

FCC PART 90 TEST REPORT

for

RF DATA RADIO

Model No.: 52-7085VE5

FCC ID: L9N-7085VE5

of

Applicant: **AES Corporation**

Address: **285 Newbury Street, Peabody, MA01960 USA**

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: TW1477, TW0020, TW1072

Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

A2LA Accredited No.: 2732.01



Report No.: W6M21804-18006-C-1

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
TEL: 886-2-66068877 FAX: 886-2-66068879 E-mail: wtls@wtls-lab.com

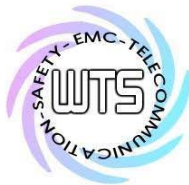
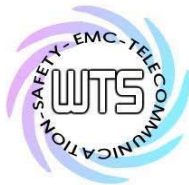


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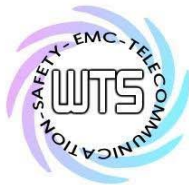
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1. General Information

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:

May 24, 2018

Sora Kuo

Sora

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

May 24, 2018

Kevin Wang

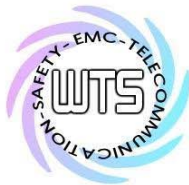
Kevin Wang

Date

WTS

Name

Signature



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1.2 Testing laboratory

1.2.1 Location

OATS

No.5-1, Lishui, Shuang Sing Village,
Wanli Dist., New Taipei City 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: 2732.01

FCC filed test laboratory Reg. No. TW1477, TW0020, TW1072

Industry Canada filed test laboratory Reg. No. IC 5679A-1, IC 5107A-1

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

Name: ./.

Accredited number: ./.

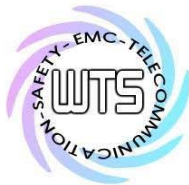
Street: ./.

Town: ./.

Country: ./.

Telephone: ./.

Fax: ./.



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1.3 Details of approval holder

Name: AES Corporation
Street: 285 Newbury Street, Peabody,
City: MA01960
Country: USA
Telephone: 978-5357310
Fax: 978-5357313

1.4 Application details

Date of receipt of test item: April 24, 2018
Date of test: from April 25, 2018 to May 24, 2018

1.5 General information of Test item

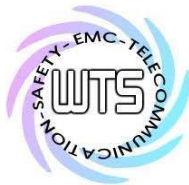
Type of test item: RF DATA RADIO
Model Number: 52-7085VE5
Brand Name: ./.
Multi-listing model number: ./.
Photos: See appendix

Technical data

Operating frequency band:

Frequency(MHz)	Used Band
136	☒
155	☒
174	☒

Type of modulation: FM
Designation of emission: 16K0F3E / 11K0F3E (136 MHz~174 MHz)
Antenna Type / Gain: Dipole antenna / 5 dBi
Connection of Antenna: ☒ detachable ☐ not detachable
Power Rating: 13.6 VDC, 2A
Operation modes: Half-duplex



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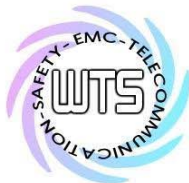
Registration number: W6M21804-18006-C-1
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Manufacturer: (if applicable)

Name:	Hermes Electronics Co., Ltd
Street:	No 185-1, 4FL, 38th Road, Taichung Industrial Park,
Town:	Taichung (407)
Country:	Taiwan

1.6 Test standards

Technical standard: FCC RULES PART 90 (2017-10)



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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 3 were ascertained in the course of the tests performed.



2.2 Test environment

Relative humidity content: 20 ... 75 %

Air pressure: 86-103 KPa

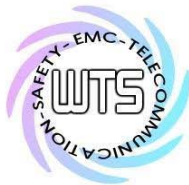
Test item Name	Uncertainty
Estimation Result of Uncertainty of Conducted Emission	Expanded Uncertainty : 1.54 dB
Estimation Result of Uncertainty of Radiated Emission(3M)	Expanded Uncertainty : 0.009-30 MHz : 2.17 dB 30-1000 MHz : 3.57 dB 1-18 GHz : 2.60 dB 18-40 GHz : 2.58 dB
Estimation Result of Uncertainty of Bandwidth Measurement 20 dB Bandwidth, Occupied bandwidth, Channel bandwidth, Necessary Bandwidth	Expanded Uncertainty : 0.45 kHz
Estimation Result of Uncertainty of Conducted Output Power Measurement Output power	Expanded Uncertainty : 1.01 dB
Estimation Result of Uncertainty of Conducted Spurious Emission Measurement Conducted spurious emission 、 Spectrum emission mask	Expanded Uncertainty : 1.01 dB
Estimation Result of Uncertainty of Conducted Spurious Emission Measurement Conducted spurious emission	Expanded Uncertainty : 1.01 dB
Estimation Result of Uncertainty of EIRP Measurement EIRP 、 ERP 、 Output power(dBm) 、 Radiated spurious emission(dBm), Receiver spurious radiations (≥30 MHz)	Expanded Uncertainty : 30-200MHz : 2.32 dB 200-1000MHz : 2.30 dB 1-18GHz : 3.25 dB 18-40GHz : 2.89 dB

2.3 Description of Tested System

The EUT was tested with the Accessories or Peripherals Listed below:

Equipment	Model No.	Series No.	Software	Cable information	Note
--	--	--	--	--	--
--	--	--	--	--	--

Explanation: The EUT was configured as stand alone device, and there are no accessories or peripherals during the test.

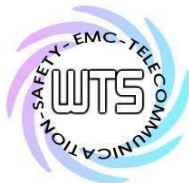


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2.4 Test Equipment List

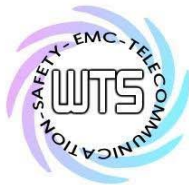
No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2018/5/18	2019/5/17
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2017/10/26	2018/10/25
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2017/8/22	2018/8/21
ETSTW-CE 008	HF-EICHELITUNG 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	2017/7/14	2018/7/13
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2017/8/31	2018/8/30
ETSTW-CE 028	MXE EMI Receiver	N9038A	MY53220110	Agilent	2017/7/11	2018/7/10
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2018/5/18	2019/5/17
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2018/5/9	2019/5/8
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2017/8/25	2018/8/24
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	2017/7/4	2018/7/3
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2017/7/3	2018/7/2
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	ETS-Lindgren	2018/3/26	2019/3/25
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2018/1/23	2019/1/22
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2018/4/13	2019/4/12
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2018/4/26	2019/4/25
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2018/3/1	2019/2/28
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2018/3/1	2019/2/28
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2018/3/1	2019/2/28
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2018/3/6	2019/3/5
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2018/3/1	2019/2/28
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2018/3/30	2019/3/29
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	ETS-Lindgren	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2017/9/11	2018/9/10
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2017/9/19	2018/9/18
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2018/4/16	2019/4/15
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2018/2/23	2019/2/22



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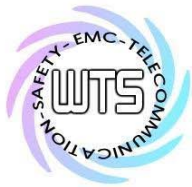
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	T-0A023536	T-Power	Function test	
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE CIRCUITS	2018/1/15	2019/1/14
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	Function test	
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2018/5/18	2019/5/17
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2017/8/9	2018/8/8
ETSTW-RE 126	5GHz Notch filter	5NSL12-5800/E221.3-O/O	1	K&L Microwave	2017/8/9	2018/8/8
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2018/2/27	2019/2/26
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2017/8/9	2018/8/8
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2017/8/9	2018/8/8
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-test Use	
ETSTW-RE 142	Amplifier	8447D	2805A03378	Agilent	2018/3/30	2019/3/29
ETSTW-RE 147	Bi-log Hybrid Antenna	MCTD 2786B	BLB16M04005	ETC	2018/3/23	2019/3/22
ETSTW-RE 151	Thermohygrometer	608-h1	45104376	TESTO	2017/8/30	2018/8/29
ETSTW-EMI 011	USB Compact Modulator	SFC-U	101689	R&S	2018/5/10	2019/5/9
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2018/2/27	2019/2/26
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2018/3/2	2019/3/1
ETSTW-GSM 004	Wideband Radio Communication Tester	CMW500	128092	R&S	2017/10/16	2018/10/15
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2018/1/11	2019/1/10
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/5SS	1	WI	2018/1/11	2019/1/10
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/5SS	3	WI	2018/1/11	2019/1/10
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2018/1/11	2019/1/10
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2017/9/13	2018/9/12
ETSTW-GSM 024	Radio Communication Analyzer	MT8821C	None	Anritsu	2018/3/7	2019/3/6
ETSTW-Cable 011	SMA to N type Cable	RGU-400	None	THERMAX	Pre-test Use NCR	
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2018/2/22	2019/2/21
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2018/2/22	2019/2/21
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2018/2/22	2019/2/21
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2018/2/22	2019/2/21
ETSTW-Cable 020	N TYPE Cable	OATS Cable 1	N30N30-L335-15M	JYE BAO CO.,LTD.	2017/7/3	2018/7/2
ETSTW-Cable 026	Microwave Cable	SUCOFLEX 104	279075	HUBER+SUHNER	2018/2/27	2019/2/26
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2018/5/9	2019/5/8
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2017/9/7	2018/9/6
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2017/9/7	2018/9/6
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S Cable 9)	279067	HUBER+SUHNER	2018/2/27	2019/2/26
ETSTW-Cable 031	Microwave Cable	SUCOFLEX 104 (S Cable 10)	238092	HUBER+SUHNER	2018/3/30	2019/3/29
ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2018/3/30	2019/3/29



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ETSTW-Cable 048	Microwave Cable	SUCOFLEX 104	325519	HUBER+SUHNER	2018/3/30	2019/3/29
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2018/2/21	2019/2/20
ETSTW-Cable 064	Microwave Cable	SUCOFLEX 104	MY28891	HUBER+SUHNER	2018/3/30	2019/3/29
ETSTW-Cable 066	SMA type cable	32022	None	ASTROLAB	2017/8/31	2018/8/30
ETSTW-Cable 071	N TYPE CABLE	EMCCFD400-NM- NM-25000	170239	EMCI	2018/2/21	2019/2/20
WTSTW-SW 002	EMI TEST SOFTWARE	EZ EMC	None	Farad	Version ETS-03A1	
WTSTW-SW 006	EMI TEST SOFTWARE	e3	None	AUDIX	Version 9.161014	
WTSTW-SW 008	Signal studio	Agilent	None	AUDIX	Version 2.0.0.1	



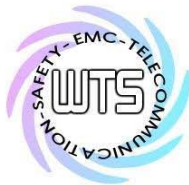
2.5 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.10-2013 using a 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 C63.10-2013 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 100 kHz 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.

For hand-held devices, an exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.

Measurements were made by at the registered open field test site located at 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.

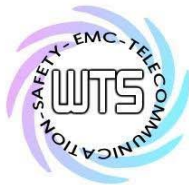


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3. Test results (enclosure)

TEST CASE	Para. Number	Required	Test passed	Test failed
Modulation Characteristics	2.1047(a) (b); 2.1033(c)	☒	☒	☐
Necessary Bandwidth	90.209	☒	☒	☐
Frequency stability.	90.213	☒	☒	☐
Transmitter Output Power	90.205	☒	☒	☐
Emission masks	90.210	☒	☒	☐
Transmitter Spurious Radiated Emission	90.210	☒	☒	☐
Transmitter Spurious Conducted Emission	90.210	☒	☒	☐
Transient frequency behavior	90.214	☒	☒	☐
Receiver Radiated Spurious Emission	FCC part 15B	☐	☐	☐

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4. Modulation Characteristics

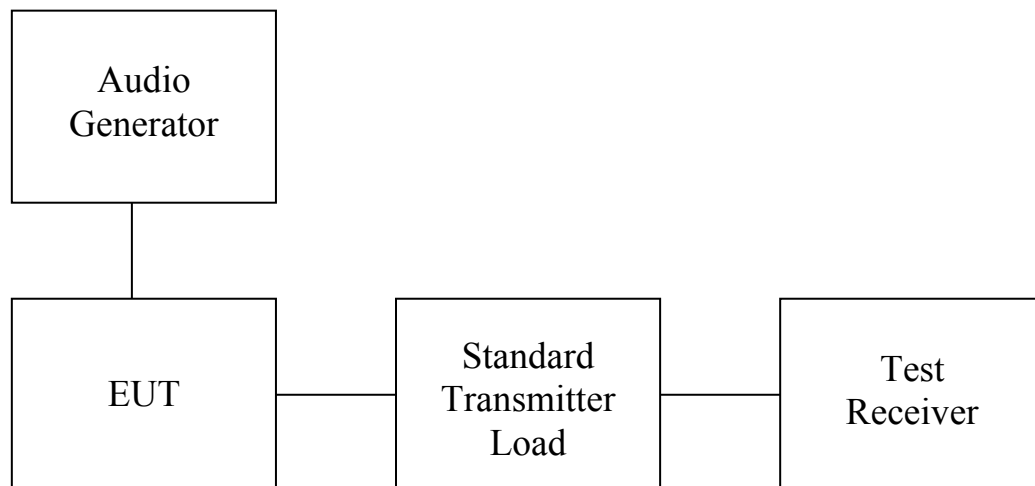
4.1 Test procedure

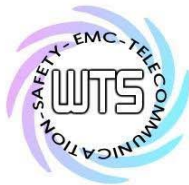
Modulation limiting is the transmitter circuit's ability to limit the transmitter from producing deviations in excess of rated system deviation.

The audio signal generator is connected to the audio input of the EUT with its full rating.

The modulation response is measured at certain modulation frequencies, related to 1000Hz reference signal. Tests are performed for positive and negative modulation.

4.2 Test Setup





Registration number: W6M21804-18006-C-1
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4.3 Test results

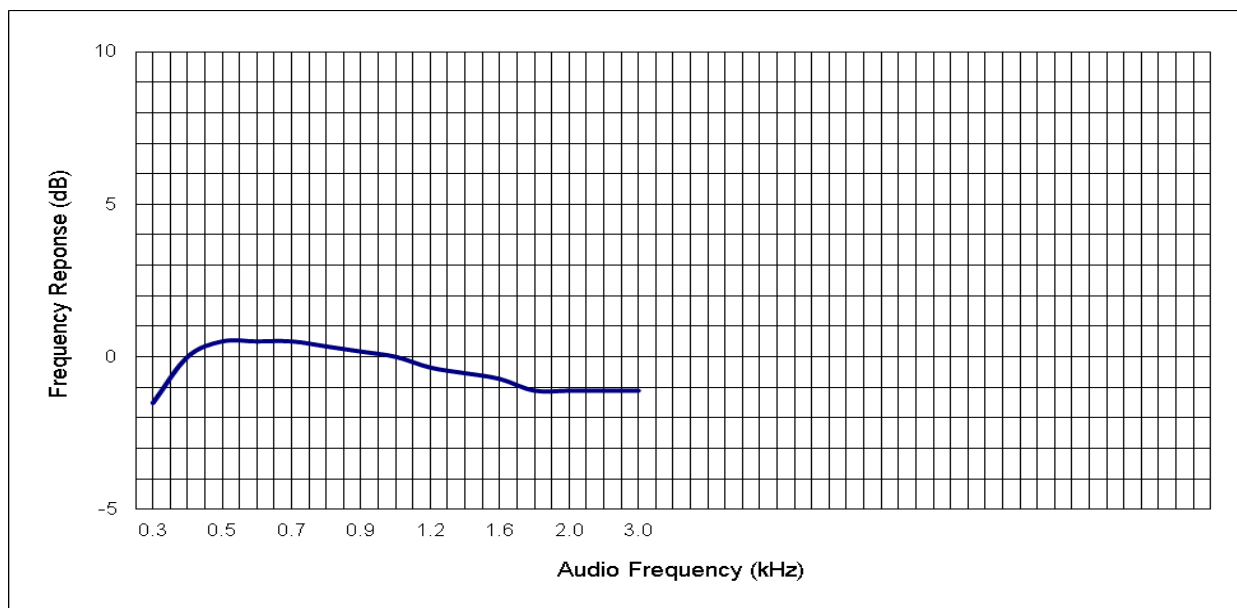
4.3.1 Audio Frequency Response

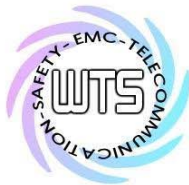
Rule Part No.: Part 2.1047(a)(b) Method of Measurement: The audio frequency response was measured in accordance with TIA/EIA Specification 603 with no exception. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 300 – 3000Hz shall be submitted. The audio frequency response curve is shown below.

Test Audio level 20mV

136 MHz

Audio Frequency (kHz)	A.R (dB)	F.D.
0.3	-1.514	0.42
0.4	0.000	0.50
0.5	0.506	0.53
0.6	0.506	0.53
0.7	0.506	0.53
0.8	0.341	0.52
0.9	0.172	0.51
1.0	0.000	0.50
1.2	-0.355	0.48
1.4	-0.537	0.47
1.6	-0.724	0.46
1.8	-1.110	0.44
2.0	-1.110	0.44
2.5	-1.110	0.44
3.0	-1.110	0.44



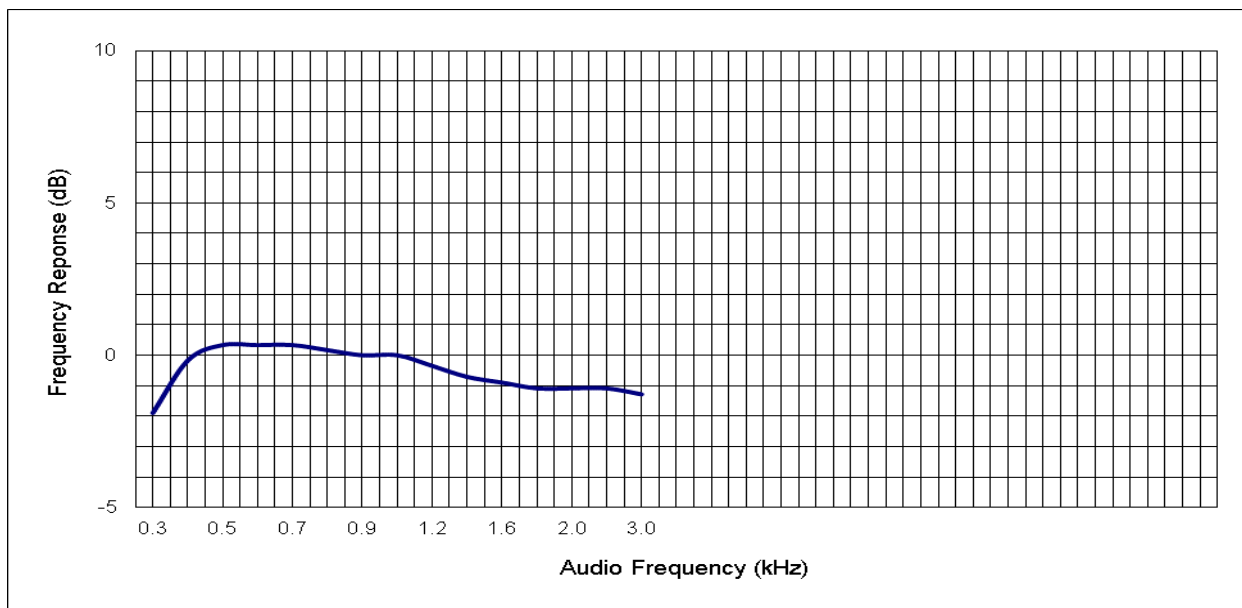


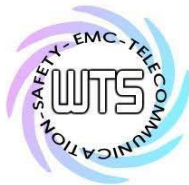
Registration number: W6M21804-18006-C-1

FCC ID: L9N-7085VE5

155 MHz

Audio Frequency (kHz)	A.R (dB)	F.D.
0.3	-1.896	0.41
0.4	-0.172	0.50
0.5	0.334	0.53
0.6	0.334	0.53
0.7	0.334	0.53
0.8	0.169	0.52
0.9	0.000	0.51
1.0	0.000	0.51
1.2	-0.347	0.49
1.4	-0.709	0.47
1.6	-0.896	0.46
1.8	-1.087	0.45
2.0	-1.087	0.45
2.5	-1.087	0.45
3.0	-1.282	0.44



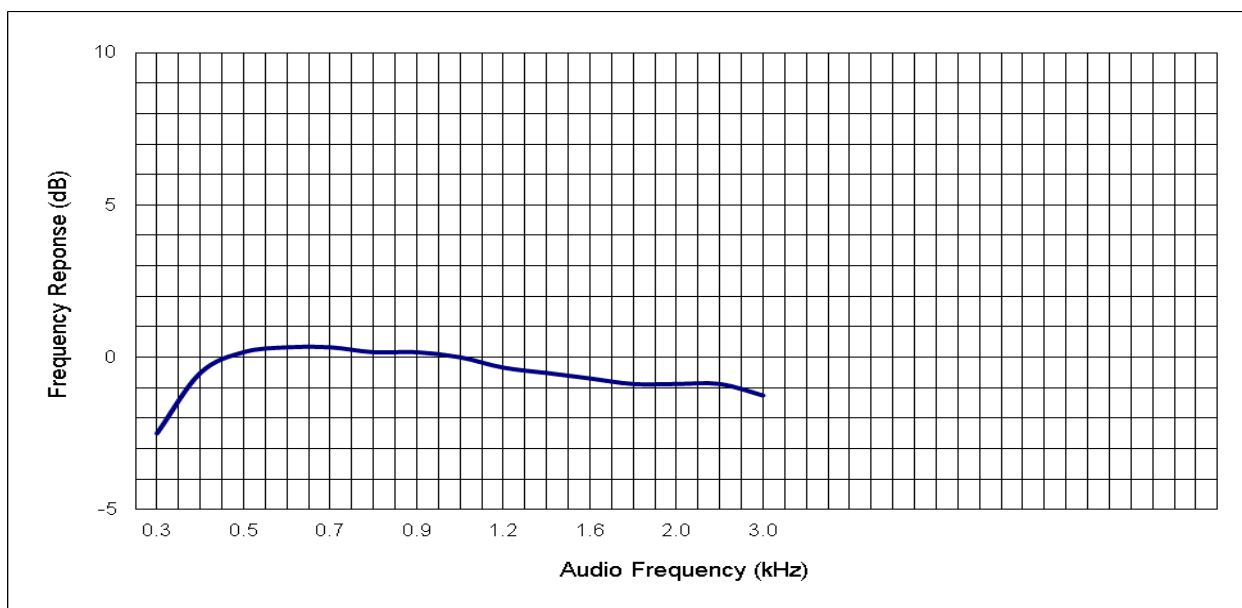


Registration number: W6M21804-18006-C-1

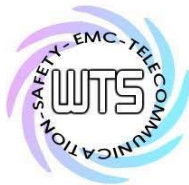
FCC ID: L9N-7085VE5

174 MHz

Audio Frequency (kHz)	A.R (dB)	F.D.
0.3	-2.499	0.39
0.4	-0.516	0.49
0.5	0.165	0.53
0.6	0.328	0.54
0.7	0.328	0.54
0.8	0.165	0.53
0.9	0.165	0.53
1.0	0.000	0.52
1.2	-0.341	0.50
1.4	-0.516	0.49
1.6	-0.695	0.48
1.8	-0.878	0.47
2.0	-0.878	0.47
2.5	-0.878	0.47
3.0	-1.256	0.45



Test equipment used: ETSTW-RE 072



Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

4.3.2 AUDIO INPUT VERSUS MODULATION

Rule Part No.: Part 2.1047(b) & 90

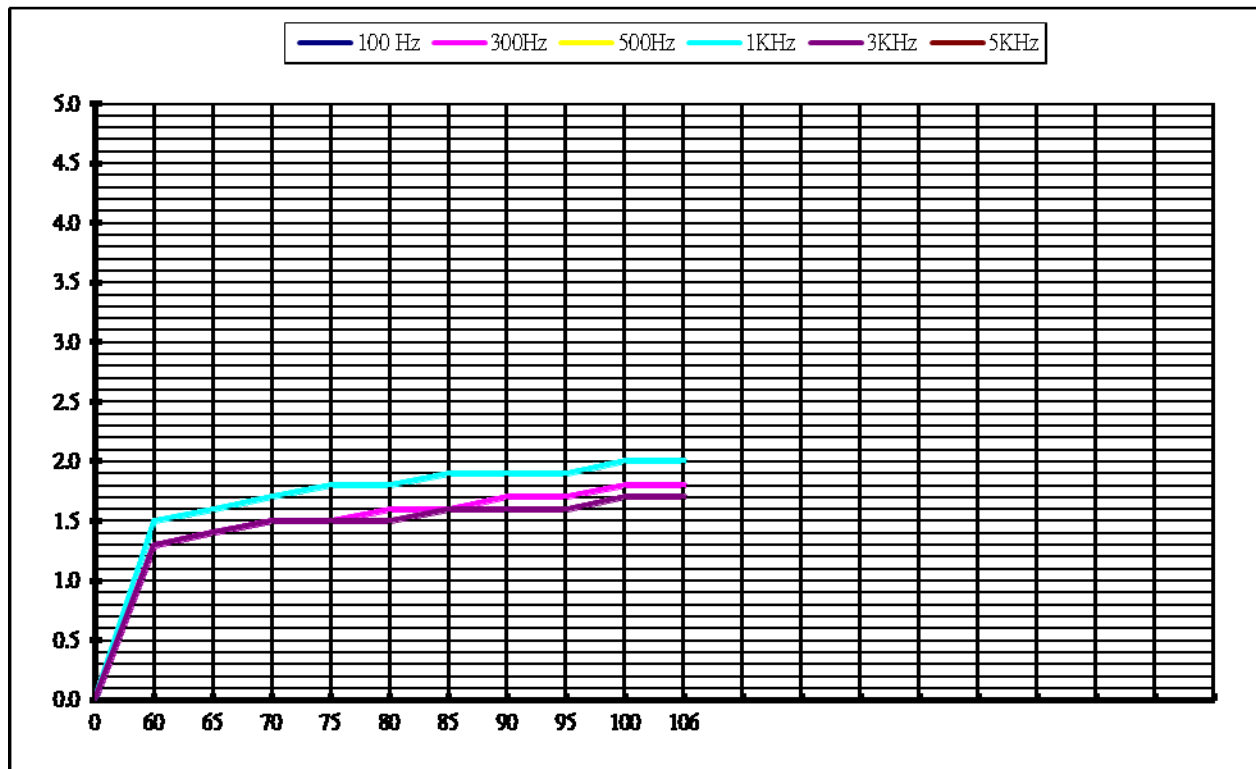
Test Requirements: Modulation cannot exceed 100%

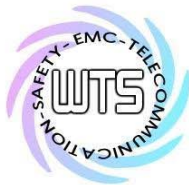
Method of Measurement: The audio input level needed for a particular percentage of modulation was measured in accordance with TIA/EIA Specification 603. The audio input curves versus modulation are shown below. Curves are provided for audio input frequencies of 300, 1000, and 3000 Hz.

EUT Max deviation: 2.5kHz 60% EUT Max deviation: 1.5kHz

136 MHz

Input Audio Level (mV)	100 Hz	300Hz	500Hz	1kHz	3kHz	5kHz
0	--	0.0	--	0.0	0.0	--
60	--	1.3	--	1.5	1.3	--
65	--	1.4	--	1.6	1.4	--
70	--	1.5	--	1.7	1.5	--
75	--	1.5	--	1.8	1.5	--
80	--	1.6	--	1.8	1.5	--
85	--	1.6	--	1.9	1.6	--
90	--	1.7	--	1.9	1.6	--
95	--	1.7	--	1.9	1.6	--
100	--	1.8	--	2.0	1.7	--
106	--	1.8	--	2.0	1.7	--





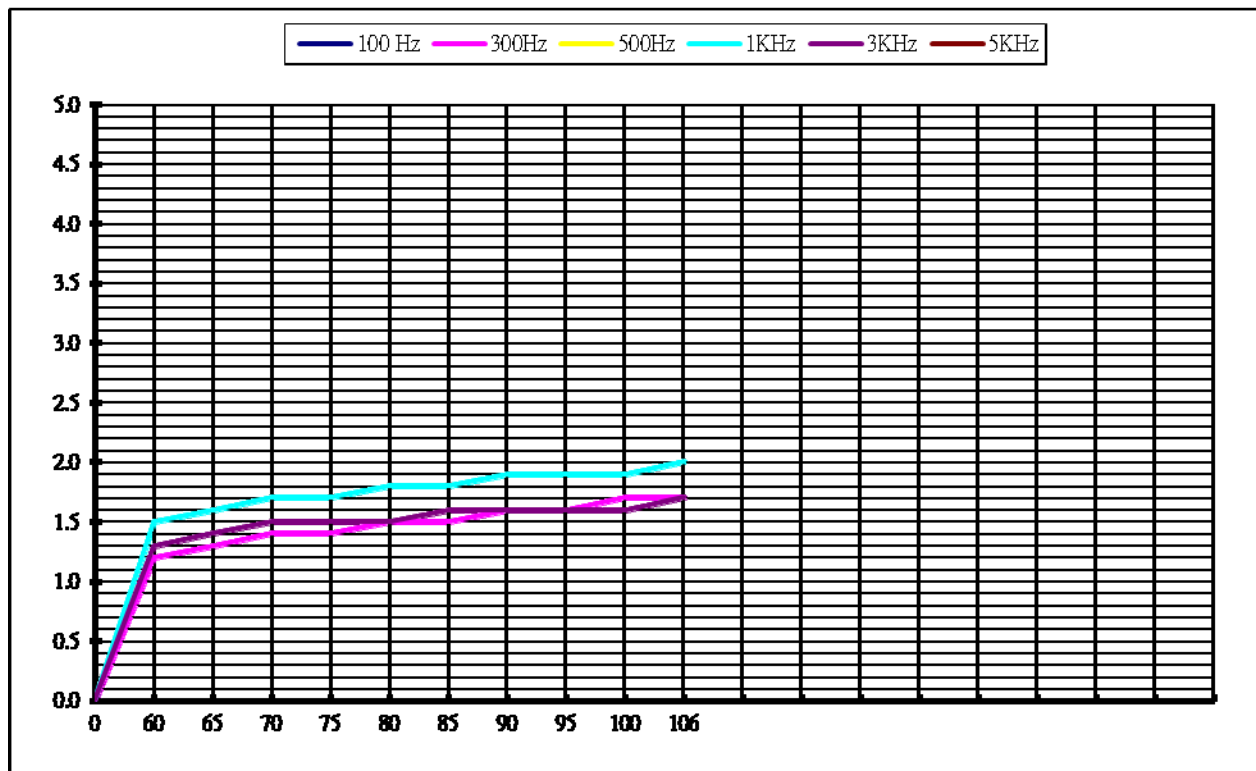
Worldwide Testing Services(Taiwan) Co., Ltd.

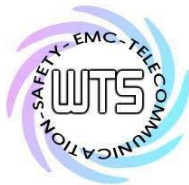
Registration number: W6M21804-18006-C-1

FCC ID: L9N-7085VE5

155 MHz

Input Audio Level (mV)	100 Hz	300Hz	500Hz	1kHz	3kHz	5kHz
0	--	0.0	--	0.0	0.0	--
60	--	1.2	--	1.5	1.3	--
65	--	1.3	--	1.6	1.4	--
70	--	1.4	--	1.7	1.5	--
75	--	1.4	--	1.7	1.5	--
80	--	1.5	--	1.8	1.5	--
85	--	1.5	--	1.8	1.6	--
90	--	1.6	--	1.9	1.6	--
95	--	1.6	--	1.9	1.6	--
100	--	1.7	--	1.9	1.6	--
106	--	1.7	--	2.0	1.7	--





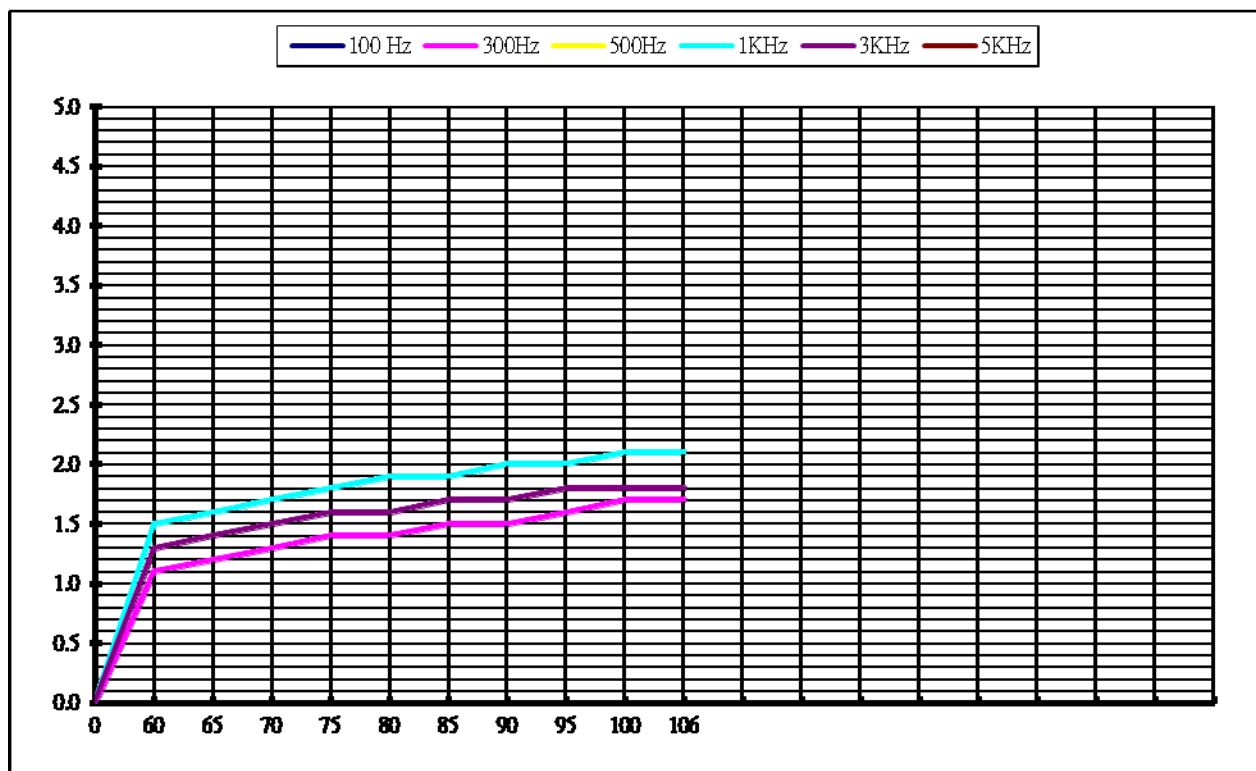
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21804-18006-C-1

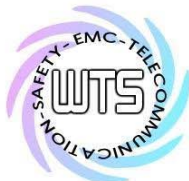
FCC ID: L9N-7085VE5

174 MHz

Input Audio Level (mV)	100 Hz	300Hz	500Hz	1kHz	3kHz	5kHz
0	--	0.0	--	0.0	0.0	--
60	--	1.1	--	1.5	1.3	--
65	--	1.2	--	1.6	1.4	--
70	--	1.3	--	1.7	1.5	--
75	--	1.4	--	1.8	1.6	--
80	--	1.4	--	1.9	1.6	--
85	--	1.5	--	1.9	1.7	--
90	--	1.5	--	2.0	1.7	--
95	--	1.6	--	2.0	1.8	--
100	--	1.7	--	2.1	1.8	--
106	--	1.7	--	2.1	1.8	--



Test equipment used: ETSTW-RE 072



Registration number: W6M21804-18006-C-1

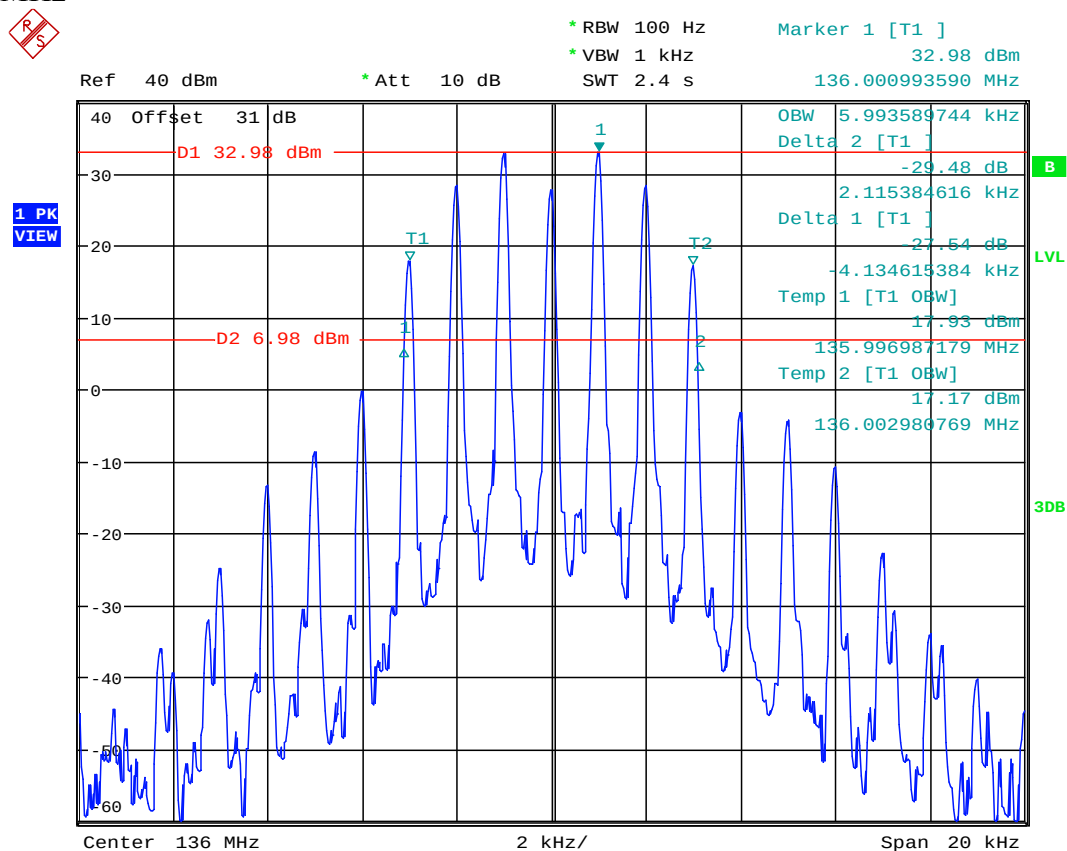
FCC ID: L9N-7085VE5

4.3.3 Necessary Bandwidth

12.5 kHz

Frequency (MHz)	26dB Bandwidth (kHz)	99% Occupied Bandwidth (kHz)	Max. Limit (kHz)
136	6.25	5.99359	11.25
155	6.282051282	6.02564	11.25
174	6.282051281	6.02564	11.25

136 MHz

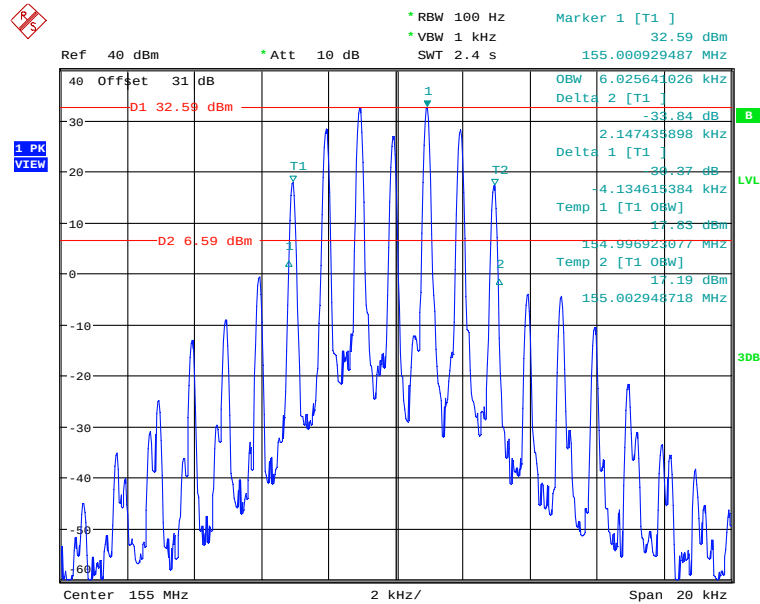


NECESSARY BANDWIDTH 12.5K 136MHz

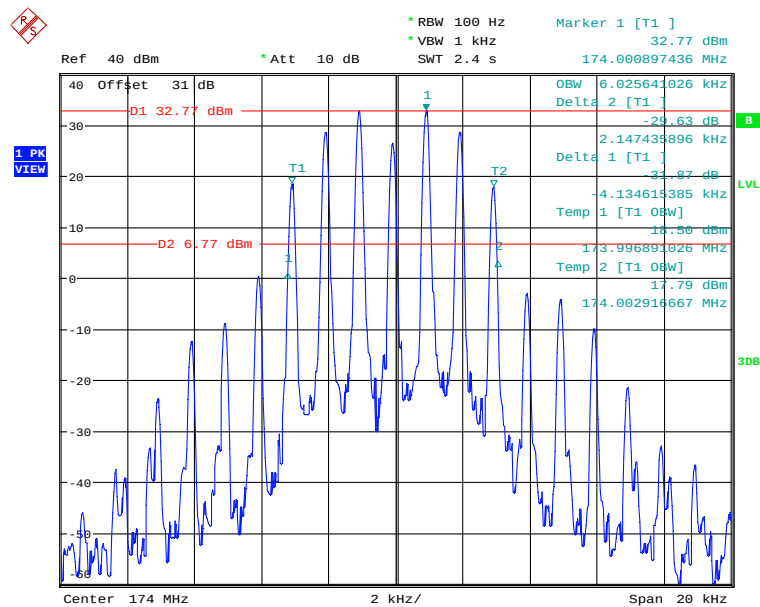
Date: 17.MAY.2018 16:33:45



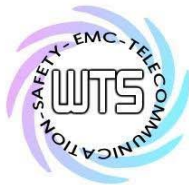
FCC ID: L9N-7085VE5



Date: 17.MAY.2018 16:31:53



Date: 17.MAY.2018 16:37:48



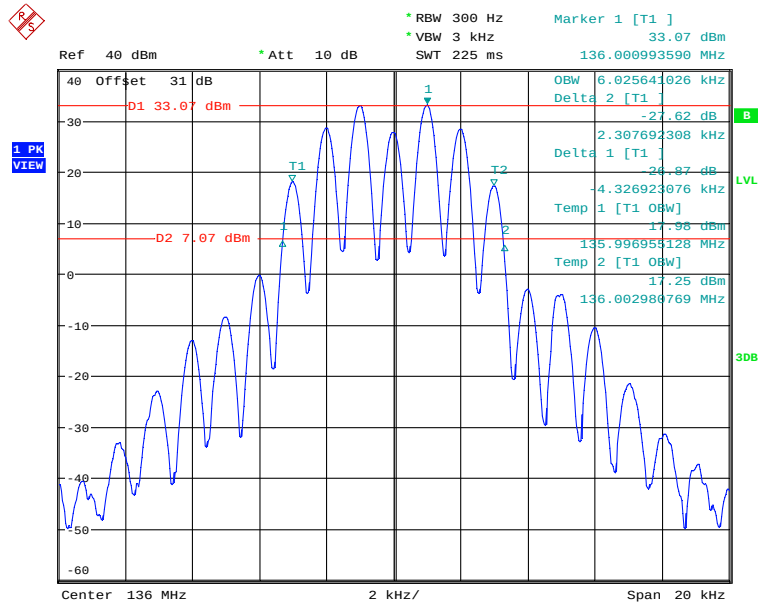
Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

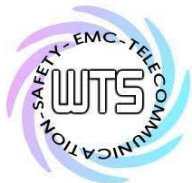
25 kHz

Frequency (MHz)	26dB Bandwidth (kHz)	99% Occupied Bandwidth (kHz)	Max. Limit (kHz)
136	6.634615384	6.02564	20
155	6.666666666	6.02564	20
174	6.666666667	6.05769	20

136 MHz



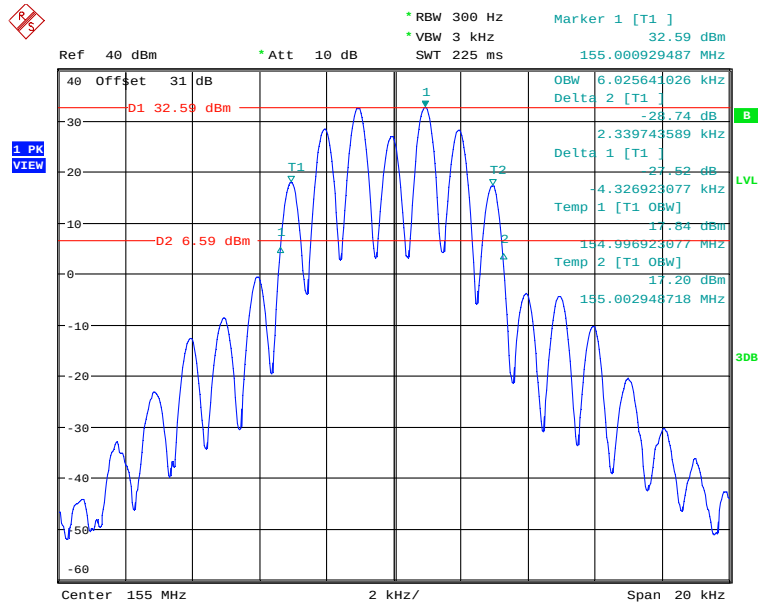
NECESSARY BANDWIDTH 25K 136MHz
Date: 17.MAY.2018 16:41:21



Registration number: W6M21804-18006-C-1

FCC ID: L9N-7085VE5

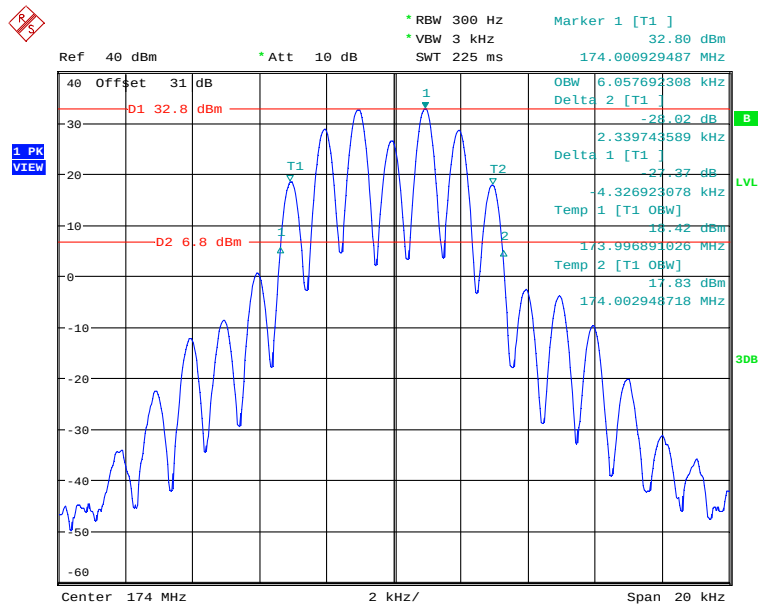
155 MHz



NECESSARY BANDWIDTH 25K 155MHz

Date: 17.MAY.2018 16:43:13

174 MHz



NECESSARY BANDWIDTH 25K 174MHz

Date: 17.MAY.2018 16:39:59

Test equipment used: ETSTW-RE 055, ETSTW-RE072

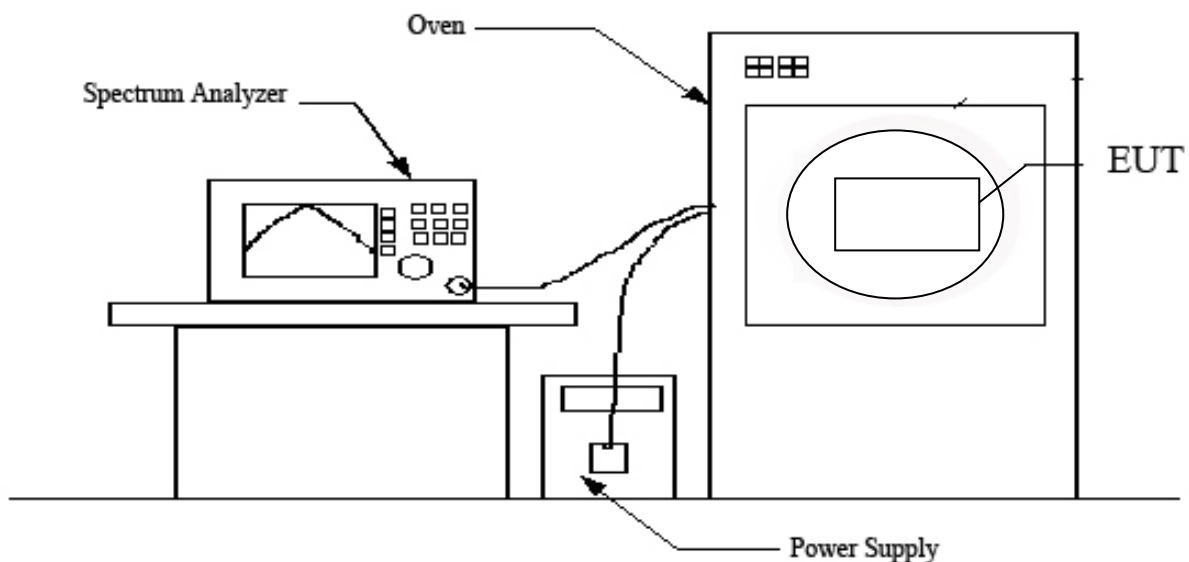
Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

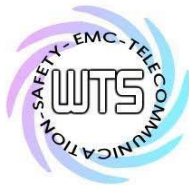
5. Frequency stability

5.1 Test Procedures

1. The transmitter output is connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 1kHz and VBW to 1kHz.
3. Use peak detector mode, Max-hold and search the peak of trace 1.
4. According to the part 2.1055(d)(1), the supply voltage has to be changed from 85 to 115 percent of the nominal value.
5. According to the part 2.1055(a)(1), extreme temperature has to be changed from -20°C to 50°C.
6. Read the frequency of the carrier and calculate the deviation.

5.2 Test Setup





Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21804-18006-C-1

FCC ID: L9N-7085VE5

5.3 Test Result

Nominal Frequency : 136MHz		Nominal Frequency : 155 MHz		Nominal Frequency : 174 MHz	
Voltage V.S Frequency Stability		Voltage V.S Frequency Stability		Voltage V.S Frequency Stability	
Voltage	Measurement Frequency	Voltage	Measurement Frequency	Voltage	Measurement Frequency
13.6 V	136.000008	13.6 V	154.999992	13.6 V	174.000024
14.96 V	136.000008	14.96 V	155	14.96 V	174.000040
12.24 V	136.000008	12.24 V	155.000008	12.24 V	174.000040
Max Deviation (MHz)	0.000008	Max Deviation (MHz)	0.000008	Max Deviation (MHz)	0.000040
Max Deviation (ppm)	0.058919	Max Deviation (ppm)	0.051697	Max Deviation (ppm)	0.230253
Limit (ppm)	2.5	Limit (ppm)	2.5	Limit (ppm)	2.5
Temperature V.S Frequency Stability		Temperature V.S Frequency Stability		Temperature V.S Frequency Stability	
Temperature	Measurement Frequency	Temperature	Measurement Frequency	Temperature	Measurement Frequency
-20	136.000008	-20	155.000008	-20	173.999816
-10	136.000008	-10	154.999992	-10	173.999880
0	135.999976	0	154.999952	0	173.999808
10	135.999968	10	154.999984	10	173.999704
20	136.000008	20	154.999984	20	173.999896
30	136.000008	30	155.000008	30	173.999968
40	136.000008	40	155.000008	40	174.000056
50	136.000008	50	154.999992	50	174.000048
60	135.999944	60	154.999992	60	173.999920
Max Deviation (MHz)	-0.000056	Max Deviation (MHz)	-0.000048	Max Deviation (MHz)	-0.000296
Max Deviation (ppm)	-0.412426	Max Deviation (ppm)	-0.310174	Max Deviation (ppm)	-1.703874
Limit (ppm)	2.5	Limit (ppm)	2.5	Limit (ppm)	2.5

Test equipment used: ETSTW-RE 055

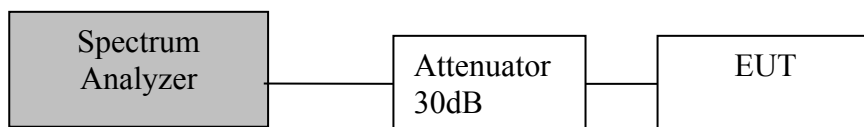
Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

6. Transmitter Output Power

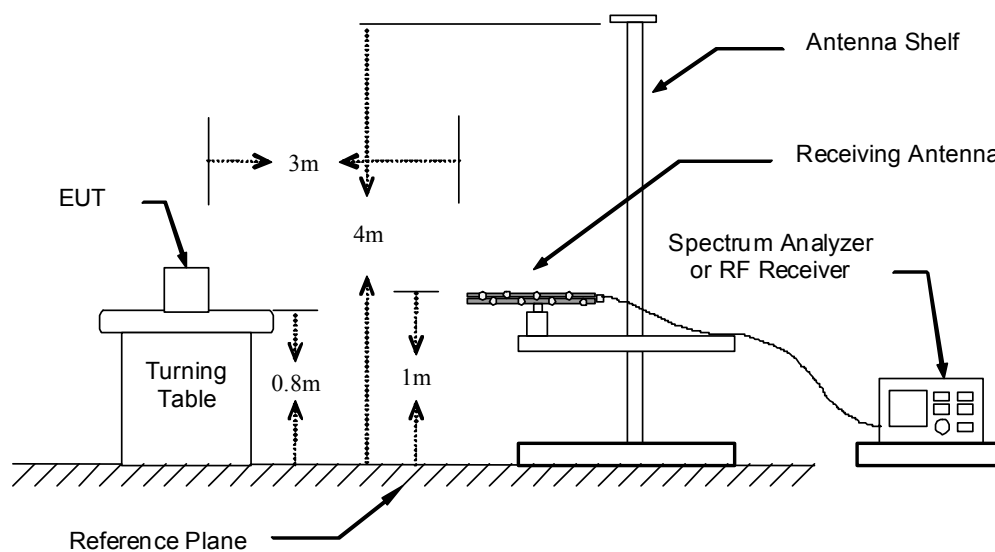
6.1 Test Procedures

1. The EUT was placed on the top of the turntable in semi-anechoic chamber.
2. The test shall be made in the transmitting mode. Antenna tower was scan (from 1 M to 4 M) and the turn table was rotated by 360 degrees to determine the position of the highest radiation.
3. The receiving Horn antenna was placed 0.5 meters far away from the turntable.
4. The receiving antenna was fixed on the same height with the EUT to find maximum suspected emissions. Recorded suspected value is indicated as Read Level (Raw).
5. Replace the EUT by standard antenna and feed the RF port by signal generator.
6. Adjust the frequency of the signal generator to the suspected emission and slightly rotate the turntable to locate the position with maximum reading.
7. Adjust the power level of the signal generator to reach the same reading with Read Level (Raw).
8. The level of the spurious emission is the power level of (7) plus the gain of the standard antenna in dBd and minus the loss of the cable used between the signal generator and the standard antenna.

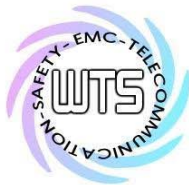
6.2 Test Setup



Setup for Conducted Power



Setup for Radiated Power

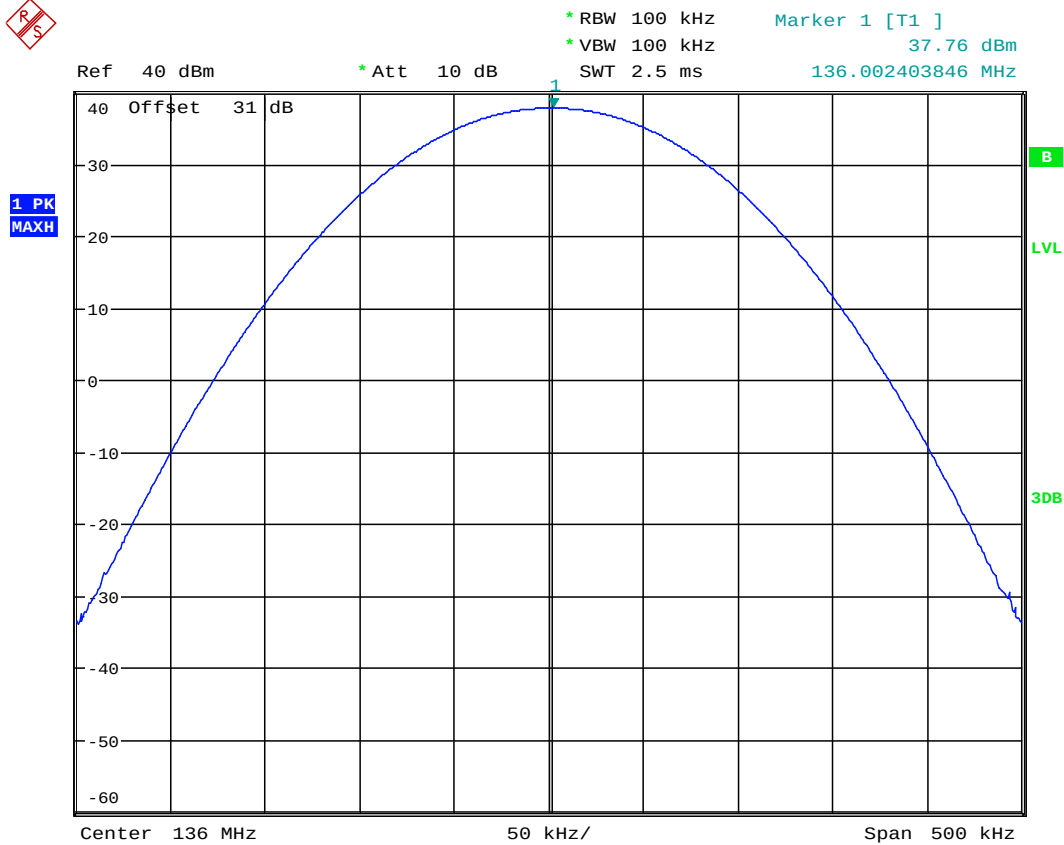


Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

6.3 Test Result

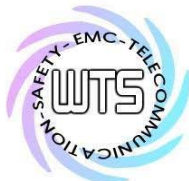
6.3.1 Conducted Power

136 MHz



MAX OUTPUT POWER 136MHz

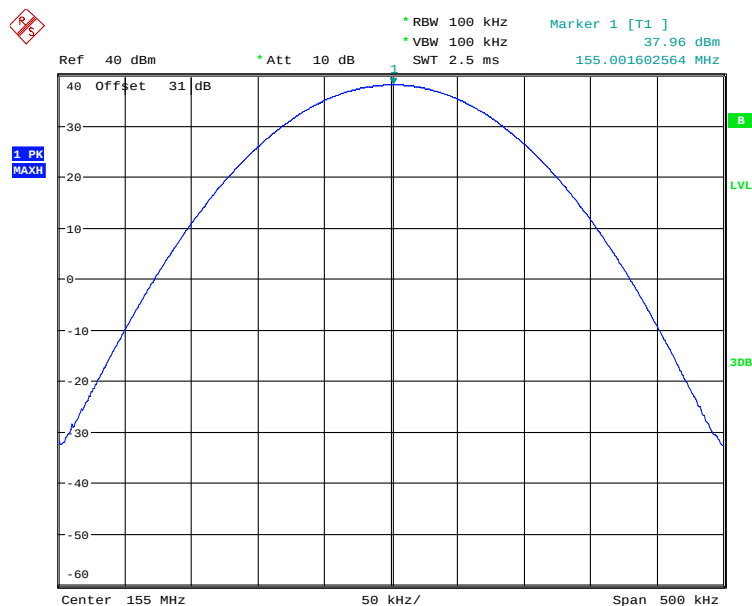
Date: 17.MAY.2018 16:08:21



Registration number: W6M21804-18006-C-1

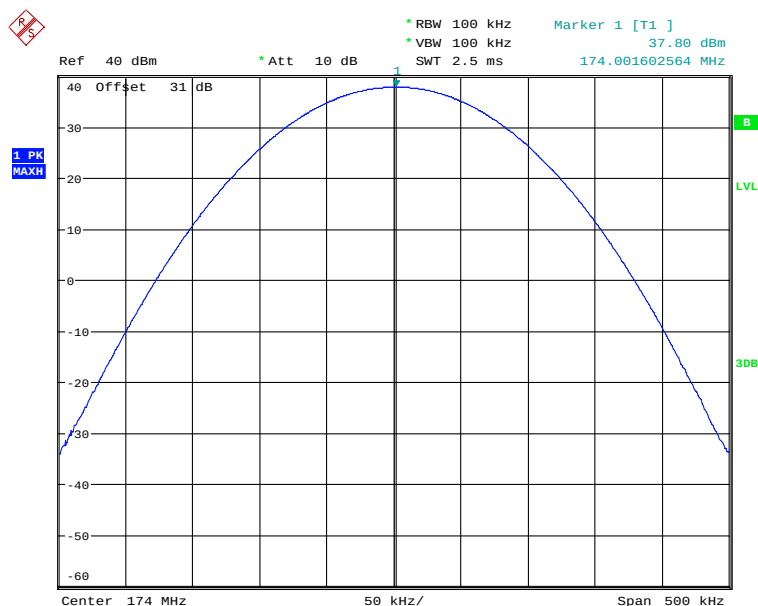
FCC ID: L9N-7085VE5

155 MHz

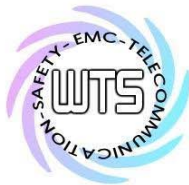


MAX OUTPUT POWER 155MHz
Date: 17.MAY.2018 16:09:35

174 MHz

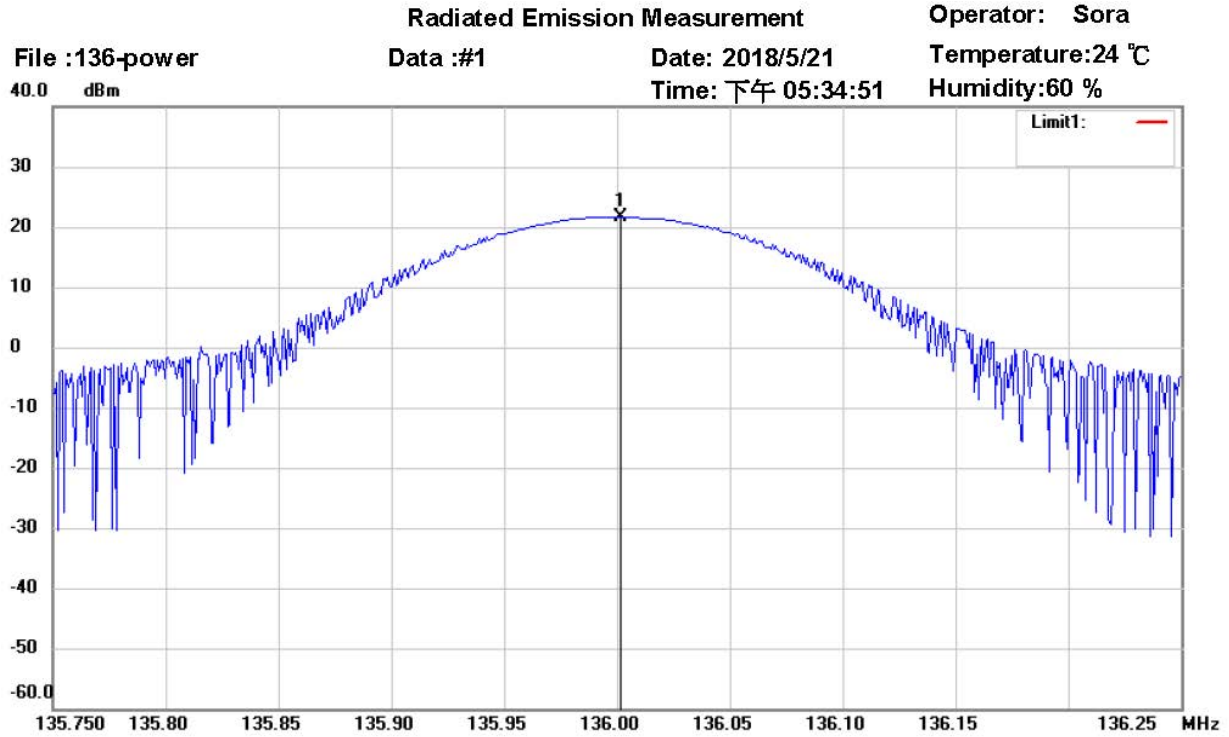


MAX OUTPUT POWER 174MHz
Date: 17.MAY.2018 16:13:22



Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

6.3.2 Radiated Power 136 MHz



Site : Chamber

Condition :

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

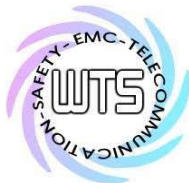
Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

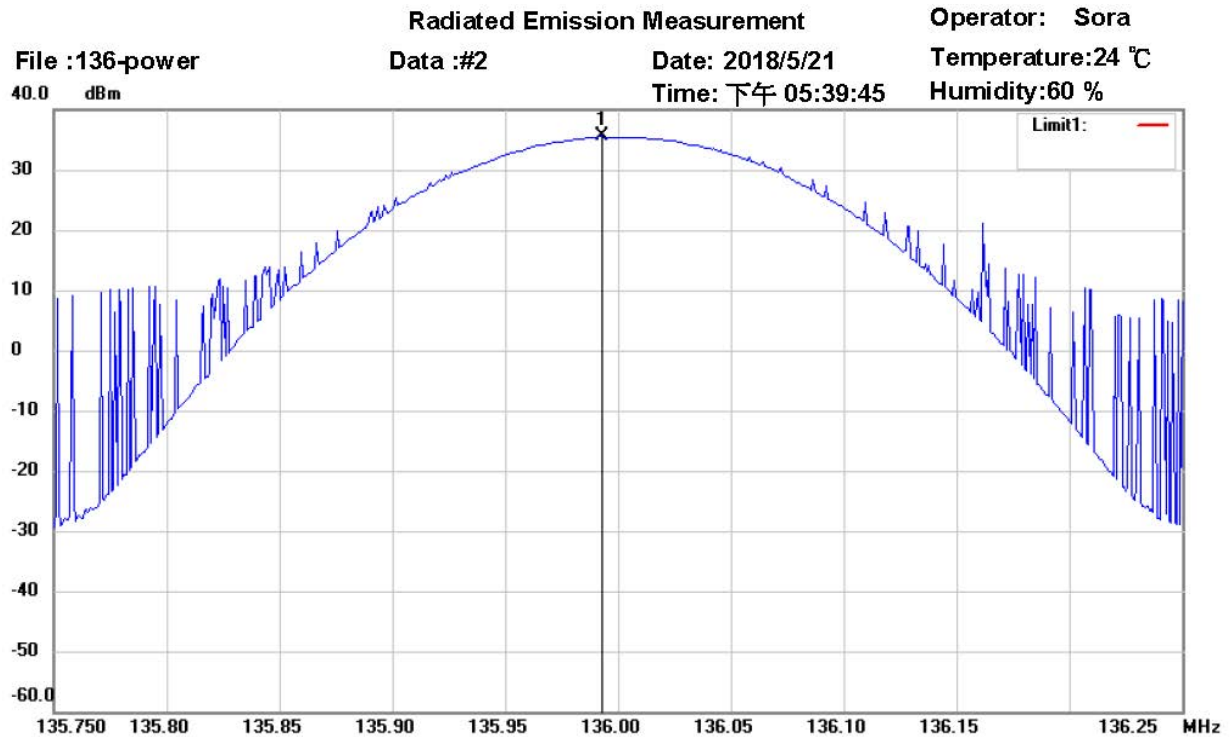
Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	136.0016	1.57	peak	20.15	21.72		150	150		



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5



Site : Chamber

Condition :

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

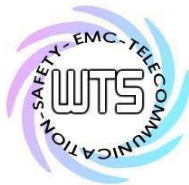
Note :

Polarization: *Vertical*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	135.9928	14.84	peak	20.69	35.53		150	300		



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21804-18006-C-1

FCC ID: L9N-7085VE5

155 MHz

Radiated Emission Measurement

Operator: Sora

File :155-power

Data :#1

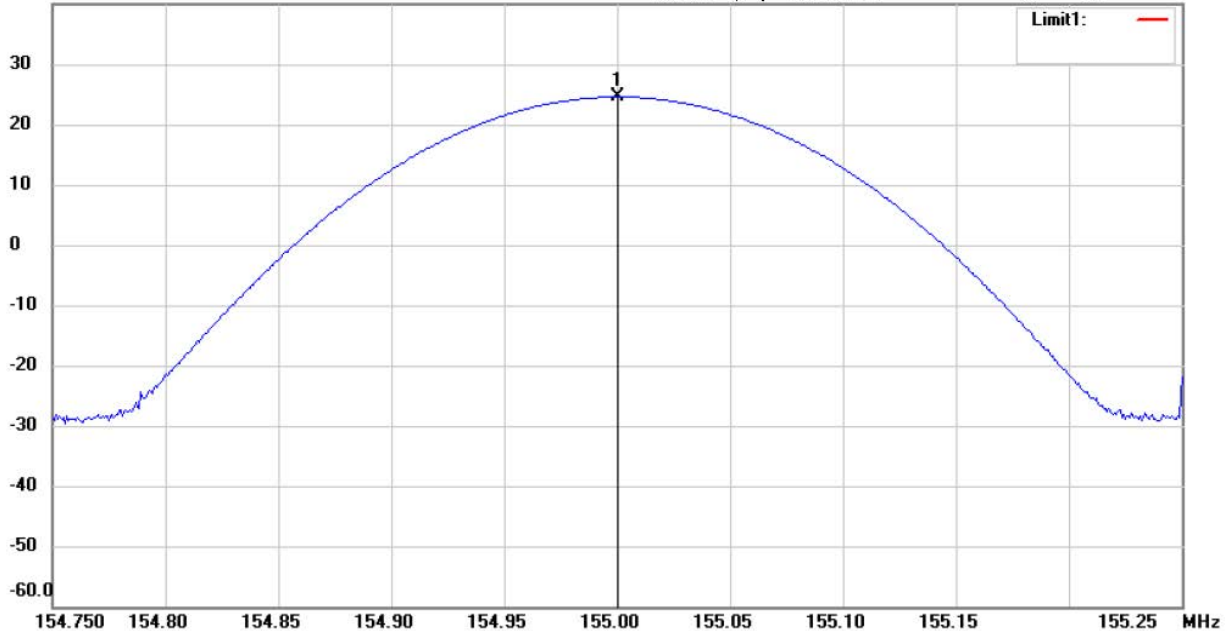
Date: 2018/5/21

Temperature:24 °C

Time: 下午 05:03:29

Humidity:60 %

40.0 dBm



Site : Chamber

Condition :

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

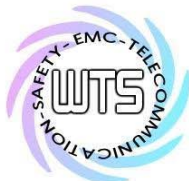
Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

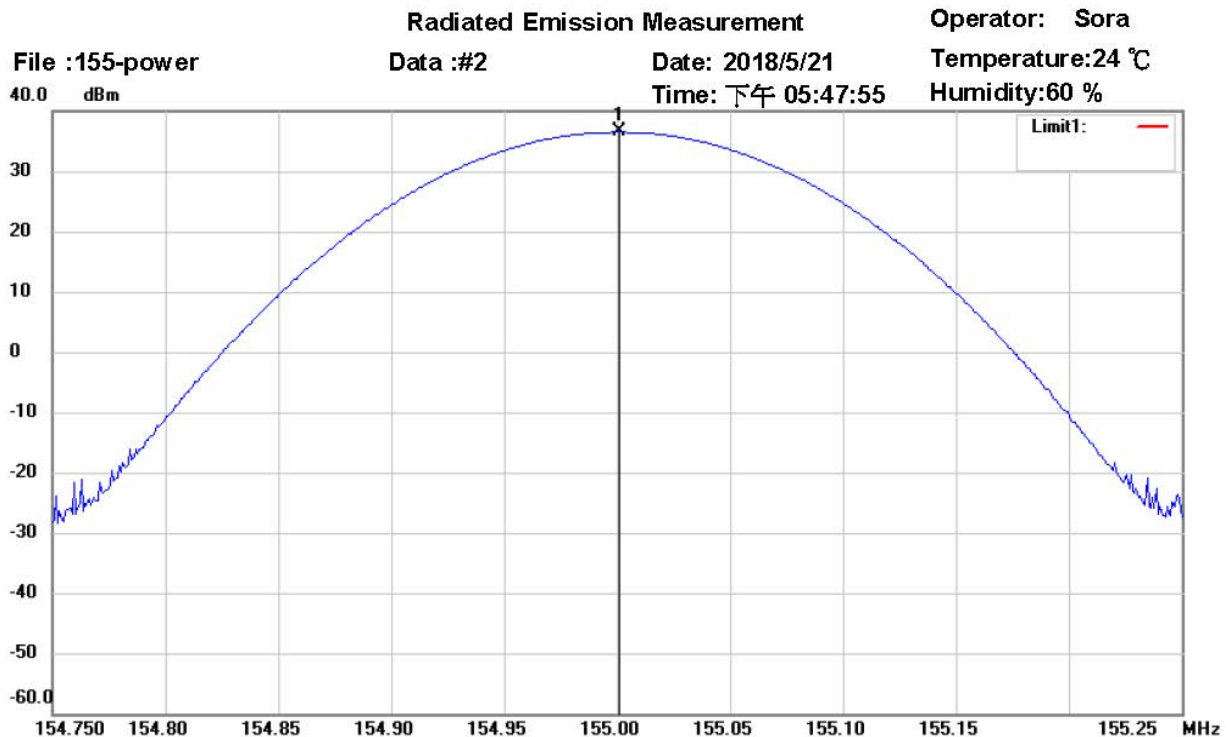
Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	155.0000	3.38	peak	21.20	24.58		150	160		



Registration number: W6M21804-18006-C-1

FCC ID: L9N-7085VE5



Site : Chamber

Condition :

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

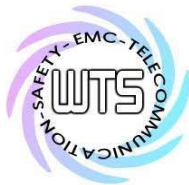
Note :

Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	155.0008	14.83	peak	21.70	36.53		150	225		



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21804-18006-C-1

FCC ID: L9N-7085VE5

174 MHz

Radiated Emission Measurement

Operator: Sora

File :174-power

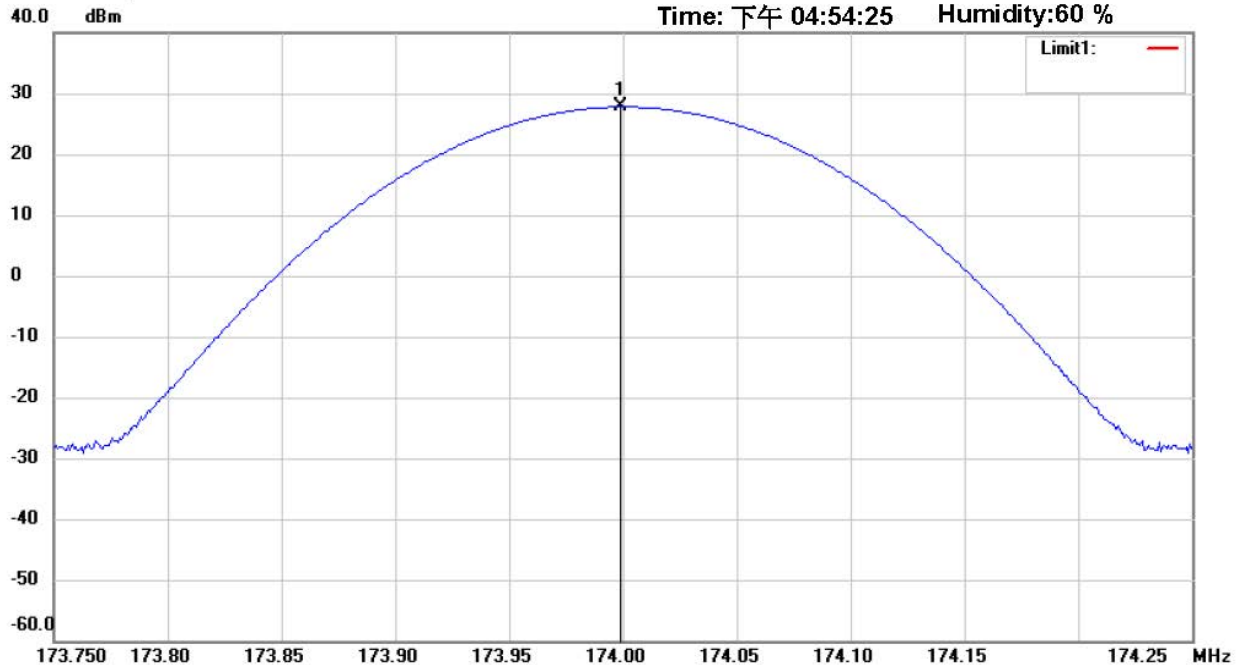
Data :#1

Date: 2018/5/21

Temperature:24 °C

Time: 下午 04:54:25

Humidity:60 %



Site : Chamber

Condition :

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

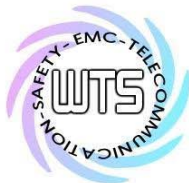
Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

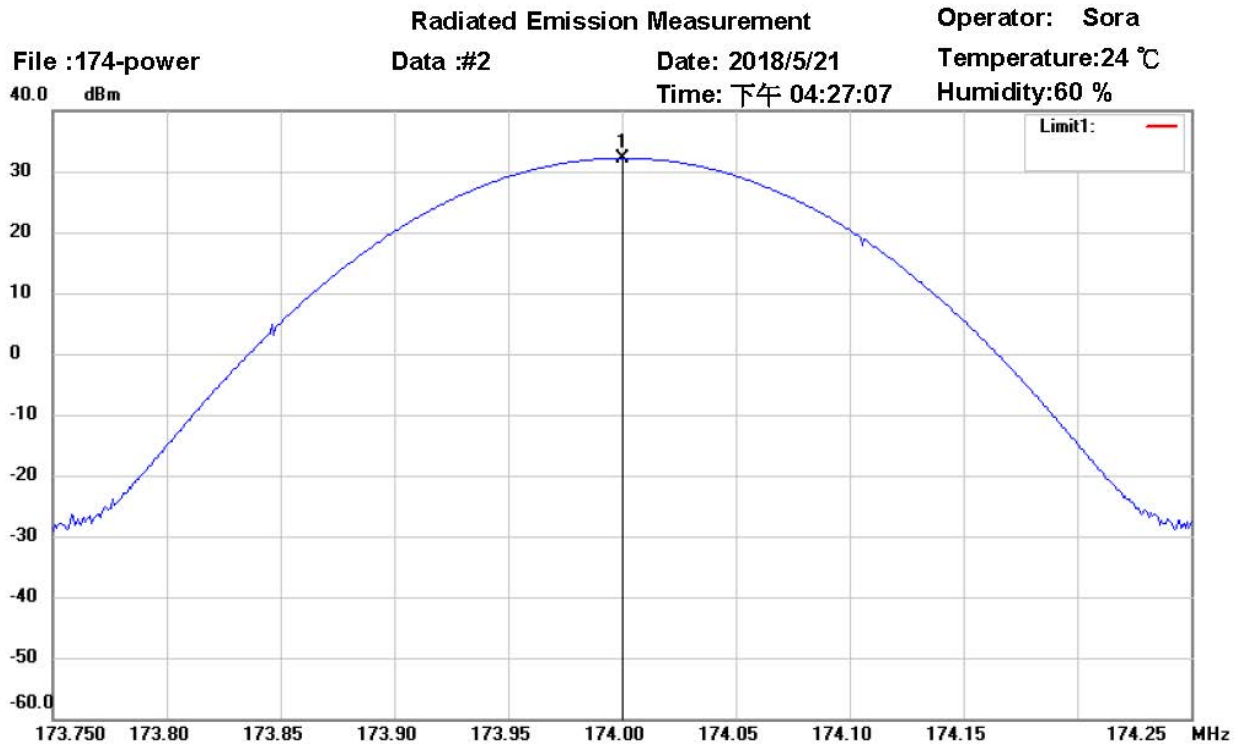
Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	173.9992	5.84	peak	21.96	27.80		150	150		



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5



Site : Chamber

Condition :

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

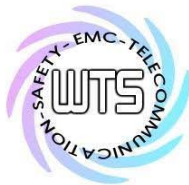
Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	174.0000	10.05	peak	22.15	32.20		150	225		

Test equipment used: ETSTW-RE 003, ETSTW-RE 042, ETSTW-RE 055, ETSTW-RE 072



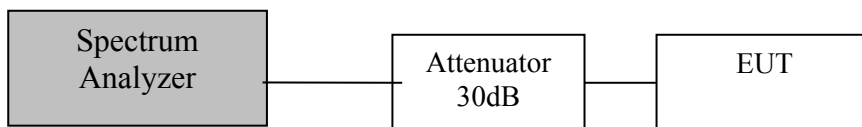
Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

7. Emission masks

7.1 Test Procedures

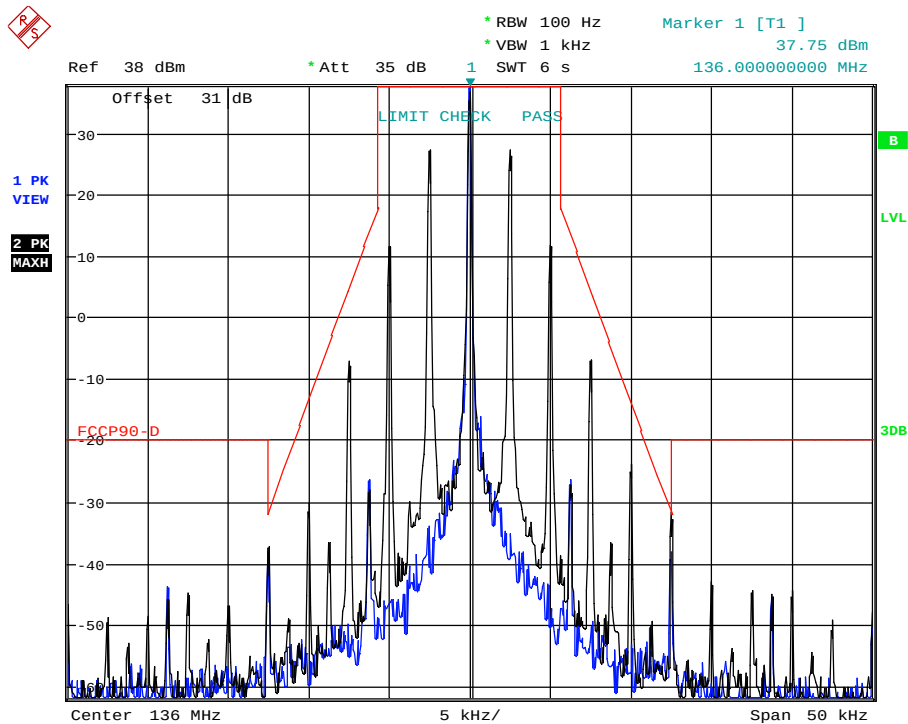
1. The transmitter output is connected to the spectrum analyzer through an attenuator.
2. Set RBW of spectrum analyzer to 100Hz and VBW to 1 kHz.
3. Mark the frequency with maximum peak power as the center of the display of the spectrum
4. Set the span to 50 kHz and the sweep time to Auto.
5. Record the power spectral and compare to the Mask.

7.2 Test Setup

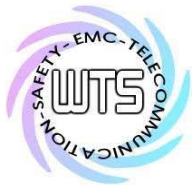


7.3 Test Result

12.5 kHz
136 MHz



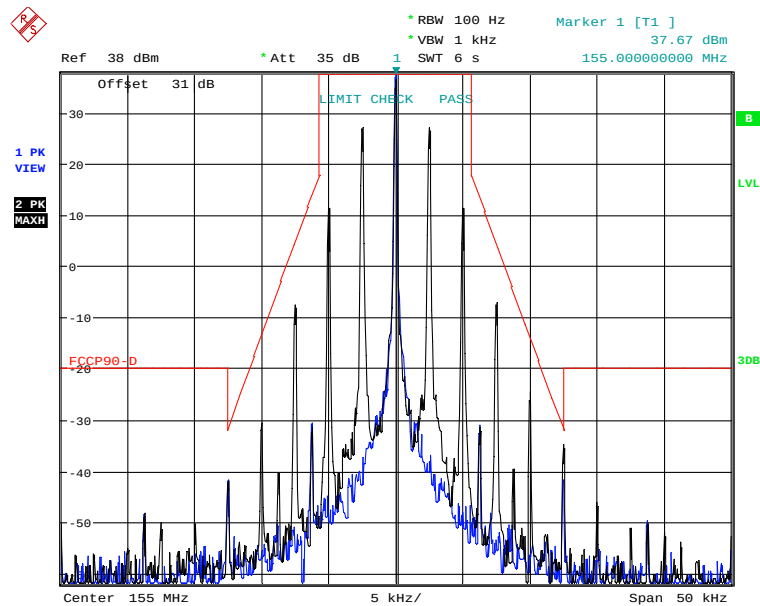
EMISSION MASK 12.5K 136MHz
Date: 17.MAY.2018 17:22:48



Registration number: W6M21804-18006-C-1

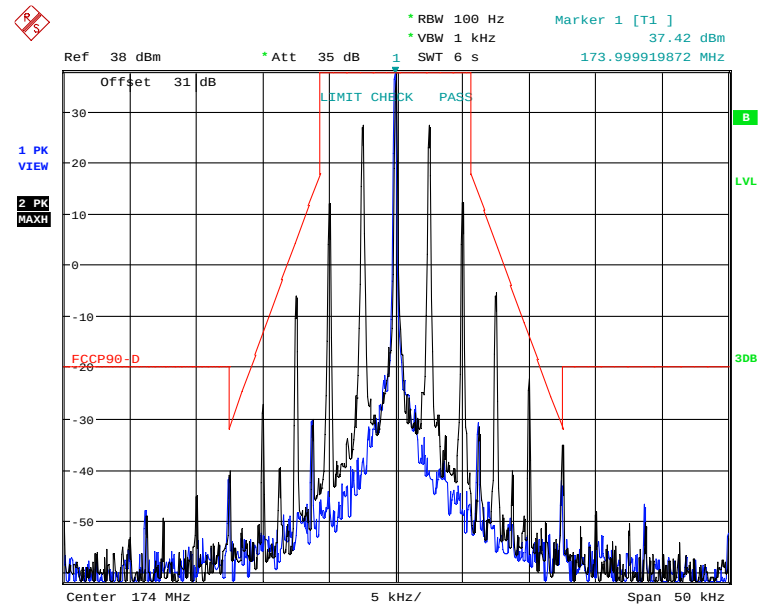
FCC ID: L9N-7085VE5

155 MHz

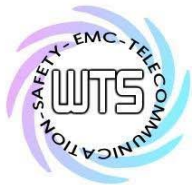


EMISSION MASK 12.5K 155MHz
Date: 17.MAY.2018 17:29:11

174 MHz

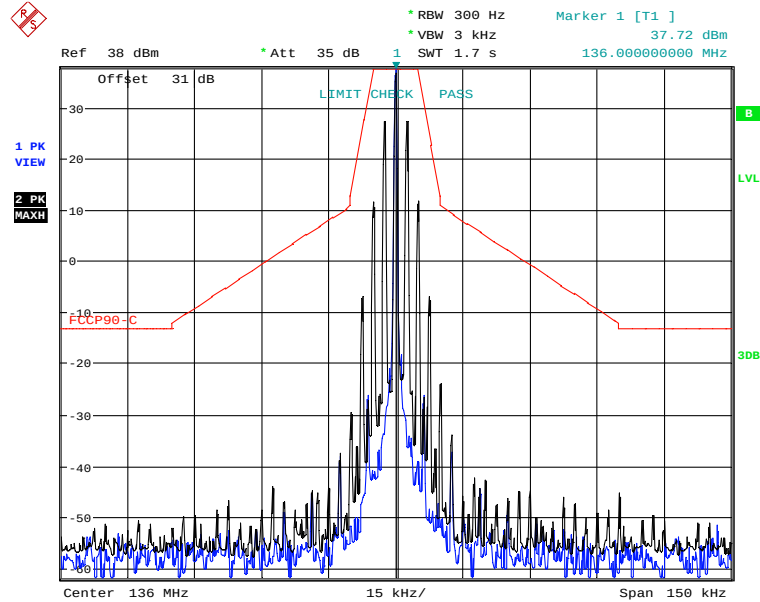


EMISSION MASK 12.5K 174MHz
Date: 17.MAY.2018 17:26:53



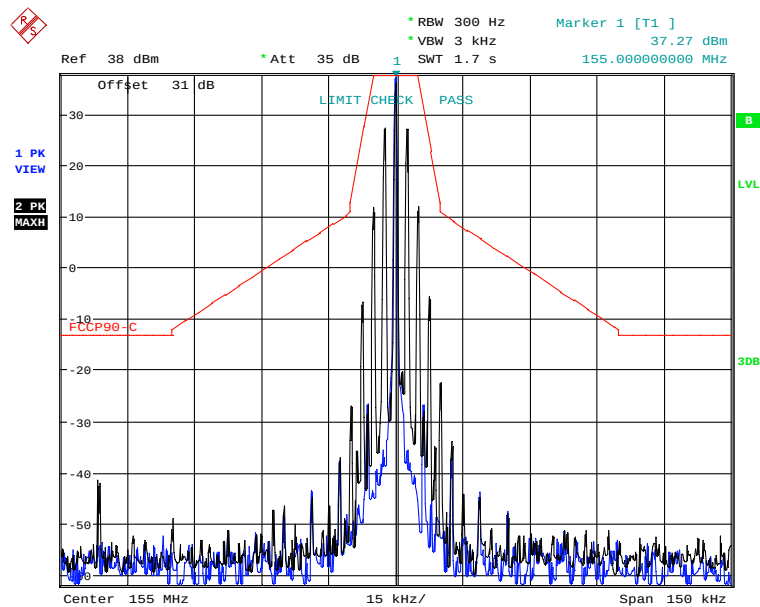
Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

25 kHz
136 MHz

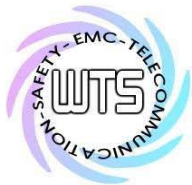


EMISSION MASK 25K 136MHz
Date: 17.MAY.2018 17:04:25

155 MHz



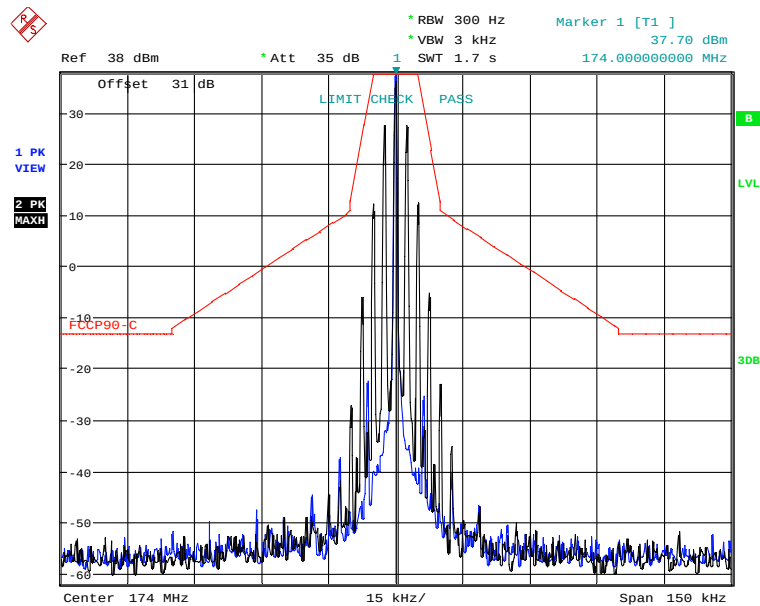
EMISSION MASK 25K 155MHz
Date: 17.MAY.2018 17:06:43



Registration number: W6M21804-18006-C-1

FCC ID: L9N-7085VE5

174 MHz



EMISSION MASK 25K 174MHZ
Date: 17.MAY.2018 17:12:51

Limit according to FCC § 90.210: 12.5 kHz: Emission Mask D / 25 kHz: Emission Mask C.

Test equipment used: ETSTW-RE 055, ETSTW-RE072

Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

8. Transmitter Spurious Radiated Emission

8.1 Test Procedures

The EUT was positioned on a non-conductive turntable, 0.8m above the ground plane.

The radiated emission at the fundamental frequency was measured at 3 m distance with a test antenna and spectrum analyzer.

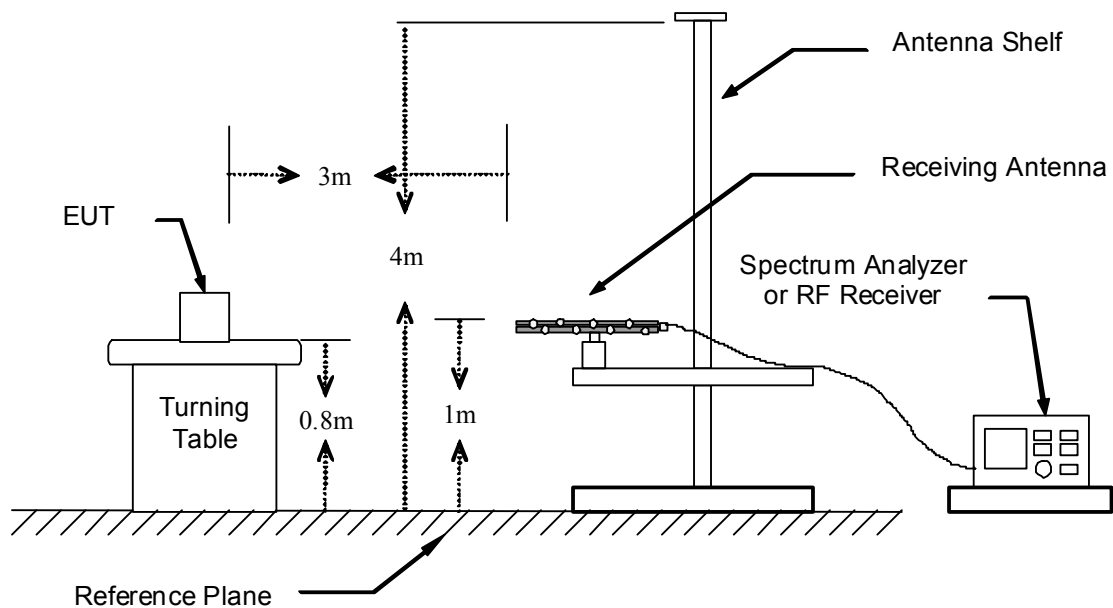
Worst case emission was recorded with the rotation of the turntable and the raising and lowering of the test antenna.

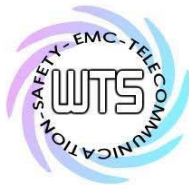
ERP was measured using a substitution method. The EUT was replaced by reference antenna connected to a signal generator.

The test of spurious radiated emission has been carried out with the validated test software. The measurements below 1GHz were performed with a measurement bandwidth of 100 kHz, above 1GHz with a bandwidth of 1MHz.

Spurious emission limits near the carrier are defined by a emission mask.

8.2 Test Setup





Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

8.3 Test Result

Model: 52-7085VE5 Date: --
Mode: -- Temperature: -- °C Engineer: --
Polarization: Horizontal Humidity: -- %

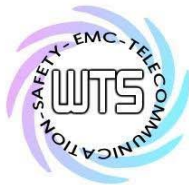
Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--

- 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. Measurement uncertainty above 30-1000 MHz = ± 2.32 dB, 1-18 GHz = ± 2.30 dB, 18-40 GHz = ± 3.25 dB ; Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.
 6. See attached diagrams in appendix.

Test equipment used: ETSTW-RE 003, ETSTW-RE 042, ETSTW-RE 043, ETSTW-RE 044, ETSTW-RE 072



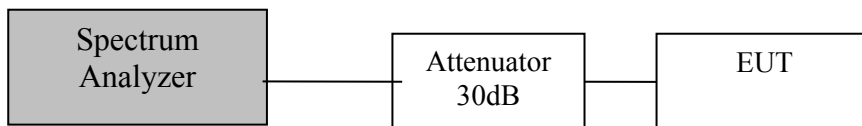
Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

9. Transmitter Spurious Conducted Emission

9.1 Test Procedures

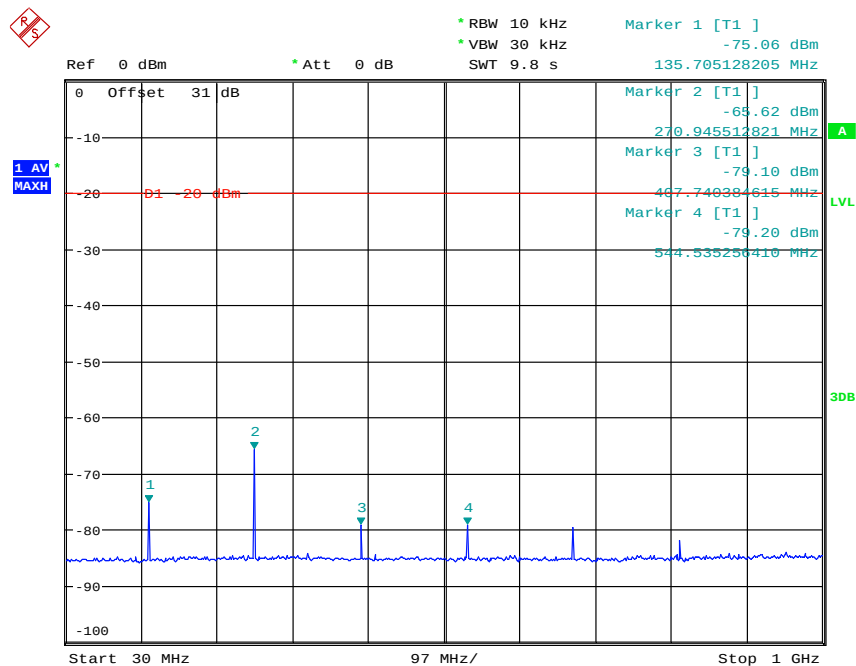
1. The transmitter output is connected to the spectrum analyzer through an attenuator.
2. Adjust the spectrum analyzer for the following settings:
 - Resolution Bandwidth = 10 kHz for spurious emissions below 1 GHz and 1 MHz for spurious emissions above 1GHz.
 - Video Bandwidth = 30 kHz for spurious emissions below 1 GHz, and 3 MHz for spurious emissions above 1 GHz.
 - Sweep Speed slow enough to maintain measurement calibration. Detector Mode = Positive Peak.
3. Limits= $P \text{ (dBm)} + 10\log(P(W)) = -13\text{dBm}$

9.2 Test Setup

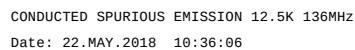


9.3 Test Result

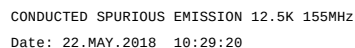
12.5 kHz
136 MHz

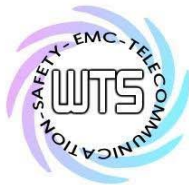


CONDUCTED SPURIOUS EMISSION 12.5K 136MHz
Date: 22.MAY.2018 10:30:32

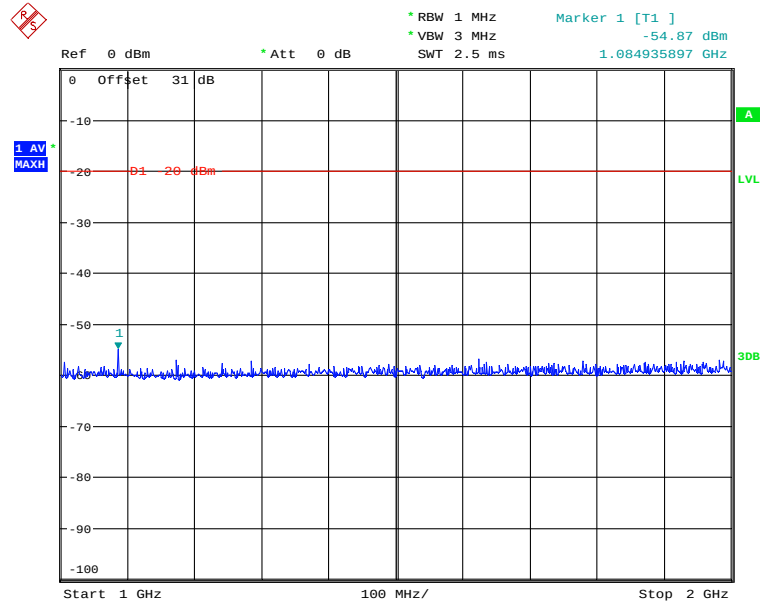


155 MHz



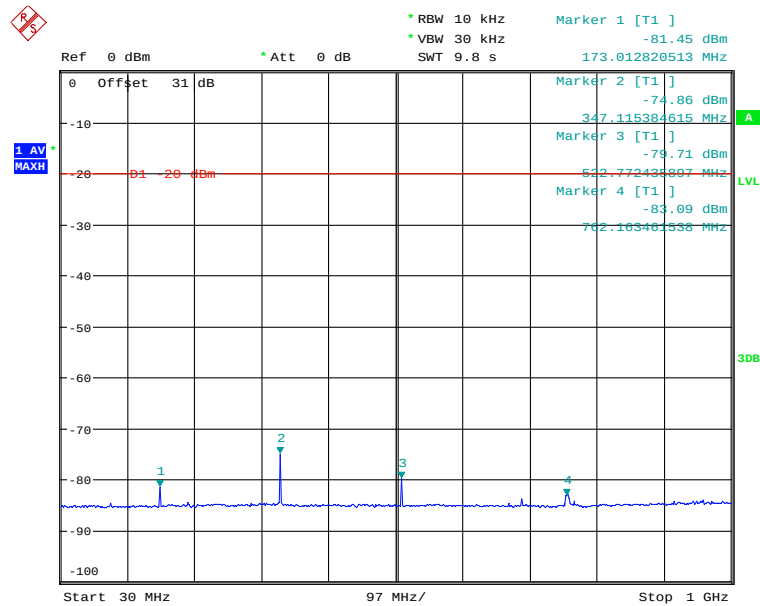


Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

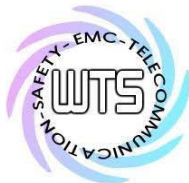


CONDUCTED SPURIOUS EMISSION 12.5K 155MHz
Date: 22.MAY.2018 10:37:03

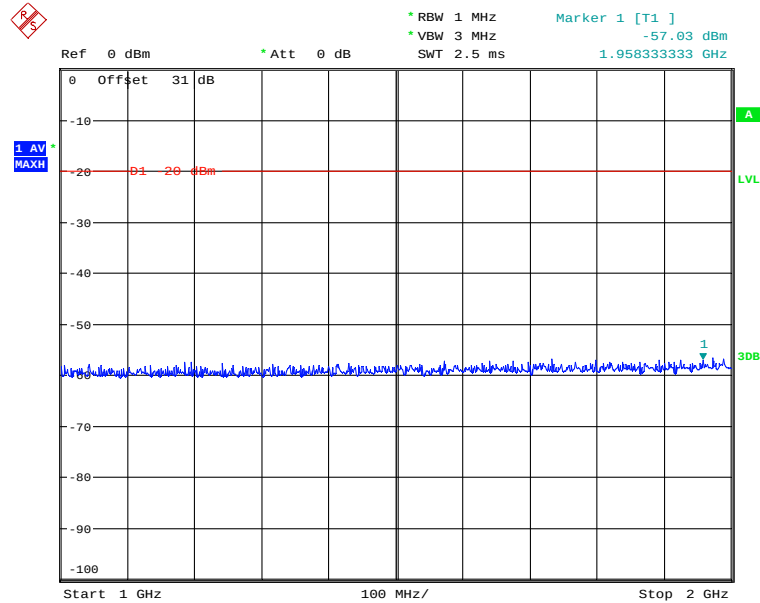
174 MHz



CONDUCTED SPURIOUS EMISSION 12.5K 174MHz
Date: 22.MAY.2018 10:27:07

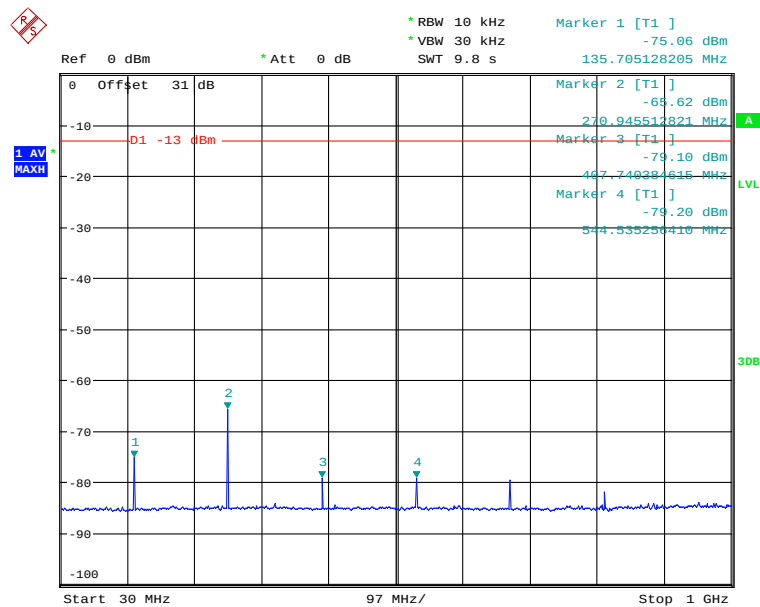


Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

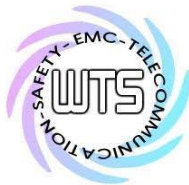


CONDUCTED SPURIOUS EMISSION 12.5K 174MHz
Date: 22.MAY.2018 10:39:03

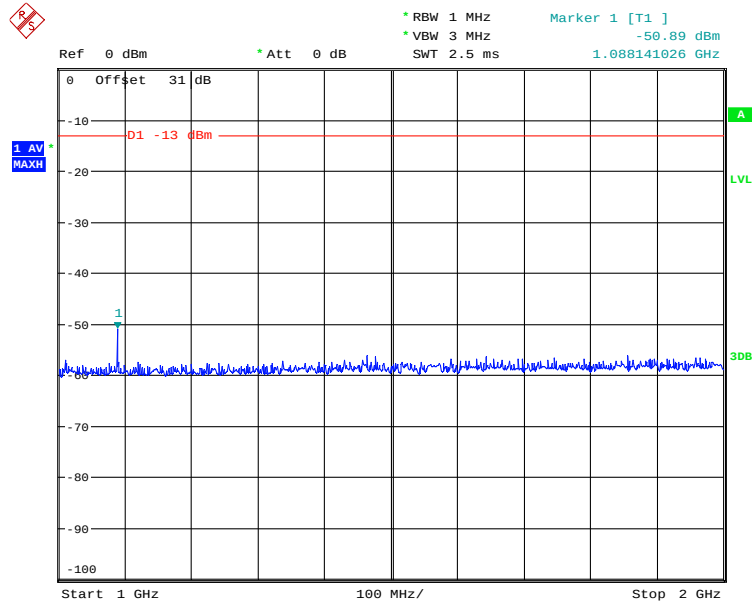
25 kHz
136 MHz



CONDUCTED SPURIOUS EMISSION 25K 136MHz
Date: 22.MAY.2018 10:30:54

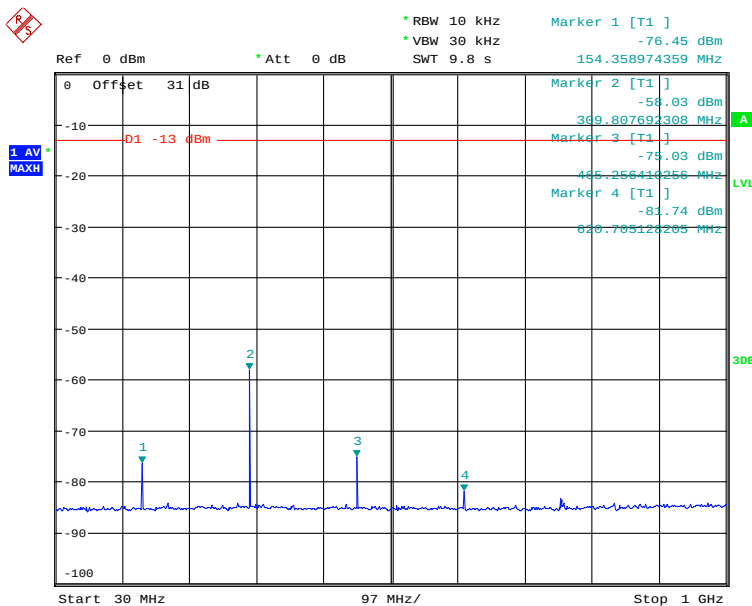


Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5



CONDUCTED SPURIOUS EMISSION 25K 136MHz
Date: 22.MAY.2018 10:35:37

155 MHz



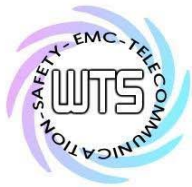
CONDUCTED SPURIOUS EMISSION 25K 155MHz
Date: 22.MAY.2018 10:28:56



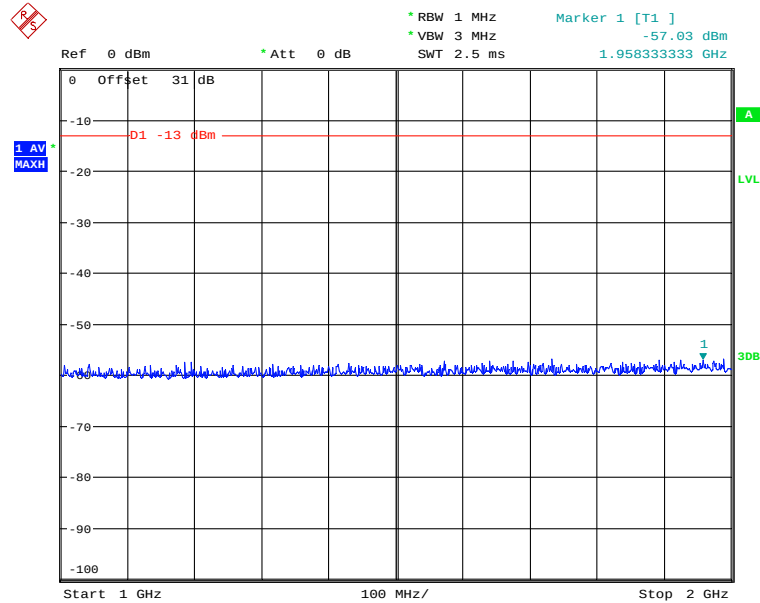
CONDUCTED SPURIOUS EMISSION 25K 155MHZ
Date: 22.MAY.2018 10:37:25

174 MHz

CONDUCTED SPURIOUS EMISSION 25K 174MHZ
Date: 22.MAY.2018 10:27:32



Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5



CONDUCTED SPURIOUS EMISSION 25K 174MHz
Date: 22.MAY.2018 10:38:38

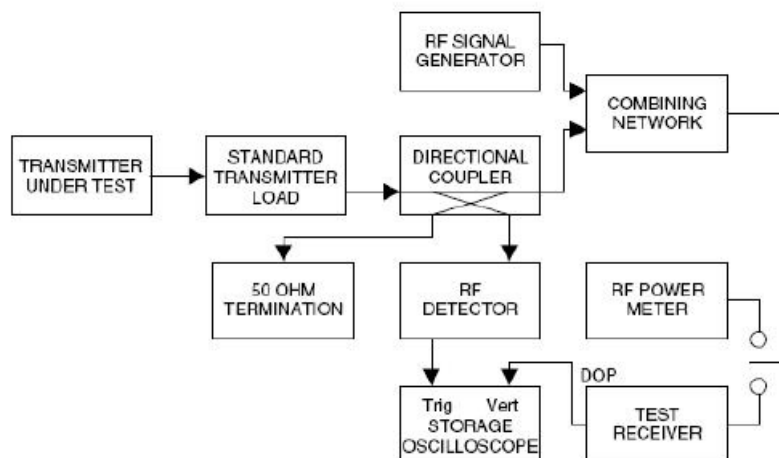
Test equipment used: ETSTW-RE 055, ETSTW-RE 072

10. Transient frequency behavior

10.1 Test Procedures

1. SG to the assigned transmitter frequency and modulate it with a 1 kHz tone at ± 25 kHz deviation and set its output level to below 30dB of EUT signal level to receiver.
2. Set the horizontal sweep rate on the storage oscilloscope to 10 ms per division and adjust the display to continuously view the 1000 Hz tone from the DOP. Adjust the vertical amplitude control of the oscilloscope to display the 1000 Hz at ± 4 divisions vertically centered on the display.
3. Transmitter on and observe the stored display. The output at the DOP, due to the change in the ratio of power between the signal generator input power and the transmitter output power will, because of the capture effect of the test receiver, produce a change in display: For the first part of the sweep it will show the 1 kHz test signal. Then once the receiver's demodulator has been captured by the transmitter power, the display will show the frequency difference from the assigned frequency to the actual transmitter frequency versus time. The instant when the 1 kHz test signal is completely suppressed (including any capture time due to phasing) is considered to be t_{on} . The trace should be maintained within the allowed divisions during the period t_1 and t_2 . See the figure in the appropriate standards section.
4. During the time from the end of t_2 to the beginning of t_3 the frequency difference should not exceed the limits set by the FCC in 47 CFR 90.214 and outlined in 3.2.2. The allowed limit is equal to the transmitter frequency times its FCC frequency tolerance times ± 4 display divisions divided by 25 kHz. For example, at a transmitter assigned frequency of 500 MHz and a frequency tolerance of 5 ppm. This would be 500 MHz times 5 ppm times ± 4 divisions divided by 25 kHz. This equals ± 0.4 divisions in this example. Greater vertical sensitivity may be required to view this accurately
5. Adjust the oscilloscope trigger controls so it will trigger on a decreasing magnitude from the RF peak detector, at 1 division from the right side of the display, when the transmitter is turned off. Set the controls to store the display. The moment when the 1 kHz test signal starts to rise is considered to provide t_{off} .

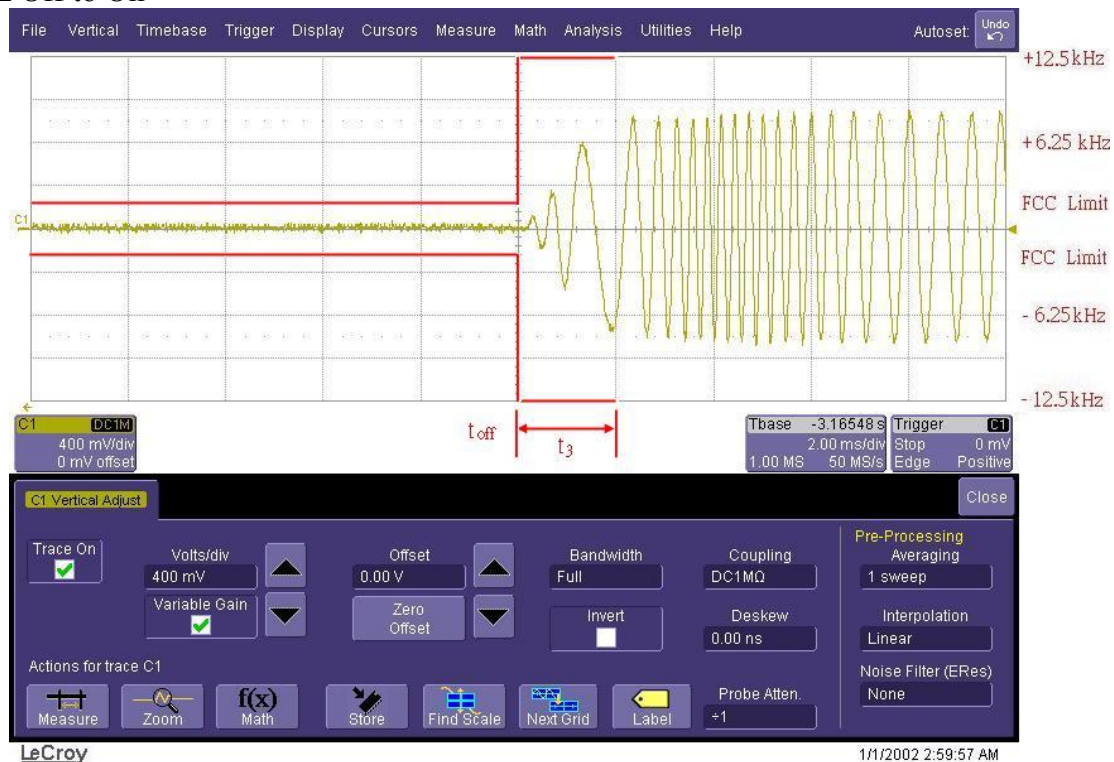
10.2 Test Setup



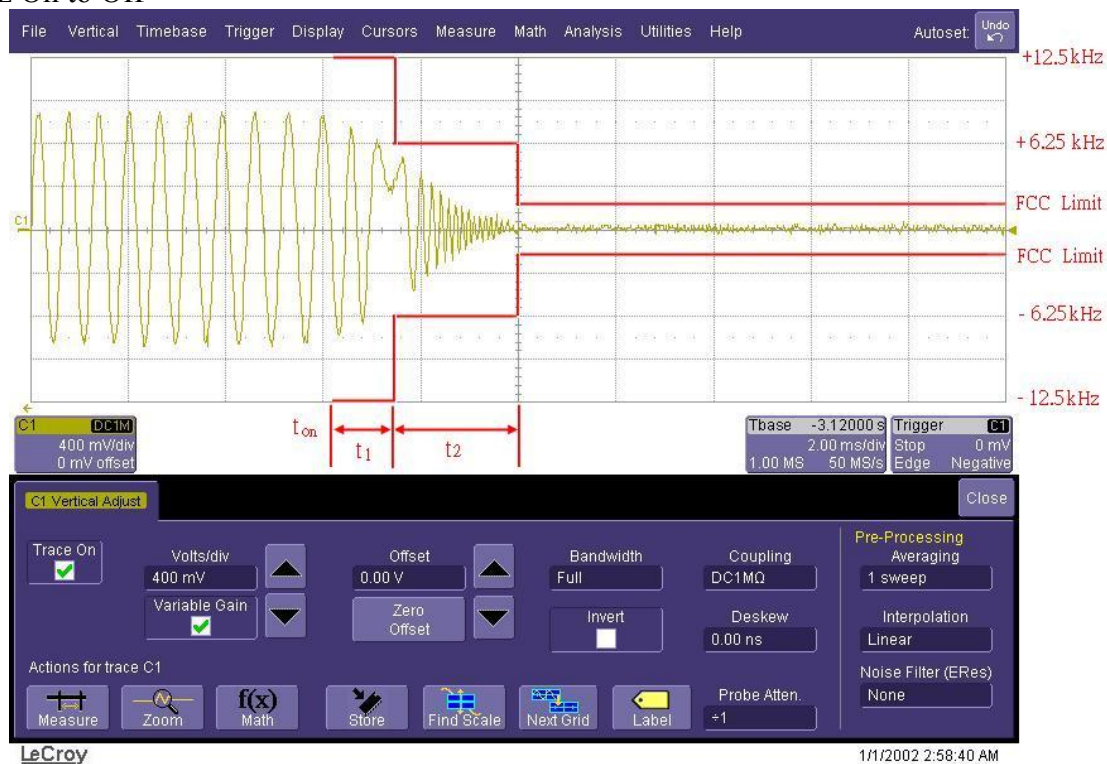
Registration number: W6M21804-18006-C-1

FCC ID: L9N-7085VE5

10.3 Test Result 136 MHz Off to On



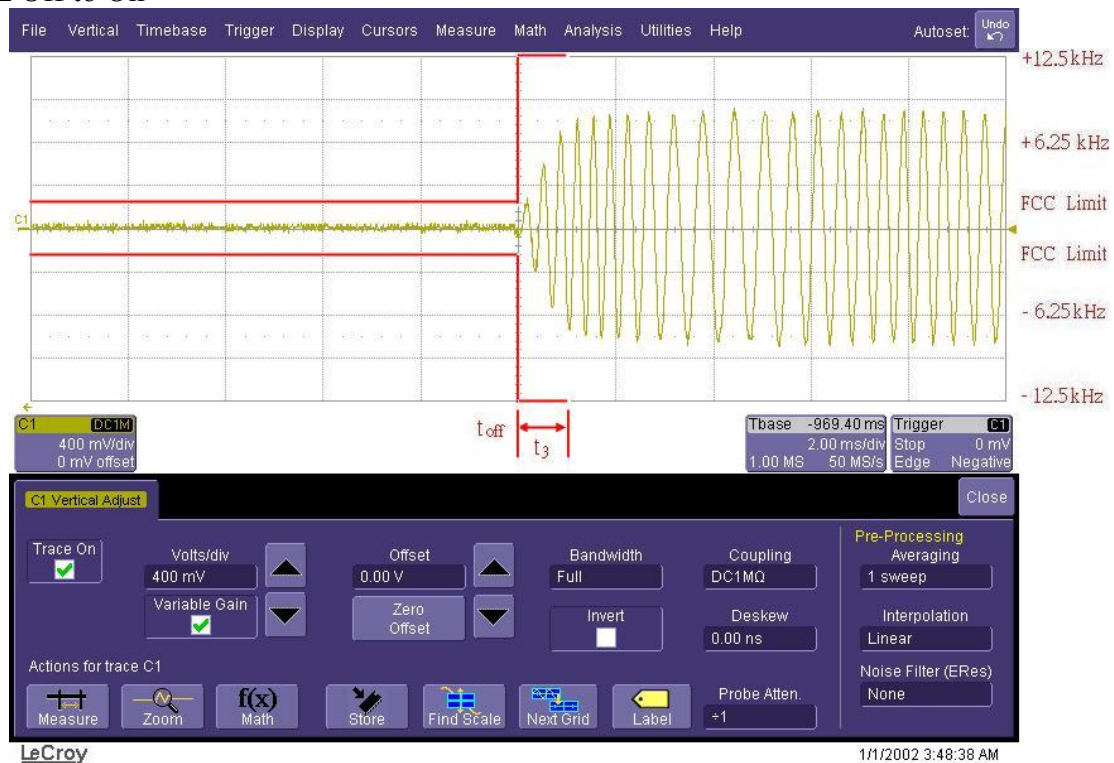
136 MHz On to Off



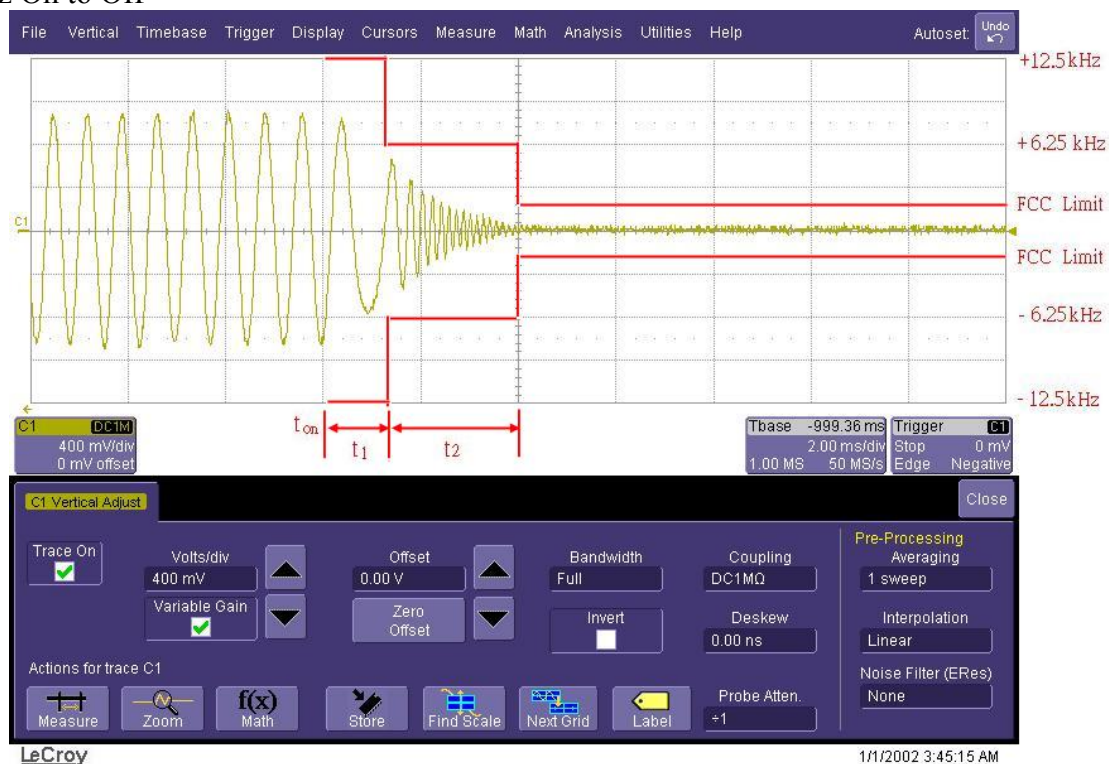
Registration number: W6M21804-18006-C-1

FCC ID: L9N-7085VE5

155 MHz Off to On



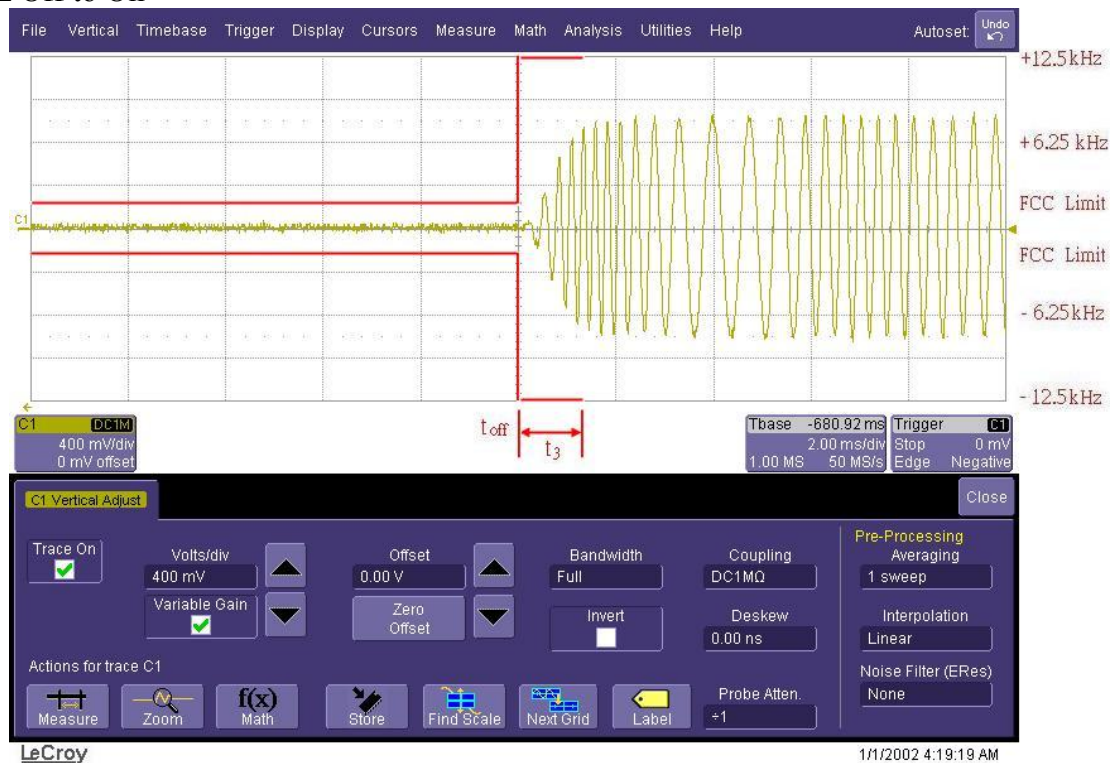
155 MHz On to Off



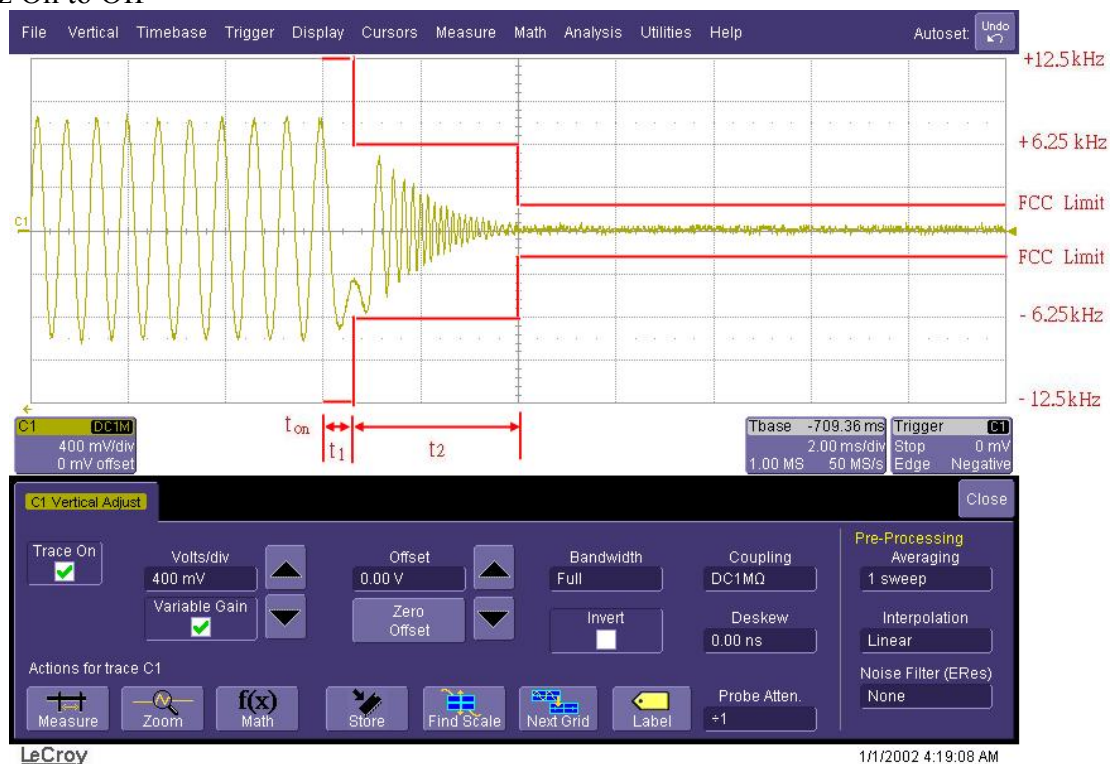
Registration number: W6M21804-18006-C-1

FCC ID: L9N-7085VE5

174 MHz Off to On



174 MHz On to Off



Test equipment used: ETSTW-RE 072, ETSTW-RE 033

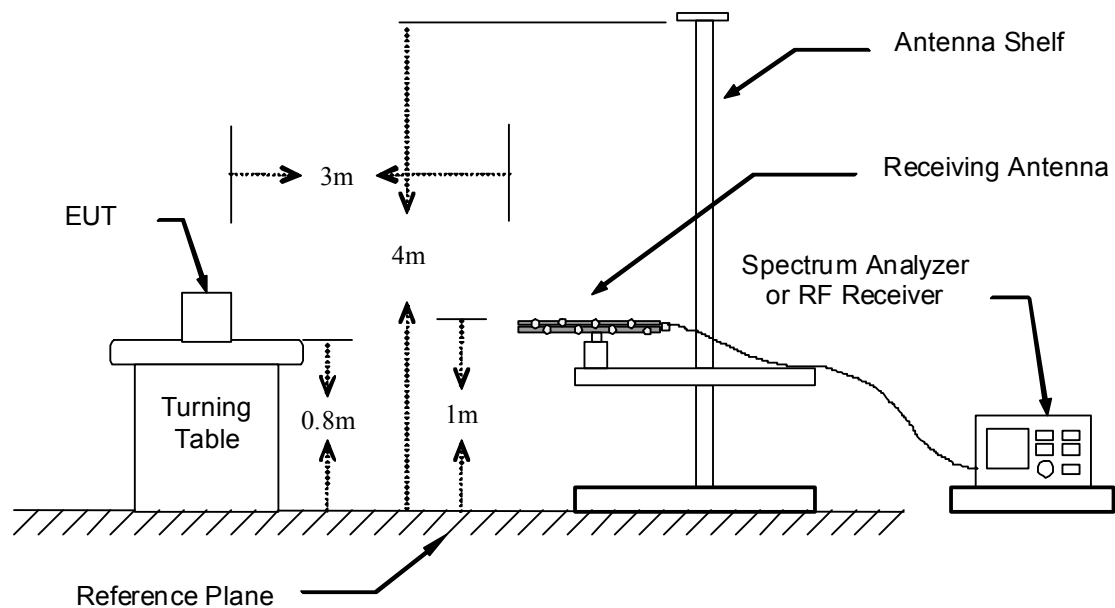
Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

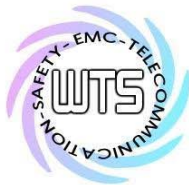
11. Receiver Radiated Spurious Emission

11.1 Test Procedures

1. Configure the EUT according to ANSI C63.4.
2. The EUT was placed on the top of the turn table 0.8 meter above ground.
3. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turn table.
4. Power on the EUT and all the supporting units.
5. The turn table was rotated 360 degrees to determine the position of the highest radiation.
6. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
7. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turn table was rotated (from 0 degree to 360 degrees) to find the maximum reading.
8. Adjust the spectrum analyzer for the following settings:
 - Resolution Bandwidth = 100 kHz for spurious emissions below 1 GHz and 1 MHz for spurious emissions above 1GHz.
 - Video Bandwidth = 100 kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1 GHz.
 - Sweep Speed slow enough to maintain measurement calibration.
 - Detector Mode = Positive Peak.

11.2 Test Setup





Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

11.3 Test Result

Model: 52-7085VE5 Date: --
Mode: -- Temperature: -- °C Engineer: --
Polarization: Horizontal Humidity: -- %

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--

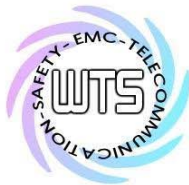
Note

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. Measurement uncertainty: 30-1000 MHz : ± 3.57 dB, 1-18GHz : ± 2.60 dB, 18-40 GHz : ± 2.58 dB;
Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.
5. All not in the table noted test results are more than 20 dB below the relevant limits.
6. Up Line: PK Limit Line, Down Line: Ave Limit Line.
7. See attached diagrams in appendix.

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

Test equipment used: ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 062, ETSTW-RE 142,
ETSTW-RE 147



Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

12. Maximum Permissible Exposure

12.1 Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.9 m normally can be maintained between the user and the device.

12.2 MPE Calculation Method

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz

*Plane-wave equivalent power density

$$E \text{ (V/m)} \cdot \frac{\sqrt{30 \times P \times G}}{d}$$

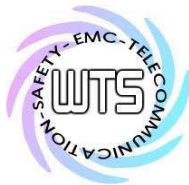
$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} \cdot \frac{E^2}{377}$$

E = Electric field (V/m) P = output power (W) G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd \cdot \frac{30 \times P \times G}{377 \times d^2}$$



Worldwide Testing Services(Taiwan) Co., Ltd.

Registration number: W6M21804-18006-C-1
FCC ID: L9N-7085VE5

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz

*Plane-wave equivalent power density

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m) P = output power (W) G = EUT Antenna numeric gain (numeric)

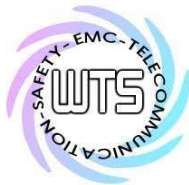
d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

Max output power (W)	Antenna numeric Gain	Power Density(S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
6.25	5	0.19	0.2	Complies

From the peak EUT RF output power, the minimum mobile separation distance, d= 0.9 as well as the gain of the used antenna, the RF power density can be obtained.



Appendix

A. Photos

1. External Photos
2. Internal Photos
3. Set Up Photo of Radiated Emission

B. Measurement diagrams

Spurious Emissions radiated

Appendix

Measurement diagrams

Spurious Emissions radiated_TX 12.5 kHz



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, Nei-hu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :1

Data :#1

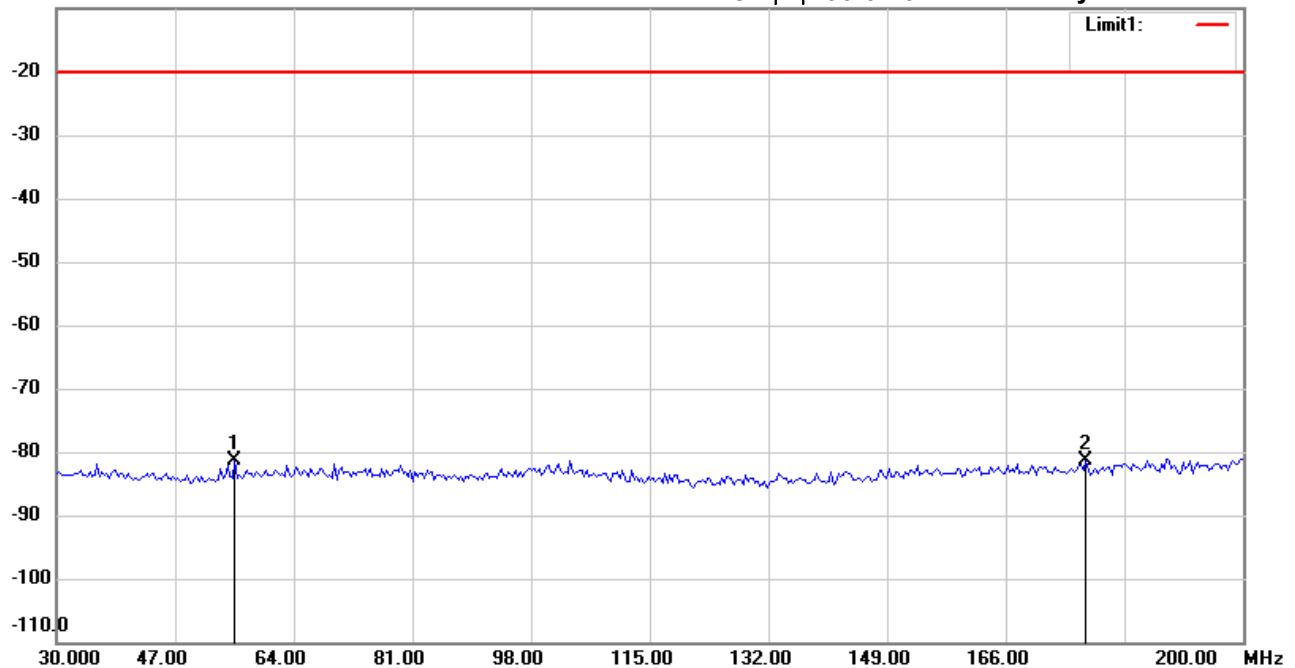
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 06:07:07

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	55.5511	-102.95	peak	21.58	-81.37	-20.00	150	155	-61.37	
	177.5150	-102.91	peak	21.50	-81.41	-20.00	150	165	-61.41	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :1

Data :#2

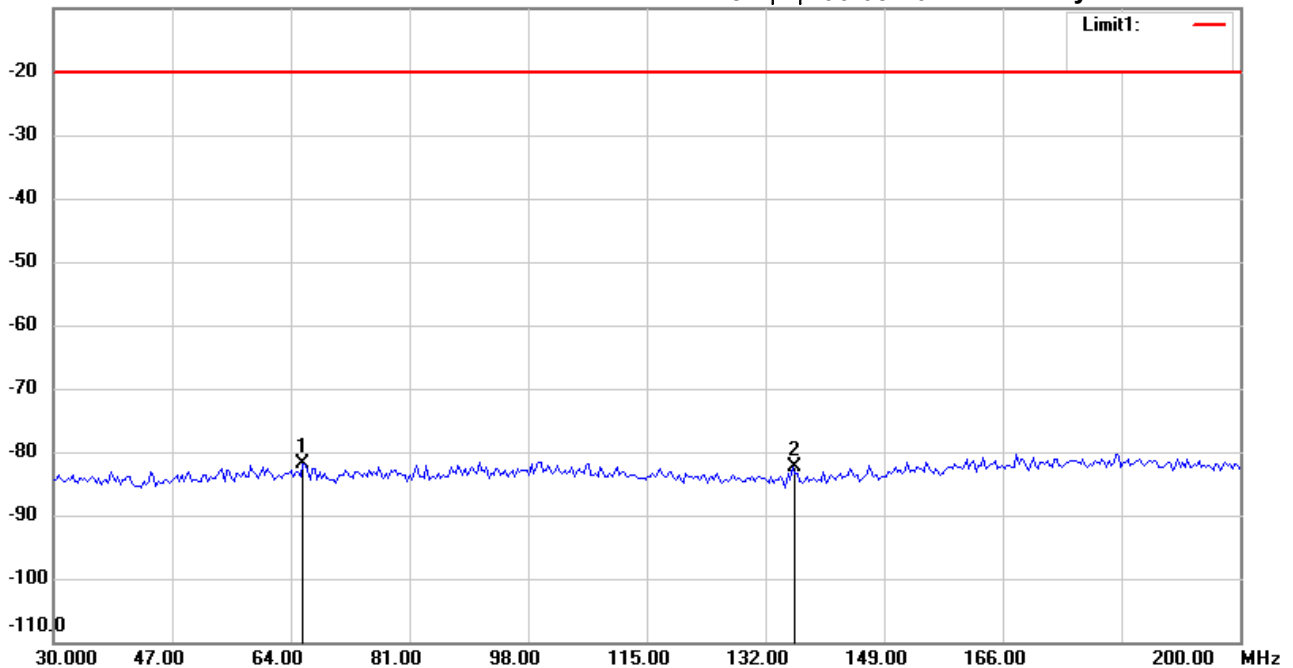
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 06:08:46

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: *Vertical*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	65.7715	-103.19	peak	21.24	-81.95	-20.00	150	315	-61.95	
	135.9520	-102.61	peak	20.23	-82.38	-20.00	150	25	-62.38	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 2

Data : #1

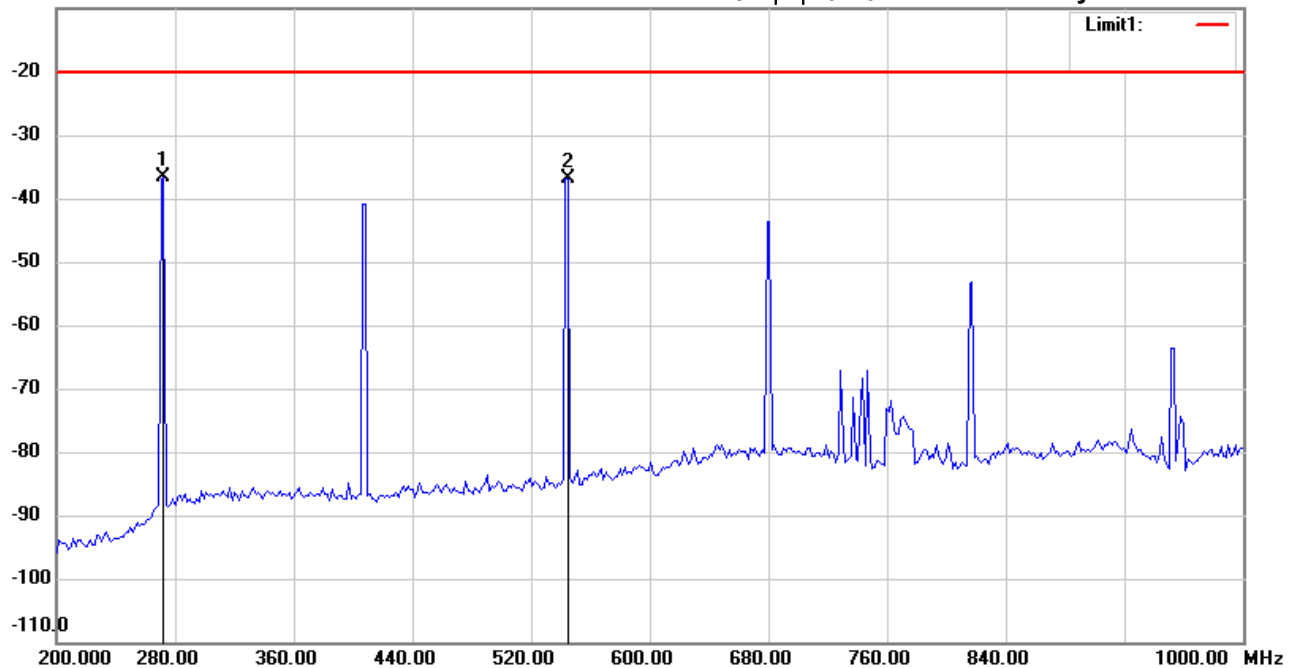
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:02:17

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	272.1443	-24.61	peak	-12.04	-36.65	-20.00	150	180	-16.65	
	544.6894	-28.99	peak	-7.76	-36.75	-20.00	150	135	-16.75	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 2

Data : #2

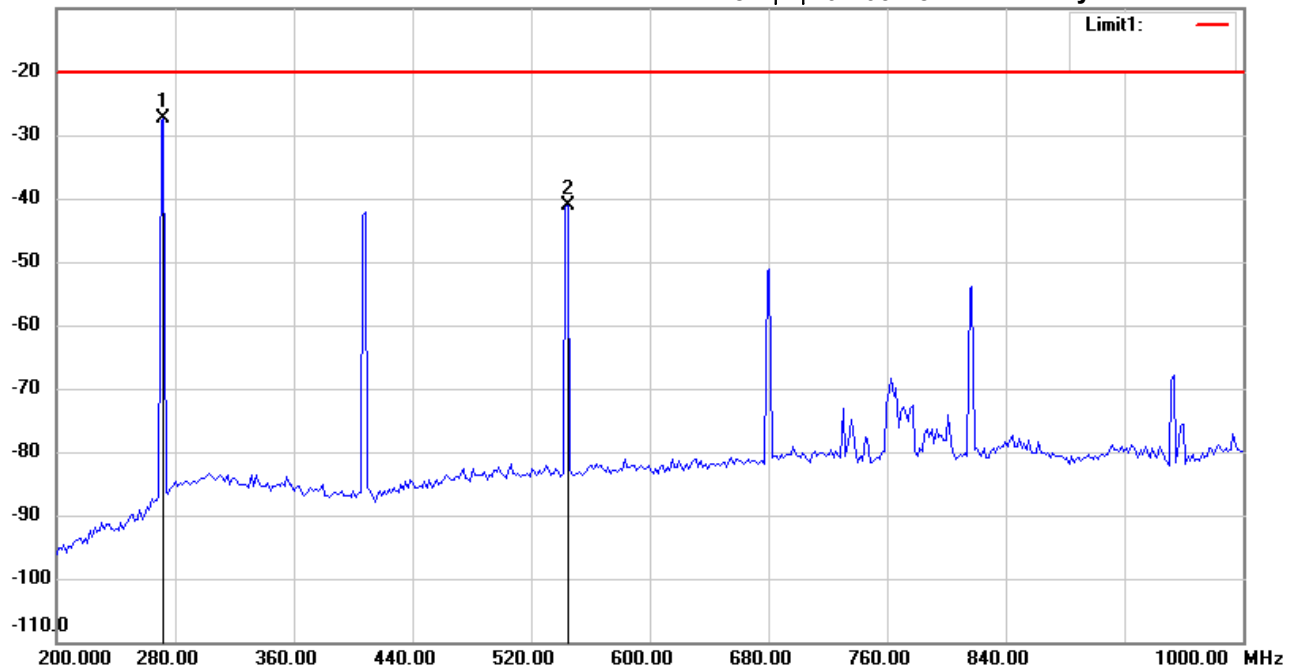
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:03:48

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: *Vertical*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	272.1443	-17.21	peak	-10.21	-27.42	-20.00	150	350	-7.42	
	544.6894	-34.99	peak	-6.20	-41.19	-20.00	150	15	-21.19	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 3

Data : #1

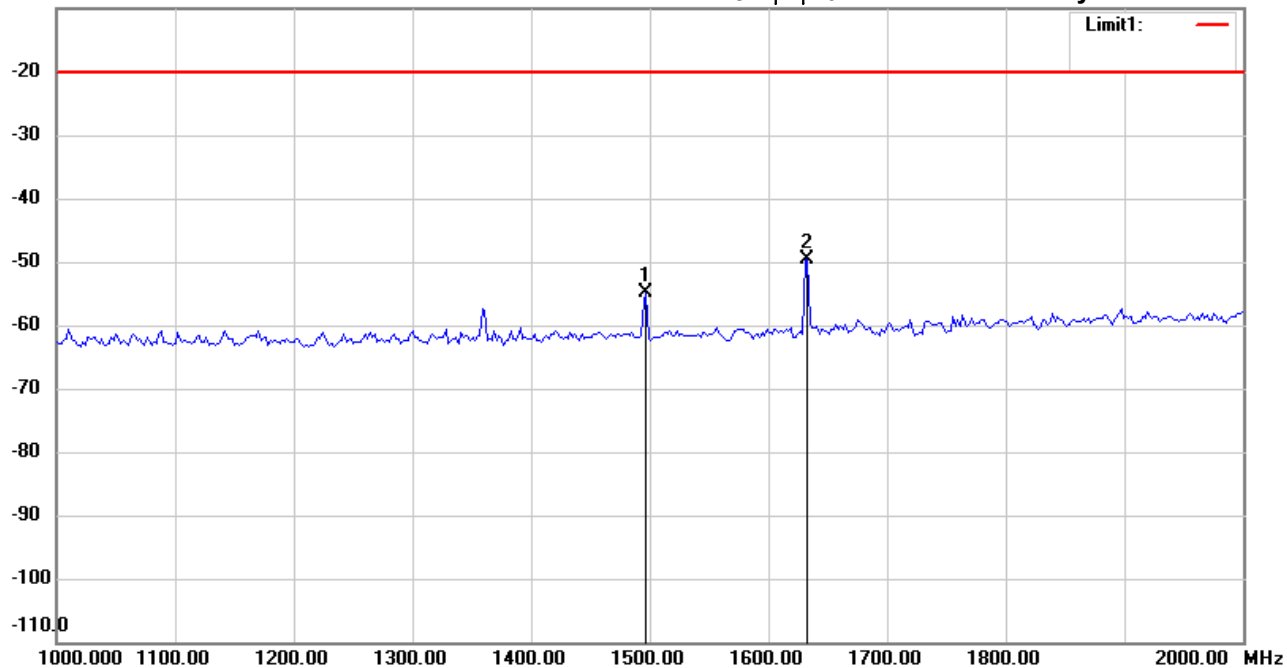
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:21:42

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1496.994	-54.73	peak	-0.05	-54.78	-20.00	150	225	-34.78	
*	1633.266	-50.45	peak	0.83	-49.62	-20.00	150	280	-29.62	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 3

Data : #2

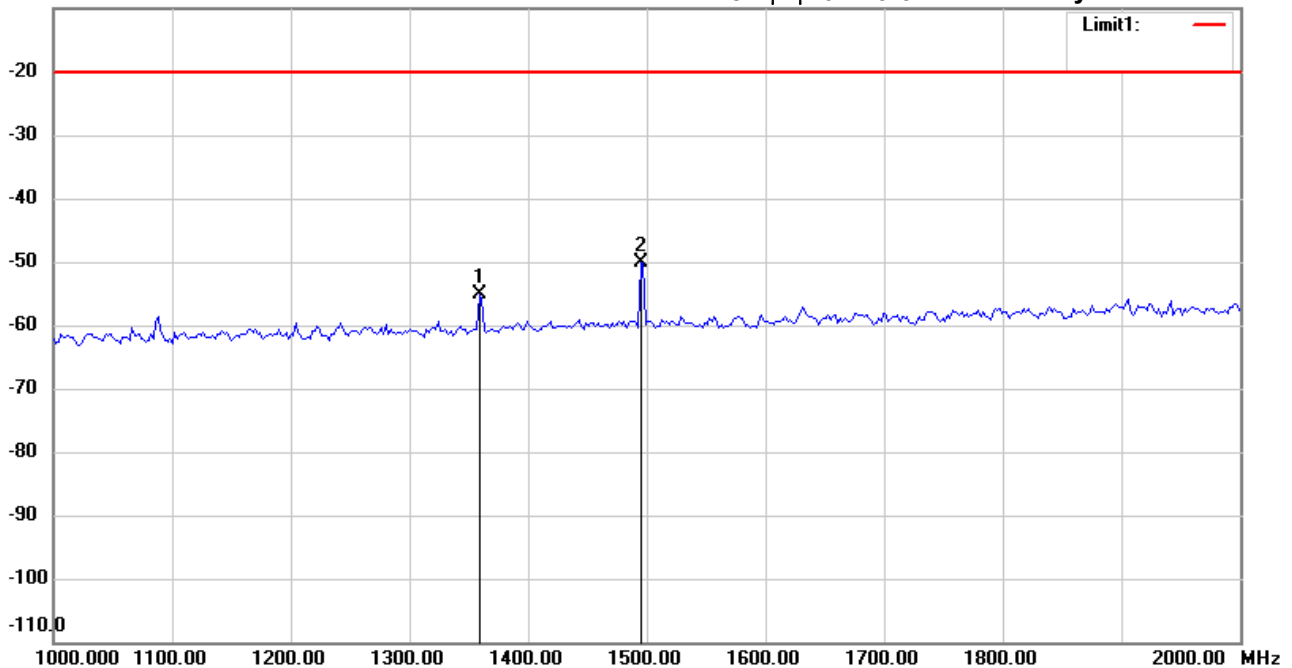
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:23:31

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1358.717	-56.65	peak	1.48	-55.17	-20.00	150	190	-35.17	
*	1494.990	-52.02	peak	1.89	-50.13	-20.00	150	150	-30.13	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :1

Data :#1

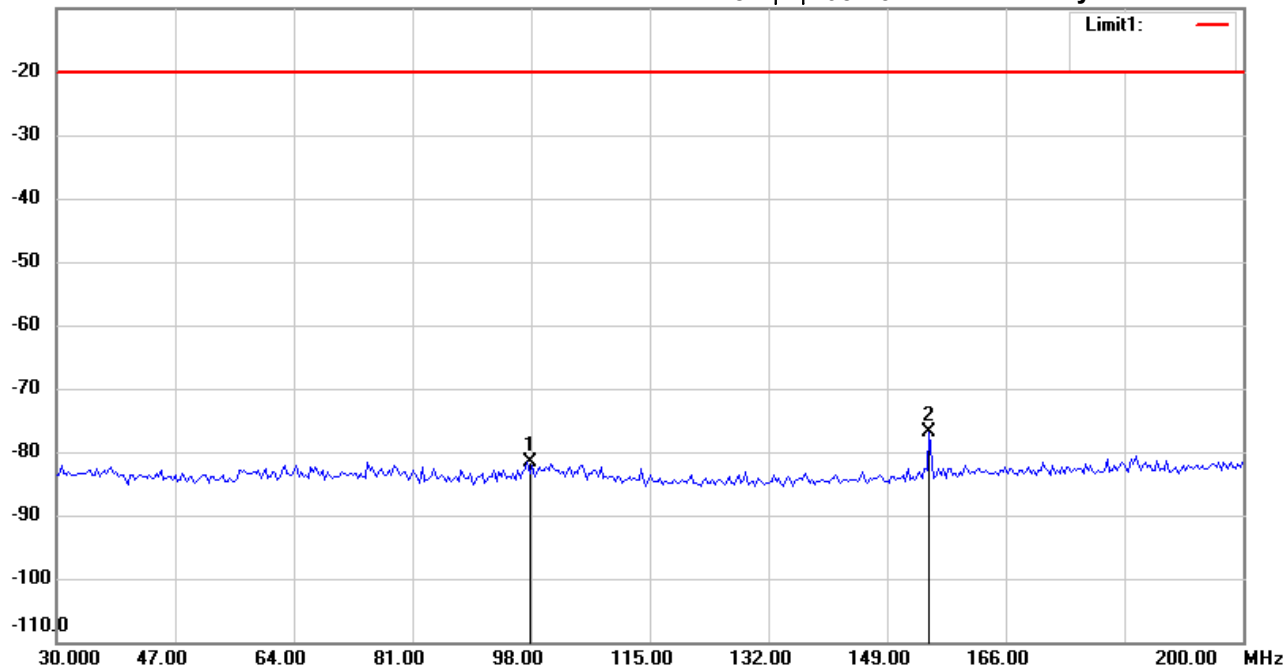
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 05:23:14

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	97.4550	-103.03	peak	21.41	-81.62	-20.00	150	180	-61.62	
*	155.0301	-97.99	peak	21.05	-76.94	-20.00	150	165	-56.94	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :1

Data :#2

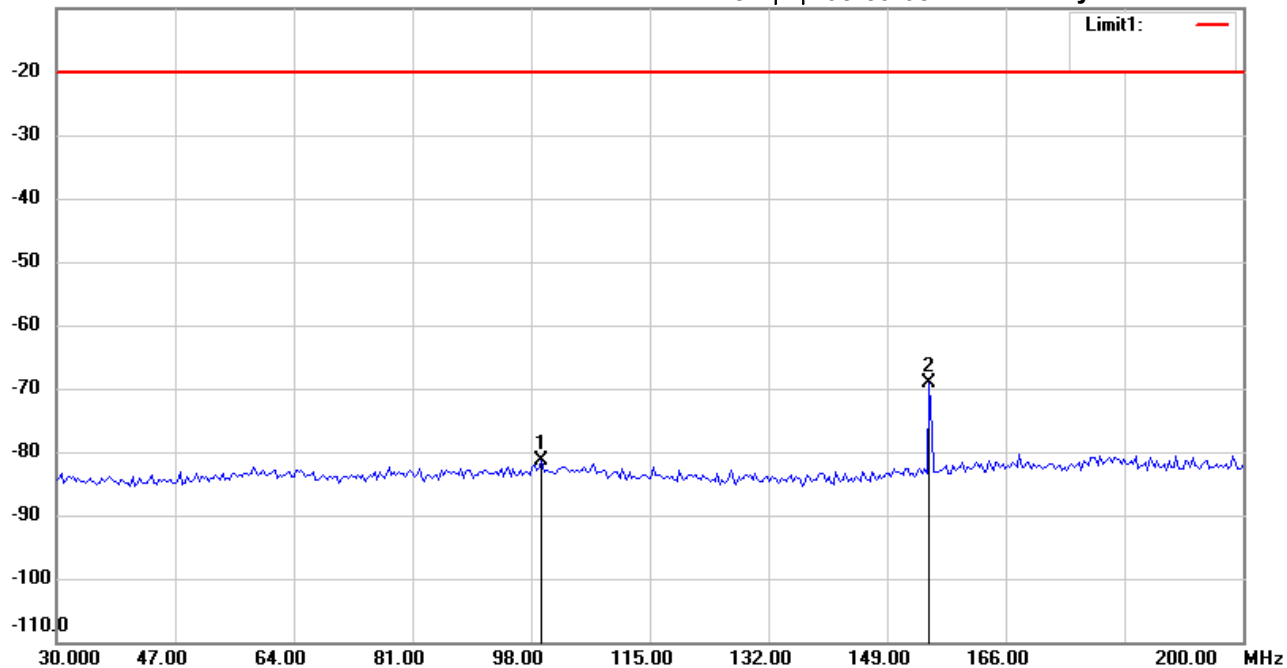
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 05:59:05

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	99.4990	-103.17	peak	21.69	-81.48	-20.00	150	350	-61.48	
*	155.0301	-90.57	peak	21.51	-69.06	-20.00	150	335	-49.06	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 2

Data : #1

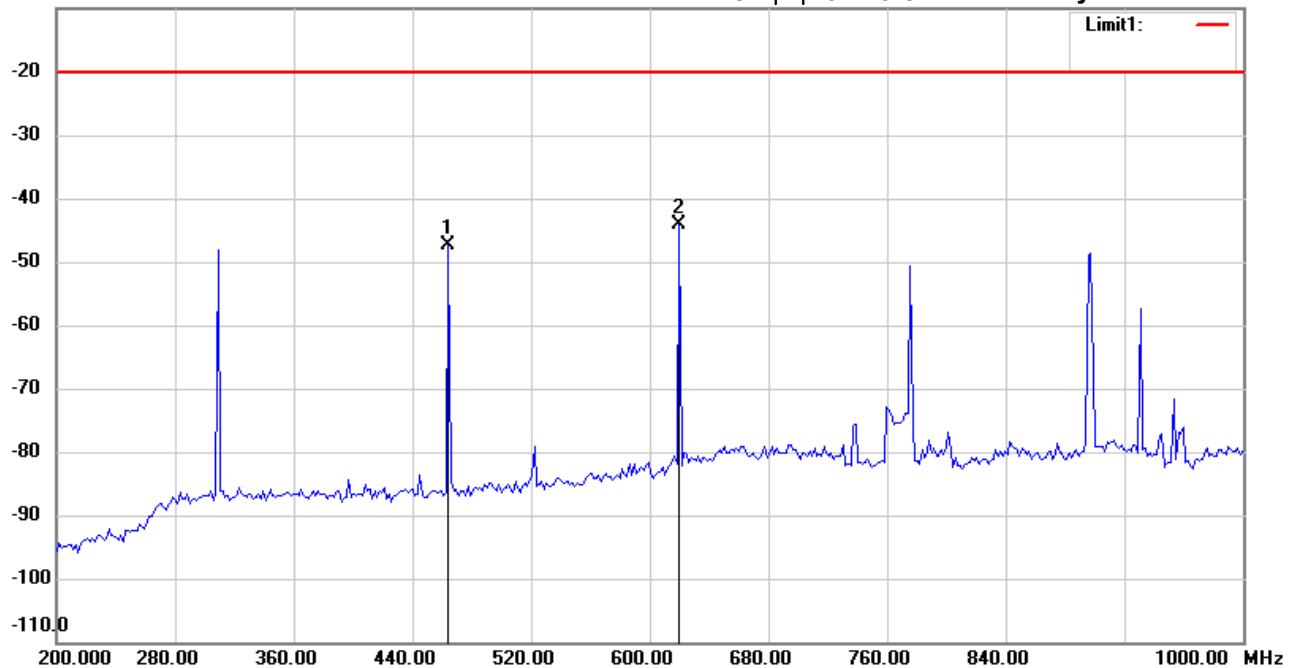
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:13:51

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: **Horizontal**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	464.5291	-37.74	peak	-9.65	-47.39	-20.00	150	135	-27.39	
*	620.0401	-39.51	peak	-4.66	-44.17	-20.00	150	120	-24.17	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 2

Data : #2

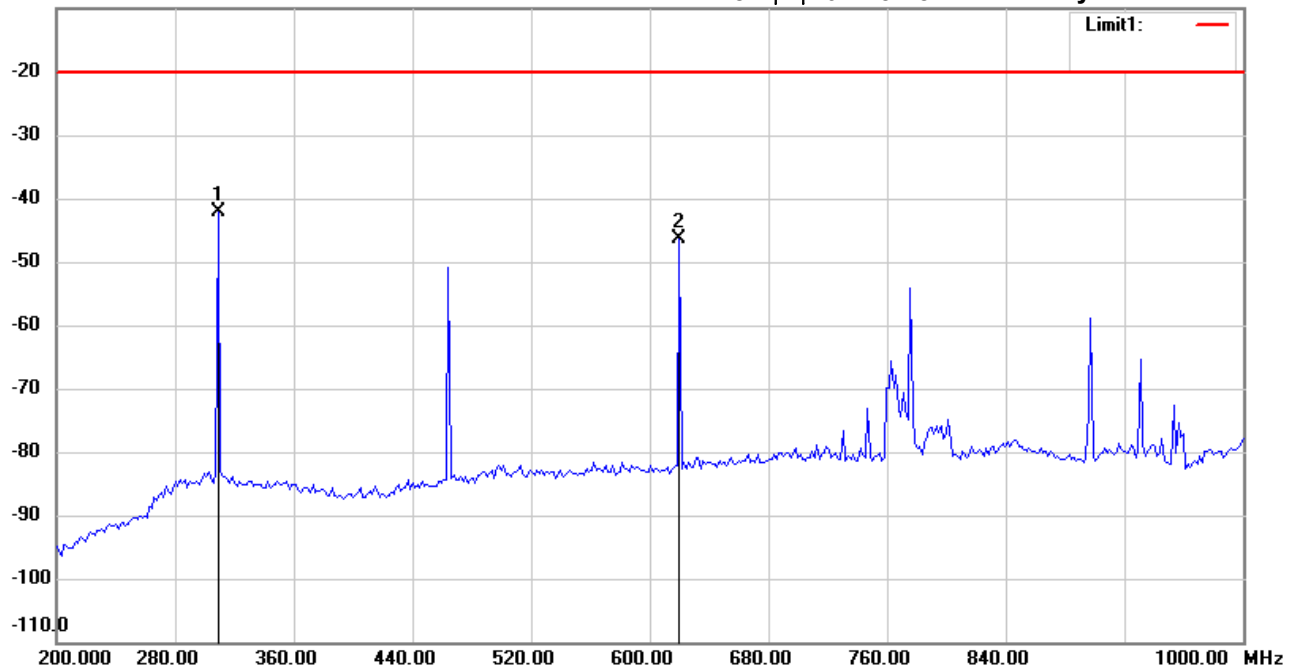
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:15:18

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: Vertical

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	309.0180	-34.29	peak	-7.85	-42.14	-20.00	150	20	-22.14	
	620.0401	-41.14	peak	-5.12	-46.26	-20.00	150	35	-26.26	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 3

Data : #1

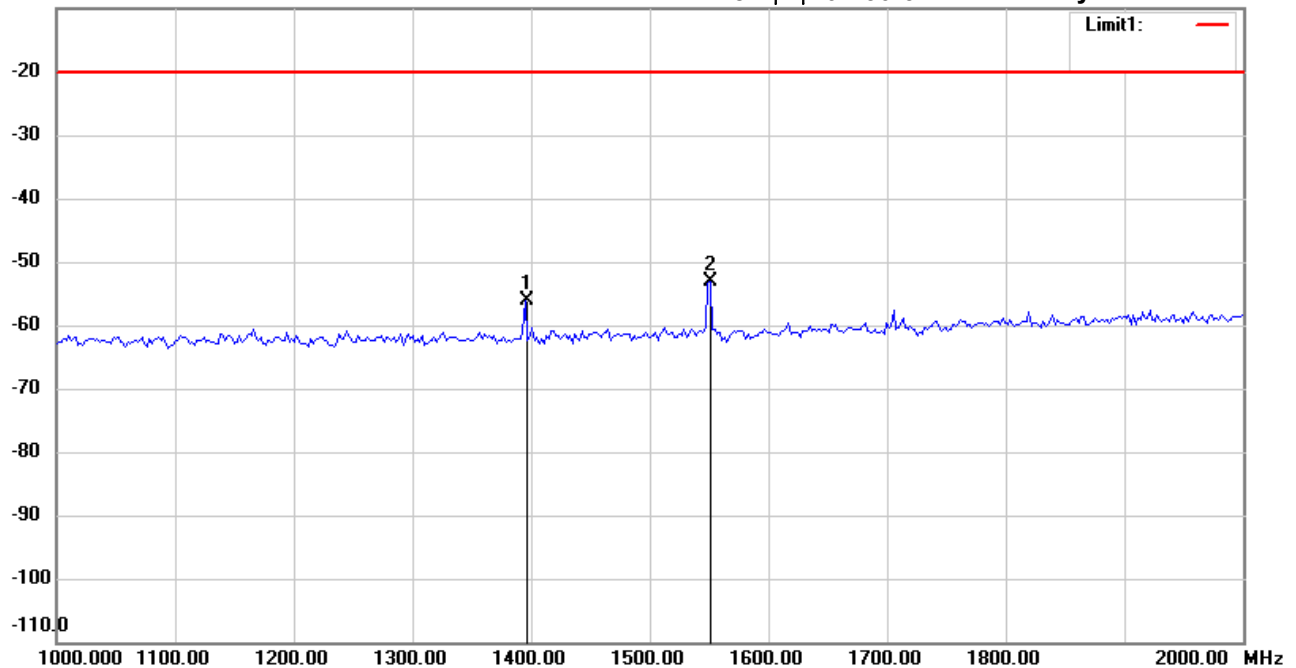
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:30:34

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: **Horizontal**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1394.790	-56.08	peak	-0.04	-56.12	-20.00	150	120	-36.12	
*	1551.102	-53.40	peak	0.29	-53.11	-20.00	150	125	-33.11	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 3

Data : #2

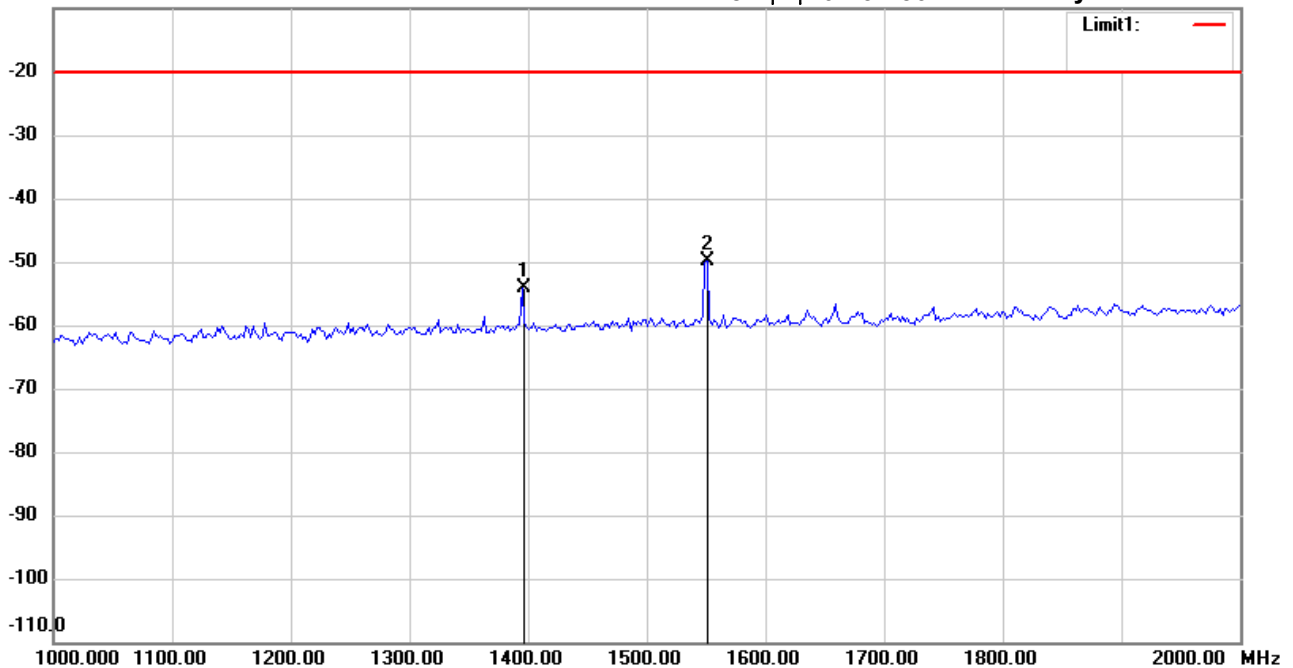
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:31:56

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1394.790	-55.67	peak	1.59	-54.08	-20.00	150	105	-34.08	
*	1551.102	-52.12	peak	2.17	-49.95	-20.00	150	40	-29.95	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 1

Data : #1

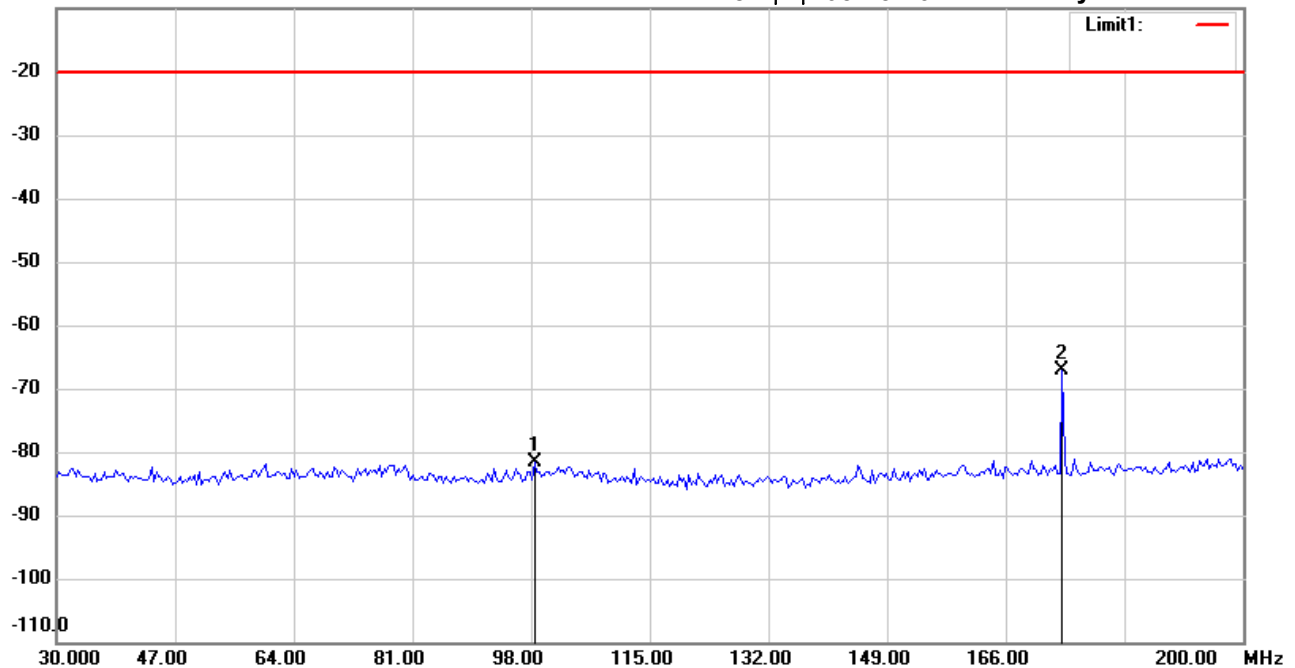
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 05:15:46

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: **Horizontal**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	98.4770	-103.05	peak	21.49	-81.56	-20.00	150	110	-61.56	
*	174.1082	-88.51	peak	21.47	-67.04	-20.00	150	150	-47.04	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :1

Data :#2

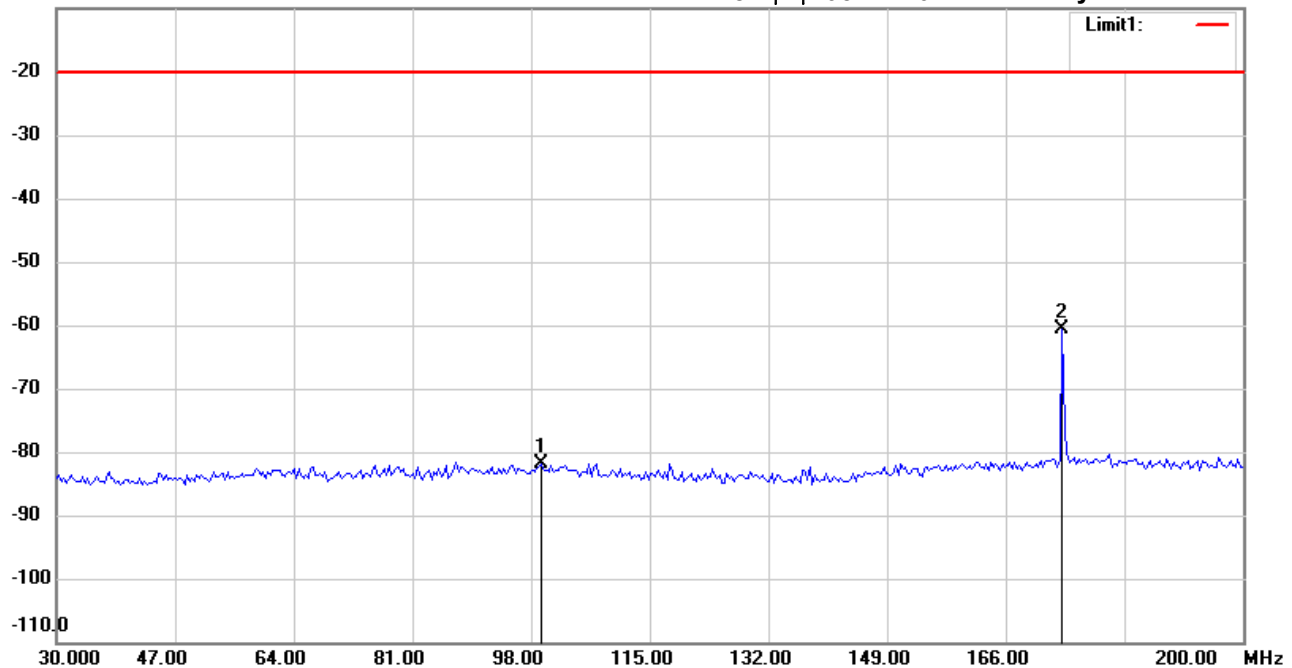
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 05:17:40

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: *Vertical*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	99.4990	-103.60	peak	21.69	-81.91	-20.00	150	15	-61.91	
*	174.1082	-83.08	peak	22.36	-60.72	-20.00	150	280	-40.72	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 2

Data : #1

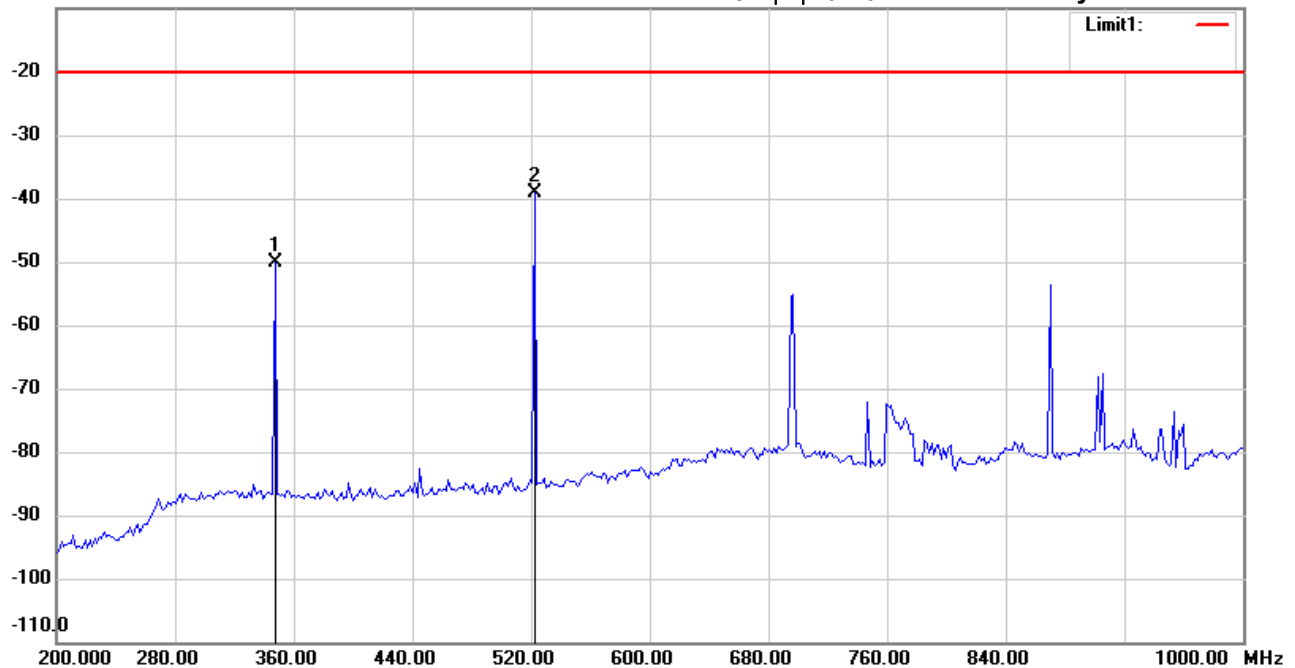
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:07:44

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	347.4950	-39.81	peak	-10.40	-50.21	-20.00	150	210	-30.21	
*	522.2445	-30.76	peak	-8.48	-39.24	-20.00	150	250	-19.24	

*:Maximum data x:Over limit !:over margin



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Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 2

Data : #2

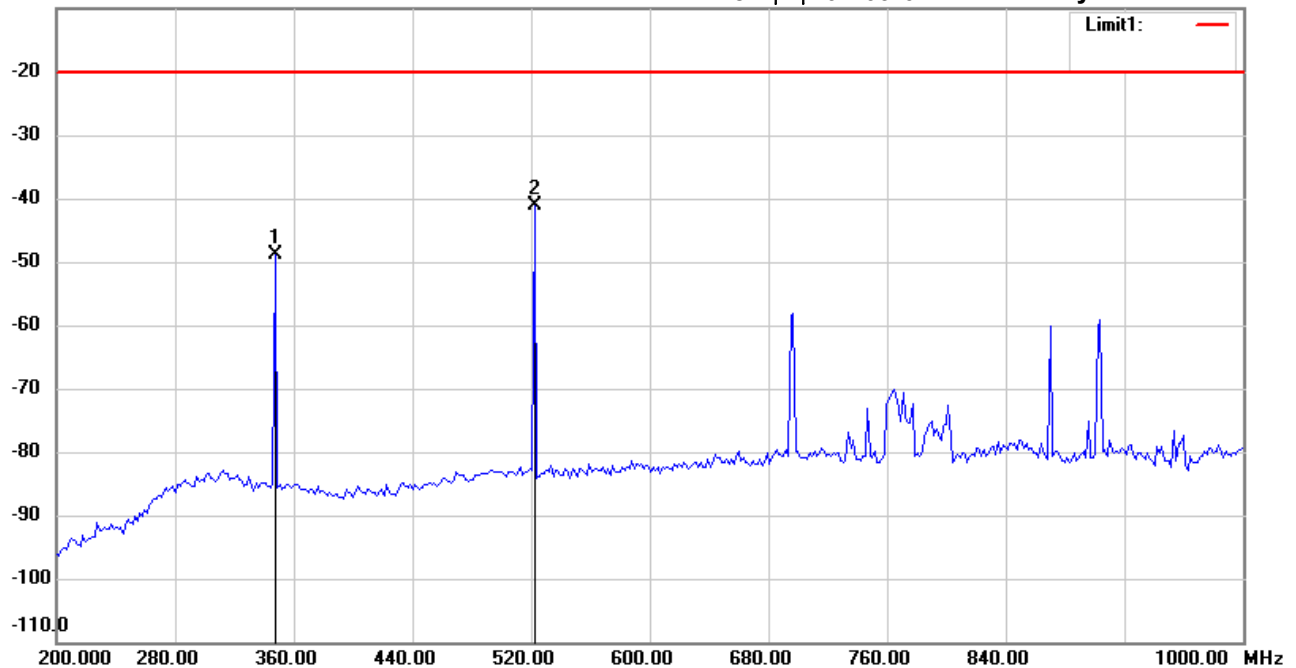
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:09:02

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	347.4950	-39.82	peak	-8.95	-48.77	-20.00	150	35	-28.77	
*	522.2445	-34.76	peak	-6.46	-41.22	-20.00	150	80	-21.22	

*:Maximum data x:Over limit !:over margin



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Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :3

Data :#1

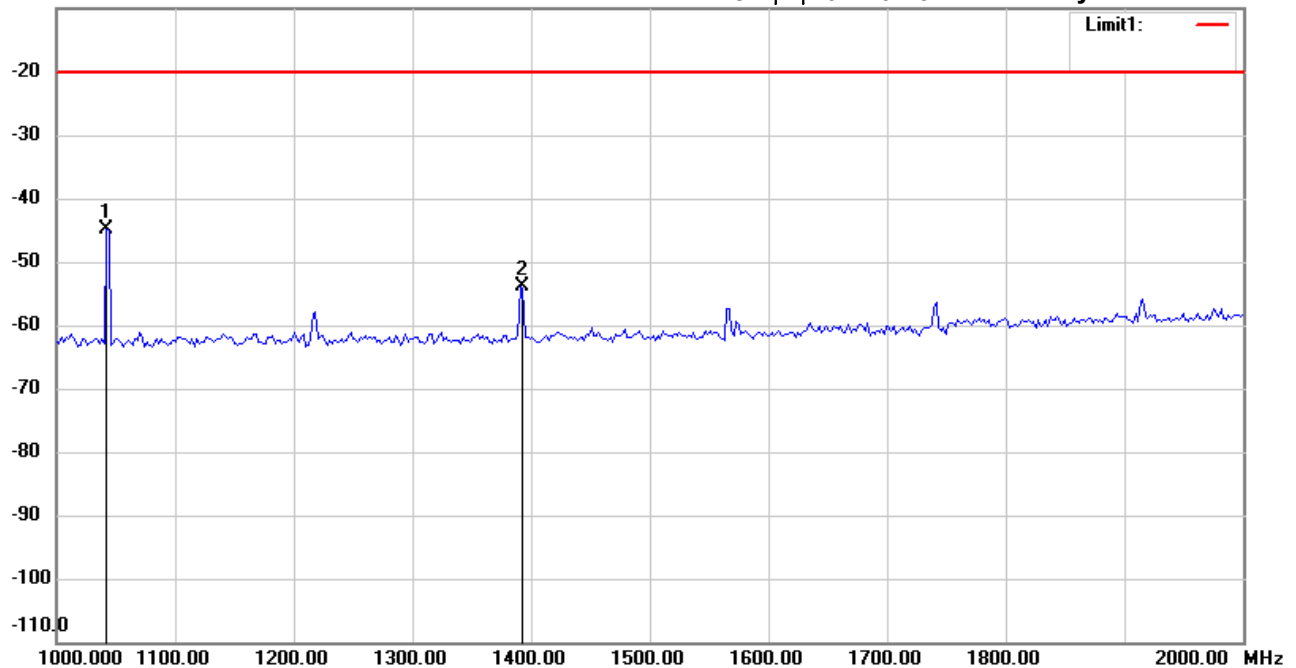
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:26:23

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1042.084	-44.98	peak	0.00	-44.98	-20.00	150	160	-24.98	
	1390.782	-53.88	peak	-0.04	-53.92	-20.00	150	155	-33.92	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :3

Data :#2

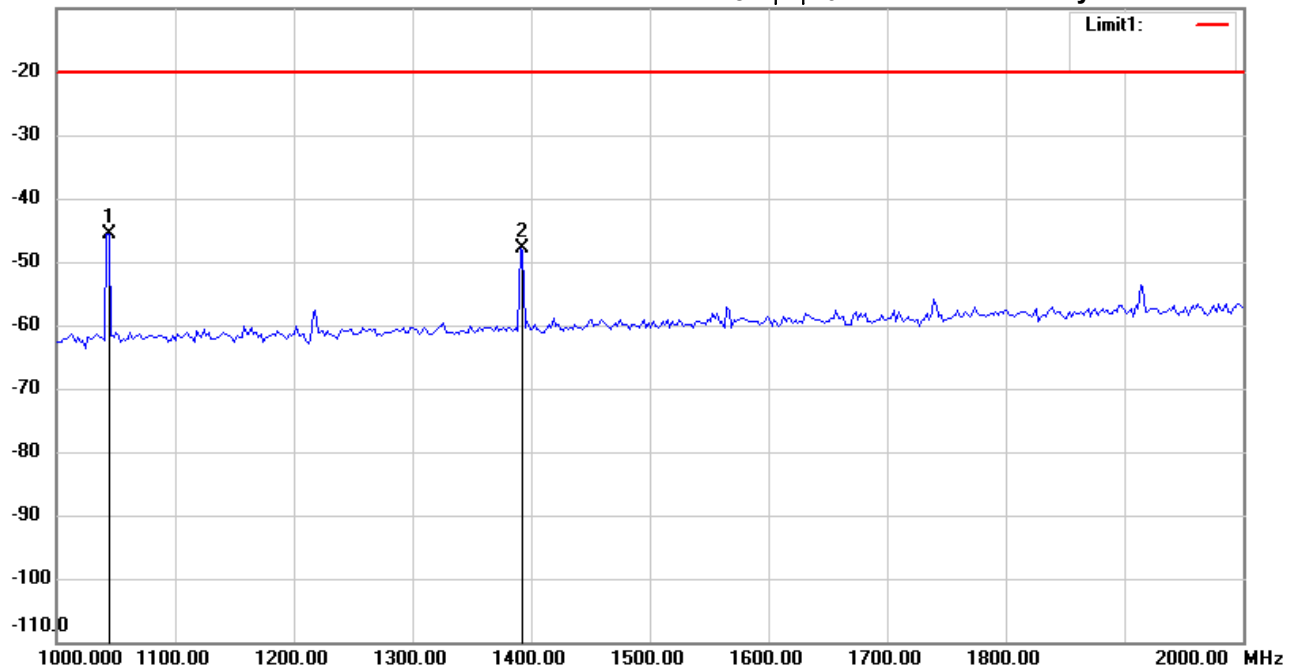
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:27:44

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1044.088	-46.02	peak	0.51	-45.51	-20.00	150	310	-25.51	
	1390.782	-49.54	peak	1.58	-47.96	-20.00	150	50	-27.96	

*:Maximum data x:Over limit !:over margin

Appendix

Measurement diagrams

Spurious Emissions radiated_TX 25 kHz



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :1

Data :#1

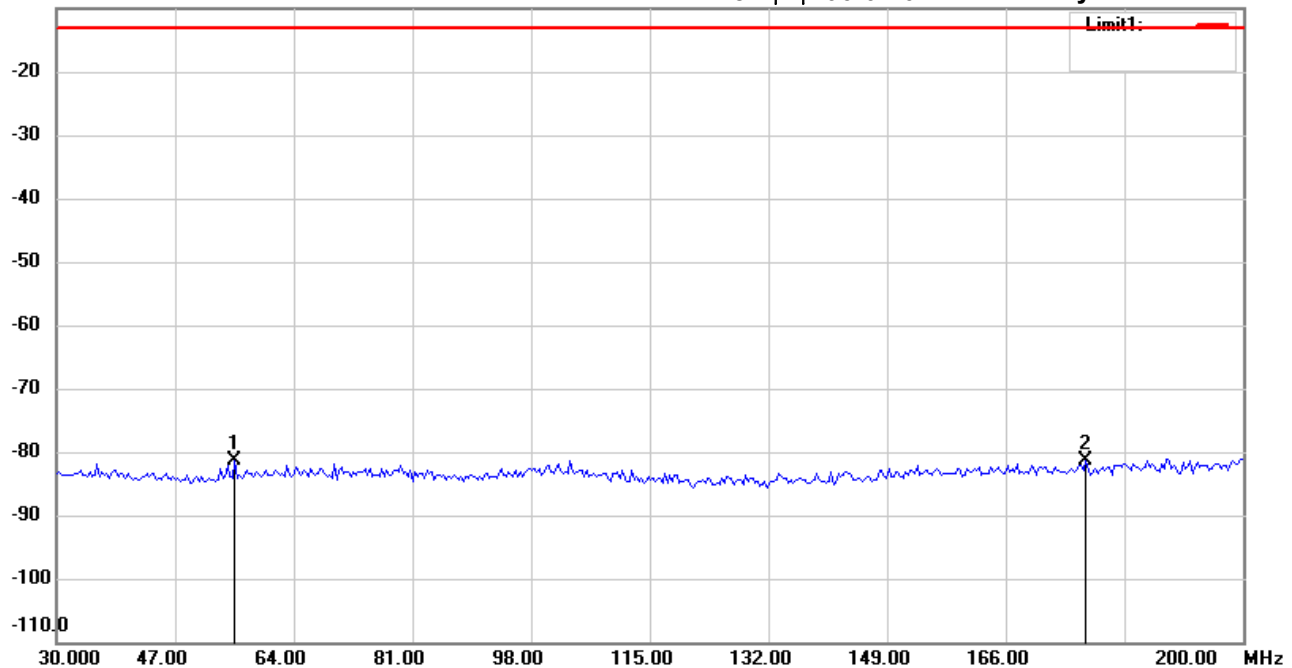
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 06:07:07

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	55.5511	-102.95	peak	21.58	-81.37	-13.00	150	155	-68.37	
	177.5150	-102.91	peak	21.50	-81.41	-13.00	150	165	-68.41	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :1

Data :#2

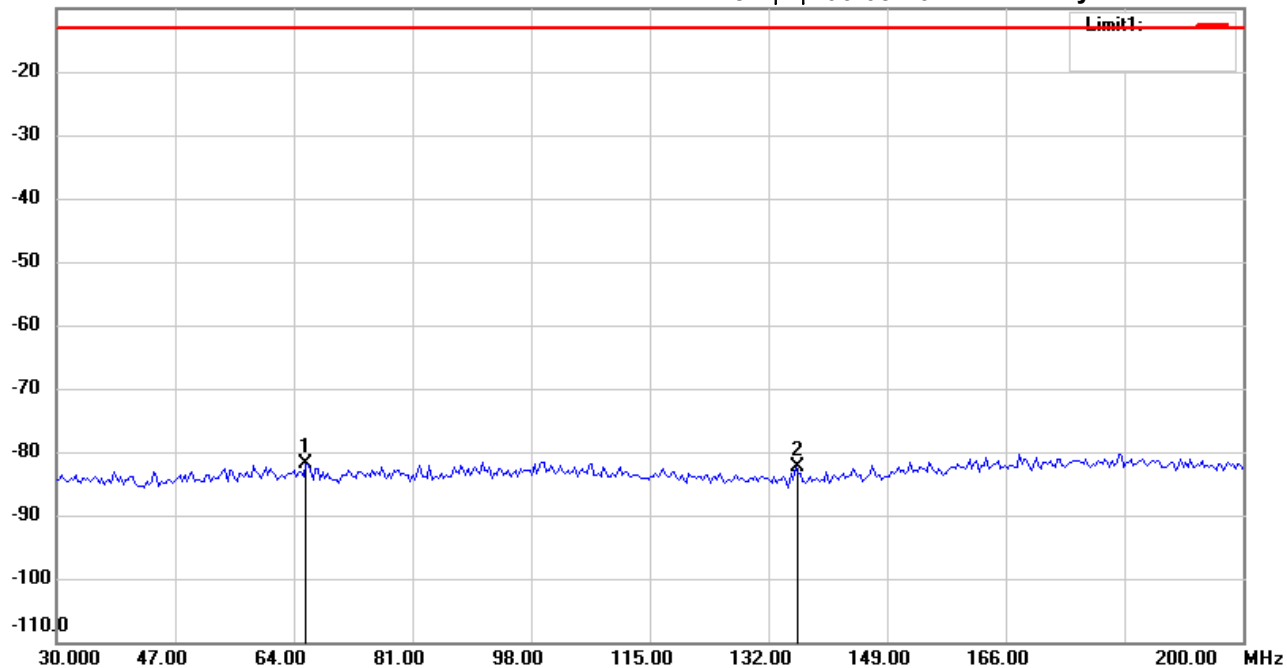
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 06:08:46

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: Vertical

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	65.7715	-103.19	peak	21.24	-81.95	-13.00	150	315	-68.95	
	135.9520	-102.61	peak	20.23	-82.38	-13.00	150	25	-69.38	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, Neihu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 2

Data : #1

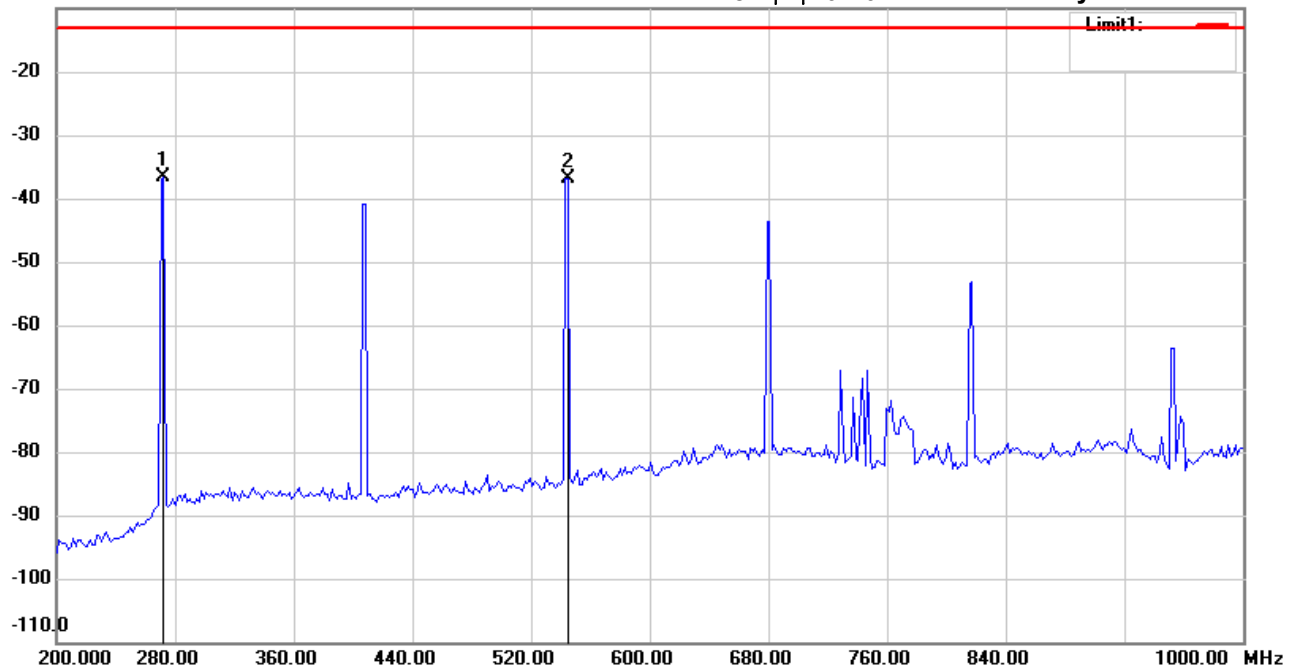
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:02:17

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	272.1443	-24.61	peak	-12.04	-36.65	-13.00	150	180	-23.65	
	544.6894	-28.99	peak	-7.76	-36.75	-13.00	150	135	-23.75	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, Neihu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 2

Data : #2

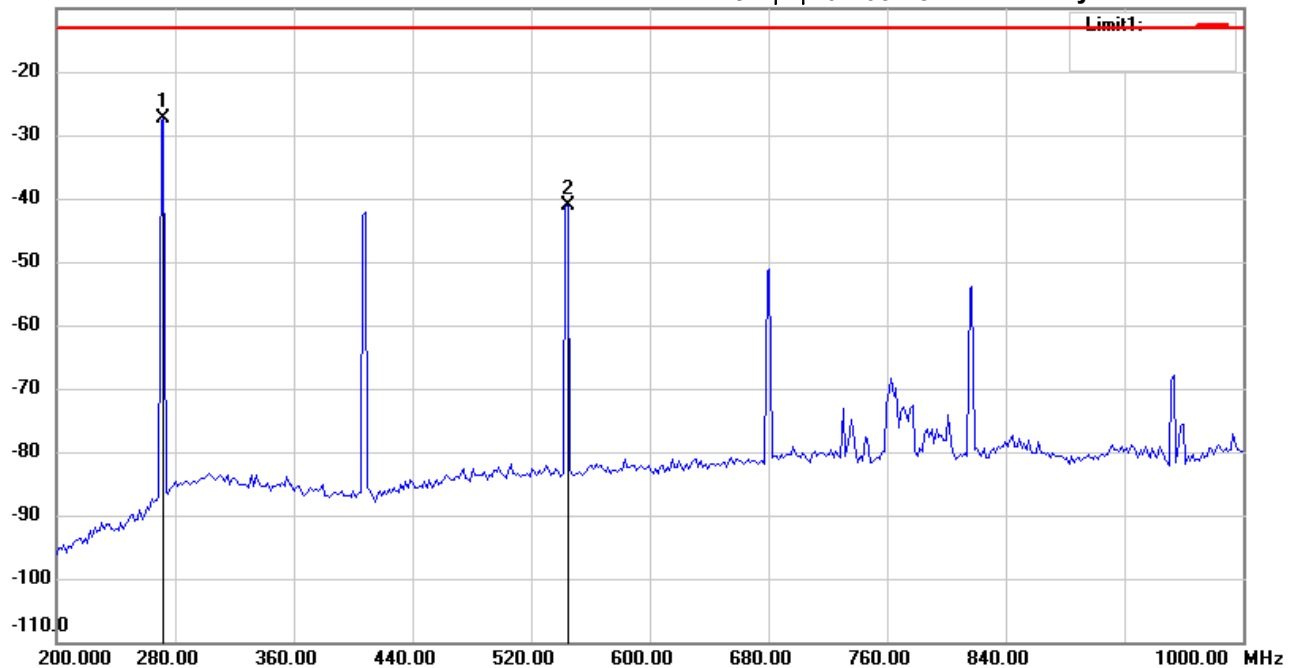
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:03:48

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: *Vertical*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	272.1443	-17.21	peak	-10.21	-27.42	-13.00	150	350	-14.42	
	544.6894	-34.99	peak	-6.20	-41.19	-13.00	150	15	-28.19	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 3

Data : #1

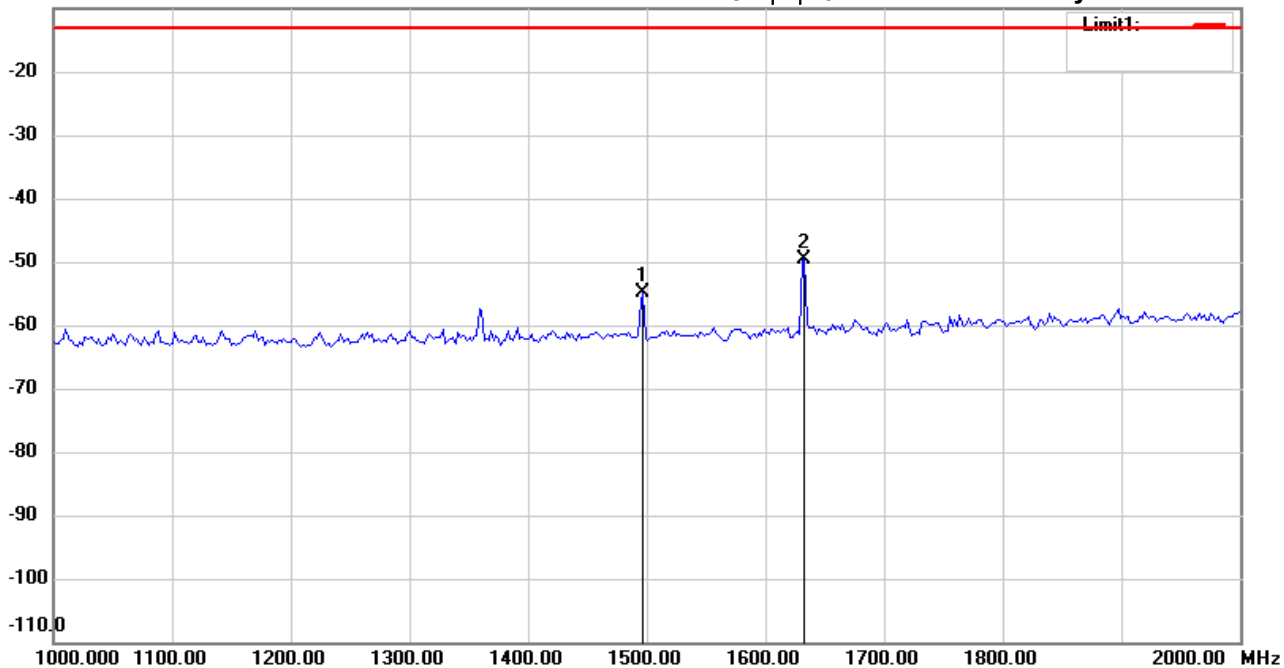
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:21:42

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1496.994	-54.73	peak	-0.05	-54.78	-13.00	150	225	-41.78	
*	1633.266	-50.45	peak	0.83	-49.62	-13.00	150	280	-36.62	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 3

Data : #2

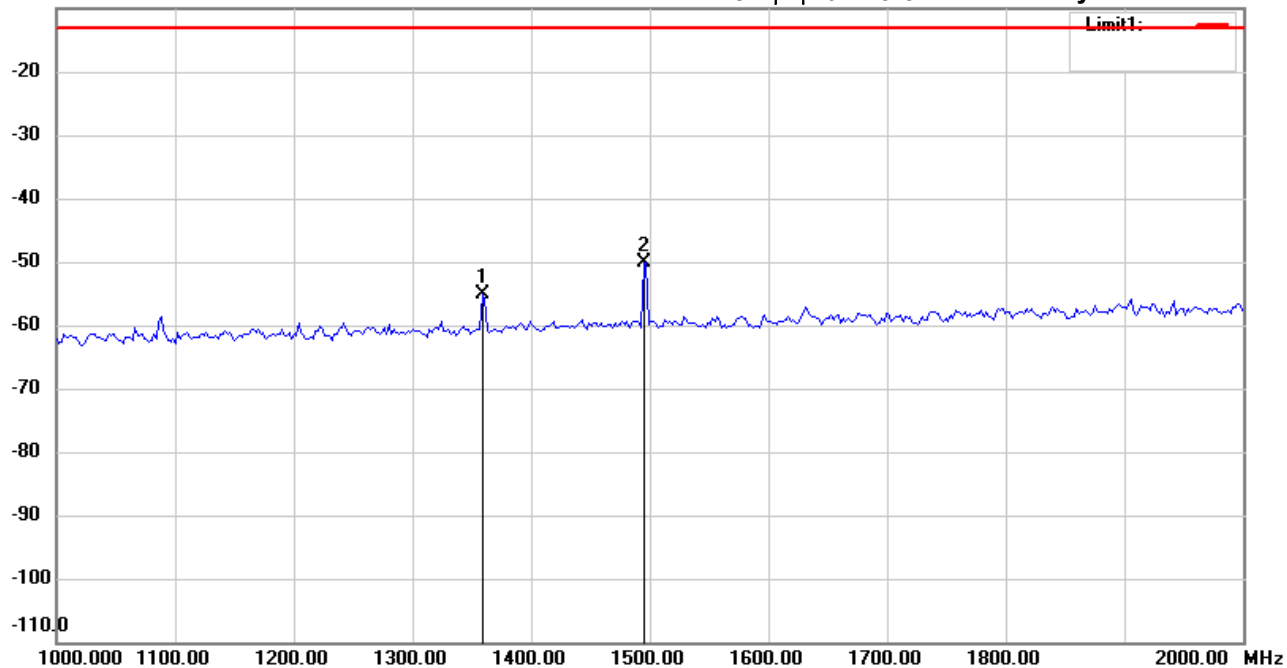
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:23:31

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 136MHz

Note :

Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1358.717	-56.65	peak	1.48	-55.17	-13.00	150	190	-42.17	
*	1494.990	-52.02	peak	1.89	-50.13	-13.00	150	150	-37.13	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :1

Data :#1

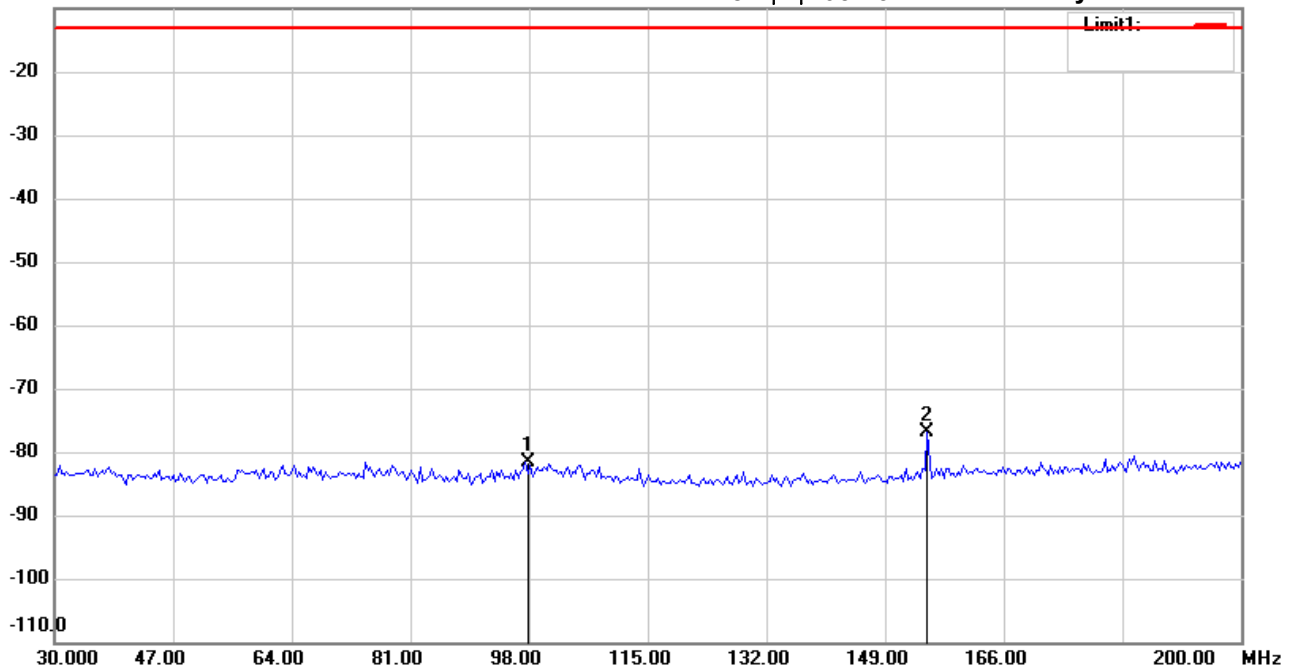
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 05:23:14

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	97.4550	-103.03	peak	21.41	-81.62	-13.00	150	180	-68.62	
*	155.0301	-97.99	peak	21.05	-76.94	-13.00	150	165	-63.94	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :1

Data :#2

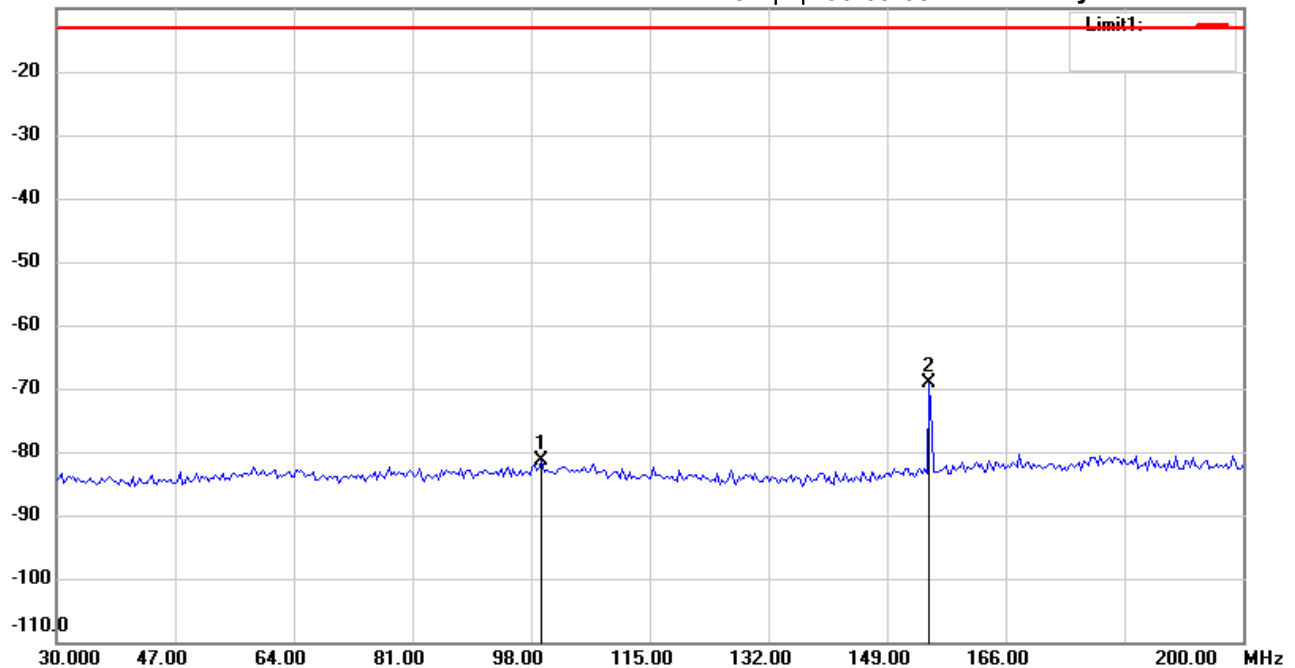
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 05:59:05

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: Vertical

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	99.4990	-103.17	peak	21.69	-81.48	-13.00	150	350	-68.48	
*	155.0301	-90.57	peak	21.51	-69.06	-13.00	150	335	-56.06	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 2

Data : #1

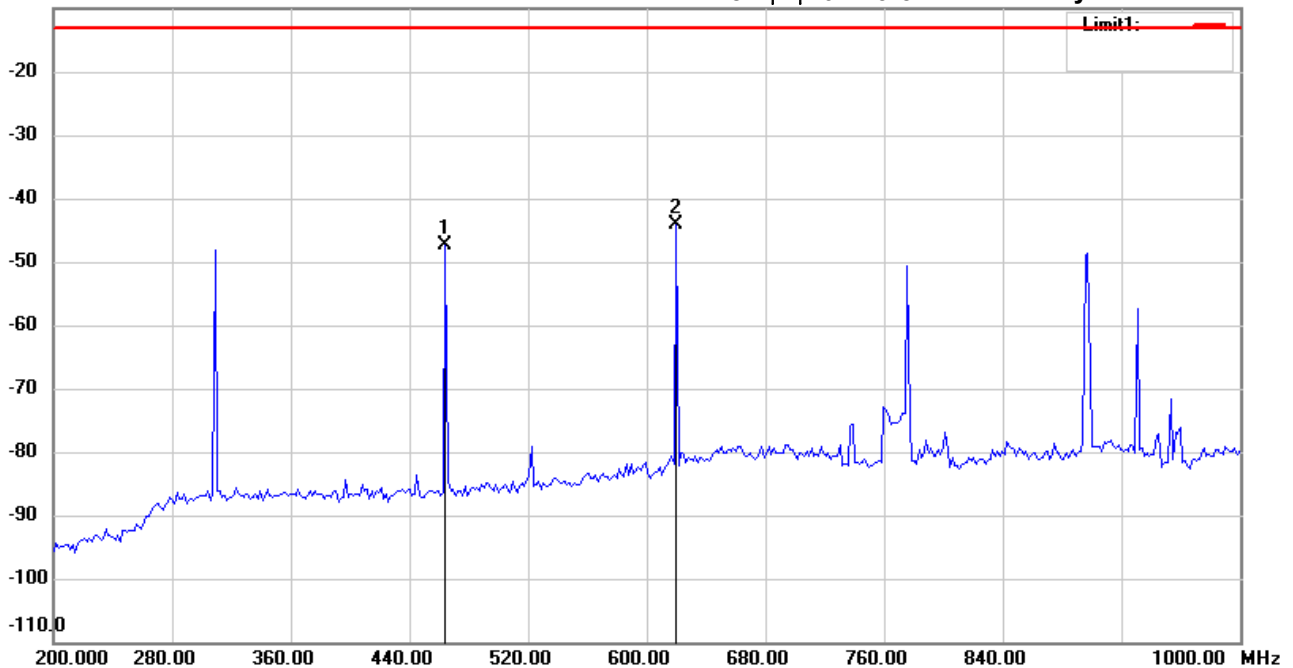
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:13:51

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	464.5291	-37.74	peak	-9.65	-47.39	-13.00	150	135	-34.39	
*	620.0401	-39.51	peak	-4.66	-44.17	-13.00	150	120	-31.17	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 2

Data : #2

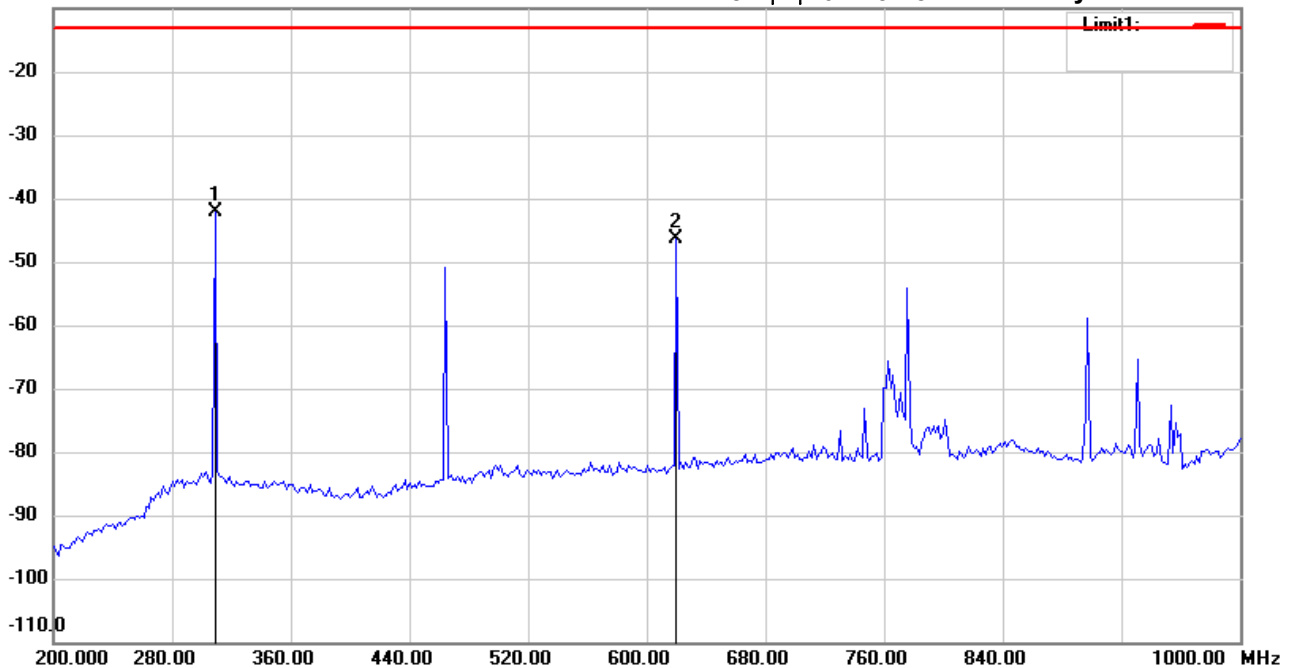
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:15:18

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	309.0180	-34.29	peak	-7.85	-42.14	-13.00	150	20	-29.14	
	620.0401	-41.14	peak	-5.12	-46.26	-13.00	150	35	-33.26	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 3

Data : #1

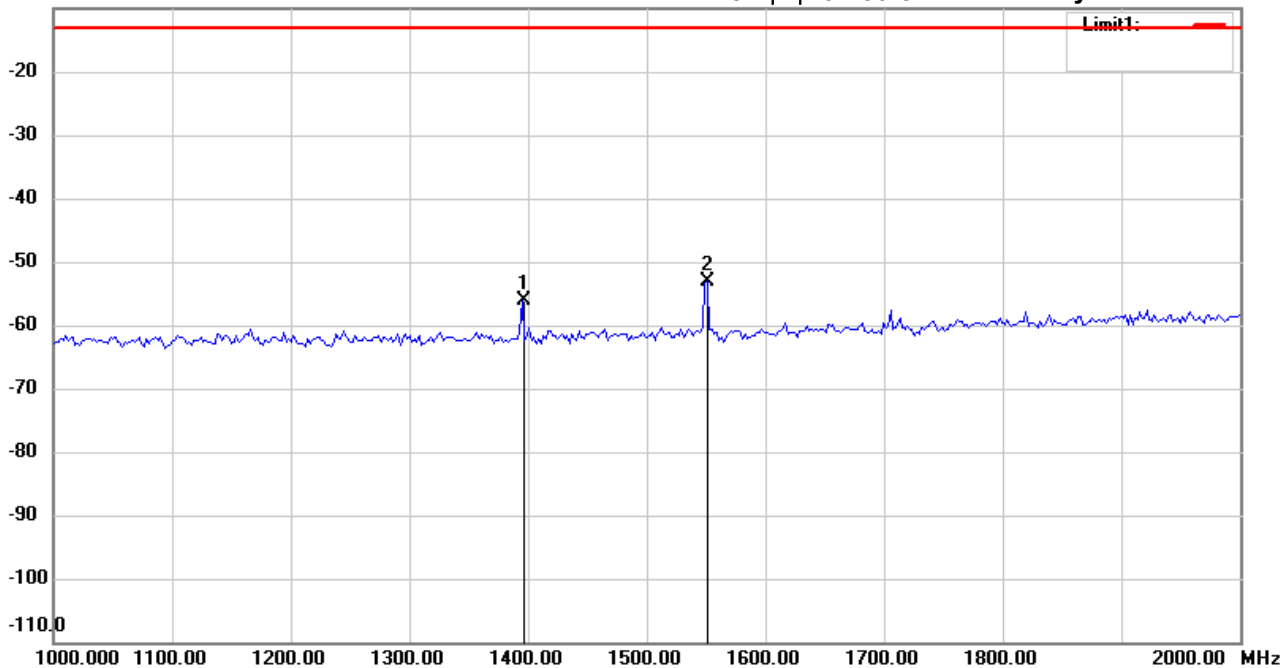
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:30:34

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1394.790	-56.08	peak	-0.04	-56.12	-13.00	150	120	-43.12	
*	1551.102	-53.40	peak	0.29	-53.11	-13.00	150	125	-40.11	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 3

Data : #2

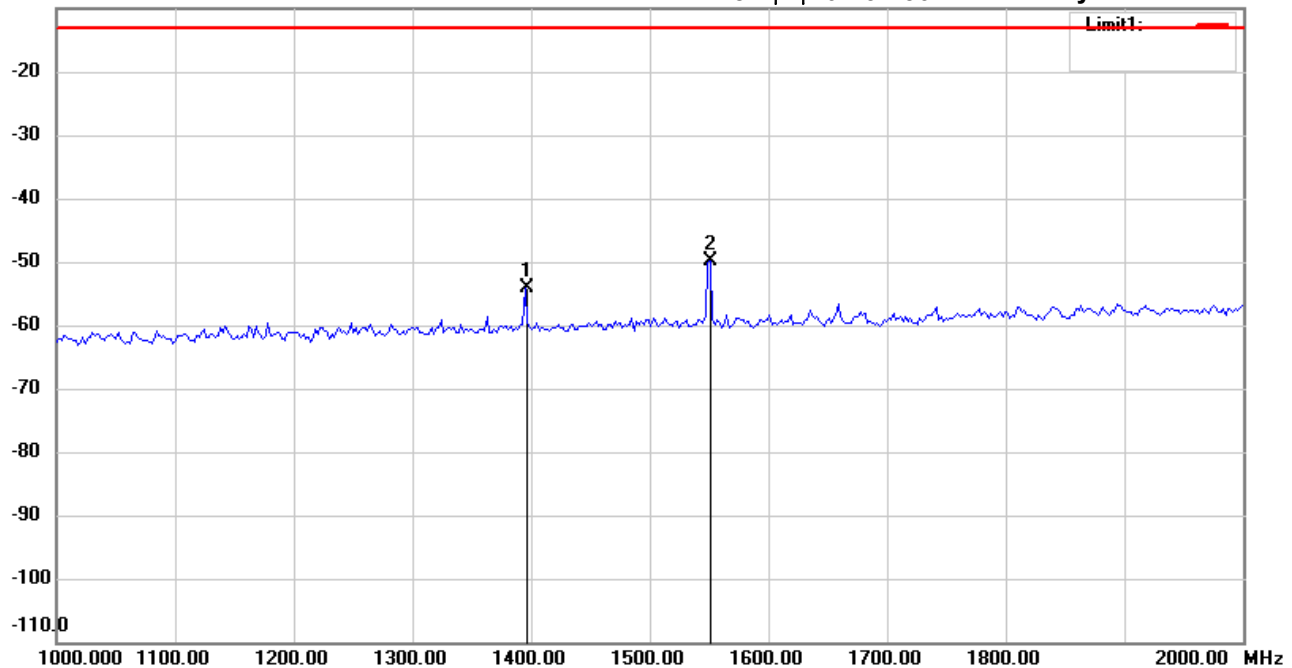
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:31:56

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 155MHz

Note :

Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	1394.790	-55.67	peak	1.59	-54.08	-13.00	150	105	-41.08	
*	1551.102	-52.12	peak	2.17	-49.95	-13.00	150	40	-36.95	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :1

Data :#1

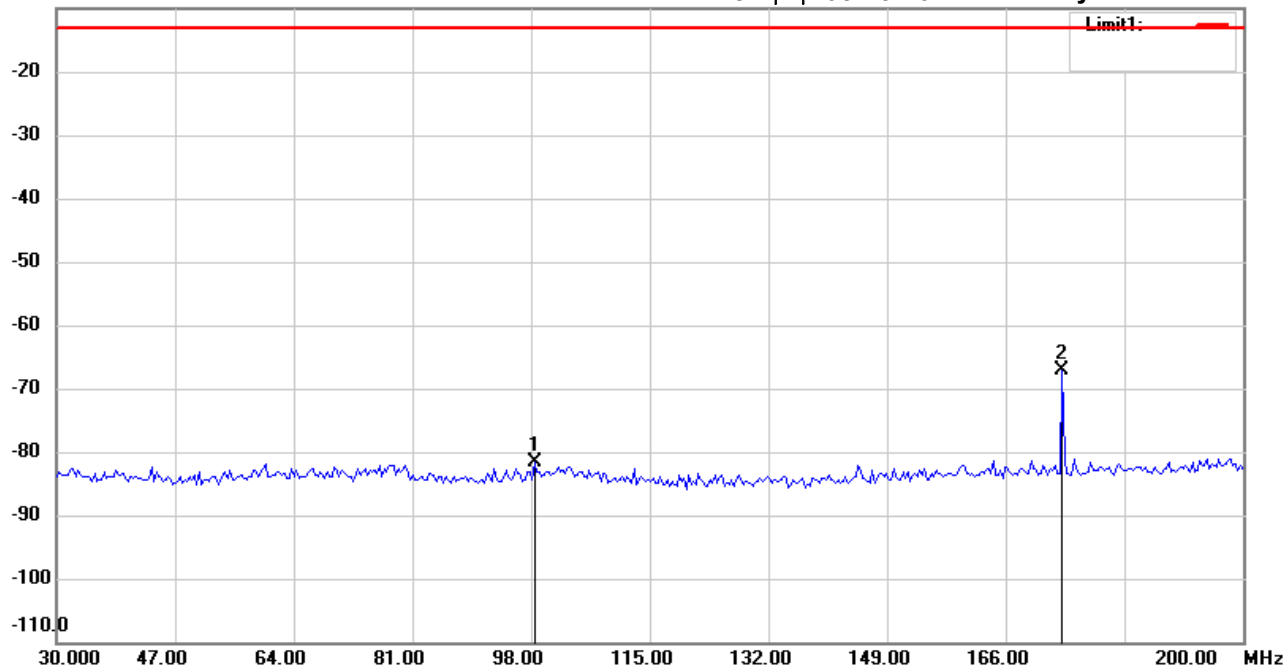
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 05:15:46

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	98.4770	-103.05	peak	21.49	-81.56	-13.00	150	110	-68.56	
*	174.1082	-88.51	peak	21.47	-67.04	-13.00	150	150	-54.04	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :1

Data :#2

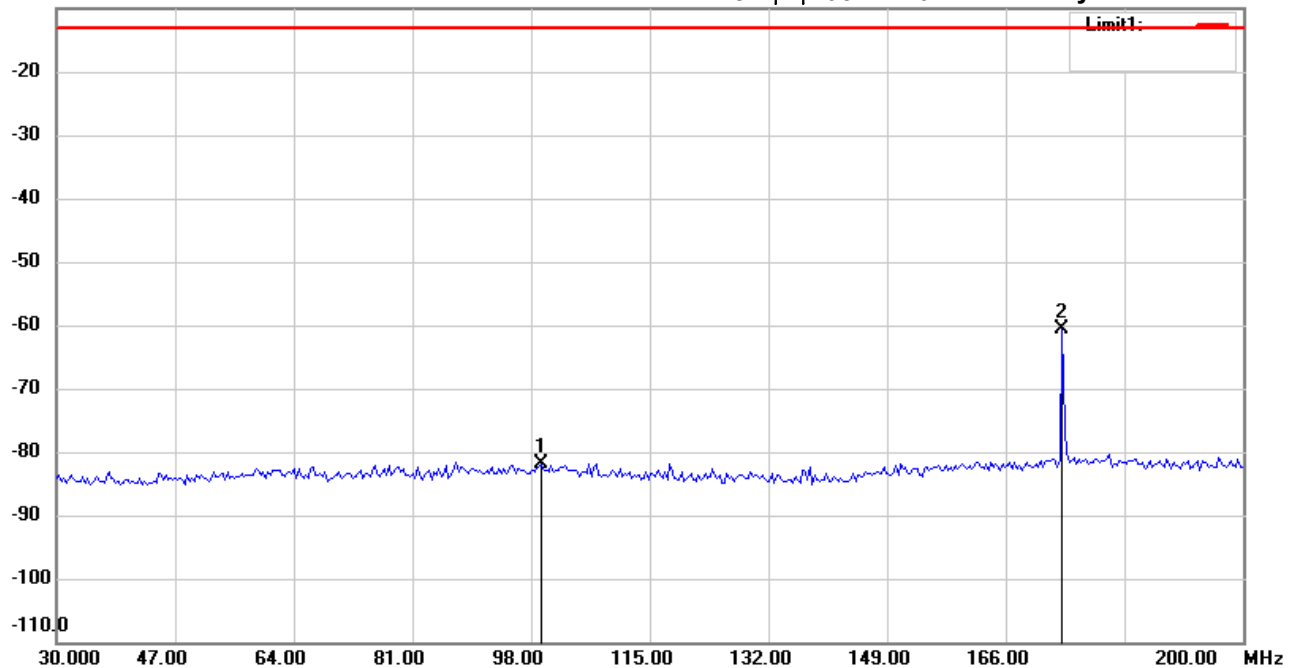
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 05:17:40

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	99.4990	-103.60	peak	21.69	-81.91	-13.00	150	15	-68.91	
*	174.1082	-83.08	peak	22.36	-60.72	-13.00	150	280	-47.72	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File : 2

Data : #1

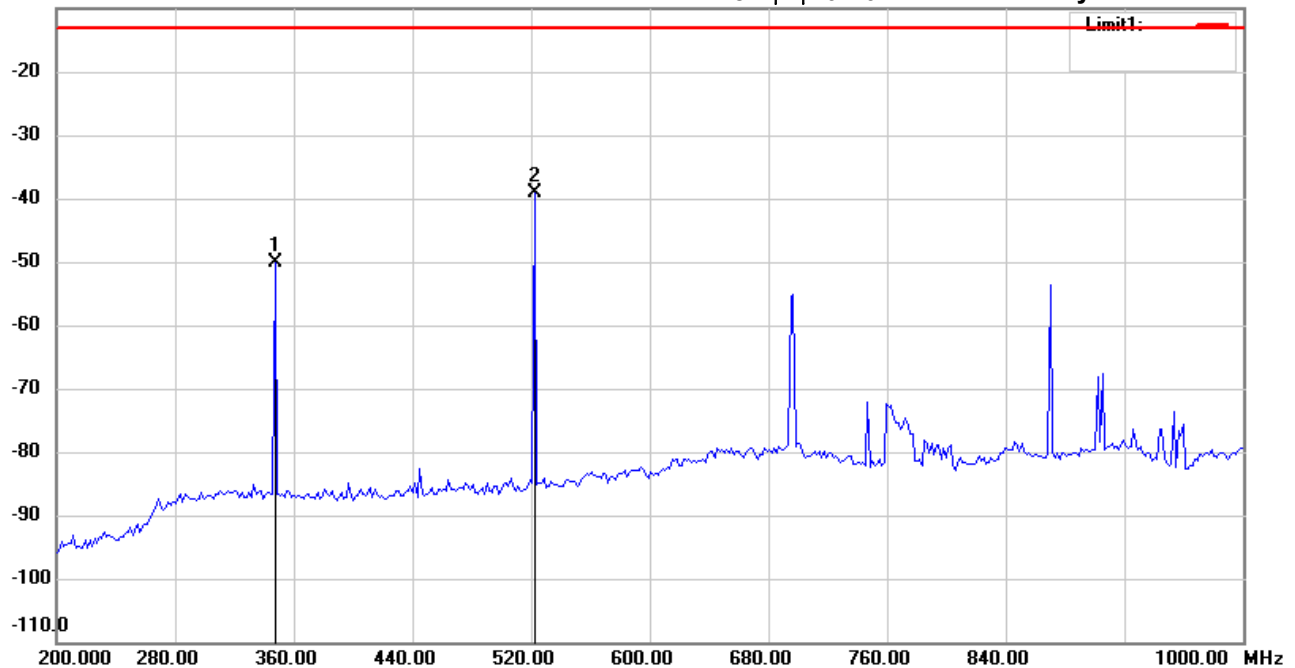
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:07:44

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	347.4950	-39.81	peak	-10.40	-50.21	-13.00	150	210	-37.21	
*	522.2445	-30.76	peak	-8.48	-39.24	-13.00	150	250	-26.24	

*:Maximum data x:Over limit !:over margin



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Tel: +886-2-6606-8877
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Radiated Emission Measurement

Operator: Sora

File : 2

Data : #2

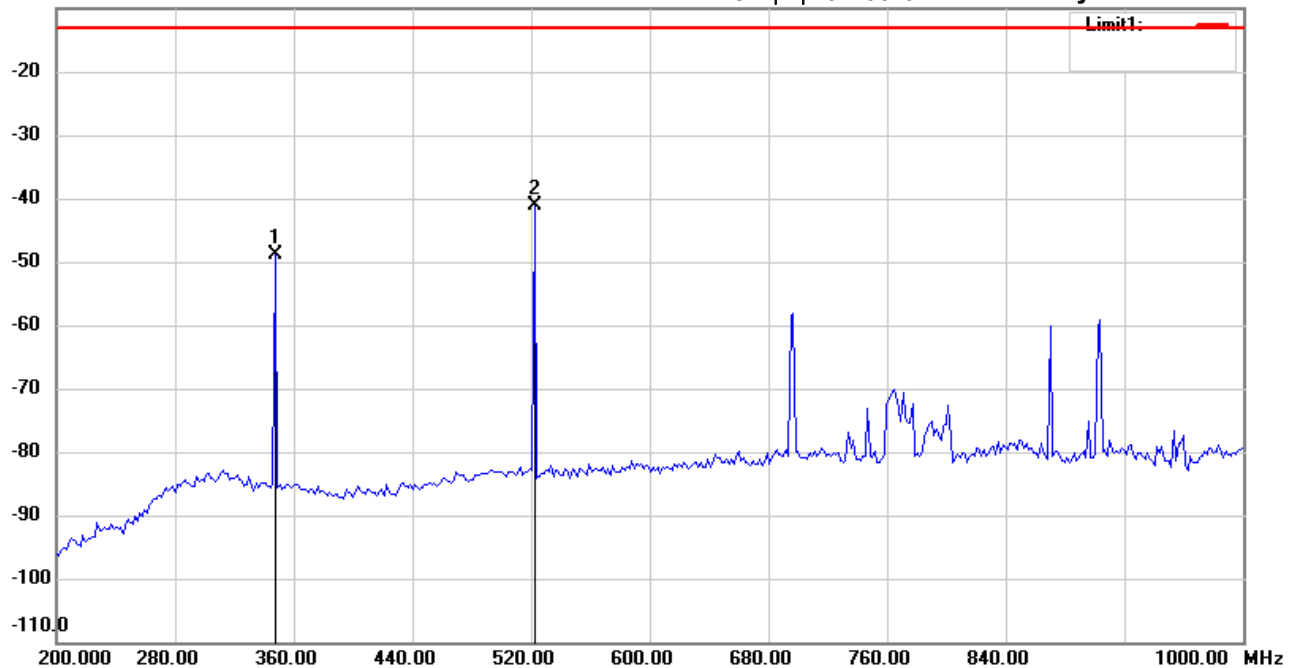
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 02:09:02

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: **Vertical**

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
	347.4950	-39.82	peak	-8.95	-48.77	-13.00	150	35	-35.77	
*	522.2445	-34.76	peak	-6.46	-41.22	-13.00	150	80	-28.22	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :3

Data :#1

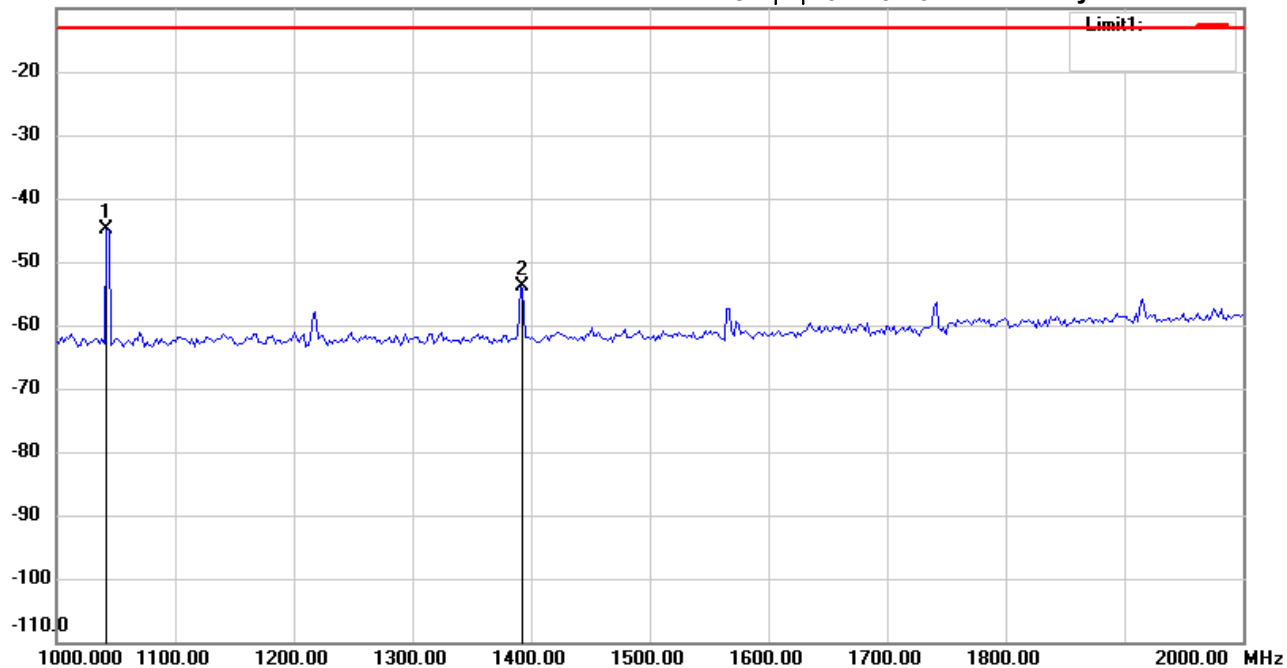
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:26:23

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: *Horizontal*

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1042.084	-44.98	peak	0.00	-44.98	-13.00	150	160	-31.98	
	1390.782	-53.88	peak	-0.04	-53.92	-13.00	150	155	-40.92	

*:Maximum data x:Over limit !:over margin



Address: 6F., No. 58, Ln 188, Ruey Kuang Rd, NeiHu, Taipei
Tel: +886-2-6606-8877
Fax: +886-2-6606-8879

Radiated Emission Measurement

Operator: Sora

File :3

Data :#2

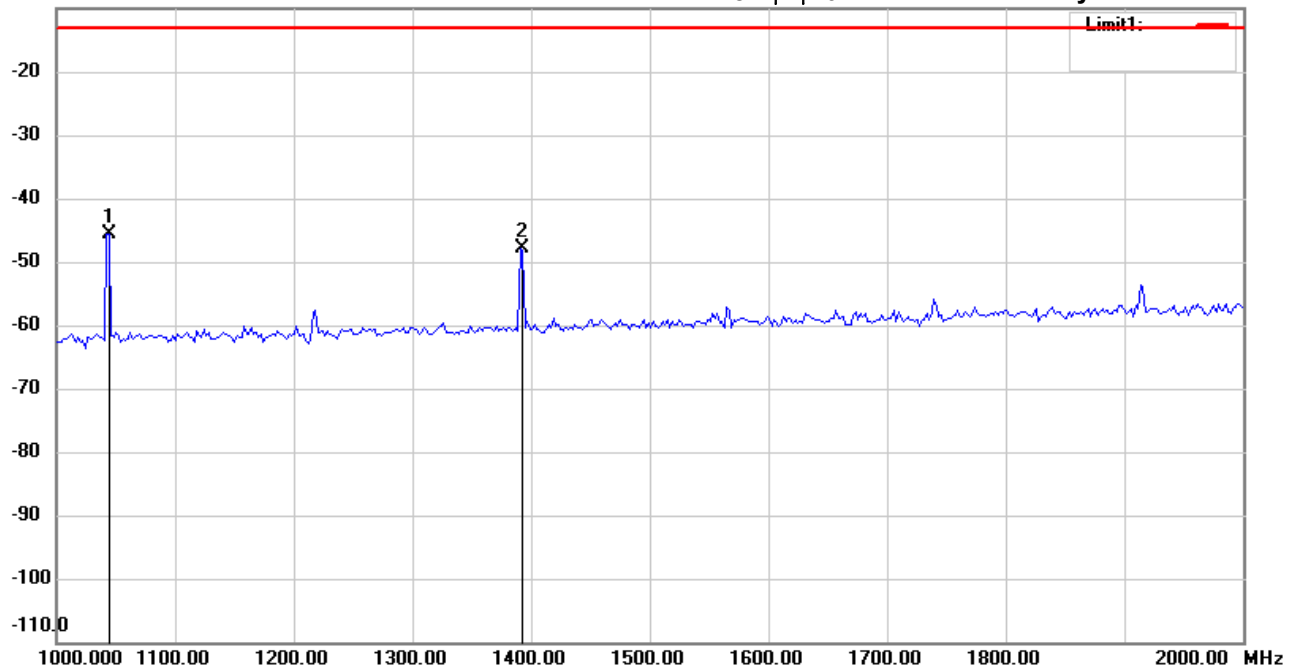
Date: 2018/5/21

Temperature: 24 °C

-10.0 dBm

Time: 下午 07:27:44

Humidity: 60 %



Site : Chamber

Condition : FCC_part 90 RE

EUT : W6M21804-18006

M/N:

Test Mode : TX 174MHz

Note :

Polarization: Vertical

Power : 13.6 Vd.c.

Distance: 3m

Mk.	Frequency (MHz)	Reading (dBm)	Detector	Corr. factor (dB)	Result (dBm)	Limit (dBm)	Ant.Pos (cm)	Tab.Pos (deg.)	Margin (dB)	Comment
*	1044.088	-46.02	peak	0.51	-45.51	-13.00	150	310	-32.51	
	1390.782	-49.54	peak	1.58	-47.96	-13.00	150	50	-34.96	

*:Maximum data x:Over limit !:over margin