

**FCC Class II Permissive Change Test Report**

**for**

**Radio Light DIR II US**

**Model No.: RF-9714**

**FCC ID: U94RFS05DIR08**

**of**

**Applicant: ADEC & Partner AG**

**Address: Staldenbachstrasse 30 CH-8808 Pfaffikon Switzerland**

**Tested and Prepared**

**by**

**Worldwide Testing Services (Taiwan) Co., Ltd.**

**FCC Registration No.: 930600**

**Industry Canada filed test laboratory Reg. No. IC 5679A-1**

**A2LA Accredited No.: 2732.01**



**Report No.: W6R21004-10583-P-15**



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## **1 General Information**

### **1.1 Notes**

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

The test report may only be reproduced or published in full.

Reproduction or publication of extracts from the report requires the prior written approval of the Worldwide Testing Services(Taiwan) Co., Ltd.

### **Tester:**

April 23, 2010

Danny Sung

Date

WTS-Lab.

Name

Signature

### **Technical responsibility for area of testing:**

April 23, 2010

Chang Tse-Ming

Date

WTS

Name

Signature



# ***Worldwide Testing Services(Taiwan) Co., Ltd.***

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## **1.2 Testing laboratory**

### **1.2.1 Location**

OATS

No.5-1, Shuang Sing Village,  
LiShuei Rd., Wanli Township,  
Taipei County 207, Taiwan (R.O.C.)

Company

Worldwide Testing Services(Taiwan) Co., Ltd.  
6F, NO. 58, LANE 188, RUEY-KUANG RD.  
NEIHU, TAIPEI 114, TAIWAN R.O.C.

Tel : 886-2-66068877

Fax : 886-2-66068879

### **1.2.2 Details of accreditation status**

**Accredited testing laboratory**

**A2LA accredited number: 2730.01**

**FCC filed test laboratory Reg. No. 930600**

**Industry Canada filed test laboratory Reg. No. IC 5679A-1**



**Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd. :**

Name: ./.

Accredited number: ./.

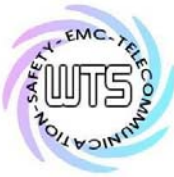
Street: ./.

Town: ./.

Country: ./.

Telephone: ./.

Fax: ./.



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## **1.3 Details of approval holder**

Name: ADEC & Partner AG  
Street: Staldenbachstrasse 30 CH-8808  
Town: Pfaffikon  
Country: Switzerland  
Telephone: +41 55 420 4828  
Fax: +41 55 420 4830  
Teletex: ./.

## **1.4 Application details**

Date of receipt of test item: April 21, 2010  
Date of test: From April 21, 2010 to April 23, 2010

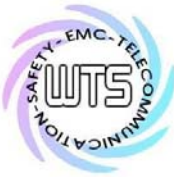
## **1.5 General information of Test item**

Type of test item: Radio Light DIR II US  
Model Number: RF-9714  
Brand Name: HUMANTECHNIK  
Multi-listing model number: ./.  
Photos: see appendix

## **Technical data**

Frequency band: 916.25-917.75 MHz  
Operating frequency: Channel A: 916.25 MHz  
Channel B: 916.75 MHz  
Channel C: 917.75 MHz  
Operation modes: simplex  
Modulation Type: FM  
Antenna type: Integral antenna  
Power supply: Transmitter: Adaptor ( I/P: AC 100-240 V / 50-60 Hz / 0.15 A,  
O/P: 12 Vdc / 500 mA )  
Receiver: Battery (2.4 Vdc)

:



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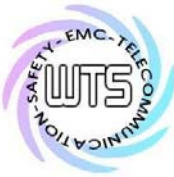
**Manufacturer: (if different from applicant)**

Name: GAMMA INC.  
Street: FL.7,No. 129,Sec. 2, Chung Shan N. Rd.  
Town: Taipei  
Country: Taiwan R.O.C.

Additional information: ./.

**1.6 Test standards**

Technical standard : FCC RULES PART 15 SUBPART C § 15.249 (2008-10)



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## **2 Technical test**

### **2.1 Summary of test results**

No deviations from the technical specification(s) were ascertained in the course of the tests performed.



**or**

The deviations as specified in 2.5 were ascertained in the course of the tests performed.



### **2.2 Test environment**

Temperature: 23 °C

Relative humidity content: 20 ... 75 %

Air pressure: 86 ... 103 kPa

Details Power supply: Transmitter: Adaptor ( I/P: AC 100-240 V / 50-60 Hz / 0.15 A,  
O/P: 12 Vdc / 500 mA )  
Receiver: Battery (2.4 Vdc)

Extreme conditions parameters: Not required



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## 2.3 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2009/9/10	2010/9/9
ETSTW-CE 004	ZWEILEITER-V- NETZNACHBILDUNG TWO- LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2010/3/2	2011/3/1
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2009/9/9	2010/9/8
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2009/5/9	2010/5/8
ETSTW-CE 007	SPECTRUM ANALYZER 5GHz	FSB	849670/001	R&S	Pre-test Use NCR	
ETSTW-CE 008	HF-EICHLITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function Test	
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2009/7/21	2010/7/20
ETSTW-CE 015	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T8-02	20307	FCC	2009/9/12	2010/9/11
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2009/9/9	2010/9/8
ETSTW-RE 002	Function Generator	33220A	MY43004982	Agilent	Function Test	
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2009/10/1	2010/9/30
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2009/9/18	2010/9/17
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2009/9/11	2010/9/10
ETSTW-RE 006	Attenuator 10dB	50HF-010-5N-1	None	STEP	2010/3/5	2011/3/4
ETSTW-RE 010	ABSORBING CLAMP	MDS 21	3469	Schwarzbeck	2009/9/11	2010/9/10
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function Test	
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function Test	
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2009/10/1	2010/9/30
ETSTW-RE 020	MICROWAVE HORN ANTENNA	AT4002A	306915	AR	Function Test	
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2009/8/19	2010/8/18
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	EMCO	2009/8/14	2011/8/13
ETSTW-RE 028	Log-Periodic Dipole Array Antenna	3148	34429	EMCO	2010/4/14	2011/4/13
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	2010/4/14	2011/4/13
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	EMCO	2010/3/2	2011/3/1
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2009/8/23	2010/8/22
ETSTW-RE 033	WaveRunner 6000A Serie Oscilloscope	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	2009/6/15	2010/6/14
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2009/8/23	2010/8/22
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2010/1/13	2011/1/12
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2009/5/5	2010/5/4
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2009/5/21	2010/5/20





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ETSTW-RE 047	PSA SERIES SPECTRUM ANALYZER	E4445A	MY46181369	Agilent	2009/6/15	2010/6/14
ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2009/8/31	2010/8/30
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2010/4/13	2011/4/12
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2010/3/5	2011/3/4
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2010/3/5	2011/3/4
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2009/6/10	2010/6/09
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	Pre-test Use NCR	
ETSTW-RE 061	Amplifier Module	CHC 1	None	ETS	2009/11/12	2010/11/11
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2009/11/12	2010/11/11
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 065	Amplifier	AMF-6F-18002650-25-10P	941608	MITEQ	2010/4/13	2011/4/12
ETSTW-RE 066	Highpass Filter	H1G013G1	206015	MICROWAVE CIRCUITS, INC.	2010/3/5	2011/3/4
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2009/10/2	2010/10/1
ETSTW-RE 073	Power Meter	N1911A	MY45100769	Agilent	2010/1/7	2011/1/6
ETSTW-RE 074	Power Sensor	N1921A	MY45241198	Agilent	2010/1/7	2011/1/6
ETSTW-RE 081	Highpass Filter	H03G13G1	4260-02 DC0428	MICROWAVE CIRCUITS, INC.	2010/3/5	2011/3/4
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	Function Test	
ETSTW-RE 092	Match Pad	MDCS1510	None	WOKEN	Function Test	
ETSTW-RE 096	SIGNAL GENERATOR	SMIQ 03B	102274	R&S	2009/6/5	2010/6/4
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2010/3/5	2011/3/4
ETSTW-RE 105	2.4GHz Notch Filter	NO124411	39555	MICROWAVE CIRCUITS, INC.	2010/3/25	2011/3/24
ETSTW-RE 106	Humidity Temperature Meter	TES-1366	091011113	TES	2010/3/25	2011/3/24
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2009/9/22	2010/9/21
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40/12+9SS	3	WI	Function Test	
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	Function Test	
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	Function Test	
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	Function Test	
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2009/9/21	2010/9/20
ETSTW-Cable 002	Microwave Cable	SUCOFLEX 104 (S_Cable 7)	238093	HUBER+SUHNER	2009/9/16	2010/9/15
ETSTW-Cable 003	Microwave Cable	SUCOFLEX 104 (S_Cable 11)	209953	HUBER+SUHNER	2009/9/16	2010/9/15
ETSTW-Cable 006	Microwave Cable	SUCOFLEX 104 (S_Cable 8)	238095	HUBER+SUHNER	2010/3/5	2011/3/4
ETSTW-Cable 010	BNC Cable	5 M BNC Cable	None	JYE BAO CO.,LTD.	2010/3/5	2011/3/4



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ETSTW-Cable 011	BNC Cable	BNC Cable 1	None	JYE BAO CO.,LTD.	2009/8/20	2010/8/19
ETSTW-Cable 012	BNC Cable	BNC Cable 2	None	JYE BAO CO.,LTD.	2009/8/20	2010/8/19
ETSTW-Cable 013	Microwave Cable	SUCOFLEX 104 ( S_Cable 5 )	232345	HUBER+SUHNER	2010/3/5	2011/3/4
ETSTW-Cable 022	N TYPE Cable	OATS Cable 3	0002	JYE BAO CO.,LTD.	2010/3/5	2011/3/4
ETSTW-Cable 039	Microwave Cable	SUCOFLEX 104 ( S_Cable 19 )	316739	HUBER+SUHNER	2010/3/5	2011/3/4
WTSTW-SW 001	EMI TEST SOFTWARE	Harmonics-1000	None	EMC PARTNER	HARCS Version 4.16 Firmware Version 2.18	
WTSTW-SW 002	EMI TEST SOFTWARE	EZ EMC	None	Farad	Version ETS-03A1	
WTSTW-SW 003	EMS TEST SOFTWARE	i2	None	AUDIX	Version 3.2007-8-17b	
WTSTW-SW 005	GSM Fading Level Correction	GSMFadLevCor	None	R&S	Version 1.66	



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## **2.4 General Test Procedure**

**POWER LINE CONDUCTED INTERFERENCE:** The procedure used was ANSI STANDARD C63.4-2003 using a 50 $\mu$ H LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

**RADIATION INTERFERENCE:** The test procedure used was according to ANSI STANDARD C63.4-2003 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dB $\mu$ V) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

Freq (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dB $\mu$ V + 10.36 dB + 6 dB = 36.36 dB $\mu$ V/m @3m

**ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES:** The EUT was placed on a table 80 cm height and with dimensions of 1m by 1.5m (non metallic table). The EUT was placed in the centre of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10<sup>th</sup> harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings.

Measurements were made by Worldwide Testing Services(Taiwan) Co., Ltd. at the registered open field test site located at No.5-1, Shuang Sing Village, LiShuei Rd., Wanli Township, Taipei County 207, Taiwan (R.O.C.) The Registration Number: 930600.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.



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**3 Test results (enclosure)**

Test case	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.249 (a)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions radiated – Transmitter operating	15.249 (e)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Spurious Emissions conducted – Transmitter operating	15.249 (e)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Emission from Receiver Part	15.109	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Out of Band Spurious Emission, Band edge-Transmitter operating	15.249 (e)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Power Line Conducted Emission	15.207	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The follows is intended to leave blank.



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## 3.1 Peak Output Power (transmitter)

FCC Rule: 15.249 (b)

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

The power was measured with modulation (declared by the applicant).

Model: RF-9714 Date: 2010/04/22

Channel A-Tx Power-

Mode: 916.25MHz Temperature: 24 °C Engineer: Danny

Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
916.2450	59.34	peak	27.94	87.28	94.00	-6.72	135	150

Channel A-Tx Power-								
Mode:	916.25MHz			Temperature:	24 °C		Engineer:	Danny
Polarization: Vertical				Humidity:	60 %			
Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
916.2450	52.97	peak	27.94	80.91	94.00	-13.09	120	150

Channel C-Tx Power-								
Mode:	917.75MHz			Temperature:	24 °C		Engineer:	Danny
Polarization: Horizontal				Humidity:	60 %			
Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
917.7490	60.39	peak	27.97	88.36	94.00	-5.64	135	150

Channel C-Tx Power-									
Mode:		917.75MHz		Temperature:		24 °C		Engineer: Danny	
Polarization: Vertical				Humidity:		60 %			
Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)	
917.7330	53.64	peak	27.97	81.61	94.00	-12.39	130	150	

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 018, ETSTW-RE 028, ETSTW-RE 030, ETSTW-RE 043

Explanation: The diagrams for the field strength measurements are included in appendix.



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### **3.2 Equivalent isotropic radiated power**

Because using an permanent antenna there are no deviations from the radiated test results according 3.1.

### **3.3 RF Exposure Compliance Requirements**

Not applicable for this Radio Light DIR II US for the low power level.

### **3.4 Out of Band Radiated Emissions**

FCC Rule: 15.249 (d)(e), 15.35(b)

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 to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

For frequency above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

Limits:

Frequency of Emission (MHz)	Field strength (microvolts/meter)	Field Strength (dB microvolts/meter)
30 - 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.5
Above 960	500	54.0

For frequencies above 1 GHz (Peak measurements).

Limit + 20 dB     54.0 dB $\mu$ V/m + 20 dB= 74dB $\mu$ V/m

Or

Must be attenuated at least 50dB below the level of fundament

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 018, ETSTW-RE 028,  
ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043

Explanation: Please see attached diagram as appendix.



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### 3.5 Spurious emission (tx)

Spurious emission was measured with modulation (declared by manufacturer).

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 to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

For frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

SAMPLE CALCULATION OF LIMIT. ALL results will be updated by an automatic measuring system in accordance with point 2.3.

The peak and average spurious emission plots was measured with the average limits.

The critical peak value listed in the table agree with the above calculated limits.

#### Summary table with radiated data of the test plots

Model: RF-9714 Date: 2010/4/22  
Mode: Channel A-Tx-916.25MHz Temperature: 24 °C Engineer: Danny  
Polarization: Horizontal Humidity: 60 %

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
146.3327	20.50	peak	15.29	35.79	43.50	-7.71	140	150
162.5651	19.97	peak	15.35	35.32	43.50	-8.18	120	150
579.1584	10.00	peak	22.91	32.91	46.00	-13.09	130	150
758.7175	12.92	peak	25.86	38.78	46.00	-7.22	135	150

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1829.6590	54.30	---	-8.74	45.56	---	74.00	54.00	-28.44	130	150
2749.4990	49.59	---	-5.15	44.44	---	74.00	54.00	-29.56	145	150
3669.3390	47.38	---	-1.35	46.03	---	74.00	54.00	-27.97	140	150



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
64.6293	19.51	peak	12.81	32.32	40.00	-7.68	110	150
113.8678	23.21	peak	13.06	36.27	43.50	-7.23	105	150
356.1123	14.33	peak	17.55	31.88	46.00	-14.12	125	150
674.5490	8.37	peak	24.47	32.84	46.00	-13.16	130	150

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1829.6590	49.96	---	-8.74	41.22	---	74.00	54.00	-32.78	145	150
2749.4990	49.22	---	-5.15	44.07	---	74.00	54.00	-29.93	160	150
3669.3390	45.62	---	-1.35	44.27	---	74.00	54.00	-29.73	150	150

Mode: Channel C-Tx-917.75MHz

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
146.3327	20.32	peak	15.29	35.61	43.50	-7.89	120	150
162.5651	20.48	peak	15.35	35.83	43.50	-7.67	105	150
389.7795	13.48	peak	18.53	32.01	46.00	-13.99	135	150
772.7455	11.49	peak	26.08	37.57	46.00	-8.43	125	150

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1835.6710	53.83	---	-8.76	45.07	---	74.00	54.00	-28.93	135	150
2755.5110	49.77	---	-5.18	44.59	---	74.00	54.00	-29.41	120	150
3675.3510	47.14	---	-1.33	45.81	---	74.00	54.00	-28.19	145	150

Polarization: Vertical

Frequency (MHz)	Reading (dBuV)	Detector	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
64.6293	19.29	peak	12.81	32.10	40.00	-7.90	95	150
113.8678	23.14	peak	13.06	36.20	43.50	-7.30	100	150
372.9460	12.80	peak	18.04	30.84	46.00	-15.16	135	150
838.6774	7.94	peak	26.75	34.69	46.00	-11.31	140	150





## ***Worldwide Testing Services(Taiwan) Co., Ltd.***

Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result @3m (dBuV/m)		Limit @3m (dBuV/m)		Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
	Peak	Ave.		Peak	Ave.	Peak	Ave.			
1835.6710	49.19	---	-8.76	40.43	---	74.00	54.00	-33.57	140	150
2755.5110	49.97	---	-5.18	44.79	---	74.00	54.00	-29.21	150	150
3675.3510	45.46	---	-1.33	44.13	---	74.00	54.00	-29.87	135	150

- Note**
1. **Correction Factor = Antenna factor + Cable loss - Preamplifier**
  2. **The formula of measured value as: Test Result = Reading + Correction Factor**
  3. **Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average**
  4. **All not in the table noted test results are more than 20 dB below the relevant limits.**
  5. **See the attached diagram as appendix.**

**TEST RESULT (Transmitter):** The unit DOES meet the FCC requirements.

Test equipment used: ETSTW-RE 055



Registration number: W6R21004-10583-P-15  
FCC ID: U94RFS05DIR08

## **3.6 Radiated Emissions from Digital Part**

Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Field Strength (dBmicrovolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

- Note**
- 1. Correction Factor = Antenna factor + Cable loss - Preamplifier**
  - 2. The formula of measured value as: Test Result = Reading + Correction Factor**
  - 3. Detector function in the form : PK = Peak, QP = Quasi Peak, AV = Average**
  - 4. All not in the table noted test results are more than 20 dB below the relevant limits.**

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 018, ETSTW-RE 028, ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043

Explanation: The test results are listed in the separated test report no.: W6R21004-10583-P-15B.



Registration number: W6R21004-10583-P-15  
FCC ID: U94RFS05DIR08

### 3.7 Radiated Emission on the band edge

From the following plots, they show that the fundamental emissions are confined in the specified band and hey at least 50 dB below the carrier level at band edge (2400 and 2483.5 MHz). It meets the requirement of section 15.249(d).

Test conditions Tnom = 23°C, Vnom = 120V Frequency [MHz]	Transmitter field strength of Radiated Emission (Peak Detector)	Transmitter field strength of Radiated Emission (Average Detector)
	[dBμV/m]	
902.00	33.88	--
928.00	34.64	--

Limit:

Frequency Range (MHz)	Limit (dBμV/m)	
	Peak	Average
902 – 928 2400 – 2483.5 5725 – 5875 24000 - 24250	74	54

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 018, ETSTW-RE 028,  
ETSTW-RE 029, ETSTW-RE 030, ETSTW-RE 042, ETSTW-RE 043

Explanation: Please see attached diagram as appendix.



Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

## 3.8 Power Line Conducted Emission

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Frequency	Level (dBμV)	
	quasi-peak	average
150 kHz	lower limit line	Lower limit line

Model: RF-9714 Date: 2010/4/22  
Mode: Mic in Temperature: 24 °C Engineer: Danny  
Polarization: N Humidity: 60 %

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
0.1582	31.65	10.96	10.74	42.39	21.70	65.56	55.56	-23.17
0.3082	29.36	13.37	10.72	40.08	24.09	60.02	50.02	-19.94
0.9350	22.96	8.64	10.42	33.38	19.06	56.00	46.00	-22.62
2.0150	22.08	7.93	10.08	32.16	18.01	56.00	46.00	-23.84
9.8056	6.29	-2.59	10.32	16.61	7.73	60.00	50.00	-42.27
20.6944	2.05	-3.65	10.85	12.90	7.20	60.00	50.00	-42.80

Polarization: L1

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
0.1667	31.11	11.74	10.76	41.87	22.50	65.12	55.12	-23.25
0.3161	28.44	7.67	10.72	39.16	18.39	59.81	49.81	-20.65
1.9550	20.59	3.31	10.10	30.69	13.41	56.00	46.00	-25.31
2.9450	21.23	5.13	10.14	31.37	15.27	56.00	46.00	-24.63
6.0000	8.23	-0.16	10.26	18.49	10.10	60.00	50.00	-39.90
10.8056	3.74	-4.39	10.50	14.24	6.11	60.00	50.00	-43.89



# Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

Mode: Audio in Temperature: 24 °C Engineer: Danny  
Polarization: N Humidity: 60 %

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
0.1593	33.81	13.93	10.75	44.56	24.68	65.50	55.50	-20.94
0.2997	29.12	13.91	10.72	39.84	24.63	60.25	50.25	-20.41
0.6000	21.13	4.10	10.61	31.74	14.71	56.00	46.00	-24.26
2.0200	22.12	7.82	10.08	32.20	17.90	56.00	46.00	-23.80
11.1390	5.20	-2.97	10.42	15.62	7.45	60.00	50.00	-42.55
16.1944	1.25	-4.93	10.71	11.96	5.78	60.00	50.00	-44.22

Polarization: L1

Frequency (MHz)	Reading (dBuV)		Factor (dB) Corr.	Result (dBuV)		Limit (dBuV)		Margin (dB)
	QP	Ave.		QP	Ave.	QP	Ave.	
0.1617	30.81	10.17	10.76	41.57	20.93	65.38	55.38	-23.81
0.3153	29.12	7.16	10.72	39.84	17.88	59.83	49.83	-19.99
1.9050	21.01	3.26	10.12	31.13	13.38	56.00	46.00	-24.87
3.0450	20.48	5.12	10.14	30.62	15.26	56.00	46.00	-25.38
11.3056	4.25	-4.31	10.54	14.79	6.23	60.00	50.00	-43.77
20.3056	1.74	-4.22	11.06	12.80	6.84	60.00	50.00	-43.16

- Note: 1. The formula of measured value as: Test Result = Reading + Correction Factor**  
**2. The Correction Factor = Cable Loss + LISN Insertion Loss**  
**3. Detector function in the form : PK = Peak, QP = Qusai Peak, AV = Average**  
**4. All not in the table noted test results are more than 20 dB below the relevant limits.**

## Limits:

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

Test equipment used: ETSTW-CE 001, ETSTW-CE 003, ETSTW-CE 004, ETSTW-CE 006

Explanation: Please see attached diagram as appendix.



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FCC ID: U94RFS05DIR08

## **Appendix**

### **Measurement diagrams**

1. Fundamental Field Strength
2. Spurious Emissions radiated
3. Radiated Emission on the band edge
4. Power Line Conducted Emission



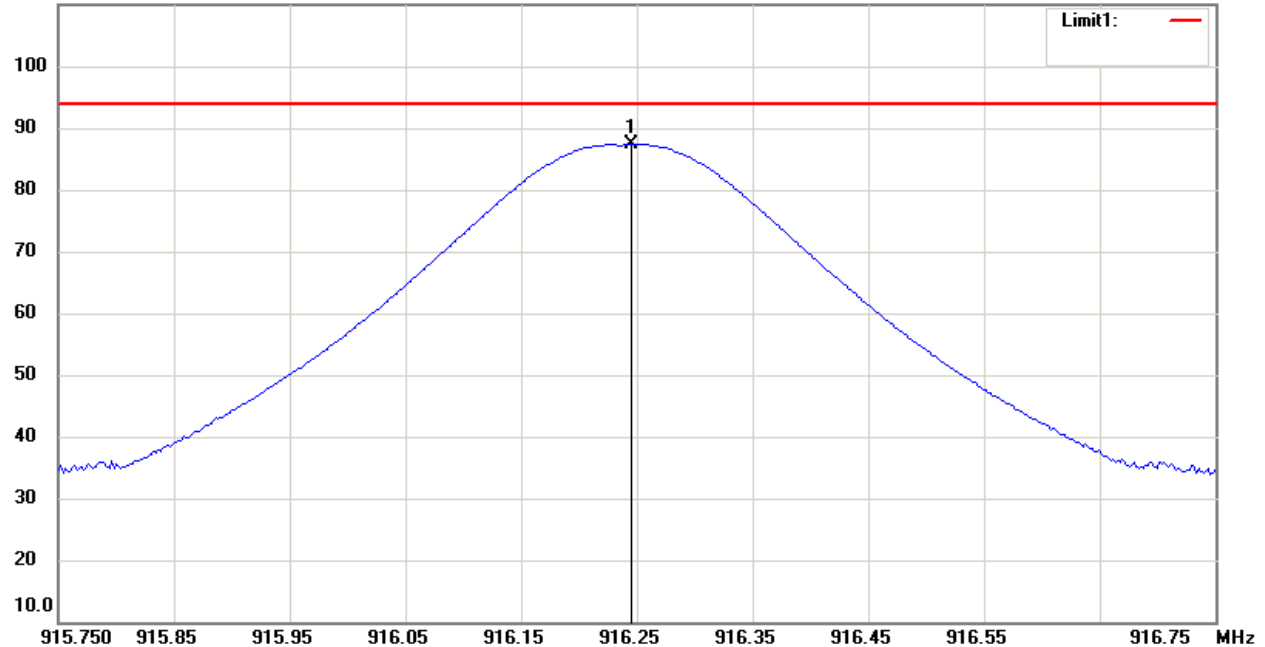
Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

Fundamental Field Strength

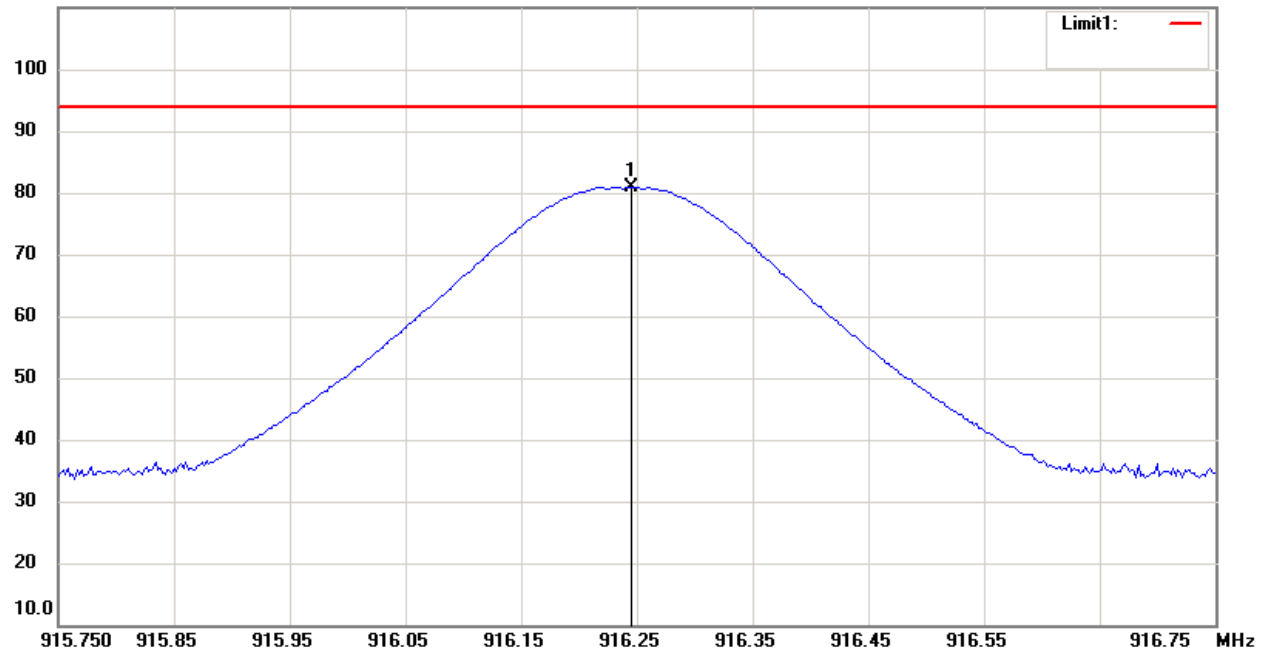
Channel A\_Antenna Polarization H

110.0 dBuV/m



Channel A\_Antenna Polarization V

110.0 dBuV/m



**Note:**

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.

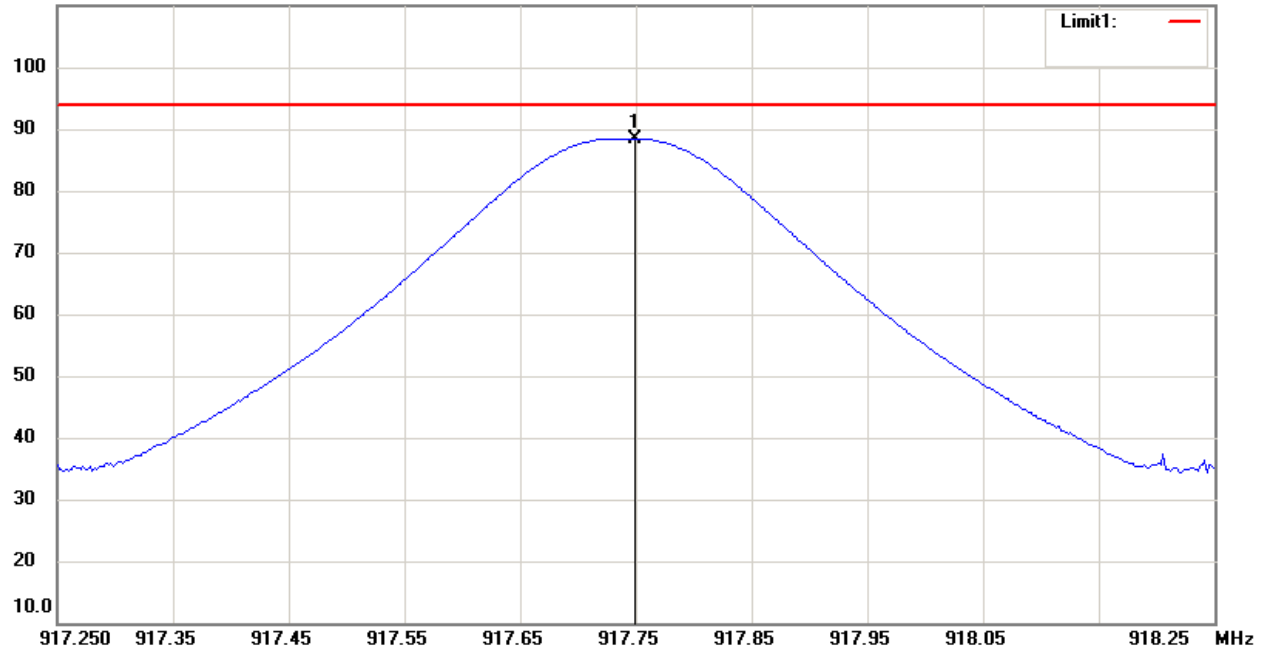


Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

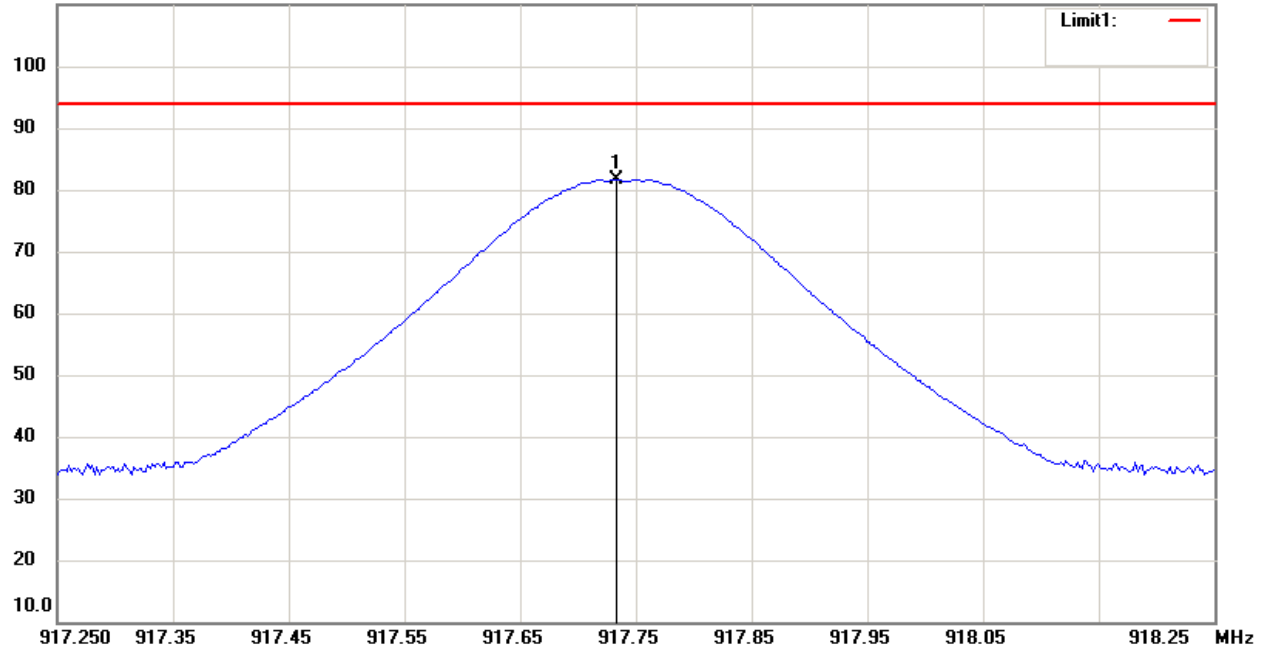
**Channel C\_Antenna Polarization H**

110.0 dBuV/m



**Channel C\_Antenna Polarization V**

110.0 dBuV/m



**Note:**

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



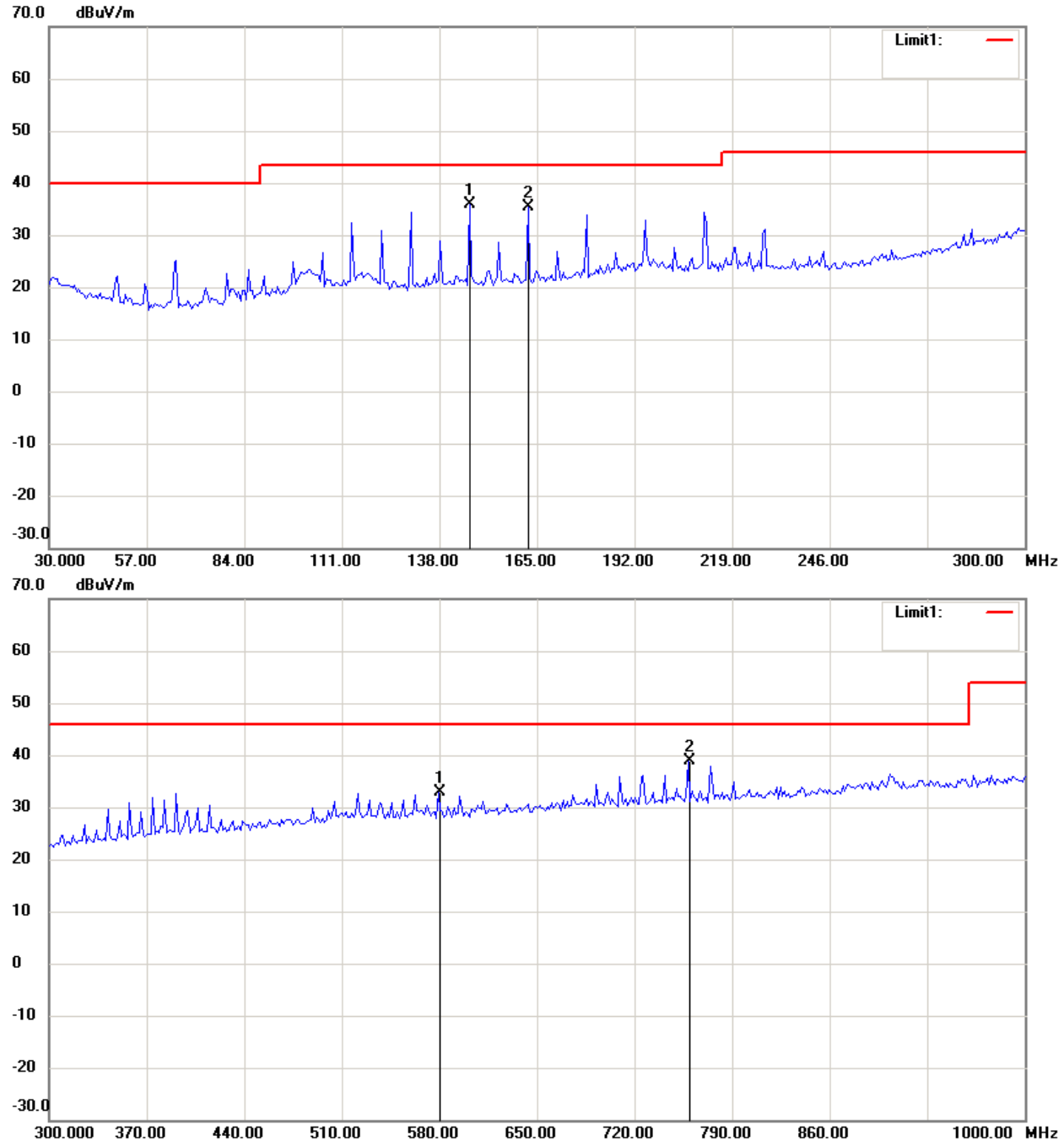


Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

Spurious Emissions radiated

## Channel A-Antenna Polarization H



### Note:

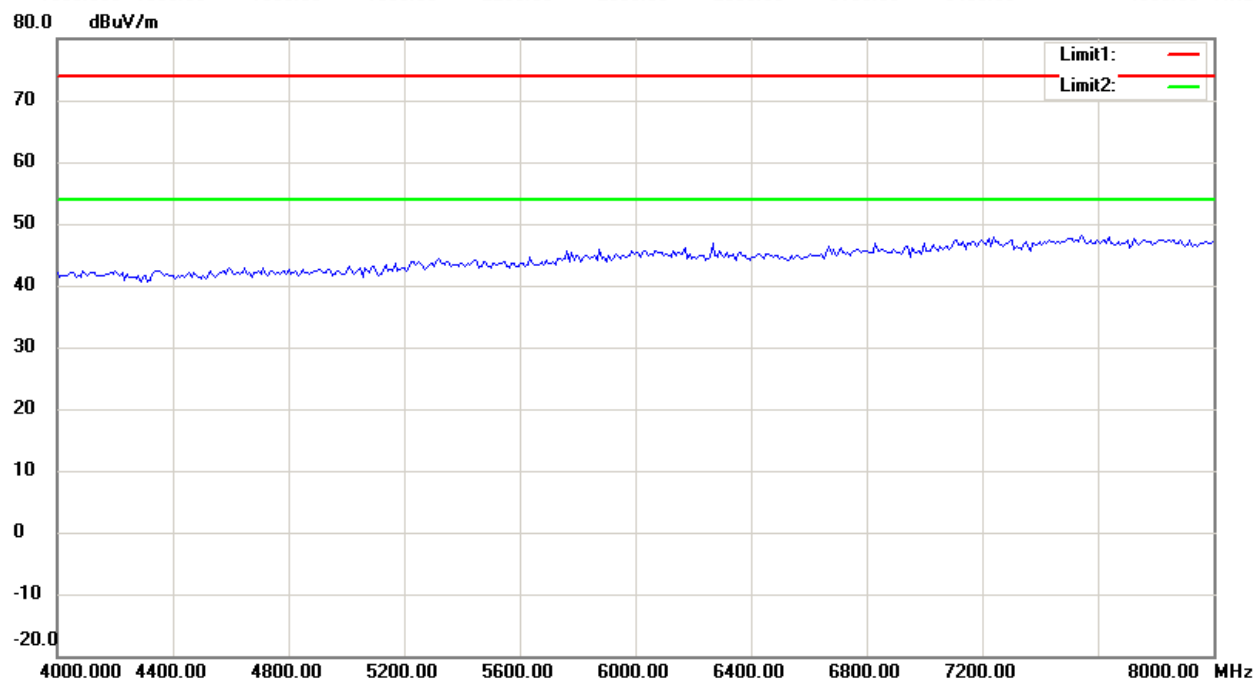
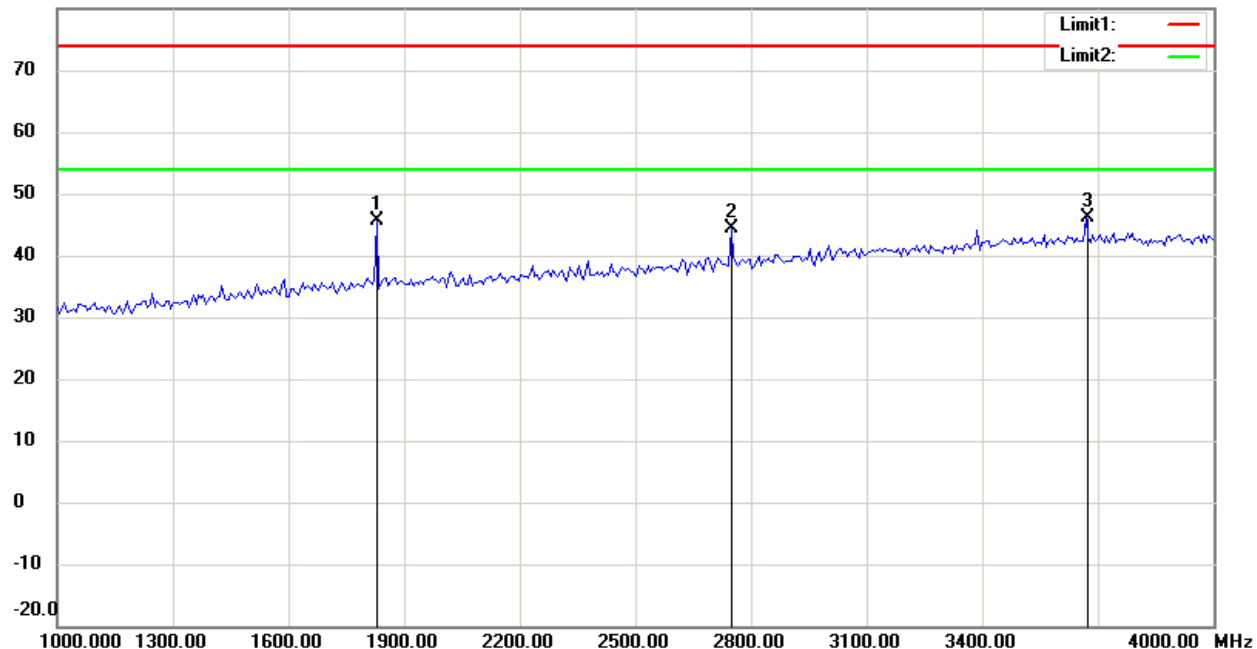
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

80.0 dBuV/m



**Note:**

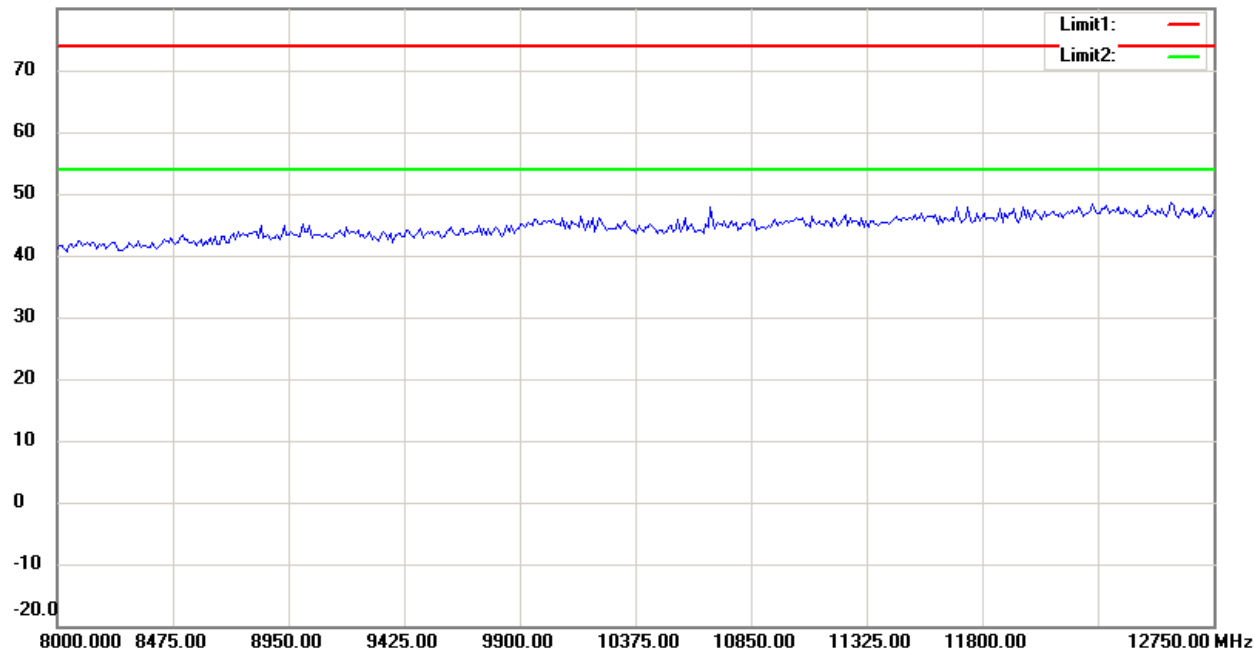
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Registration number: W6R21004-10583-P-15

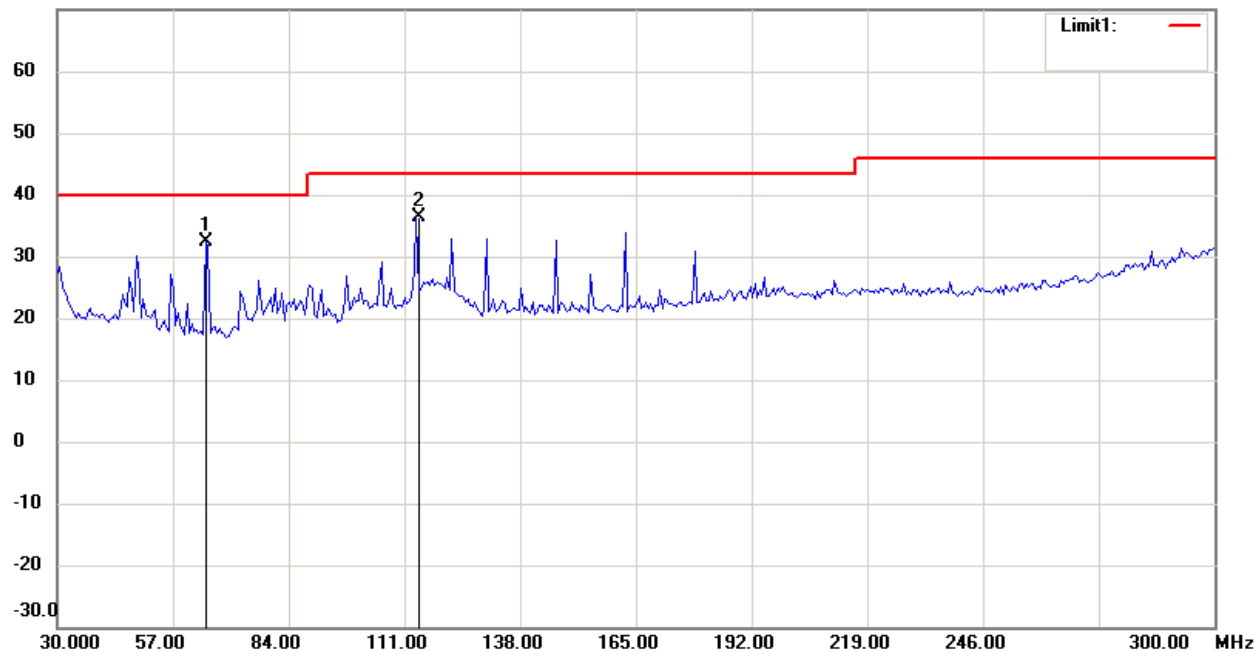
FCC ID: U94RFS05DIR08

80.0 dBuV/m



## Channel A-Antenna Polarization V

70.0 dBuV/m



### Note:

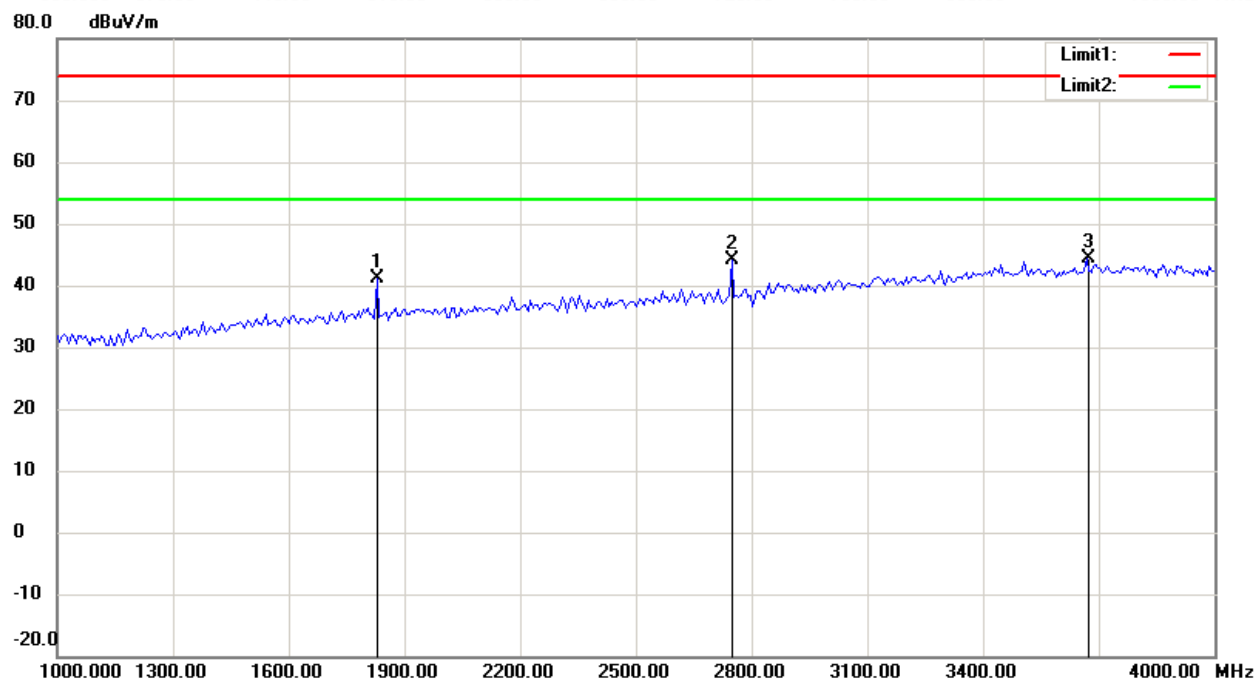
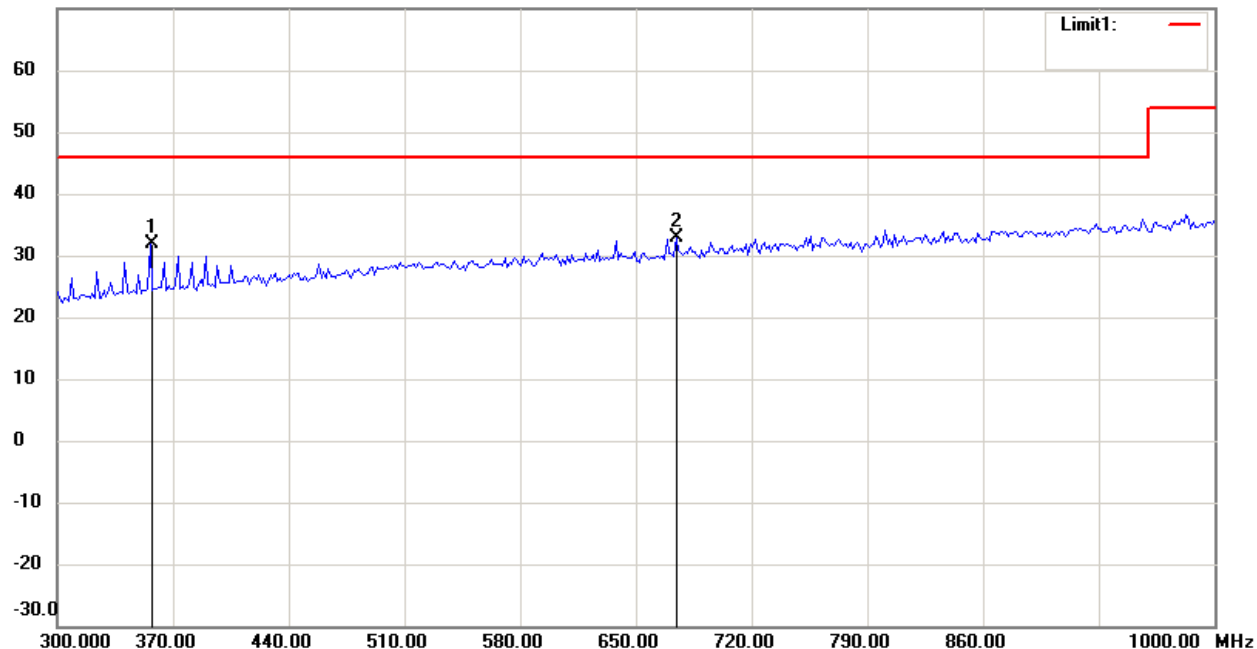
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

70.0 dBuV/m



**Note:**

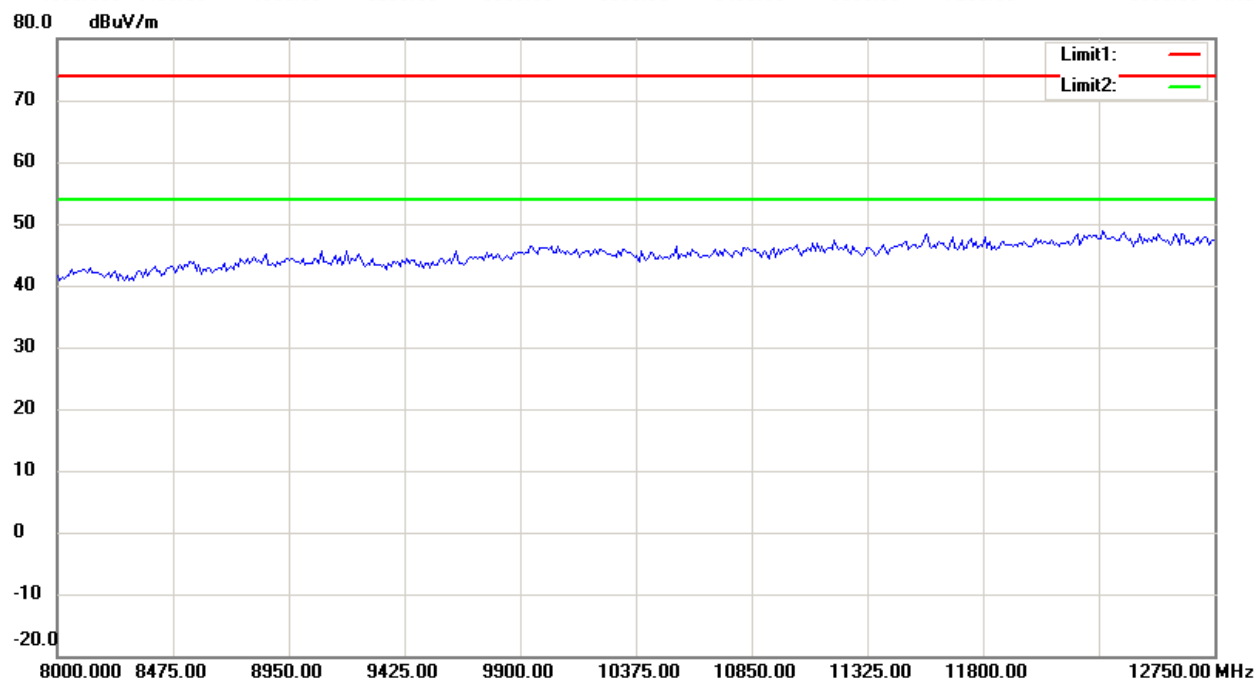
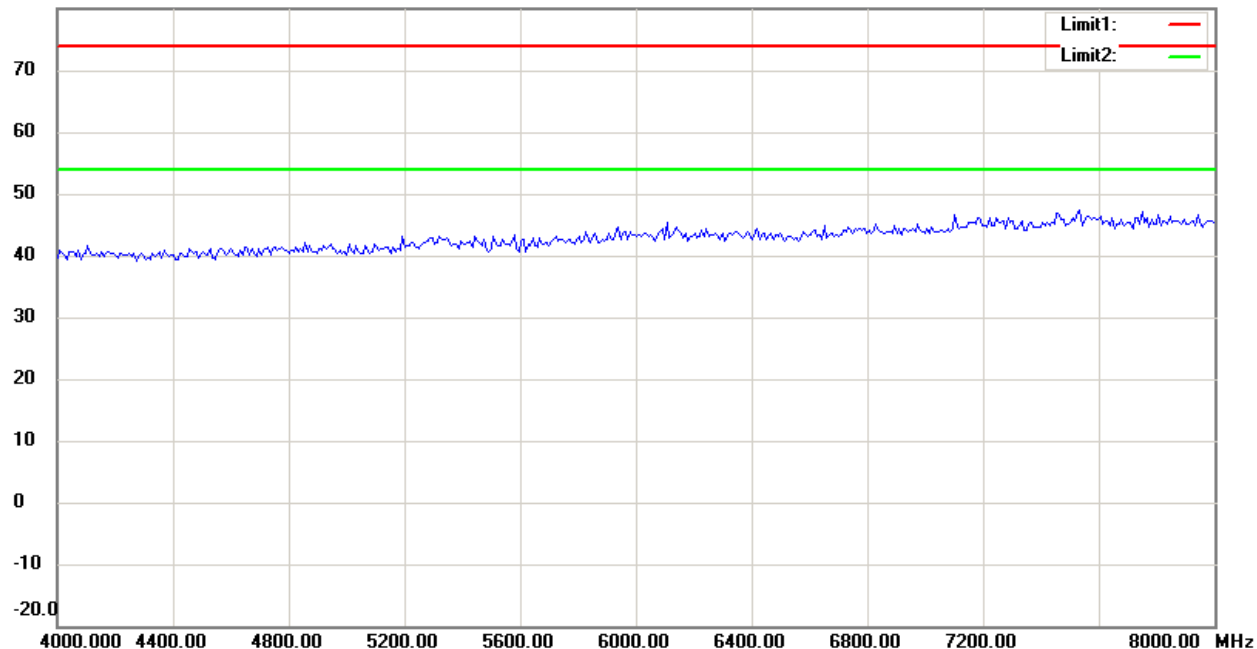
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

80.0 dBuV/m



**Note:**

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.

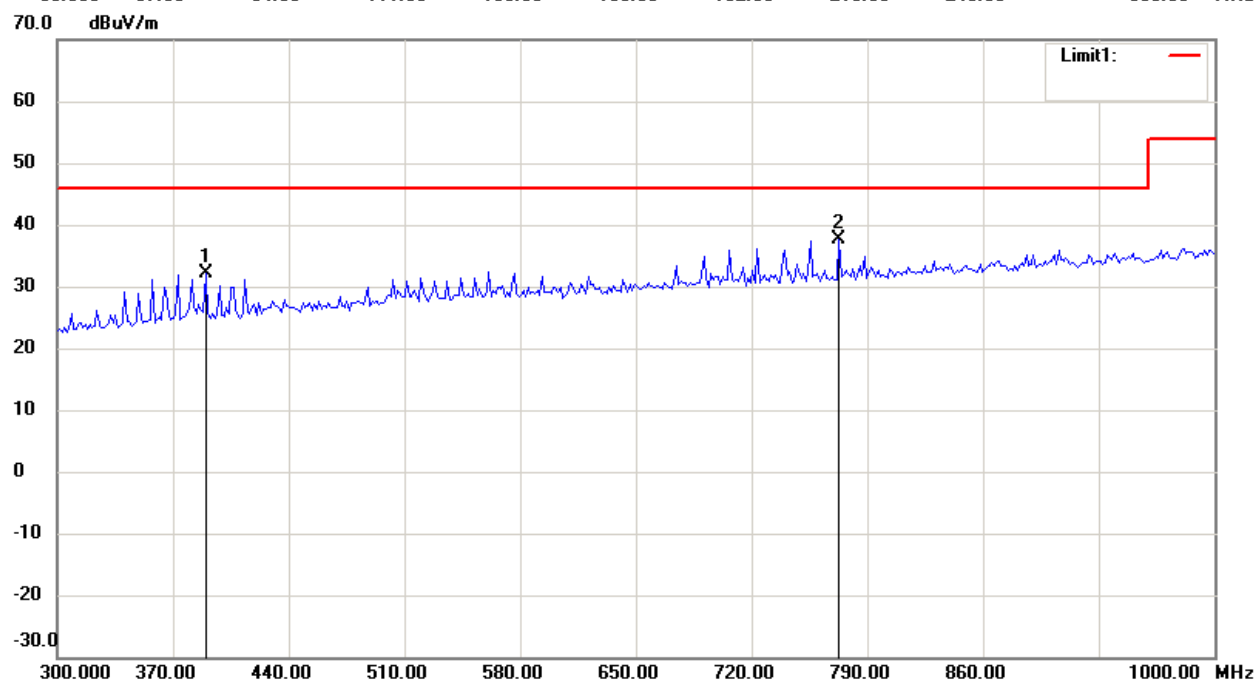
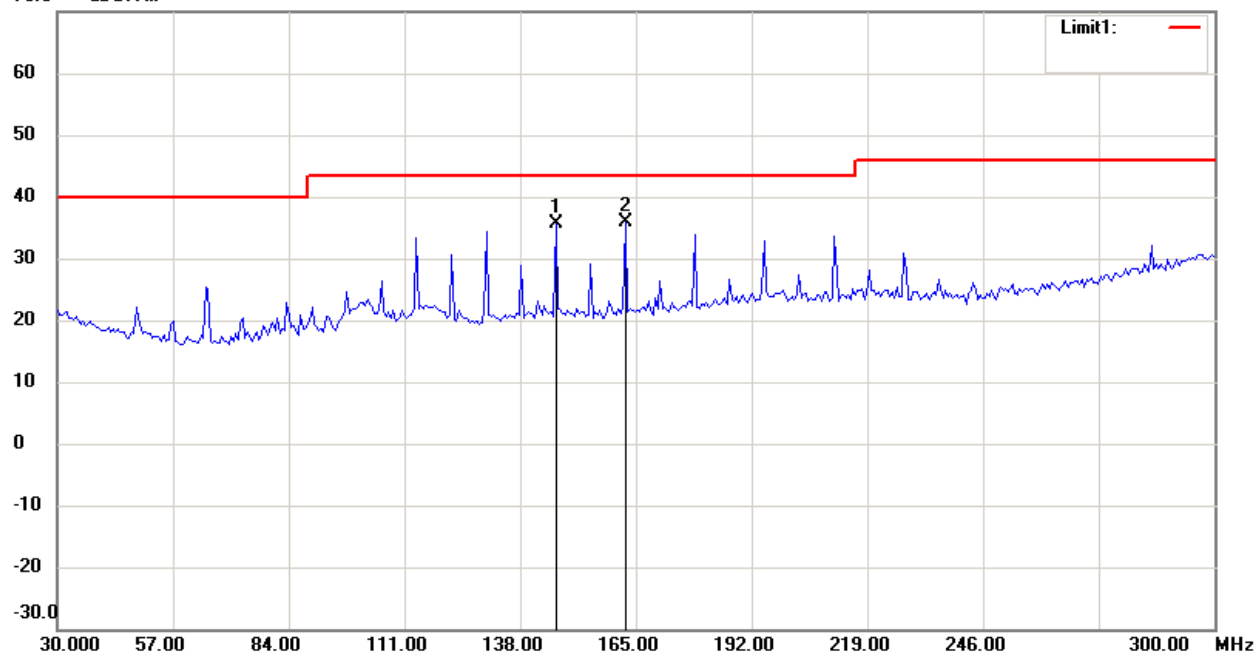


Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

Channel C-Antenna Polarization H

70.0 dBuV/m



**Note:**

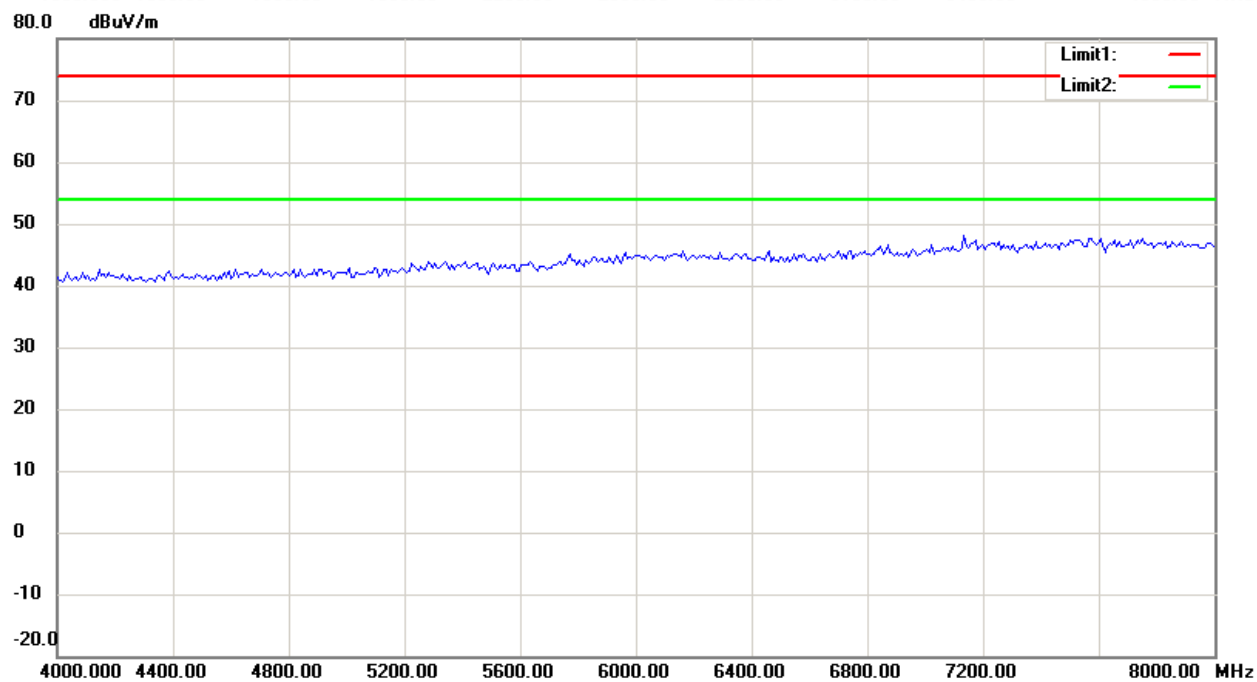
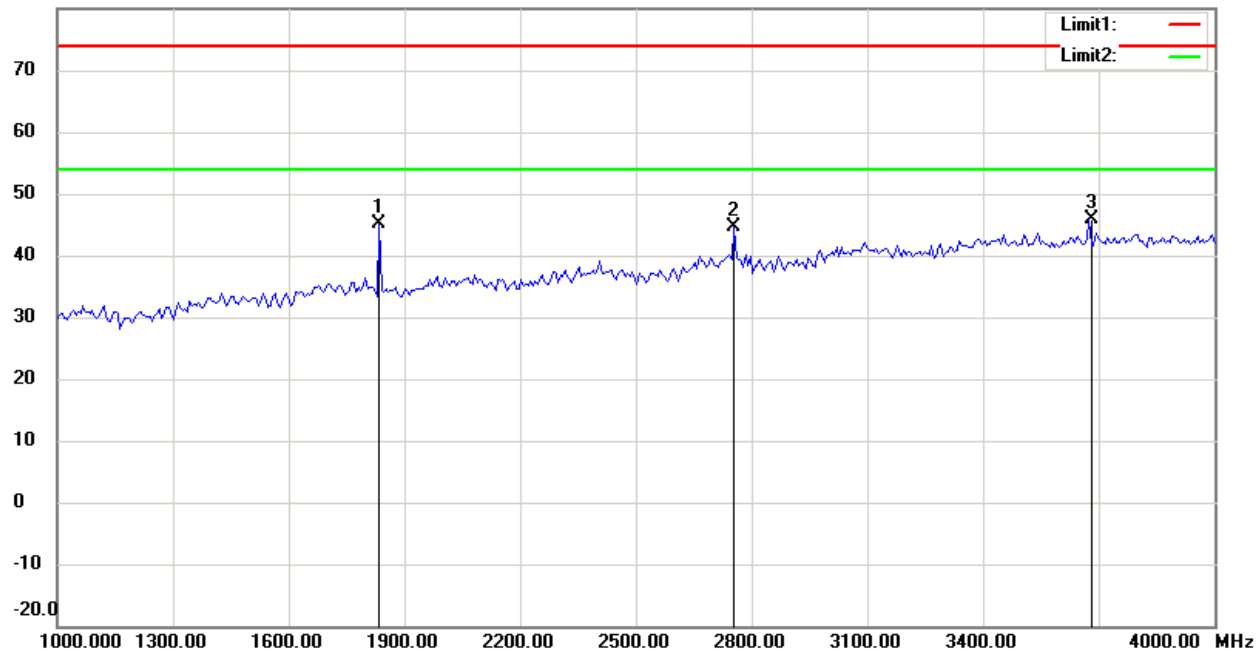
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

80.0 dBuV/m



**Note:**

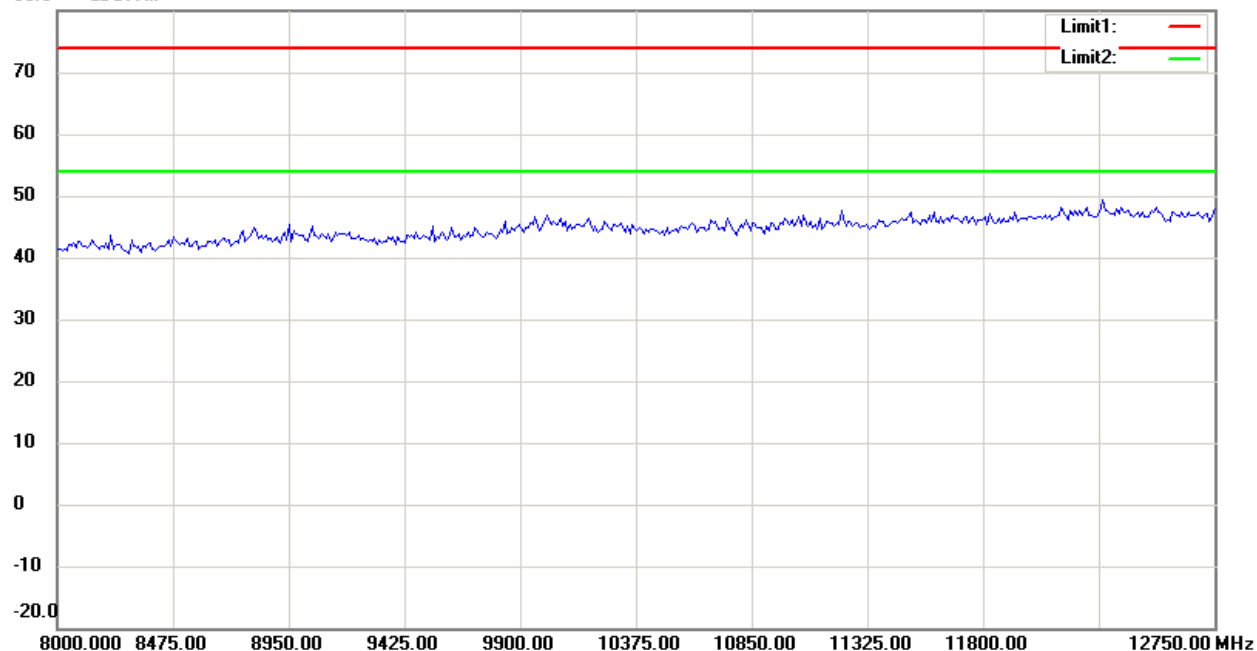
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Registration number: W6R21004-10583-P-15

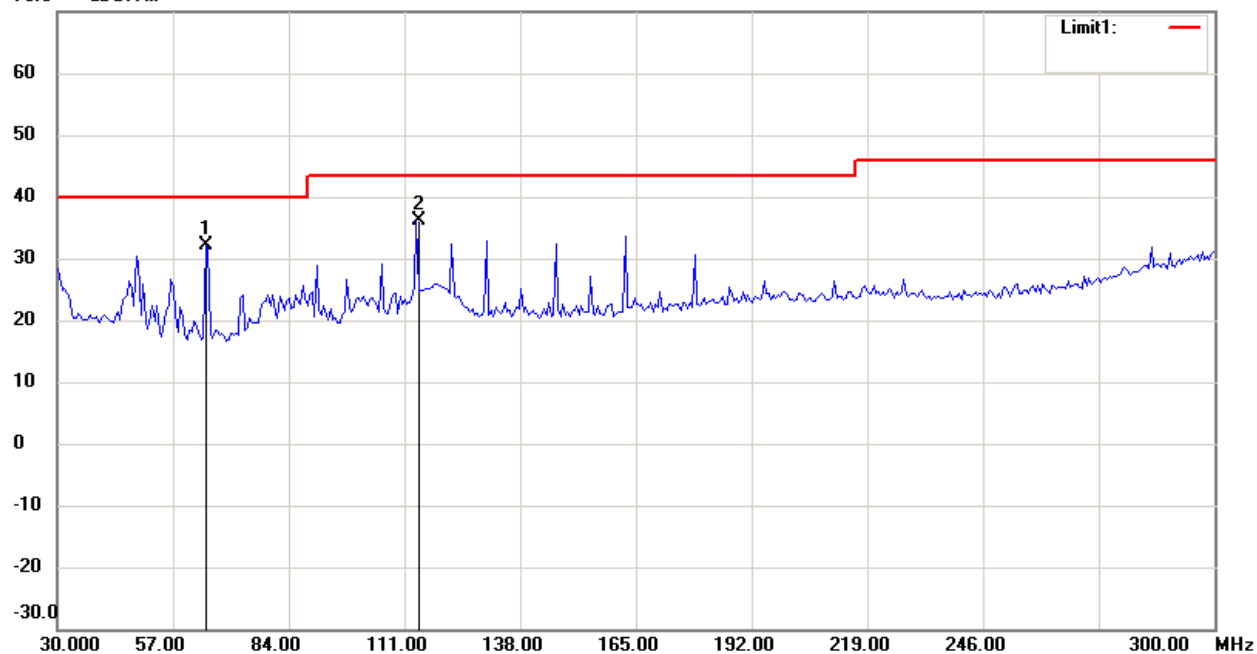
FCC ID: U94RFS05DIR08

80.0 dBuV/m



## Channel C-Antenna Polarization V

70.0 dBuV/m



### Note:

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.

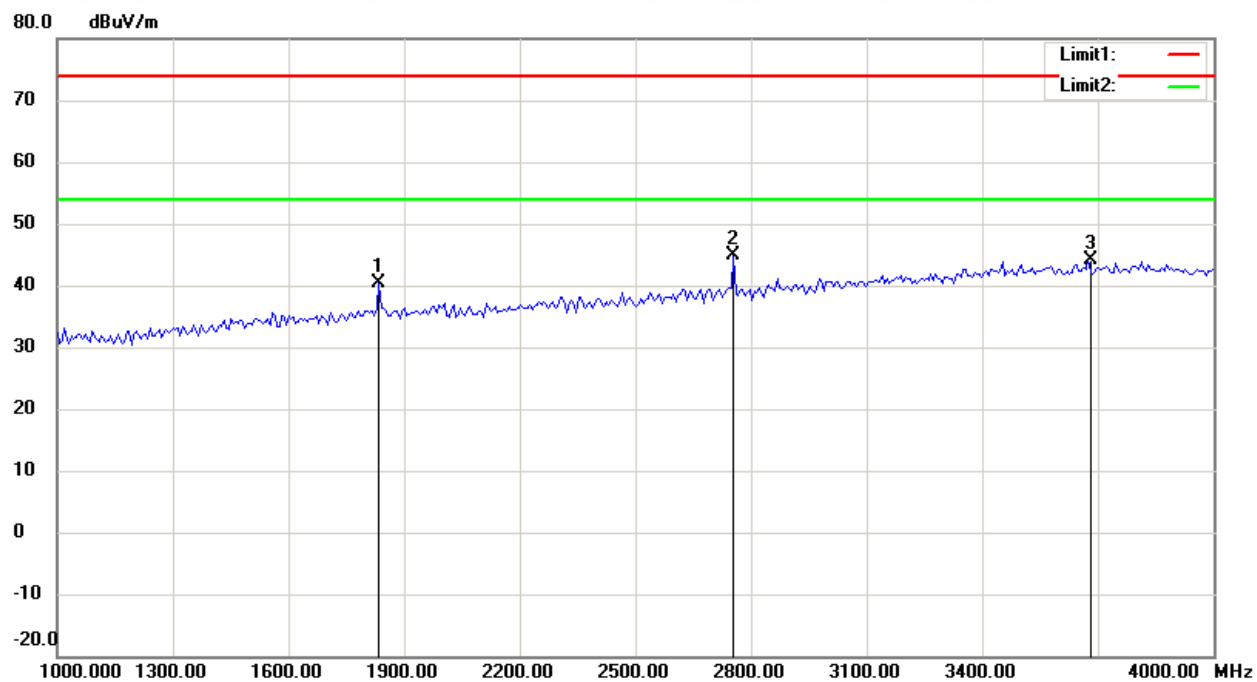
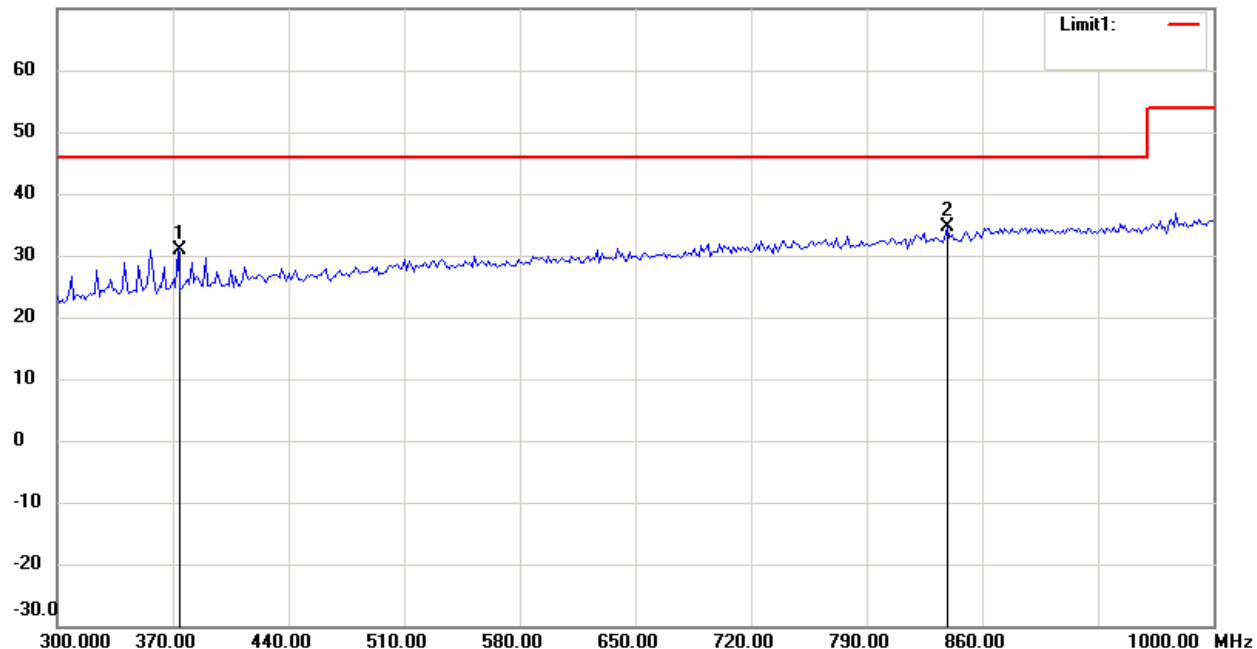




Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

70.0 dBuV/m



**Note:**

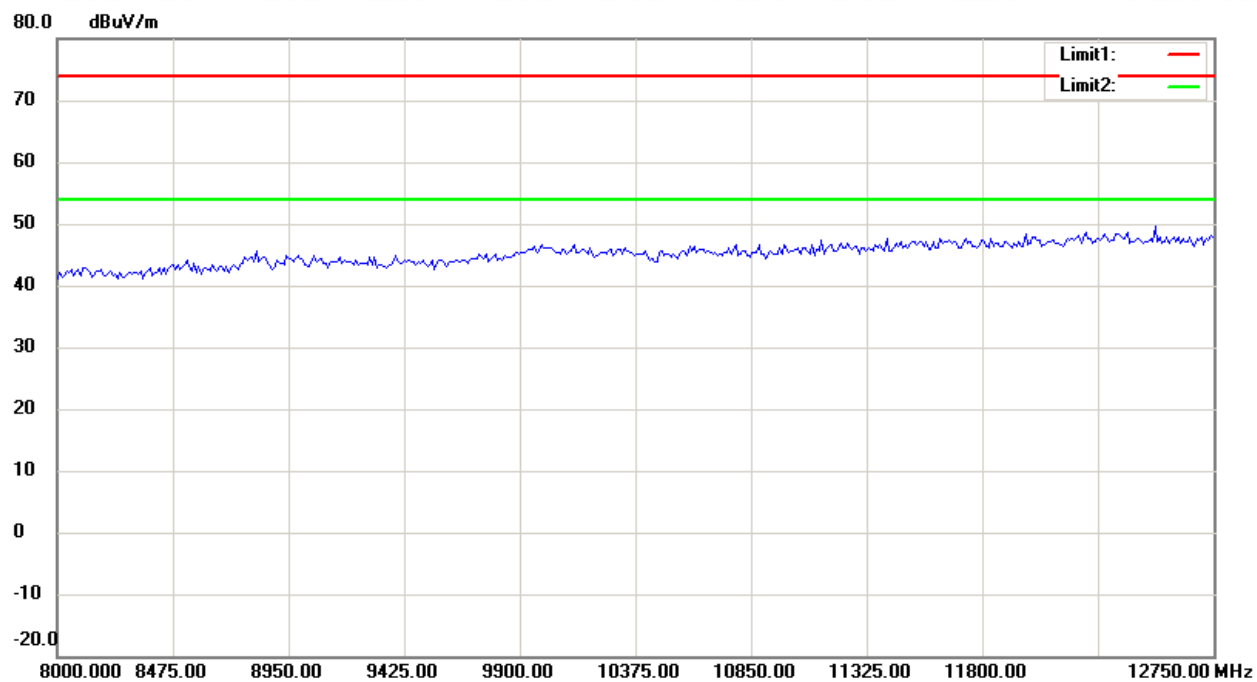
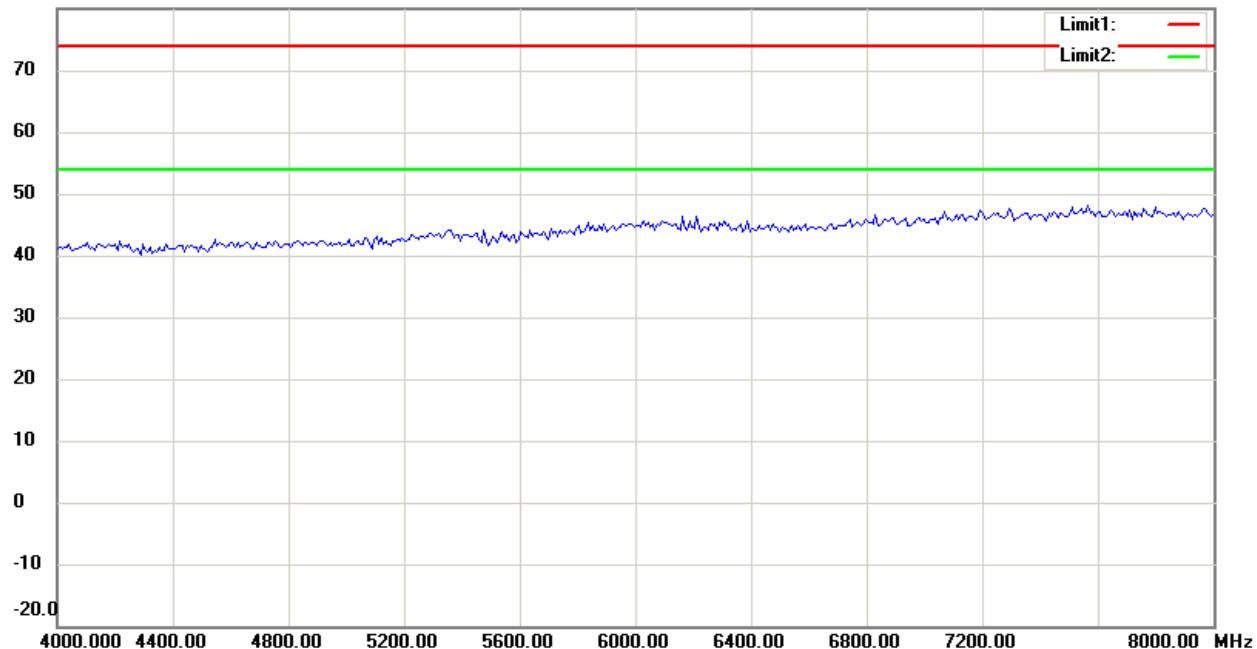
1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.



Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

80.0 dBuV/m



**Note:**

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of radiated test data of this test report.

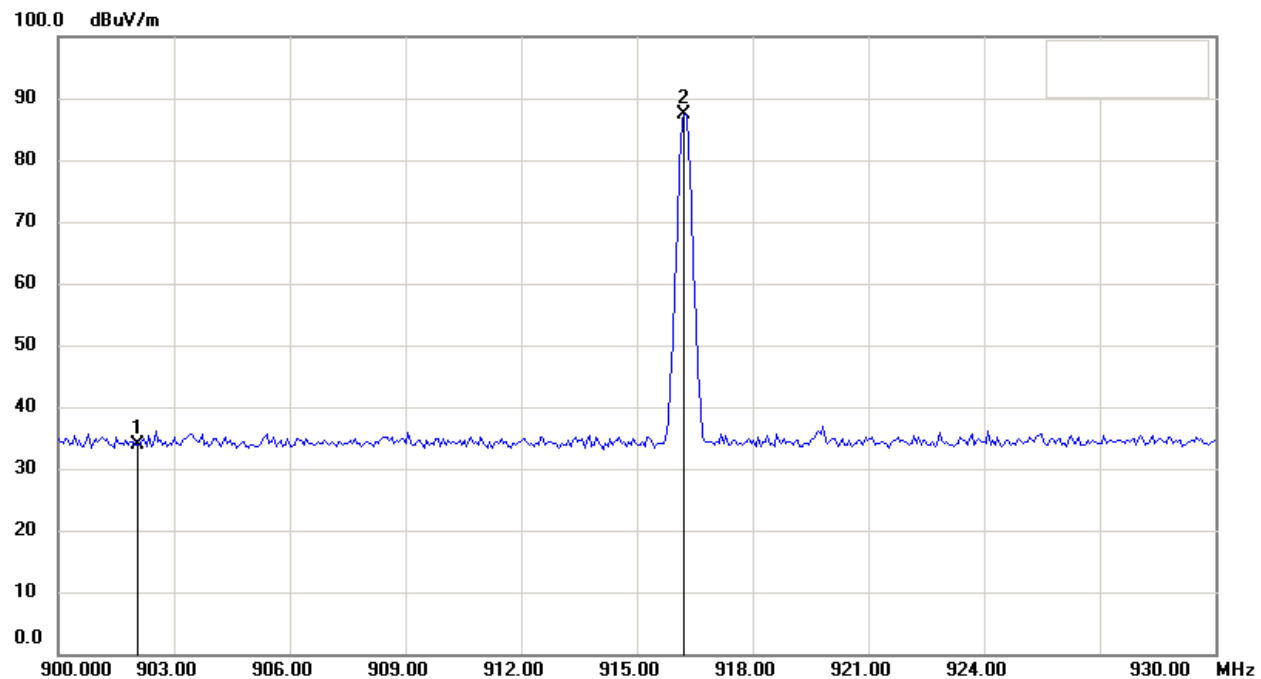


Registration number: W6R21004-10583-P-15

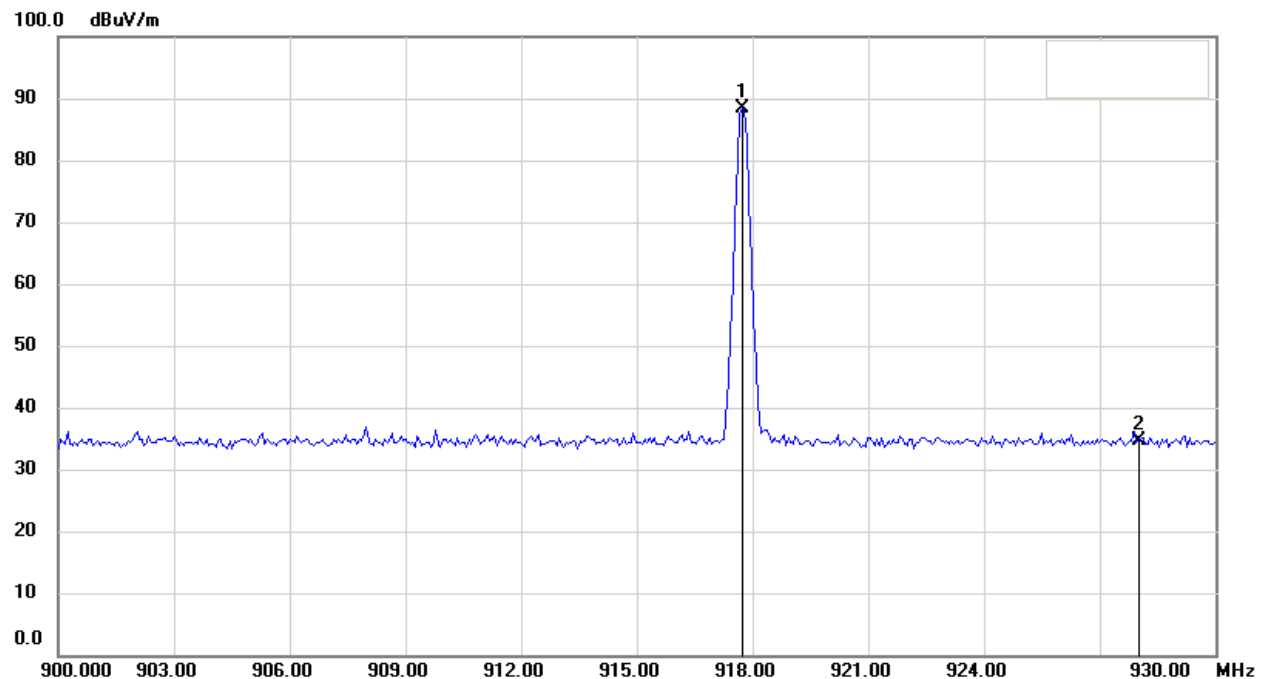
FCC ID: U94RFS05DIR08

Radiated Emission on the band edge

Channel A: 916.25 MHz



Channel C: 917.75 MHz





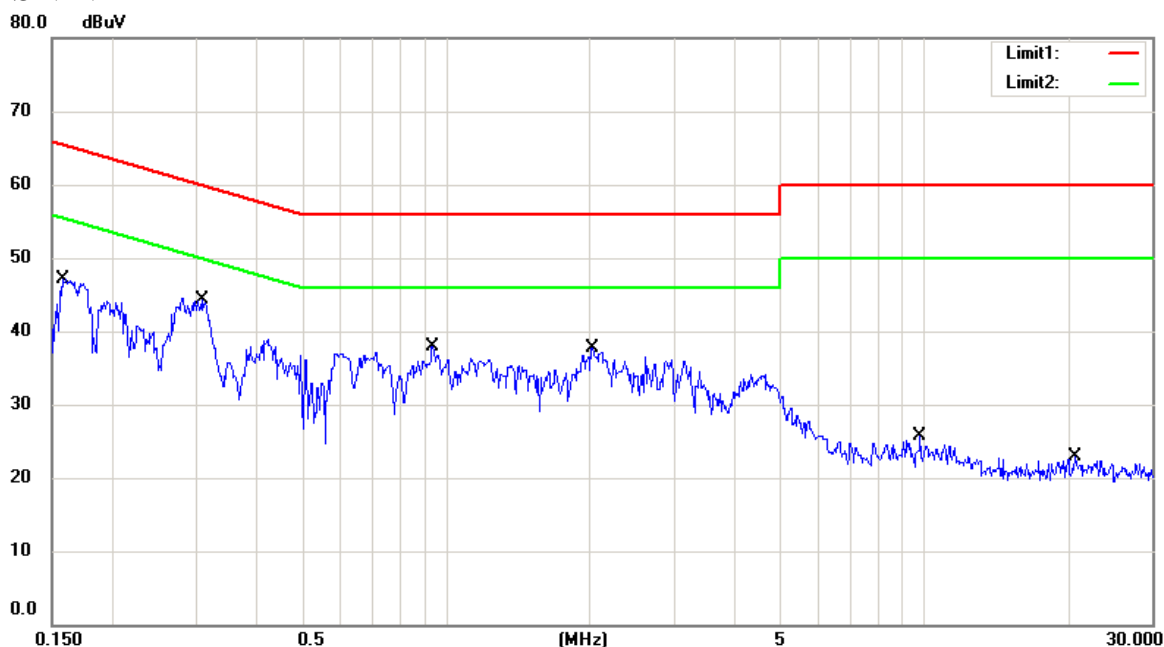
Registration number: W6R21004-10583-P-15

FCC ID: U94RFS05DIR08

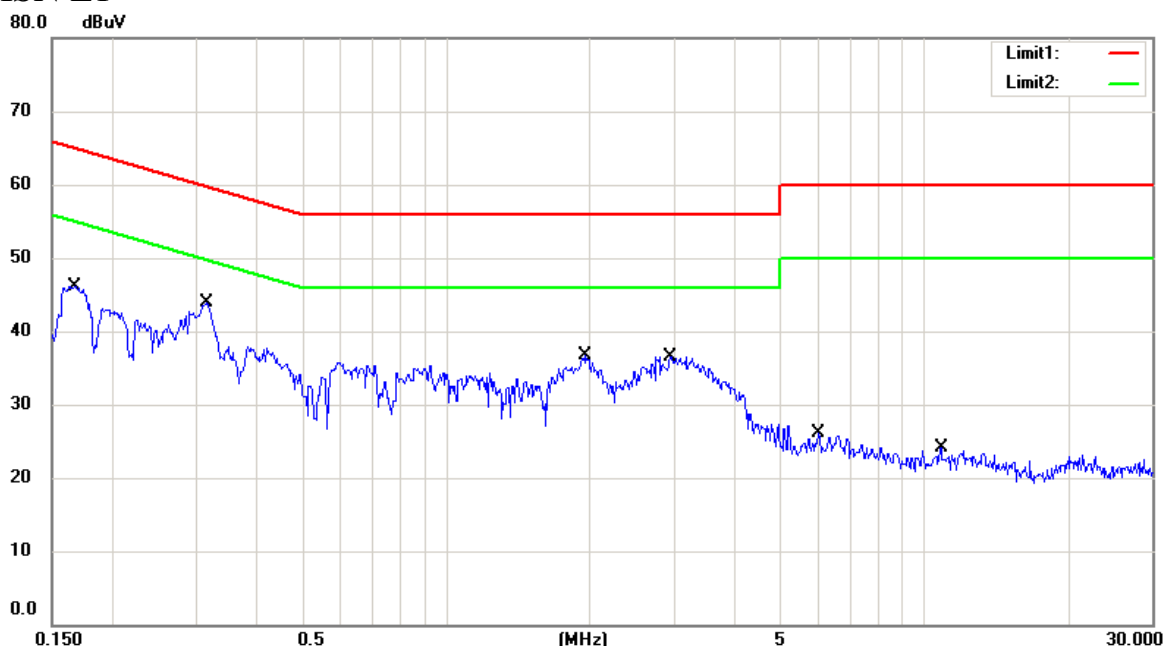
Conducted Emission

Mic in

LISN N



LISN L1



Up Line: QP Limit Line

Down Line: Ave Limit Line

Note:

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of AC conducted test data of this test report.

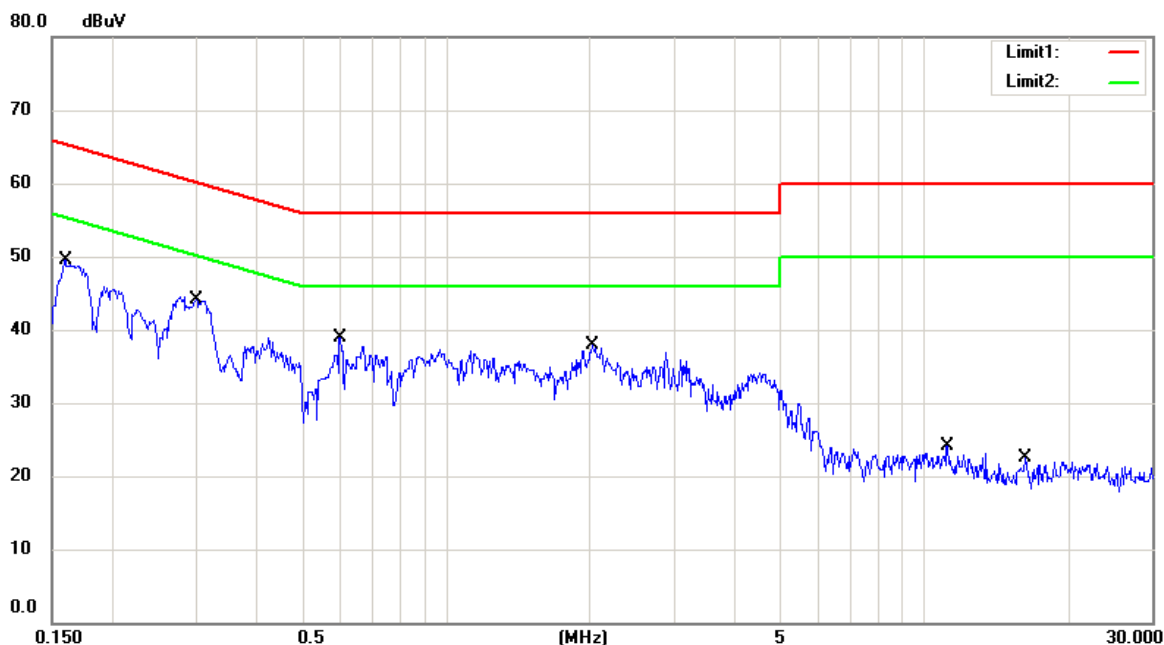


Registration number: W6R21004-10583-P-15

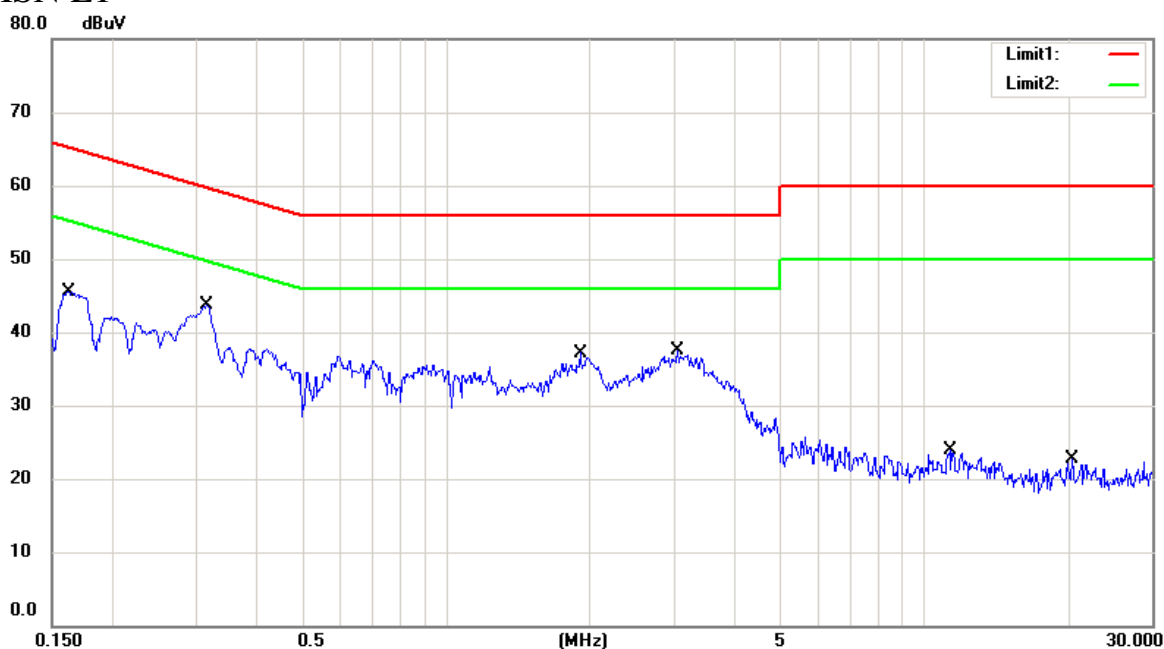
FCC ID: U94RFS05DIR08

Audio in

LISN N



LISN L1



Up Line: QP Limit Line

Down Line: Ave Limit Line

Note:

1. The attached measurement plots are preliminarily pre-scanned with peak detector for determining the final checking frequencies and are for reference only.
2. The some frequencies may exceed the limit line without the specified detectors, but that cannot present the results are failed to the specification of test standard.
3. For corrected test results are listed in the relevant table of AC conducted test data of this test report.