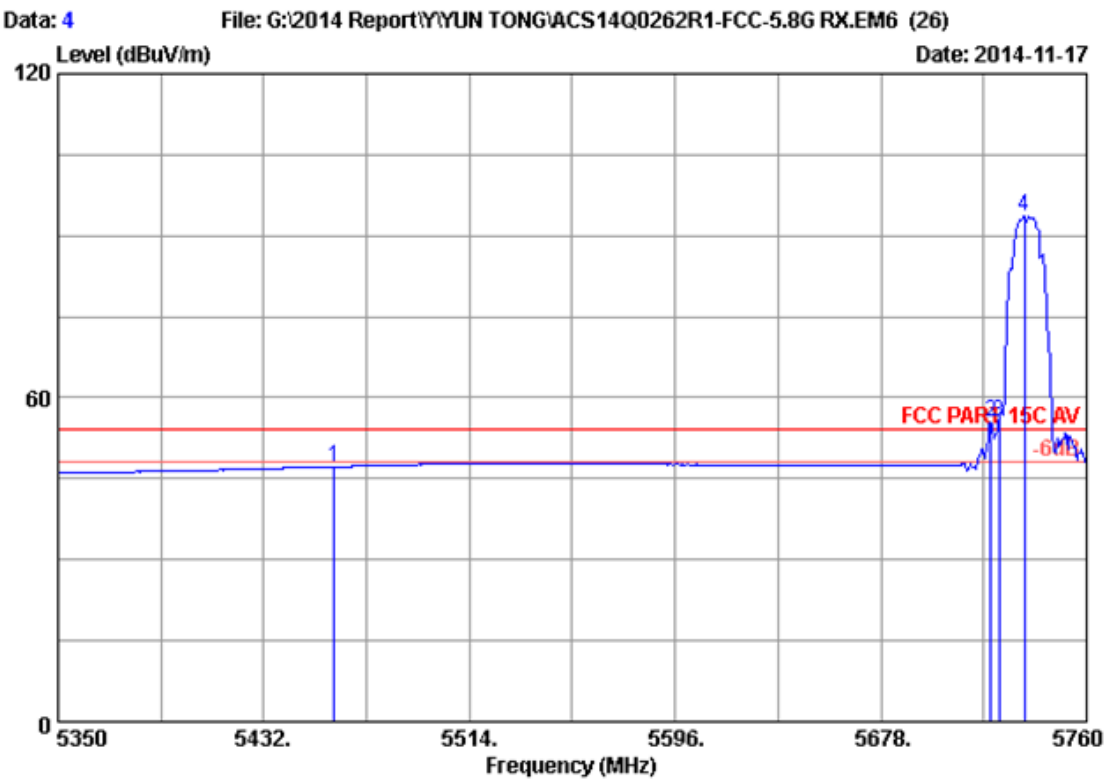
Pass (The testing data was attached in the next pages.)



Site no. : 3m Chamber Data no. : 3
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56% Engineer : Kobe
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5736 MHz
M/N : W-RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5417.240	33.87	9.20	35.70	47.94	55.31	74.00	18.69	Peak
2	5460.000	33.94	9.25	35.70	44.31	51.80	74.00	22.20	Peak
3	5722.690	34.09	9.52	35.70	56.11	64.02	74.00	9.98	Peak
4	5725.000	34.09	9.52	35.70	55.17	63.08	74.00	10.92	Peak
5	5739.910	34.10	9.54	35.70	91.42	99.36	74.00	-25.36	Peak

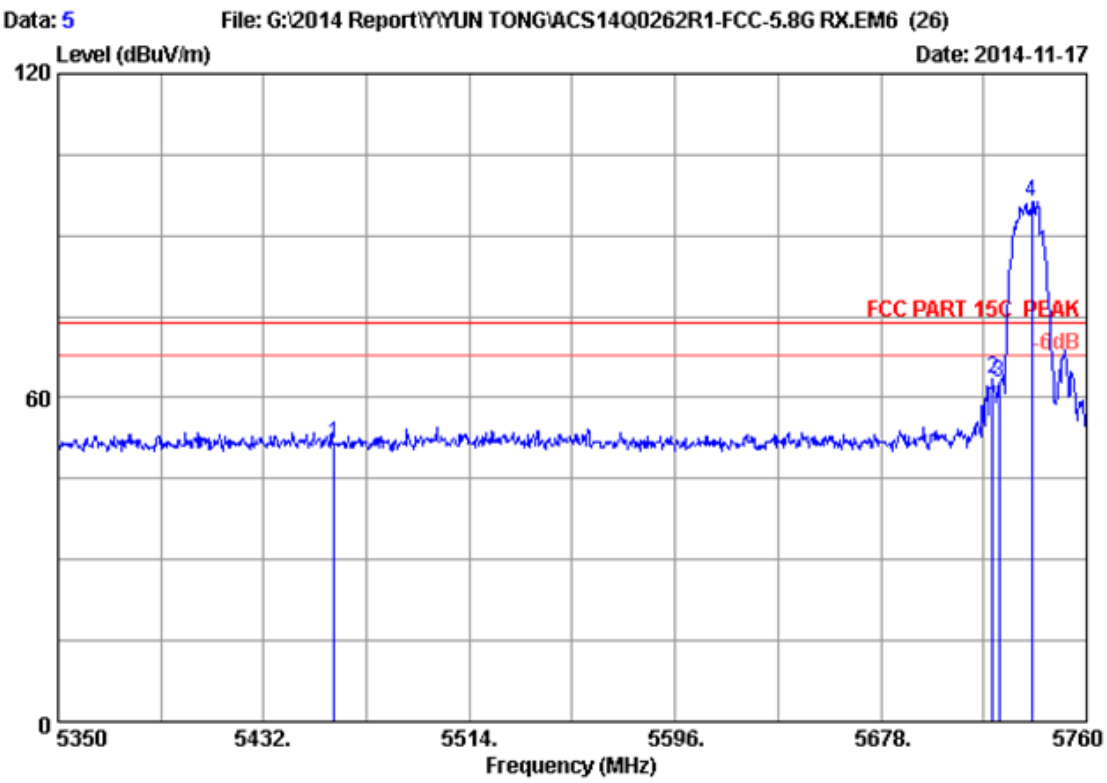
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 4
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 24*C/56% Engineer : Kobe
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5736 MHz
M/N : W-RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5460.000	33.94	9.25	35.70	39.80	47.29	54.00	6.71	Average
2	5721.870	34.09	9.52	35.70	47.57	55.48	54.00	-1.48	Average
3	5725.000	34.09	9.52	35.70	47.63	55.54	54.00	-1.54	Average
4	5735.400	34.09	9.54	35.70	85.81	93.74	54.00	-39.74	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

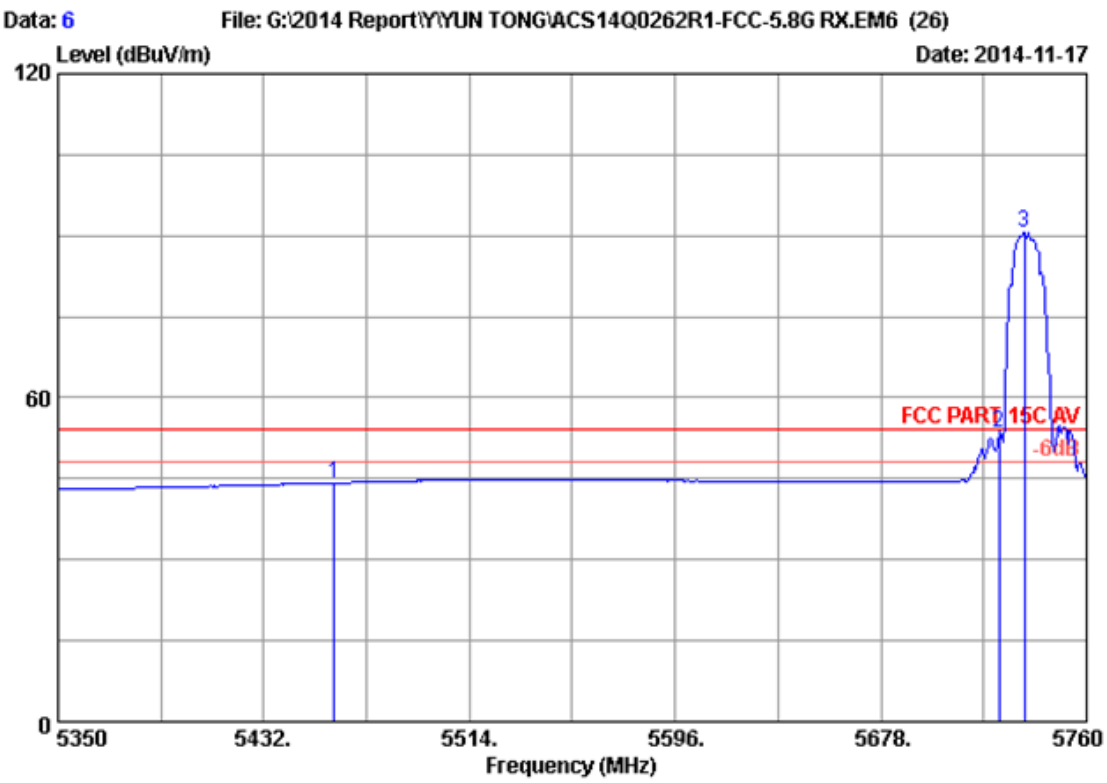


Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 3115 (4580)
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56%
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5736 MHz
M/N : W-RX

Data no. : 5
Ant. pol. : HORIZONTAL
Engineer : Kobe

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5460.000	33.94	9.25	35.70	44.05	51.54	74.00	22.46	Peak
2	5722.690	34.09	9.52	35.70	55.68	63.59	74.00	10.41	Peak
3	5725.000	34.09	9.52	35.70	54.89	62.80	74.00	11.20	Peak
4	5738.270	34.10	9.54	35.70	88.49	96.43	74.00	-22.43	Peak

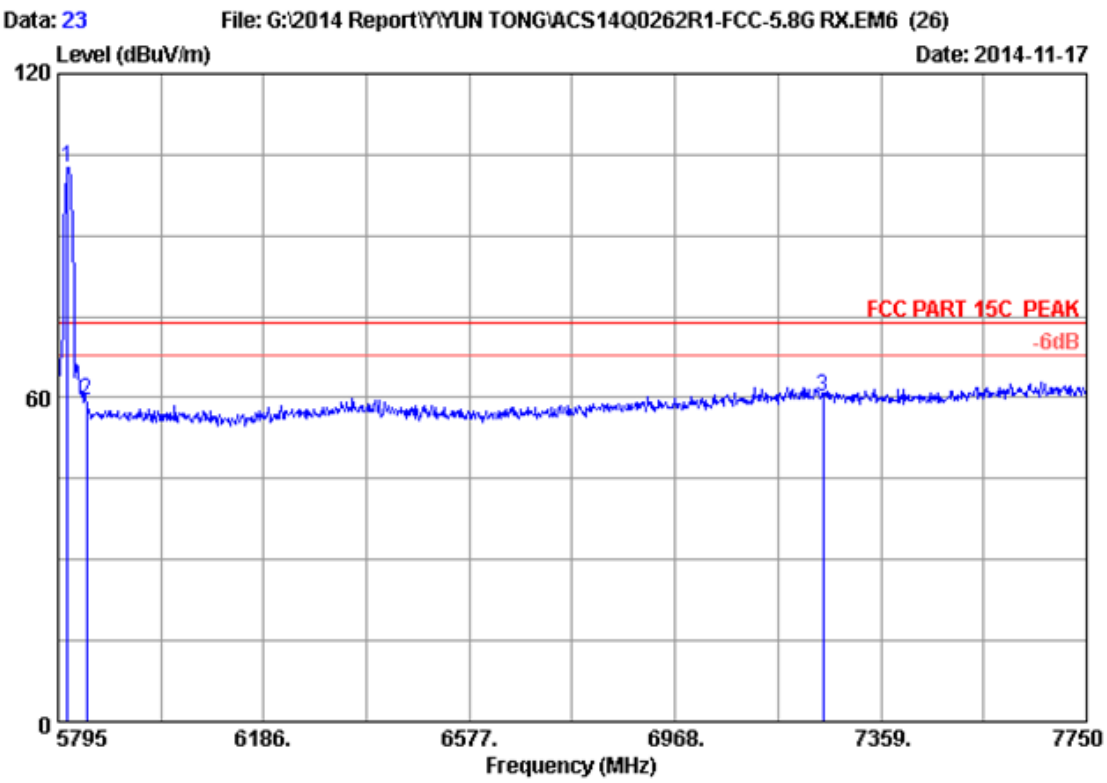
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 6
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 24*C/56% Engineer : Kobe
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5736 MHz
M/N : W-RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5460.000	33.94	9.25	35.70	36.73	44.22	54.00	9.78	Average
2	5725.000	34.09	9.52	35.70	45.45	53.36	54.00	0.64	Average
3	5735.400	34.09	9.54	35.70	82.81	90.74	54.00	-36.74	Average

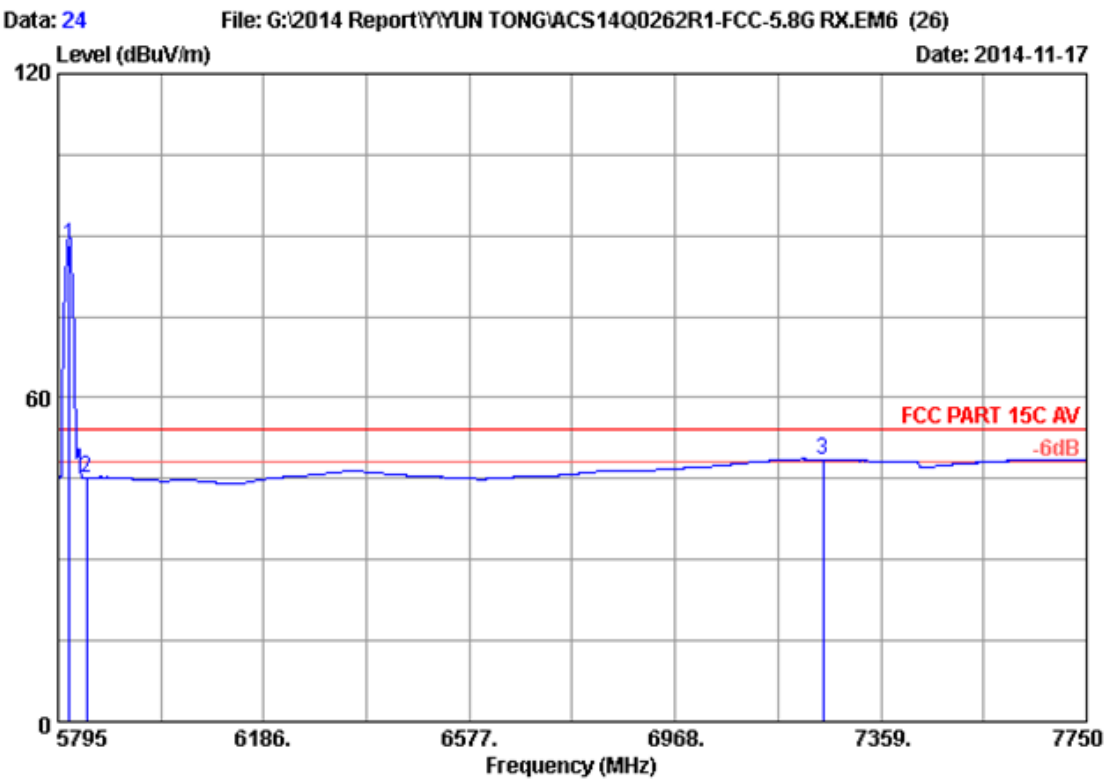
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 23
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56% Engineer : Kobe
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5814 MHz
M/N : W-RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5812.595	34.13	9.62	35.70	94.69	102.74	74.00	-28.74	Peak
2	5850.000	34.14	9.66	35.70	51.47	59.57	74.00	14.43	Peak
3	7250.000	36.05	10.99	35.45	48.67	60.26	74.00	13.74	Peak

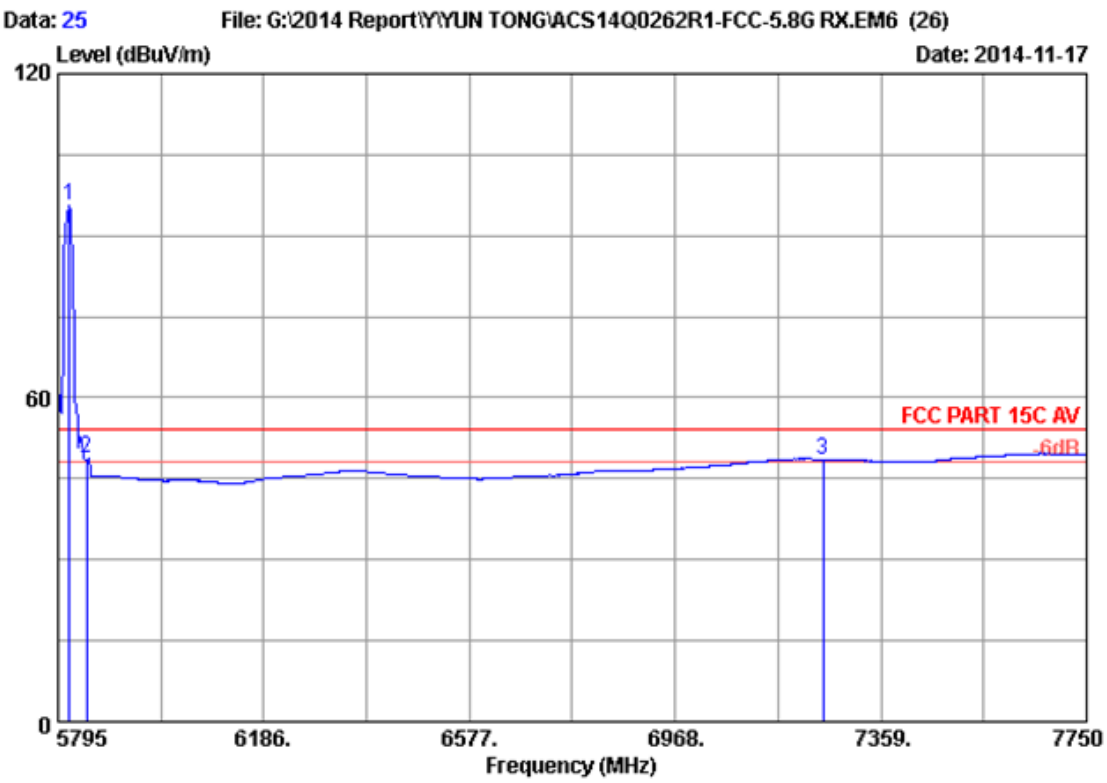
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 24
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 24*C/56% Engineer : Kobe
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5814 MHz
M/N : W-RX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5816.170	34.13	9.62	35.70	80.10	88.15	54.00	-34.15	Average
2	5850.000	34.14	9.66	35.70	37.13	45.23	54.00	8.77	Average
3	7250.000	36.05	10.99	35.45	36.90	48.49	54.00	5.51	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

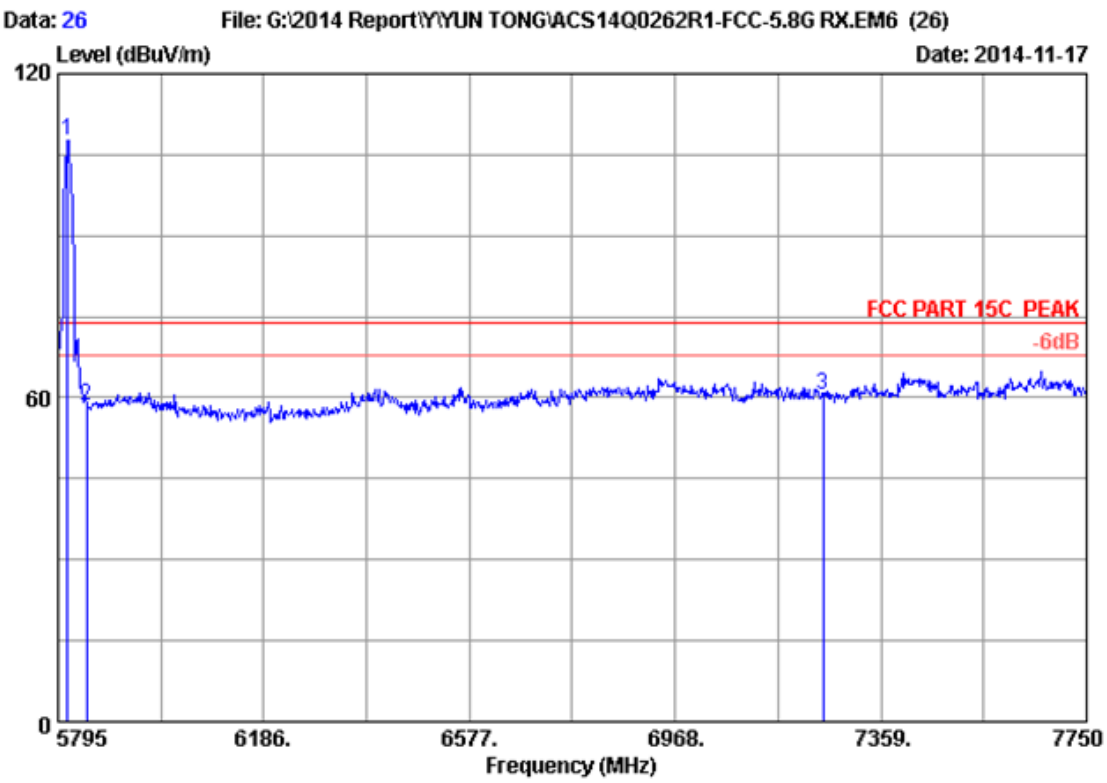


Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 3115 (4580)
Limit : FCC PART 15C AV
Env. / Ins. : 24*C/56%
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5814 MHz
M/N : W-RX

Data no. : 25
Ant. pol. : HORIZONTAL
Engineer : Kobe

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5816.505	34.13	9.62	35.70	87.71	95.76	54.00	-41.76	Average
2	5850.000	34.14	9.66	35.70	40.57	48.67	54.00	5.33	Average
3	7250.000	36.05	10.99	35.45	37.01	48.60	54.00	5.40	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Dis. / Ant. : 3m 2014 3115 (4580)
Limit : FCC PART 15C PEAK
Env. / Ins. : 24*C/56%
EUT : Wireless receiver
Power rating : AC 120V/60 Hz
Test Mode : 11a 5814 MHz
M/N : W-RX

Data no. : 26
Ant. pol. : HORIZONTAL
Engineer : Kobe

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	AMP factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5812.595	34.13	9.62	35.70	99.69	107.74	74.00	-33.74	Peak
2	5850.000	34.14	9.66	35.70	50.53	58.63	74.00	15.37	Peak
3	7250.000	36.05	10.99	35.45	48.75	60.34	74.00	13.66	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.

7. 6dB Bandwidth Test

7.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	Apr. 28,14	1 Year
2.	Spectrum	Agilent	N9030A	MY51380221	Oct.29, 14	1Year
3.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr. 28,14	1 Year
4.	RF Cable	Hubersuhner	SUCOFLEX102	28620/2	Apr. 28,14	1 Year

7.2.Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

7.3.Test Procedure

The transmitter output was connected to a spectrum analyzer, The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

7.4.Test Results

EUT: Wireless receiver		
M/N: W-Rx		
Test date:2014-11-15	Test date:2014-11-15	Test date:2014-11-15
Tested by:Kobe_Huang	Tested by:Kobe_Huang	Tested by:Kobe_Huang

Cable loss: 1 dB		Attenuator loss: 20 dB		
Test Mode	CH （MHz）	6dB bandwidth （MHz）		Limit (KHz)
		ANTA	ANTB	
Tx	5736	9.839	9.836	>500
	5762	9.838	9.836	>500
	5814	9.834	9.837	>500
Conclusion：PASS				

ANT 0:

5736MHz

5762MHz

5814MHz

ANT 1:

5736MHz

5762MHz

5814MHz

8. OUTPUT POWER TEST

8.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	Apr. 28,14	1 Year
2.	Spectrum	Agilent	N9030A	MY51380221	Oct.29, 14	1Year
3.	Power meter	Anritsu	ML2487A	6K00002472	Aug. 20,14	1Year
4.	Power sensor	Anritsu	MA2491A	0033005	Aug. 20,14	1Year
5.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr. 28,14	1 Year
6	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	Apr. 28,14	1 Year

8.2.Limit (FCC Part 15C 15.247 b(3))

For systems using digital modulation in the 2400—2483.5MHz, 5725-5850MHz, The Peak out put Power shall not exceed 1W(30dBm)

8.3.Test Procedure

Connected the EUT's antenna port to Power Sensor, and use power meter to test peak output power.

8.4.Test Results

EUT: Wireless receiver		
M/N: W-Rx		
Test date:2014-11-13	Pressure: 101.1±1.0 kpa	Humidity: 52.2±3.0%
Tested by:Kobe_Huang	Test site: RF Site	Temperature：22.3±0.6℃

Cable loss: 1.0 dB		Attenuator loss: 20 dB		
Test Mode	CH (MHz)	Peak output Power（dBm）		Limit (dBm)
		ANTA	ANTB	
Tx	5736	6.76	6.79	30
	5762	6.83	6.86	30
	5814	6.79	6.75	30
Conclusion: PASS				

9. POWER SPECTRAL DENSITY TEST

9.1.Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	Apr. 28,14	1 Year
2.	Spectrum	Agilent	N9030A	MY51380221	Oct.29, 14	1Year
4.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr. 28,14	1 Year
5	RF Cable	Hubersuhner	SUCOFLEX102	28610/2	Apr. 28,14	1 Year

9.2.Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

9.3.Test Procedure

1. Connected the EUT's antenna port to spectrum analyzer device by 20dB attenuator.

2. Set the test frequency as center frequency,Set RBW=3KHz,VBW=10KHz,Span large enough capture the entire frequency,Read out maximum peak leval frequency

3. Set the frequency read from produce 2 as center frequency,then set the span= 300KHz, Sweep time=Span/RBW,Then Max hold,read out each mode and each ANT's Power density.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude

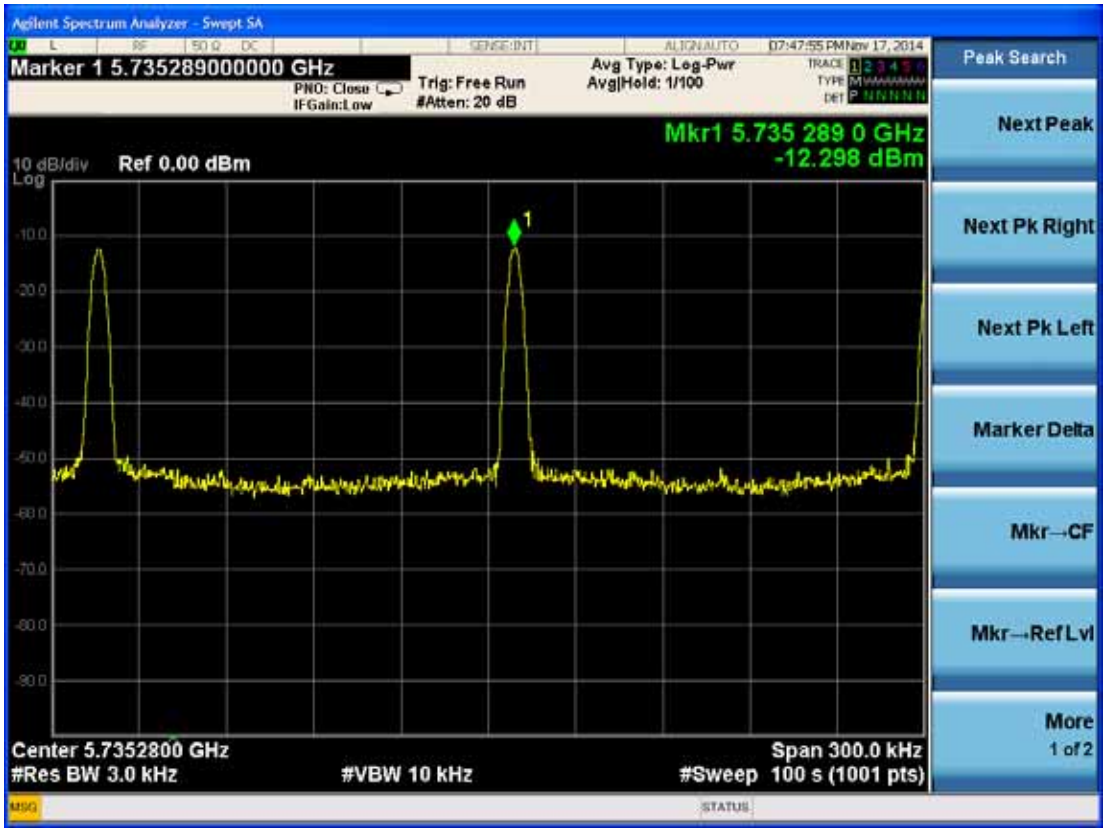
9.4.Test Results

EUT: Wireless receiver		
M/N: W-Rx		
Test date:2014-11-13	Pressure: 101.3±1. 0kpa	Humidity: 51.4±3. 0 %
Tested by:Kobe_Huang	Test site: RF site	Temperature: 22.5±0. 6 ℃

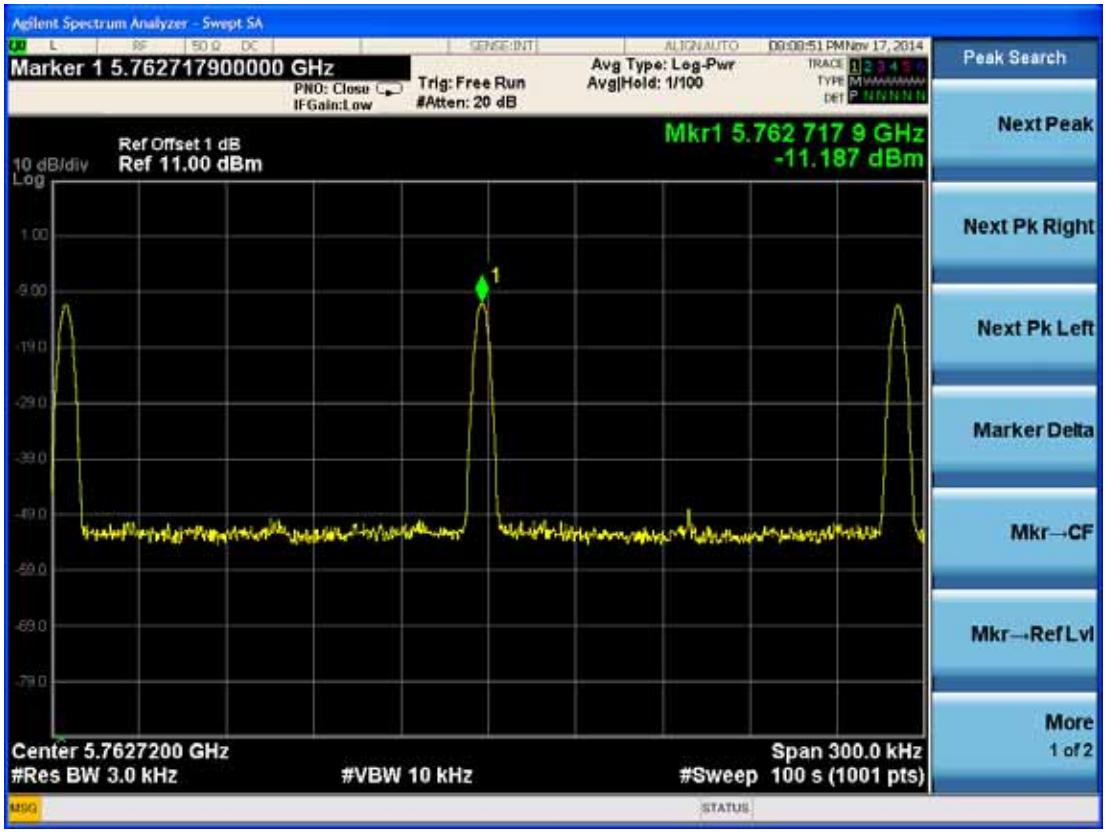
Duty cycle X: 100%				
Test Mode	CH （MHz）	Result (dBm/MHz)		Limit （dBm/MHz）
Tx	5735	−12. 298	−12. 346	8
	5762	−11. 187	−11. 149	8
	5814	−9. 925	−9. 922	8
Conclusion: PASS				

ANT 0:

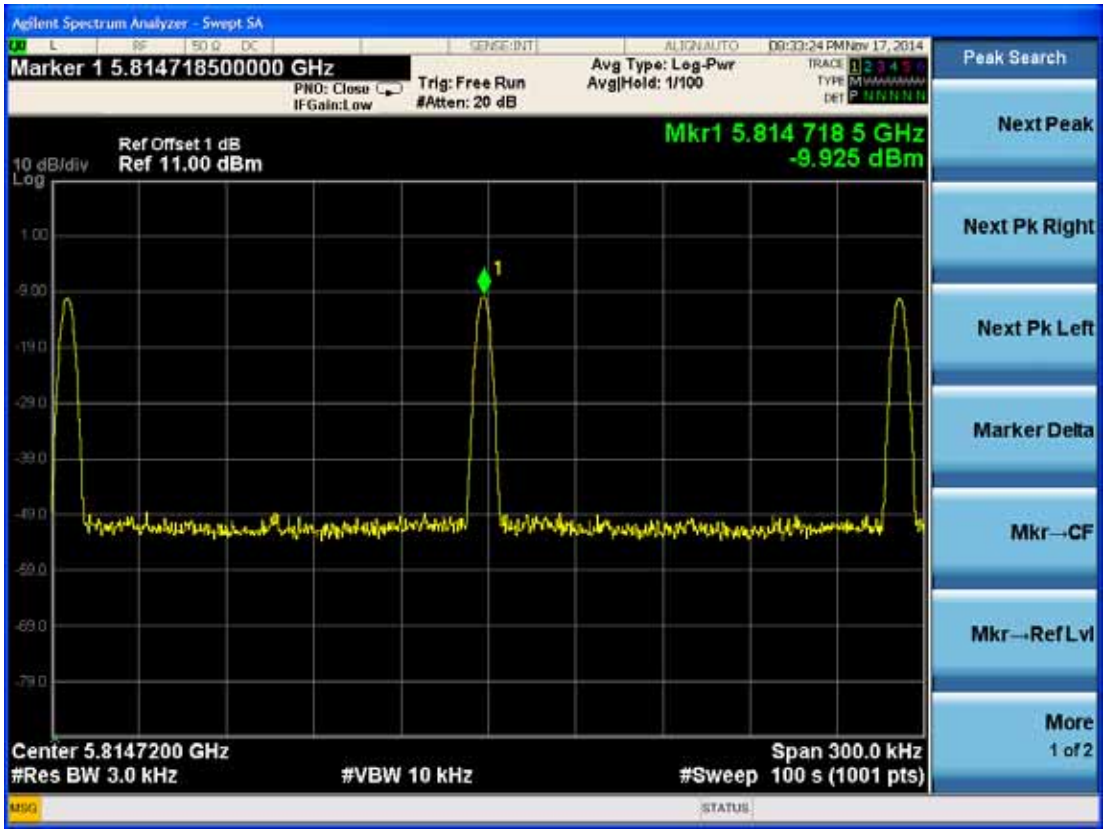
5736MHz



5762MHz

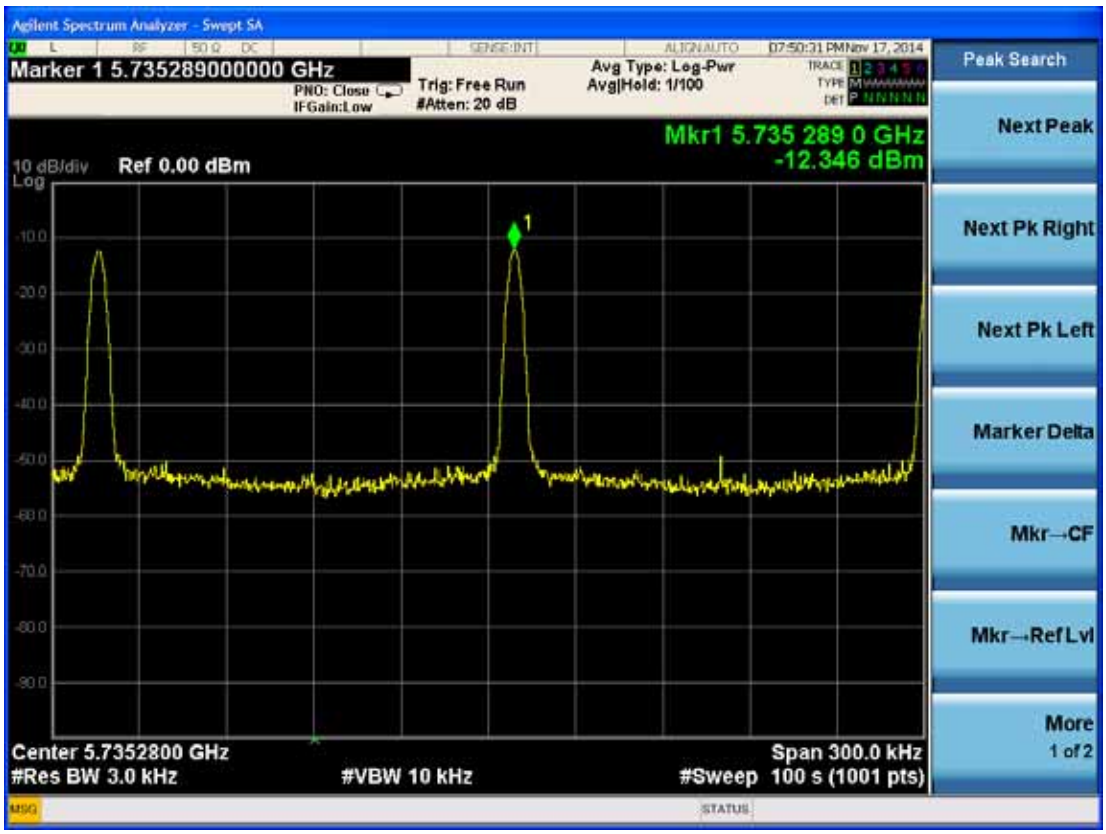


5814MHz

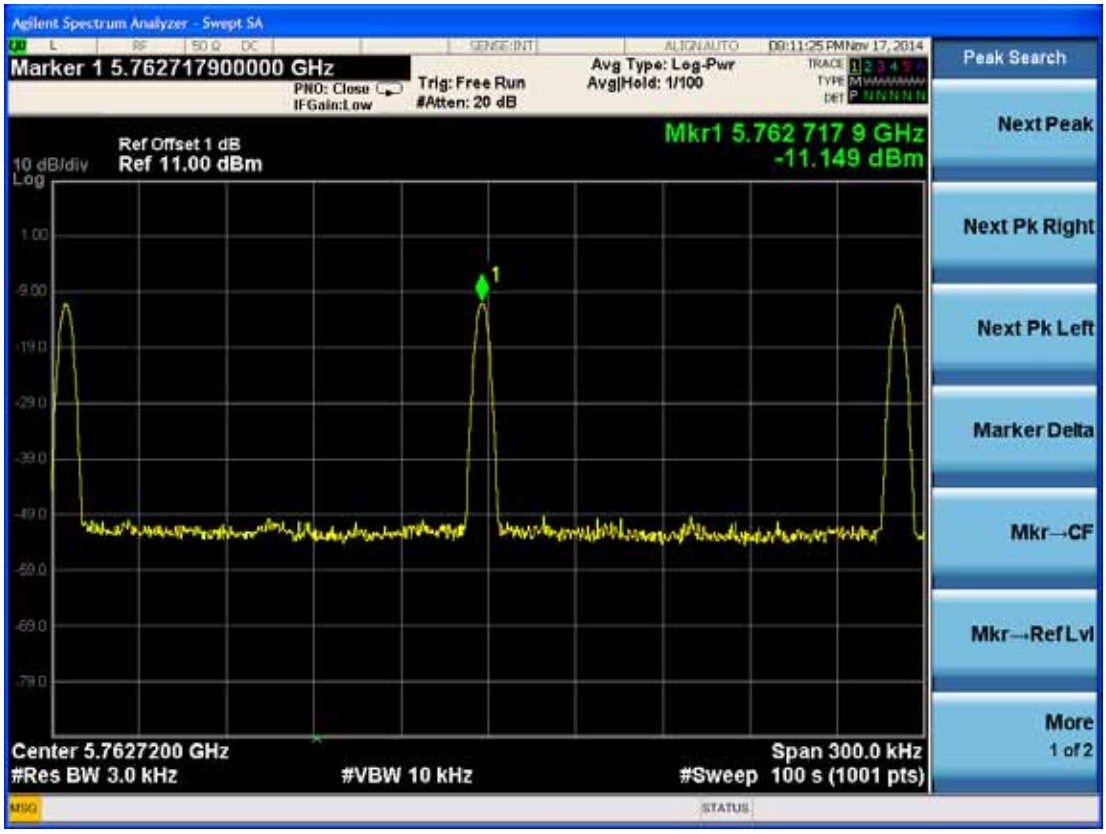


ANT 0:

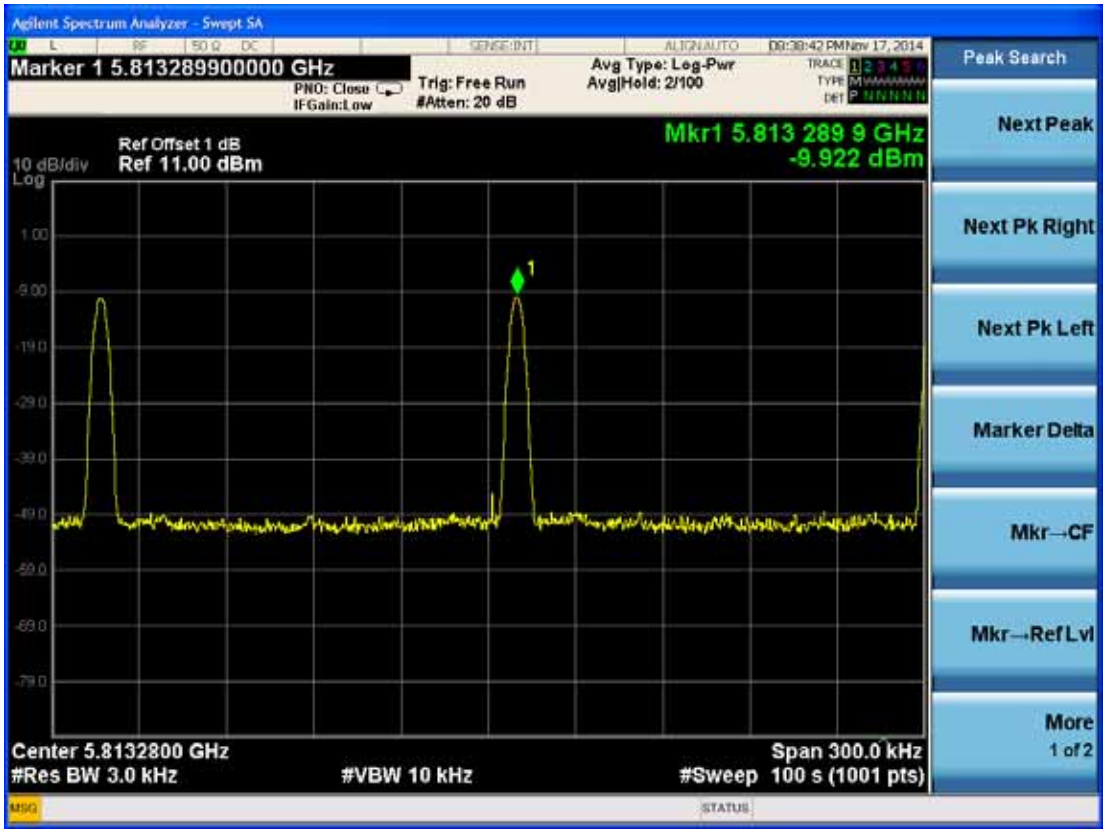
5736MHz



5762MHz



5814MHz



10. ANTENNA REQUIREMENT

10.1. STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2. ANTENNA CONNECTED CONSTRUCTION

The antennas used for this product are PCB antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 9dBi.

11.DEVIATION TO TEST SPECIFICATIONS

[NONE]