

TEST REPORT

of

FCC Part 15 Subpart C & CANADA RSS-247

Product: **Bluetooth 5.0 Module**
Brand: **Fanstel**
Main Model: **BC840**
Series Model: **BC840M; BC840E**
Model Difference: **Please see page 6 model summaries table**
FCC ID: **X8WBC840M**
IC: **4100A-BC840M**
FCC Rule Part: **§15.247, Cat: DTS**
IC Rule Part: **RSS-247 issue 3: 2023**
RSS-Gen issue 5: 2018
Reference: **ANSI C63.10: 2013**
KDB 558074 D01 v05r02
Applicant: **Fanstel Corporation, Taipei**
Address: **10F-10, No. 79, Sec. 1, Hsin Tai Wu Rd., Hsi-Chih, New Taipei City 221 Taiwan**

Test Performed by:



International Standards Laboratory Corp. LT Lab.

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No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist., Tao Yuan City 325, Taiwan

Report No.: **ISL-18LR474FC-R3**

Issue Date : **August 23, 2024**



FCC Registration Number: 487532

Test results given in this report apply only to the specific sample(s) tested and are traceable to national or international standard through calibration of the equipment and evaluating measurement uncertainty herein. According to customer agreement, the laboratory issues test reports based on the regulations or standards specifications, the measurement uncertainty is not considered in conformity decision rules.

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VERIFICATION OF COMPLIANCE

Applicant: Fanstel Corporation, Taipei
Equipment Under Test: Bluetooth 5.0 Module
Brand: Fanstel
Main Model: BC840
Series Model: BC840M; BC840E
Model Difference: Please see page 6 model summaries table
FCC ID: X8WBC840M
IC: 4100A-BC840M
Date of Test: August 16, 2024 ~ August 23, 2024
Date of EUT Received: August 16, 2024

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC Part 15.247 RSS-247	Complied

We hereby certify that:

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory Corp.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

Prepared By: Gigi Yeh / Senior Engineer

Test By: Weitin Chen
Weitin Chen / Senior Engineer

Approved By: Jerry Liu
Jerry Liu / Manager

Version

Version No.	Date	Description
00	2019/01/25	Initial creation of document
01	2024/08/23	This report is prepared for FCC class II permissive change of the original report no.: ISL-18LR474FC. The difference from the original report is the reduction of RF Output Power. Therefore, test items for RF output power & radiated emission are performed. Refer to original report for the other test data.

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1. General

1.1 Description of EUT

Product Name:	Bluetooth 5.0 Module
Brand Name:	Fanstel
Model Name:	BC840, BC840M, BC840E
Model Difference:	Please see page 6 model summaries table
Power Supply:	5Vdc

IC RSS-Gen:

Product SW/HW version	BC840-V1
Radio SW/HW version	nrf52840 s140
PMN (Product Marketing Name)	BC840
HVIN (Hardware Version Identification Number)	BC840, BC840M, BC840E
FVIN (Firmware Version Identification Number)	nrf52840 s140
Test SoftWare Version	HCITester 2.1.00
RF power setting:	0

Bluetooth:

Frequency Range:	2402 – 2480MHz
Bluetooth Version:	V5.0
Channel number:	40 channels, 2MHz step
Modulation type	Digital Modulation
Modulation type:	GFSK
Tune-up power	7.57 dBm
Power Tolerance:	+/- 1.0 dBm
Dwell Time:	N/A
Antenna Designation:	BC840: PCB Antennas:-9.47 dBi BC840M: PCB Antennas:-3.58 dBi (Max) BC840E: Dipole Antennas: 6 dBi (Max)

Model Summaries

module	BC840	BC840M	BC840E
SoC	nRF52840-CKAA	nRF52840-CKAA	nRF52840-CKAA
Size, mm	7.0x9.0x1.5	7.0 (10 antenna area)x12.0x1.5	7.0x12.0x1.5
BT Antenna	PCB trace	PCB trace	u.FL
BT range, 1 Mbps, LMPI	10 meters, est.	150 meters.est	
BT range, 1Mbps, 1.52m			
BT range, 125 Kbps, LMPI.		400 meters, est.	
BT range, 125 kbps, 1.52m			
Availability	Sample	Sample	Sample

1.2 Special Accessories

Not available for this EUT intended for grant.

1.3 Equipment Modifications

Not available for this EUT intended for grant.

2. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

2.3 Test Procedure

2.3.1 AC Line Conducted Emissions

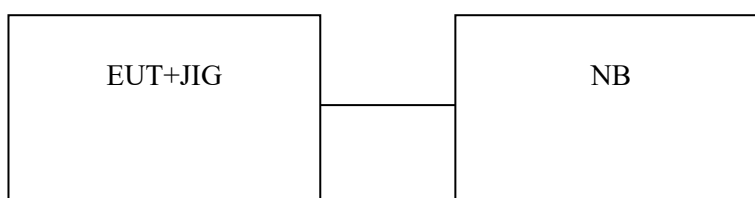
The EUT is placed on a turn table which is 0.8 m above ground plane. According to ANSI C63.10 and RSS-Gen. AC Line Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR 16-1-1 Quasi-Peak and Average detector mode.

2.3.2 Radiated Emissions

The EUT is placed on a turn table which is 0.8 m/1.5m (Frequency above 1 GHz) above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to ANSI C63.10.

2.4 Configuration of Tested System

Configuration of Tested System (Fixed channel)



Equipment Used in Tested System

Item	Equipment	Brand	Model	S/N	Data Cable	Power Cord
1	JIG	NA	NA	NA	NA	NA
2	NB	HP	N5 13	NA	200cm	150cm

3. Summary of Test Results

FCC Rules	Description Of Test	Result
§15.247(b) (3), (4) RSS-247 issue 3, §5.4(4)	Peak Output Power/ EIRP	Compliant
§15.247(d) RSS-247 issue 3, §5.5	100 kHz Bandwidth of Frequency Band Edges	Compliant
§15.247(d) RSS-247 issue 3, §5.5	Spurious Emission	Compliant
§15.203 RSS-GEN 8.3	Antenna Requirement	Compliant

4. Description of Test Modes

The EUT has been tested under engineering operating condition.

Test program used to control the EUT for staying in continuous transmitting mode is programmed.

BLE:

Channel low (2402MHz), mid (2442MHz), (2480MHz) with each modulation were chosen for full testing.

Note: Test item list below has been re-verified:

1. RF Output power / EIRP
2. Transmitter spurious emissions below 1GHz
3. Transmitter spurious emissions above 1GHz
4. 100 kHz Bandwidth of Frequency Band Edges

5. Peak Output Power Measurement

5.1 Standard Applicable

According to §15.247

(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(c) Operation with directional antenna gains greater than 6 dBi.

(1) Fixed point-to-point operation:

(i) Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

(ii) Systems operating in the 5725-5850 MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

According to RSS-247 issue 3, §5.4

(D)For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e)

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

5.2 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter or spectrum analyzer with proper instrument's parameters.
3. Record the max. reading.
4. Repeat above procedures until all frequency measured were complete.

5.3 Measurement Result

Peak Power

Mode	Freq. (MHz)	Output Power (dBm)	Duty Factor (dB)	Total Output Power (dBm)	Output Power Limit (dBm)
BLE (1M)	2402	7.042	-----	7.042	30
	2442	7.529	-----	7.529	30
	2480	7.566	-----	7.566	30

6. Radiated Spurious Emission Test

6.1 Standard Applicable

According to §15.247(d), all other emissions outside these bands shall not exceed the general radiated emission limits specified in §15.209(a). And according to §15.33(a)(1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

According to RSS-247 issue 2, §5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the de-sired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

6.2 Measurement Procedure

1. The EUT was placed on a turn table which is 0.8m/1.5m above ground plane in 966 chamber.
2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
4. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. Repeat above procedures until all frequency measured were complete.

Test receiver setting	: Blew 1GHz
Detector	: Average (9kHz – 90kHz, 110kHz – 90kHz), Quasi-Peak
Bandwidth	: 200Hz, 120kHz
Test spectrum setting	: Above 1GHz
Peak	: RBW=1MHz, VBW $\geq$ 3*RBW, Sweep=auto
Average	: RBW=1MHz, VBW $\geq$ 1/T _{on} , Sweep=auto

6.3 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

Remark:

<1GHz

1. No further spurious emissions detected from the lowest internal frequency and 30MHz.
2. Measuring frequencies from the lowest internal frequency to the 1GHz.
3. Radiated emissions measured in frequency range from 9kHz to 1000MHz were made with an instrument detector setting 9-90kHz/110-490kHz using PK/AV and other Frequency Band using PK/QP
4. Measurement result within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

>1GHz

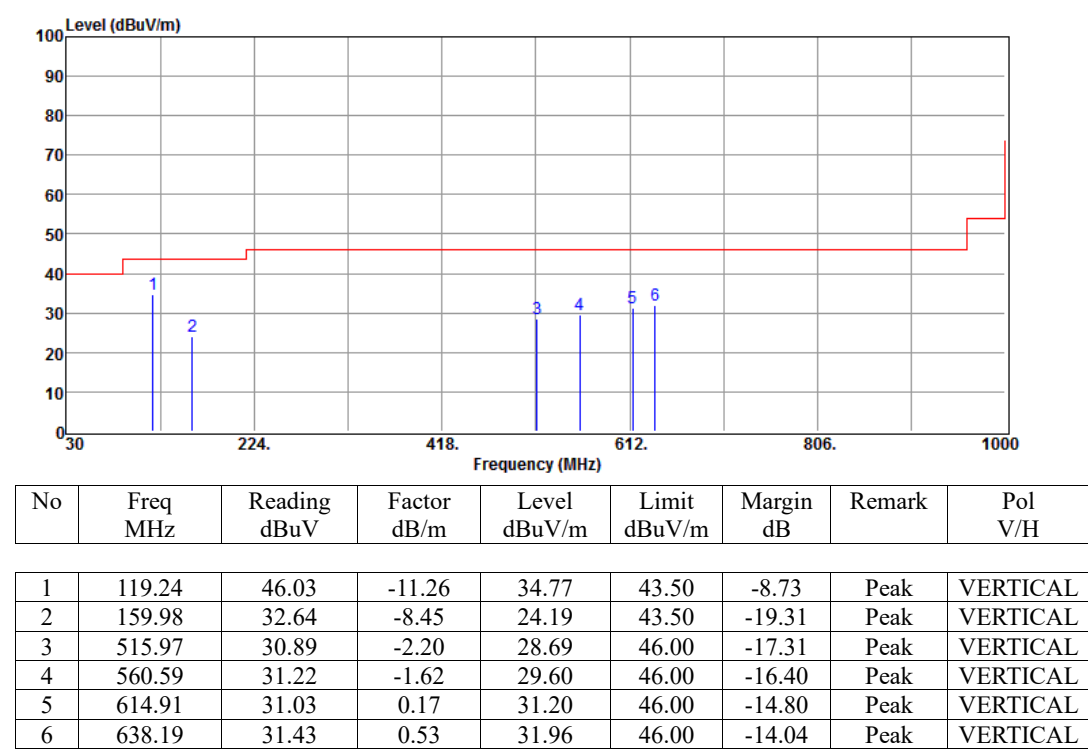
- 5 Measuring frequencies from the lowest internal frequency to the 10th of fundamental frequency
- 6 Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
- 7 Measurement of data within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

6.4 Measurement Result

6.4.1 Radiated Spurious Emission Measurement Result (below 1GHz)

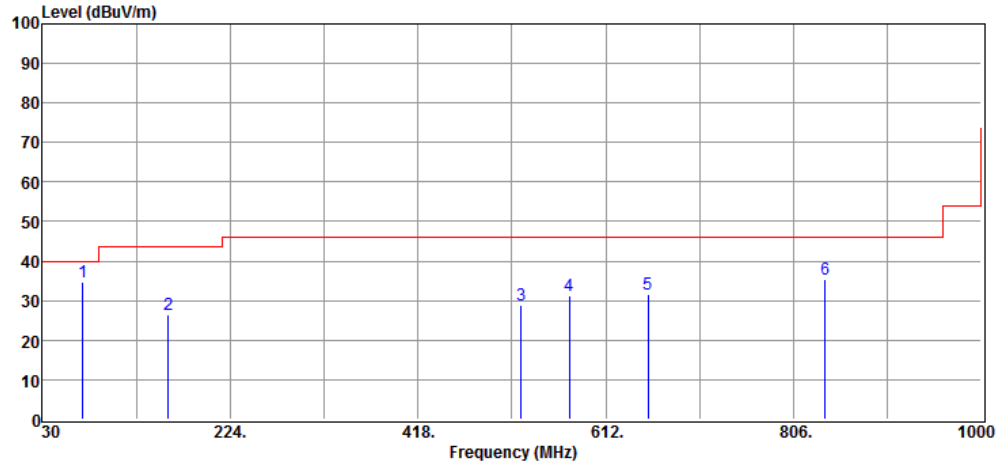
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Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Tx Low Ch Tested by : Weitn Chen



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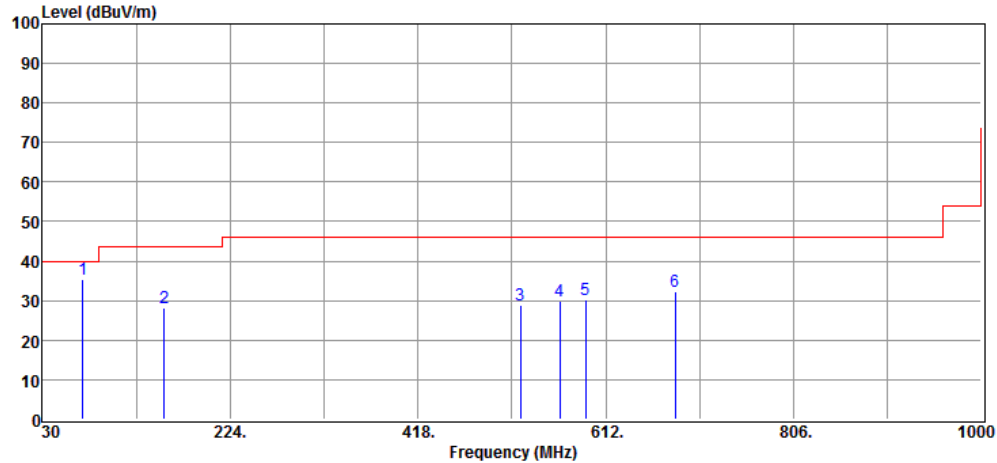
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Test Mode : BC840E Tx Low Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	71.71	45.95	-11.25	34.70	40.00	-5.30	Peak	HORIZONTAL
2	159.98	35.01	-8.45	26.56	43.50	-16.94	Peak	HORIZONTAL
3	524.70	31.02	-2.08	28.94	46.00	-17.06	Peak	HORIZONTAL
4	574.17	32.33	-1.01	31.32	46.00	-14.68	Peak	HORIZONTAL
5	655.65	30.96	0.79	31.75	46.00	-14.25	Peak	HORIZONTAL
6	838.98	31.66	3.64	35.30	46.00	-10.70	Peak	HORIZONTAL

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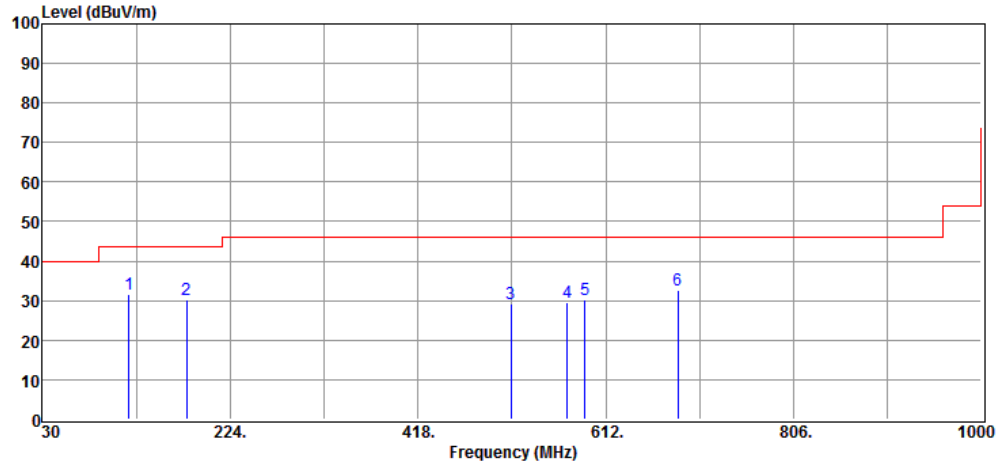
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Test Mode : BC840E Tx Mid Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	71.71	46.69	-11.25	35.44	40.00	-4.56	Peak	VERTICAL
2	156.10	36.52	-8.39	28.13	43.50	-15.37	Peak	VERTICAL
3	523.73	31.11	-2.08	29.03	46.00	-16.97	Peak	VERTICAL
4	564.47	31.41	-1.44	29.97	46.00	-16.03	Peak	VERTICAL
5	591.63	30.86	-0.49	30.37	46.00	-15.63	Peak	VERTICAL
6	683.78	30.99	1.19	32.18	46.00	-13.82	Peak	VERTICAL

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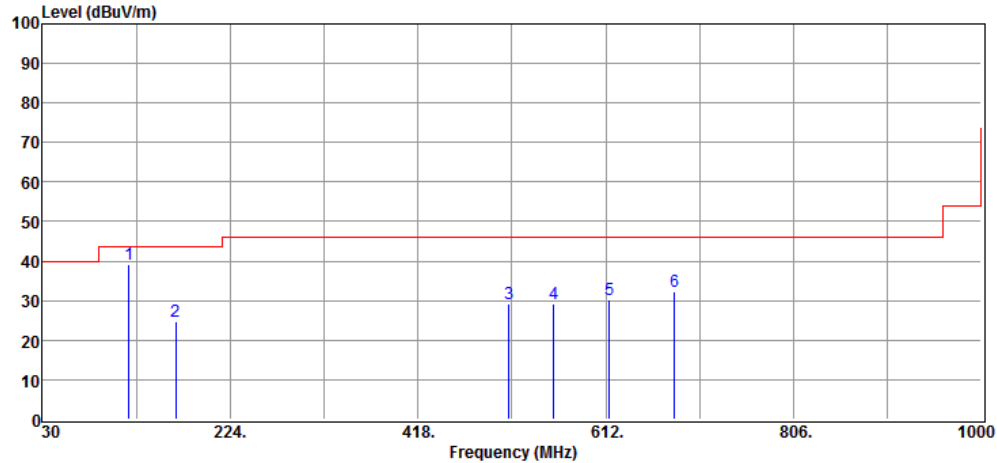
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Tx Mid Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	119.24	42.87	-11.26	31.61	43.50	-11.89	Peak	HORIZONTAL
2	179.38	40.06	-9.90	30.16	43.50	-13.34	Peak	HORIZONTAL
3	514.03	31.35	-2.26	29.09	46.00	-16.91	Peak	HORIZONTAL
4	572.23	30.73	-1.10	29.63	46.00	-16.37	Peak	HORIZONTAL
5	590.66	30.84	-0.51	30.33	46.00	-15.67	Peak	HORIZONTAL
6	686.69	31.48	1.28	32.76	46.00	-13.24	Peak	HORIZONTAL

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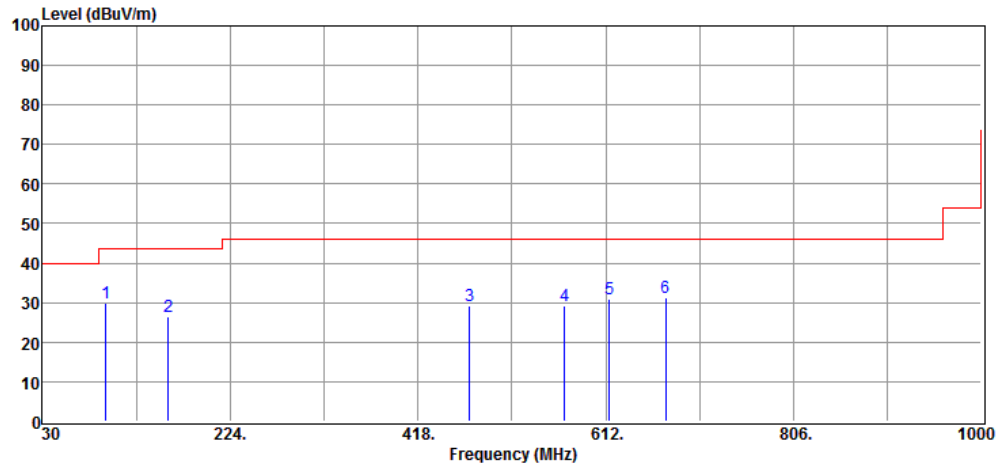
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Tx High Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	119.24	50.46	-11.26	39.20	43.50	-4.30	Peak	VERTICAL
2	167.74	33.39	-8.79	24.60	43.50	-18.90	Peak	VERTICAL
3	512.09	31.43	-2.35	29.08	46.00	-16.92	Peak	VERTICAL
4	558.65	30.98	-1.67	29.31	46.00	-16.69	Peak	VERTICAL
5	615.88	30.10	0.17	30.27	46.00	-15.73	Peak	VERTICAL
6	682.81	31.04	1.15	32.19	46.00	-13.81	Peak	VERTICAL

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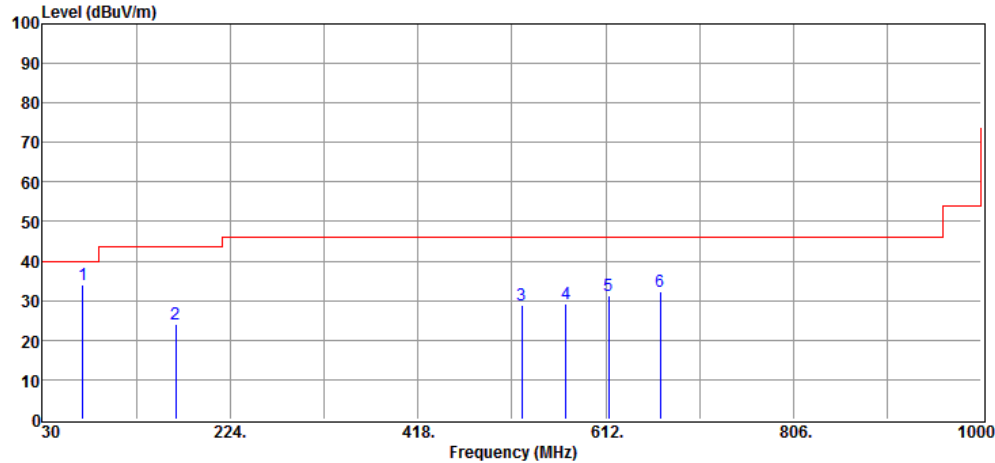
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Test Mode : BC840E Tx High Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	95.96	43.85	-13.95	29.90	43.50	-13.60	Peak	HORIZONTAL
2	159.98	34.77	-8.45	26.32	43.50	-17.18	Peak	HORIZONTAL
3	471.35	32.19	-3.08	29.11	46.00	-16.89	Peak	HORIZONTAL
4	569.32	30.42	-1.23	29.19	46.00	-16.81	Peak	HORIZONTAL
5	615.88	30.62	0.17	30.79	46.00	-15.21	Peak	HORIZONTAL
6	674.08	30.41	0.91	31.32	46.00	-14.68	Peak	HORIZONTAL

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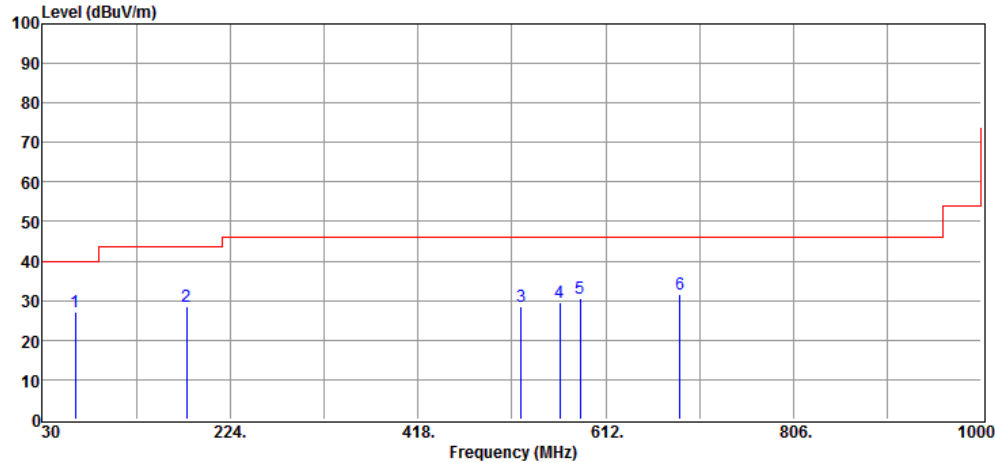
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Test Mode : BC840M Tx Low Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	71.71	45.39	-11.25	34.14	40.00	-5.86	Peak	VERTICAL
2	167.74	32.94	-8.79	24.15	43.50	-19.35	Peak	VERTICAL
3	525.67	30.89	-2.07	28.82	46.00	-17.18	Peak	VERTICAL
4	571.26	30.31	-1.14	29.17	46.00	-16.83	Peak	VERTICAL
5	614.91	30.94	0.17	31.11	46.00	-14.89	Peak	VERTICAL
6	668.26	31.36	0.88	32.24	46.00	-13.76	Peak	VERTICAL

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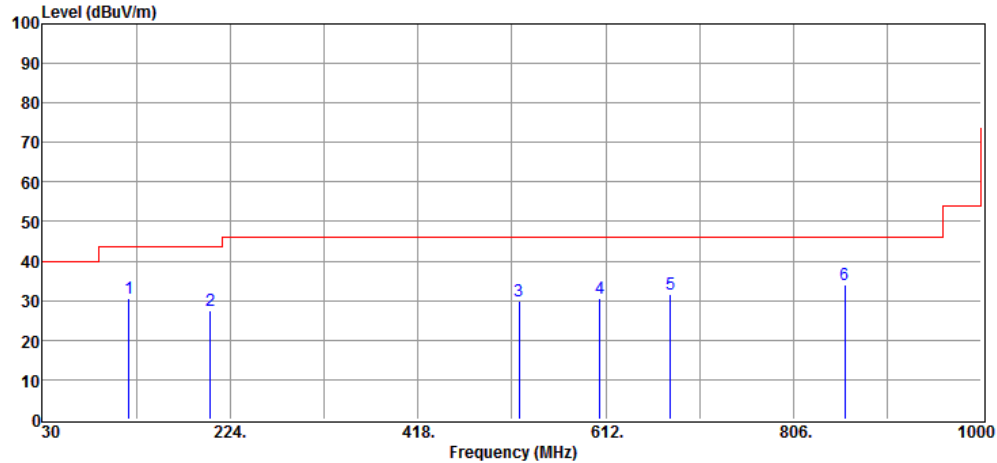
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Test Mode : BC840M Tx Low Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	63.95	36.88	-9.83	27.05	40.00	-12.95	Peak	HORIZONTAL
2	179.38	38.43	-9.90	28.53	43.50	-14.97	Peak	HORIZONTAL
3	524.70	30.65	-2.08	28.57	46.00	-17.43	Peak	HORIZONTAL
4	564.47	31.07	-1.44	29.63	46.00	-16.37	Peak	HORIZONTAL
5	585.81	31.33	-0.62	30.71	46.00	-15.29	Peak	HORIZONTAL
6	688.63	30.23	1.33	31.56	46.00	-14.44	Peak	HORIZONTAL

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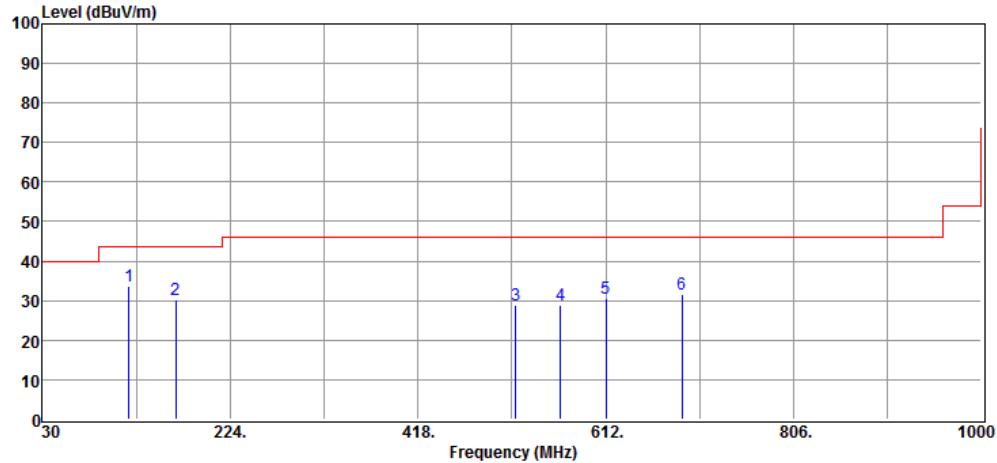
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Test Mode : BC840M Tx Mid Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	119.24	41.68	-11.26	30.42	43.50	-13.08	Peak	VERTICAL
2	203.63	39.13	-11.56	27.57	43.50	-15.93	Peak	VERTICAL
3	522.76	32.07	-2.09	29.98	46.00	-16.02	Peak	VERTICAL
4	606.18	30.64	-0.14	30.50	46.00	-15.50	Peak	VERTICAL
5	678.93	30.69	1.00	31.69	46.00	-14.31	Peak	VERTICAL
6	859.35	30.07	3.96	34.03	46.00	-11.97	Peak	VERTICAL

International Standard Laboratory Corp.
Company Address:No.120,Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

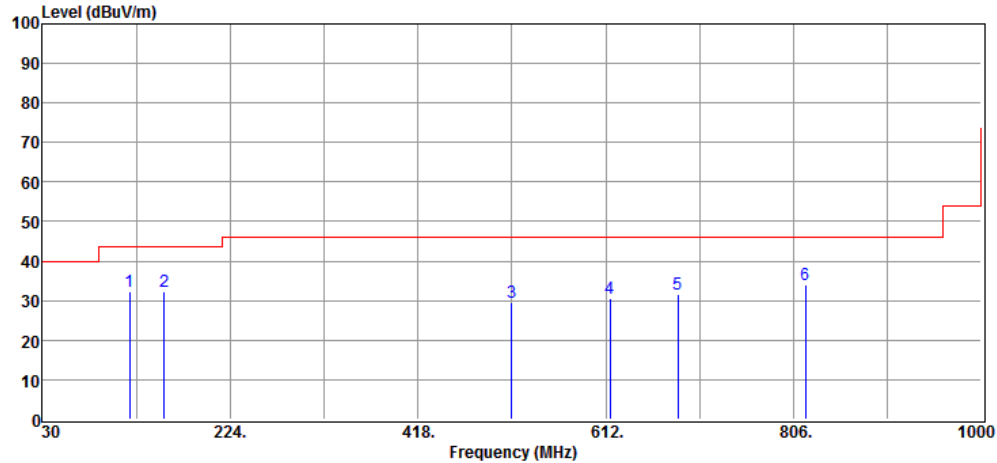
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840M Tx Mid Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	119.24	44.79	-11.26	33.53	43.50	-9.97	Peak	HORIZONTAL
2	167.74	38.95	-8.79	30.16	43.50	-13.34	Peak	HORIZONTAL
3	518.88	31.11	-2.12	28.99	46.00	-17.01	Peak	HORIZONTAL
4	565.44	30.41	-1.39	29.02	46.00	-16.98	Peak	HORIZONTAL
5	612.00	30.42	0.04	30.46	46.00	-15.54	Peak	HORIZONTAL
6	690.57	30.18	1.37	31.55	46.00	-14.45	Peak	HORIZONTAL

International Standard Laboratory Corp.
Company Address:No.120,Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

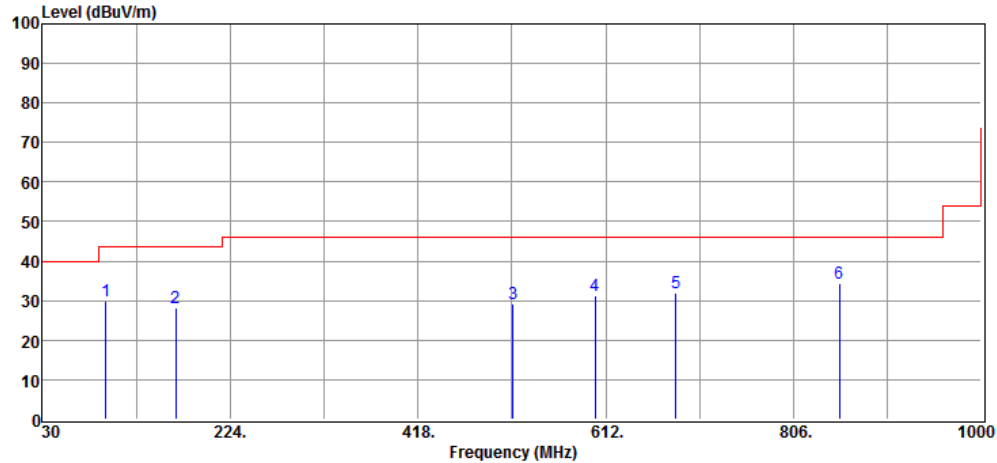
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840M Tx High Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	120.21	43.52	-11.18	32.34	43.50	-11.16	Peak	VERTICAL
2	156.10	40.54	-8.39	32.15	43.50	-11.35	Peak	VERTICAL
3	515.00	31.60	-2.22	29.38	46.00	-16.62	Peak	VERTICAL
4	616.85	30.54	0.18	30.72	46.00	-15.28	Peak	VERTICAL
5	686.69	30.34	1.28	31.62	46.00	-14.38	Peak	VERTICAL
6	818.61	30.68	3.38	34.06	46.00	-11.94	Peak	VERTICAL

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Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

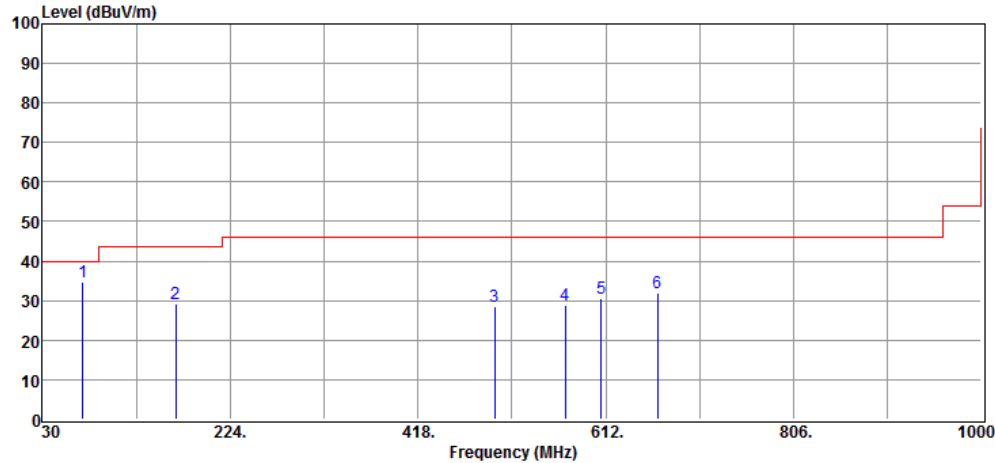
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840M Tx High Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	95.96	43.82	-13.95	29.87	43.50	-13.63	Peak	HORIZONTAL
2	167.74	37.09	-8.79	28.30	43.50	-15.20	Peak	HORIZONTAL
3	515.97	31.29	-2.20	29.09	46.00	-16.91	Peak	HORIZONTAL
4	601.33	31.53	-0.26	31.27	46.00	-14.73	Peak	HORIZONTAL
5	684.75	30.68	1.23	31.91	46.00	-14.09	Peak	HORIZONTAL
6	853.53	30.45	3.94	34.39	46.00	-11.61	Peak	HORIZONTAL

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

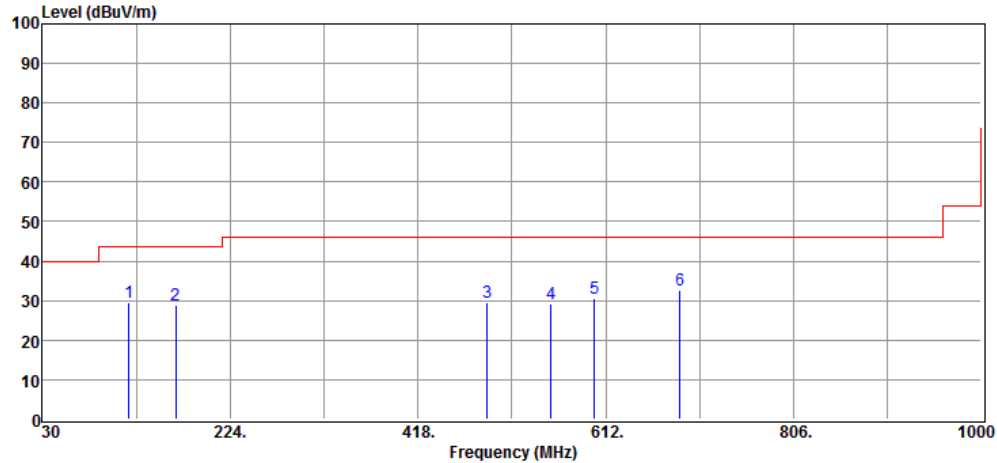
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx Low Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	71.71	46.04	-11.25	34.79	40.00	-5.21	Peak	VERTICAL
2	167.74	38.12	-8.79	29.33	43.50	-14.17	Peak	VERTICAL
3	497.54	31.46	-2.79	28.67	46.00	-17.33	Peak	VERTICAL
4	570.29	30.02	-1.19	28.83	46.00	-17.17	Peak	VERTICAL
5	607.15	30.59	-0.12	30.47	46.00	-15.53	Peak	VERTICAL
6	665.35	31.22	0.87	32.09	46.00	-13.91	Peak	VERTICAL

International Standard Laboratory Corp.
Company Address:No.120,Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

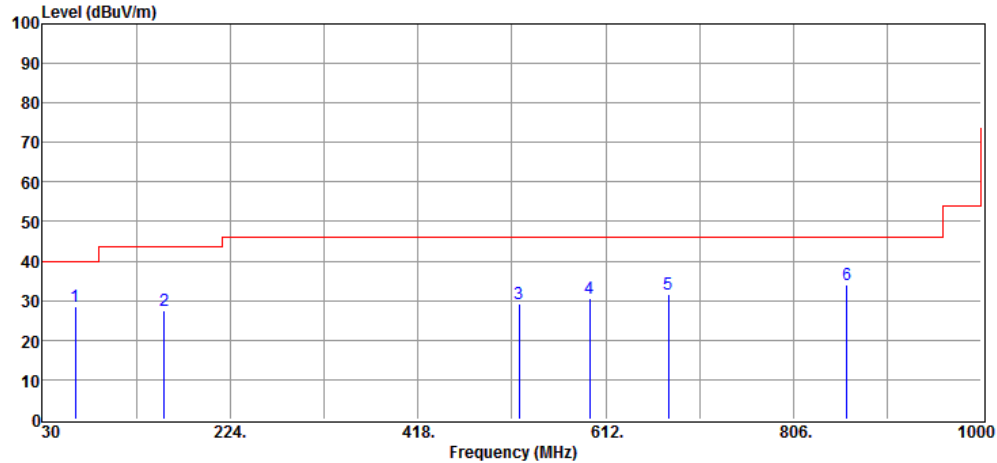
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx Low Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	119.24	40.92	-11.26	29.66	43.50	-13.84	Peak	HORIZONTAL
2	167.74	37.66	-8.79	28.87	43.50	-14.63	Peak	HORIZONTAL
3	489.78	32.53	-2.83	29.70	46.00	-16.30	Peak	HORIZONTAL
4	555.74	30.89	-1.74	29.15	46.00	-16.85	Peak	HORIZONTAL
5	600.36	30.77	-0.28	30.49	46.00	-15.51	Peak	HORIZONTAL
6	688.63	31.27	1.33	32.60	46.00	-13.40	Peak	HORIZONTAL

International Standard Laboratory Corp.
Company Address:No.120,Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

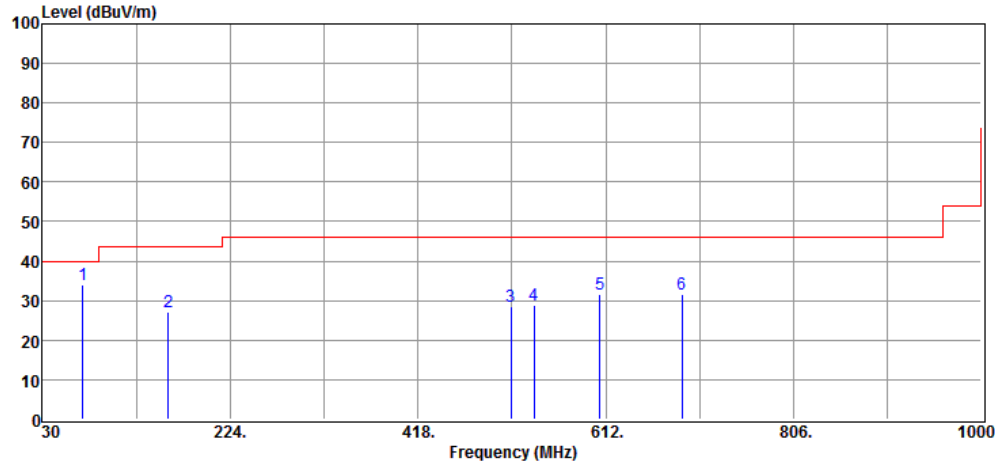
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx Mid Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	63.95	38.25	-9.83	28.42	40.00	-11.58	Peak	VERTICAL
2	156.10	35.76	-8.39	27.37	43.50	-16.13	Peak	VERTICAL
3	522.76	31.17	-2.09	29.08	46.00	-16.92	Peak	VERTICAL
4	595.51	30.95	-0.40	30.55	46.00	-15.45	Peak	VERTICAL
5	676.99	30.51	0.96	31.47	46.00	-14.53	Peak	VERTICAL
6	861.29	30.25	3.93	34.18	46.00	-11.82	Peak	VERTICAL

International Standard Laboratory Corp.
Company Address:No.120,Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

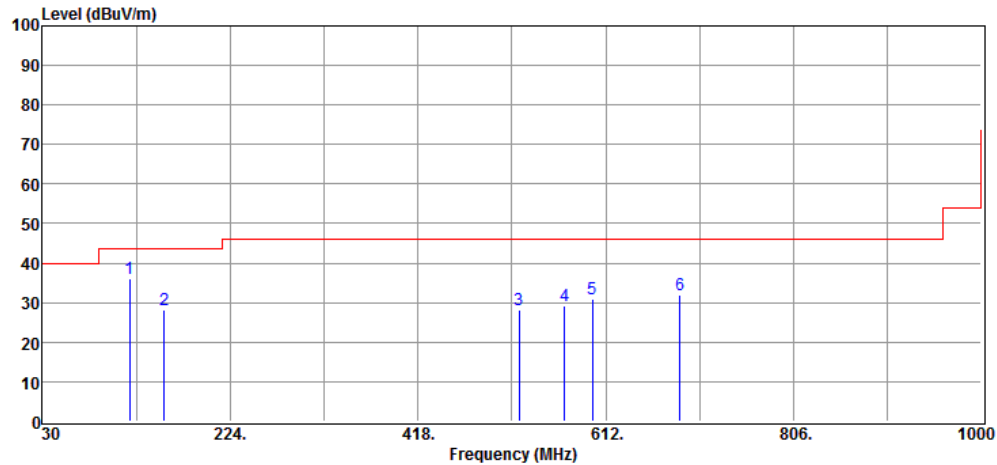
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx Mid Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	71.71	45.16	-11.25	33.91	40.00	-6.09	Peak	HORIZONTAL
2	159.98	35.44	-8.45	26.99	43.50	-16.51	Peak	HORIZONTAL
3	514.03	30.67	-2.26	28.41	46.00	-17.59	Peak	HORIZONTAL
4	538.28	30.84	-2.02	28.82	46.00	-17.18	Peak	HORIZONTAL
5	606.18	31.80	-0.14	31.66	46.00	-14.34	Peak	HORIZONTAL
6	690.57	30.26	1.37	31.63	46.00	-14.37	Peak	HORIZONTAL

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

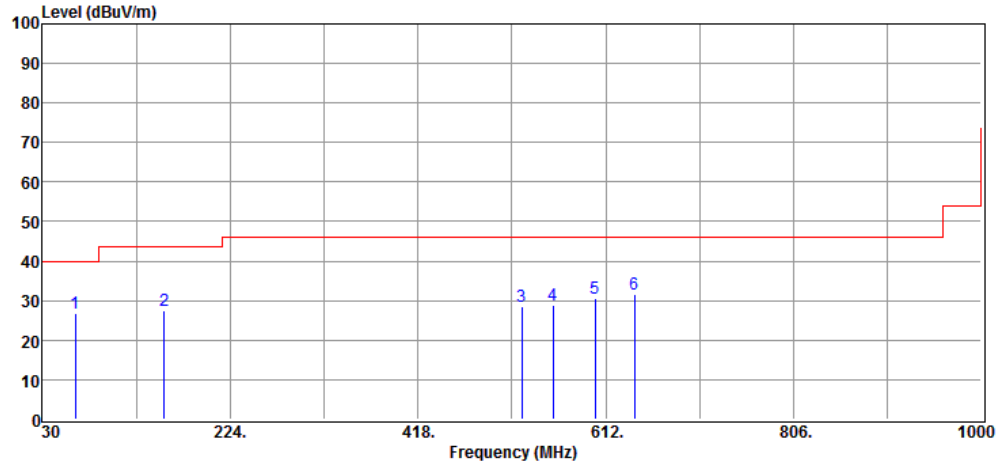
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx High Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	120.21	47.36	-11.18	36.18	43.50	-7.32	Peak	VERTICAL
2	156.10	36.55	-8.39	28.16	43.50	-15.34	Peak	VERTICAL
3	522.76	30.41	-2.09	28.32	46.00	-17.68	Peak	VERTICAL
4	569.32	30.35	-1.23	29.12	46.00	-16.88	Peak	VERTICAL
5	598.42	31.12	-0.32	30.80	46.00	-15.20	Peak	VERTICAL
6	688.63	30.51	1.33	31.84	46.00	-14.16	Peak	VERTICAL

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx High Ch Tested by : Weitin Chen

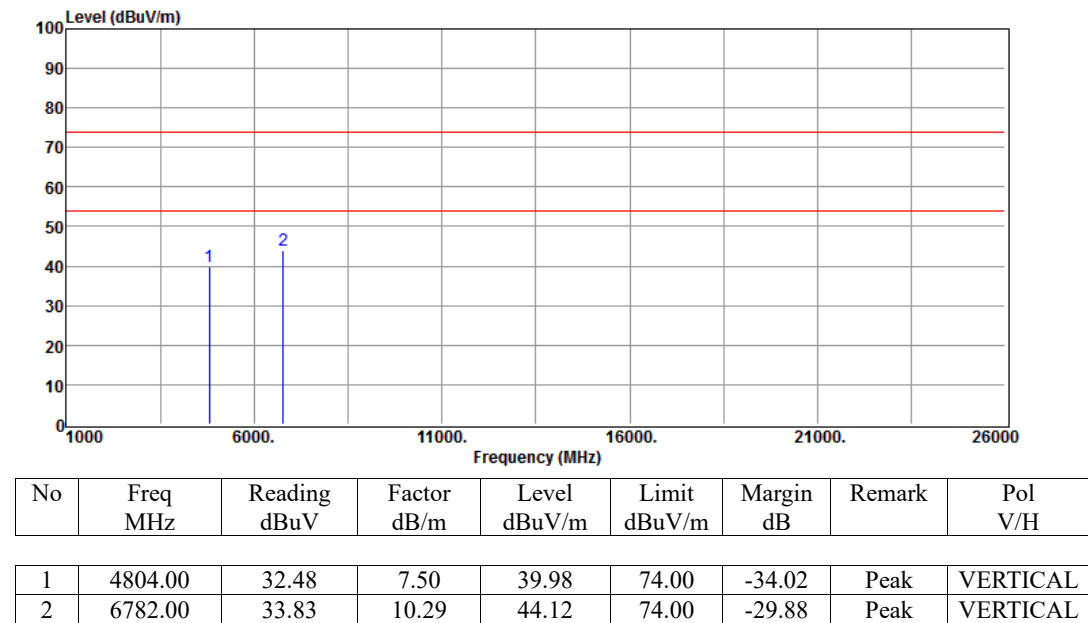


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	63.95	36.49	-9.83	26.66	40.00	-13.34	Peak	HORIZONTAL
2	156.10	35.77	-8.39	27.38	43.50	-16.12	Peak	HORIZONTAL
3	525.67	30.74	-2.07	28.67	46.00	-17.33	Peak	HORIZONTAL
4	557.68	30.63	-1.69	28.94	46.00	-17.06	Peak	HORIZONTAL
5	601.33	30.98	-0.26	30.72	46.00	-15.28	Peak	HORIZONTAL
6	642.07	30.90	0.62	31.52	46.00	-14.48	Peak	HORIZONTAL

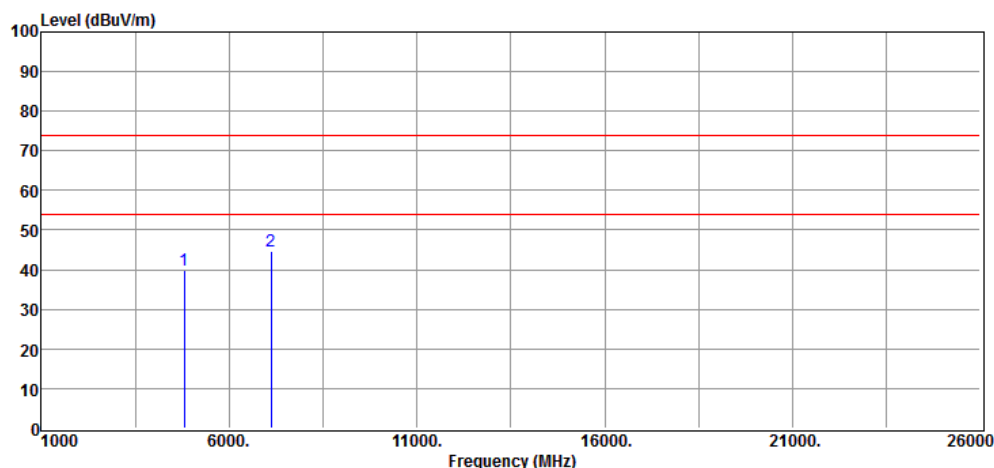
6.4.2 Radiated Spurious Emission Measurement Result (above1GHz)

International Standard Laboratory Corp.
Company Address:No.120,Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Tx Low Ch Tested by : Weitin Chen

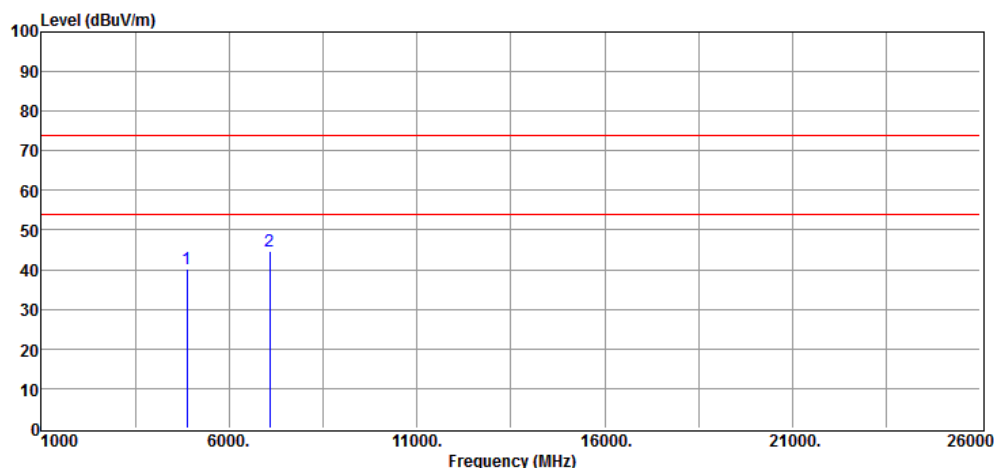


Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Tx Low Ch Tested by : Weitin Chen



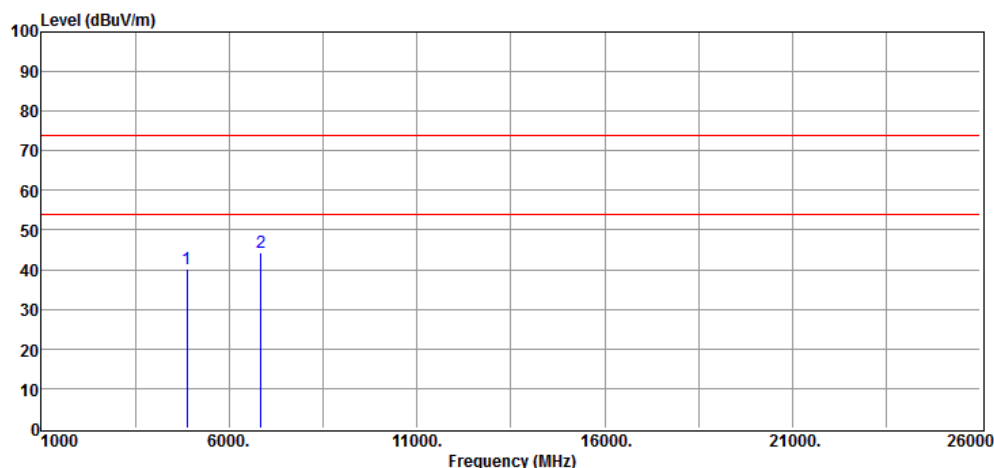
No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4804.00	32.48	7.50	39.98	74.00	-34.02	Peak	HORIZONTAL
2	7118.00	34.25	10.48	44.73	74.00	-29.27	Peak	HORIZONTAL

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Tx Mid Ch Tested by : Weitin Chen



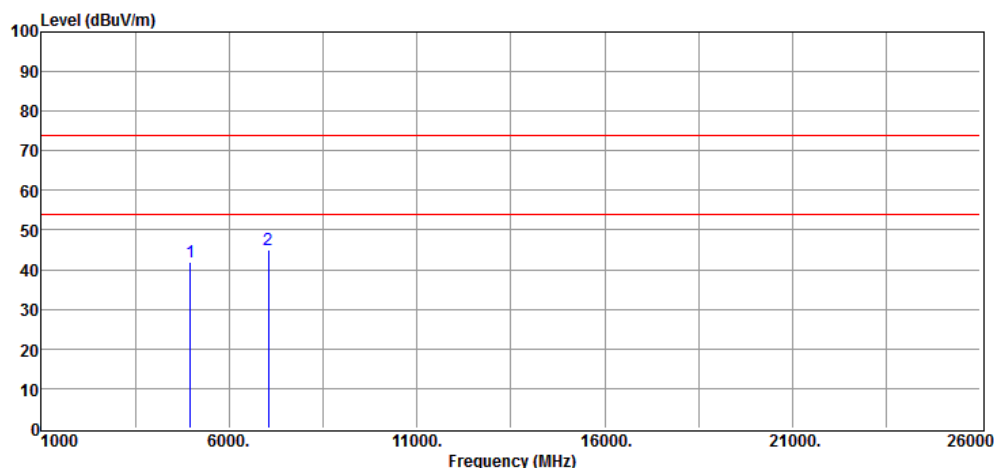
No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4884.00	32.30	7.83	40.13	74.00	-33.87	Peak	VERTICAL
2	7083.00	34.12	10.44	44.56	74.00	-29.44	Peak	VERTICAL

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Tx Mid Ch Tested by : Weitin Chen



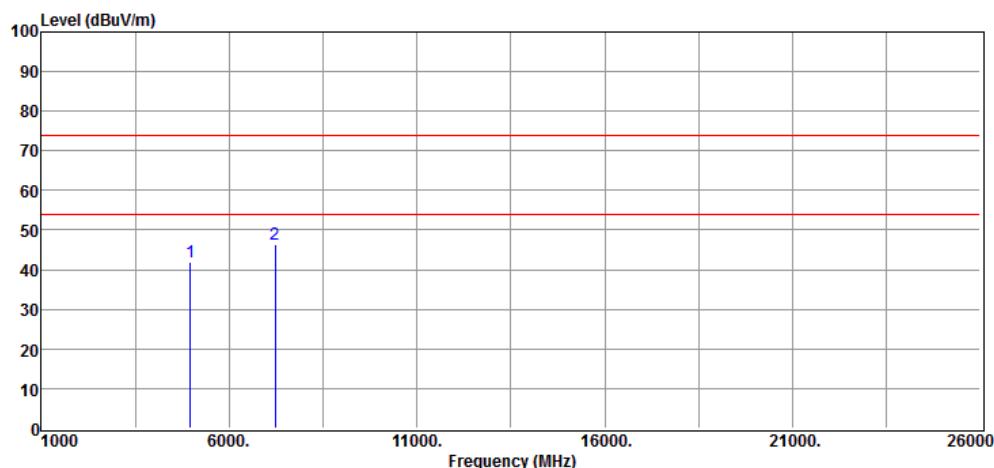
No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4884.00	32.30	7.83	40.13	74.00	-33.87	Peak	HORIZONTAL
2	6852.00	34.03	10.29	44.32	74.00	-29.68	Peak	HORIZONTAL

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Tx High Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4960.00	33.91	7.92	41.83	74.00	-32.17	Peak	VERTICAL
2	7041.00	34.65	10.37	45.02	74.00	-28.98	Peak	VERTICAL

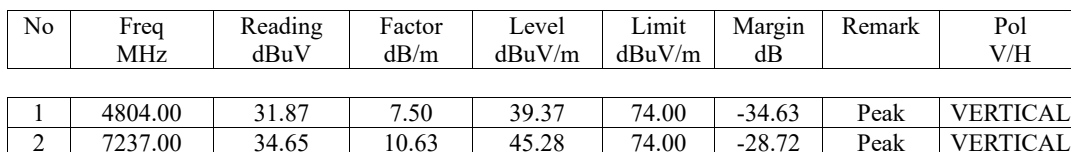
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Tx High Ch Tested by : Weitin Chen



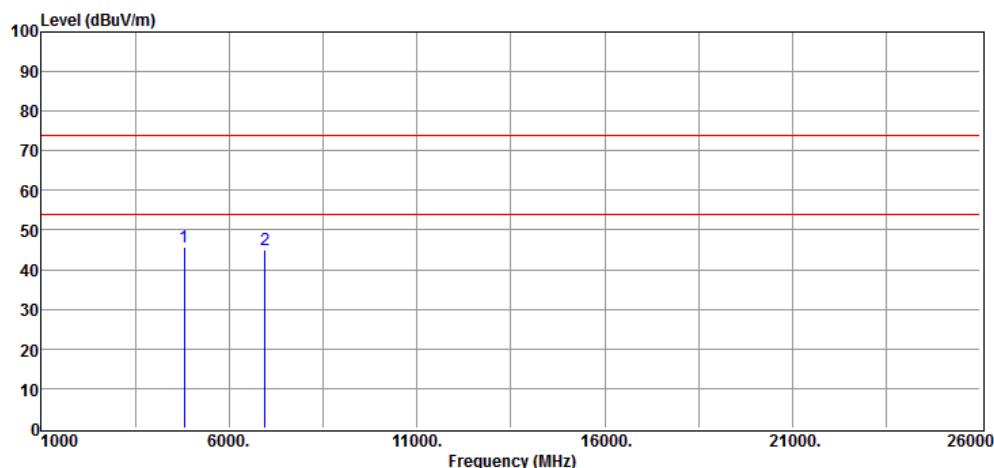
No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4960.00	33.91	7.92	41.83	74.00	-32.17	Peak	HORIZONTAL
2	7230.00	35.93	10.63	46.56	74.00	-27.44	Peak	HORIZONTAL

Date: 2024-08-22

Test Mode : BC840M Tx Low Ch Tested by : Weitin Chen



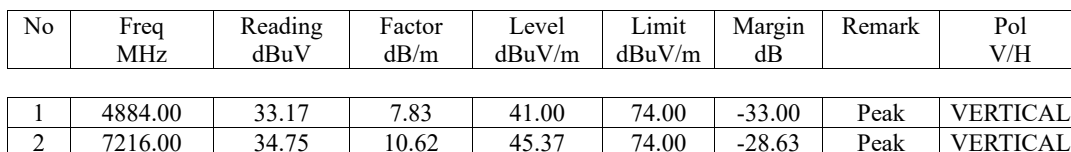
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840M Tx Low Ch Tested by : Weitin Chen



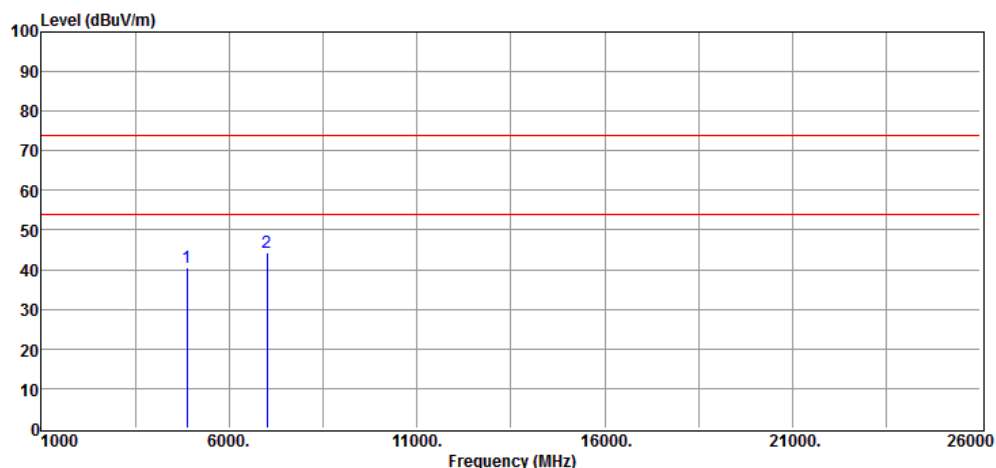
No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4804.00	38.07	7.50	45.57	74.00	-28.43	Peak	HORIZONTAL
2	6957.00	34.50	10.43	44.93	74.00	-29.07	Peak	HORIZONTAL

Date: 2024-08-22

Test Mode : BC840M Tx Mid Ch Tested by : Weitin Chen

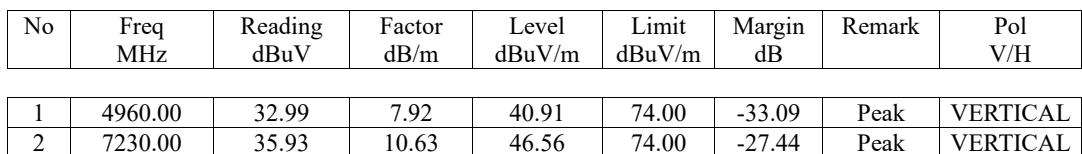


Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840M Tx Mid Ch Tested by : Weitin Chen

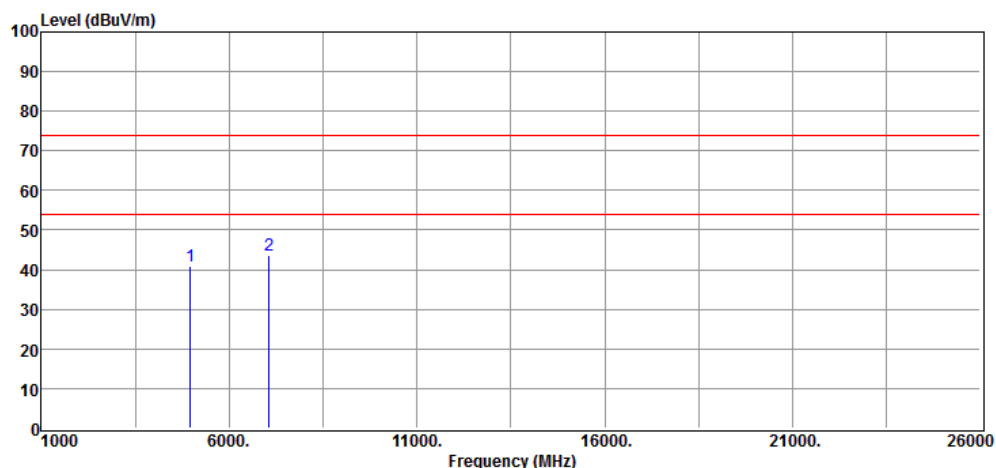


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4884.00	32.64	7.83	40.47	74.00	-33.53	Peak	HORIZONTAL
2	7013.00	33.89	10.42	44.31	74.00	-29.69	Peak	HORIZONTAL

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840M Tx High Ch Tested by : Weitin Chen

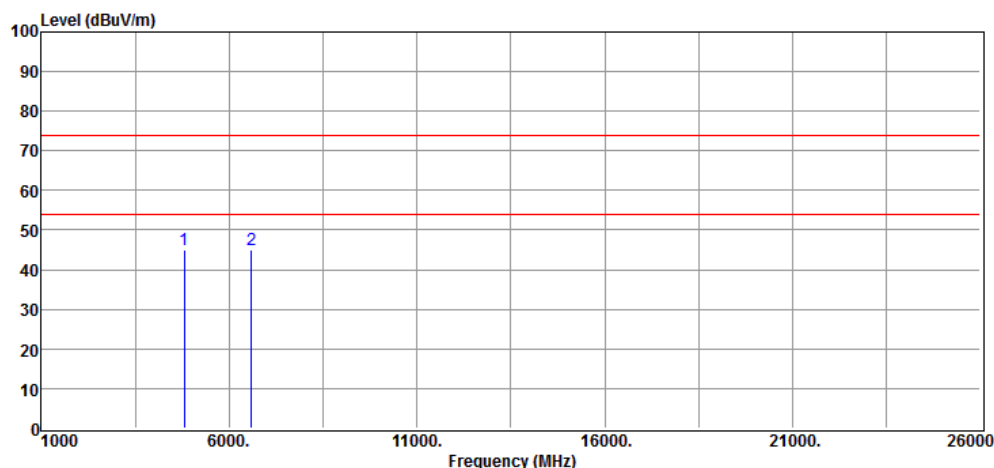


Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840M Tx High Ch Tested by : Weitin Chen



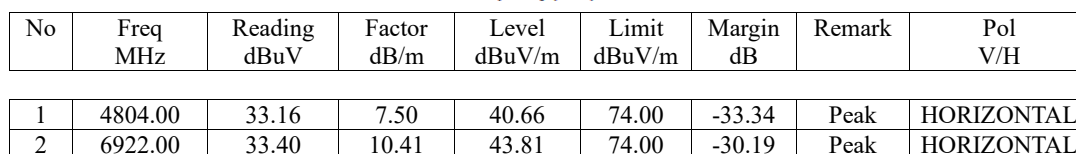
No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4960.00	32.97	7.92	40.89	74.00	-33.11	Peak	HORIZONTAL
2	7069.00	33.39	10.41	43.80	74.00	-30.20	Peak	HORIZONTAL

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx Low Ch Tested by : Weitin Chen

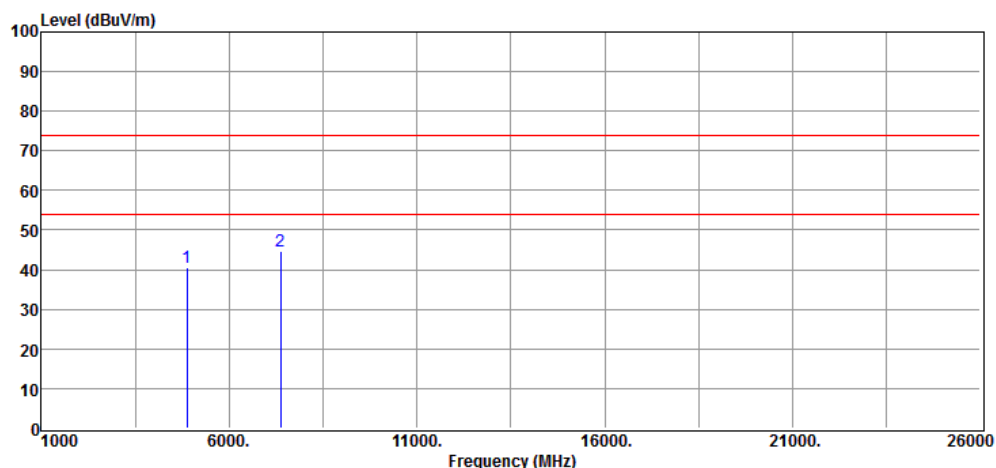


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4804.00	37.59	7.50	45.09	74.00	-28.91	Peak	VERTICAL
2	6600.00	34.79	10.10	44.89	74.00	-29.11	Peak	VERTICAL

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx Low Ch Tested by : Weitin Chen

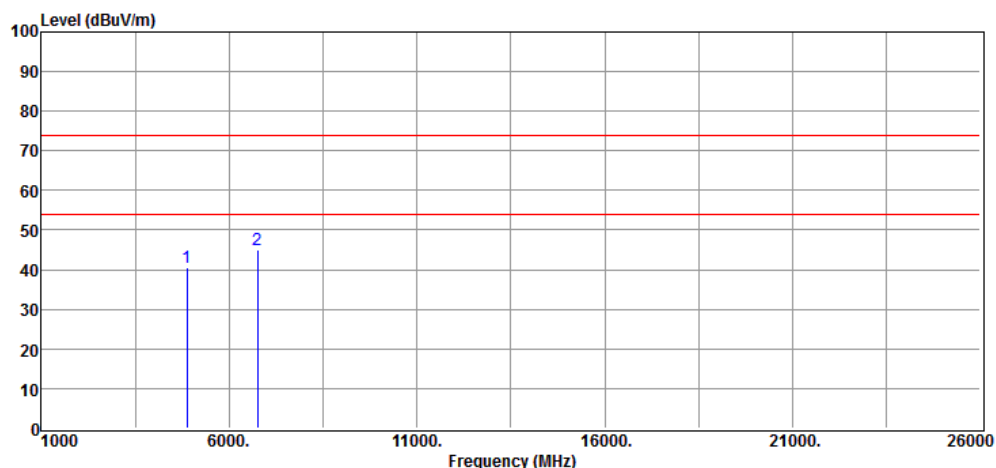


Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx Mid Ch Tested by : Weitin Chen



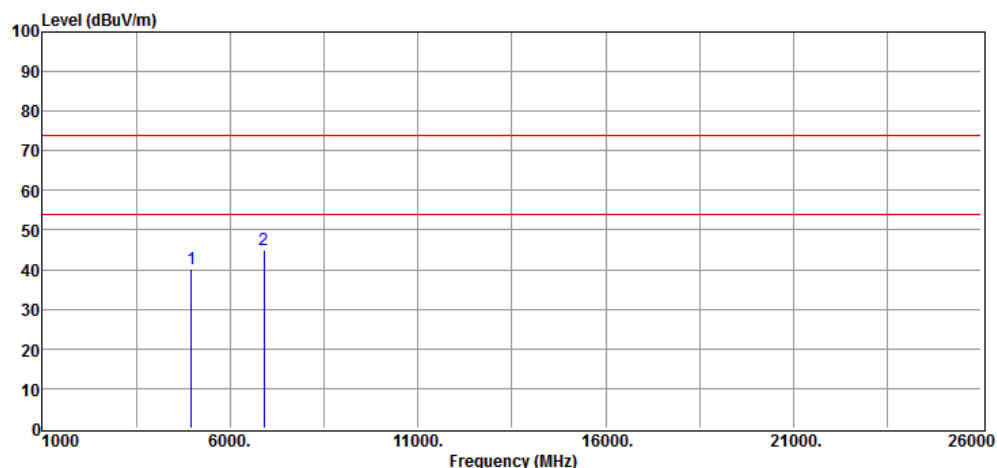
No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4884.00	32.86	7.83	40.69	74.00	-33.31	Peak	VERTICAL
2	7370.00	34.16	10.58	44.74	74.00	-29.26	Peak	VERTICAL

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx Mid Ch Tested by : Weitin Chen



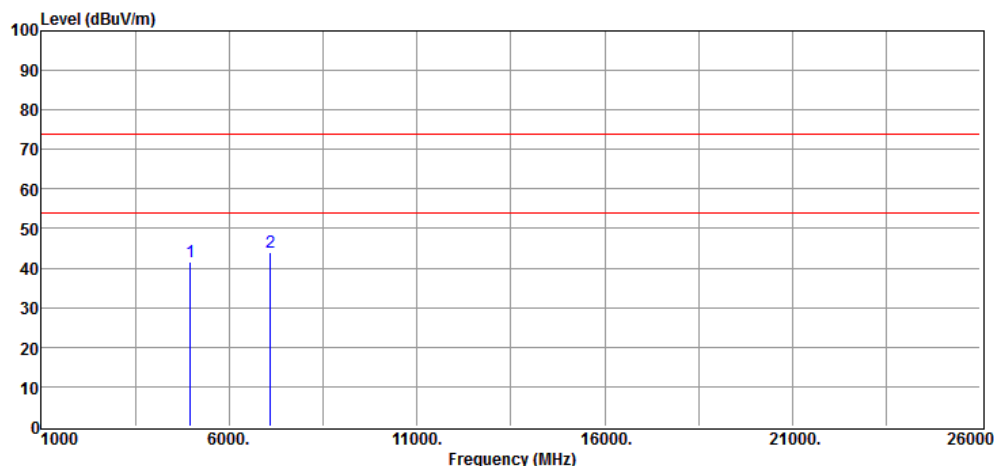
No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4884.00	32.69	7.83	40.52	74.00	-33.48	Peak	HORIZONTAL
2	6768.00	34.67	10.24	44.91	74.00	-29.09	Peak	HORIZONTAL

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx High Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4960.00	32.20	7.92	40.12	74.00	-33.88	Peak	VERTICAL
2	6901.00	34.61	10.41	45.02	74.00	-28.98	Peak	VERTICAL

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Tx High Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	4960.00	33.80	7.92	41.72	74.00	-32.28	Peak	HORIZONTAL
2	7104.00	33.64	10.48	44.12	74.00	-29.88	Peak	HORIZONTAL

7. 100kHz Bandwidth of Band Edges Measurement

7.1 Standard Applicable

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

According to RSS-247 issue 3, §5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(d), the attenuation required shall be 30 dB instead of 20dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

7.2 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW=1MHz, VBW $\geq$ 3*RBW (for Peak); VBW $\geq$ 1/T_{on} (for Average), Sweep = auto.
5. Mark Peak, 2.390GHz and 2.4835GHz and record the max. level.
6. Repeat above procedures until all frequency measured were complete.

7.3 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

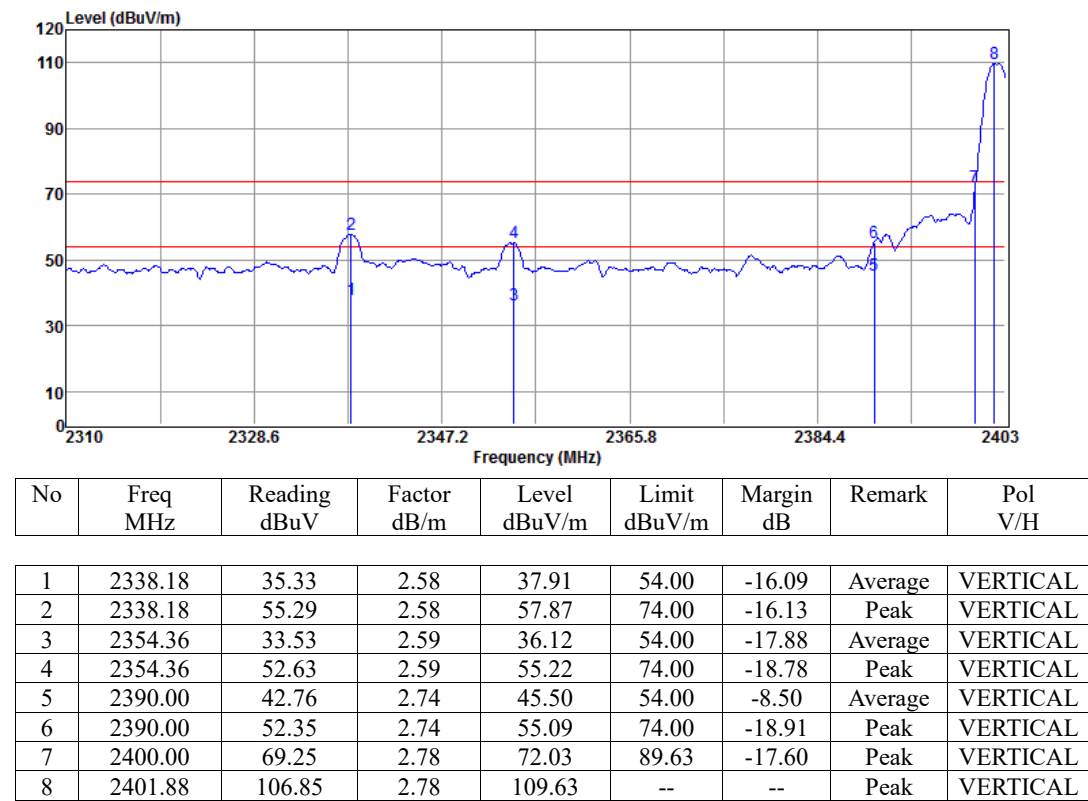
$$FS = RA + AF + CL - AG$$

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

7.4 Measurement Result

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

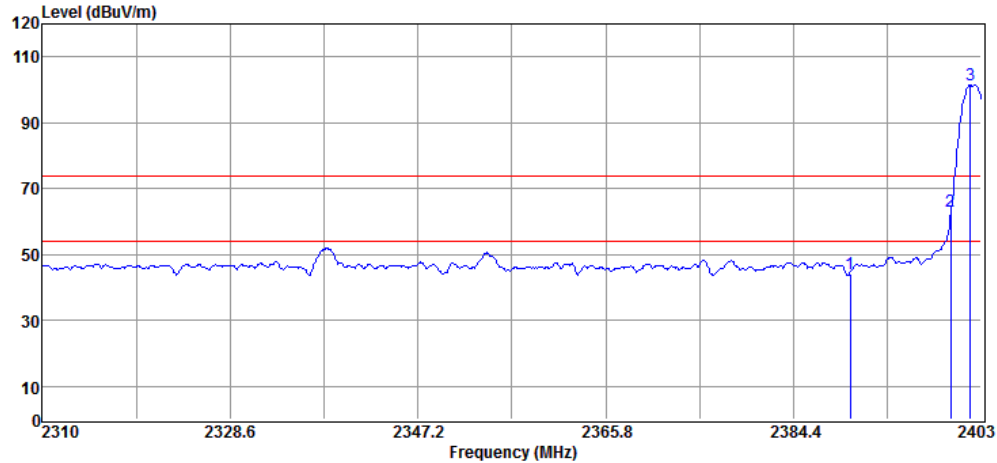
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Bandedge Low Ch Tested by : Weitin Chen



Note: "F" denotes fundamental frequency.

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Bandedge Low Ch Tested by : Weitin Chen

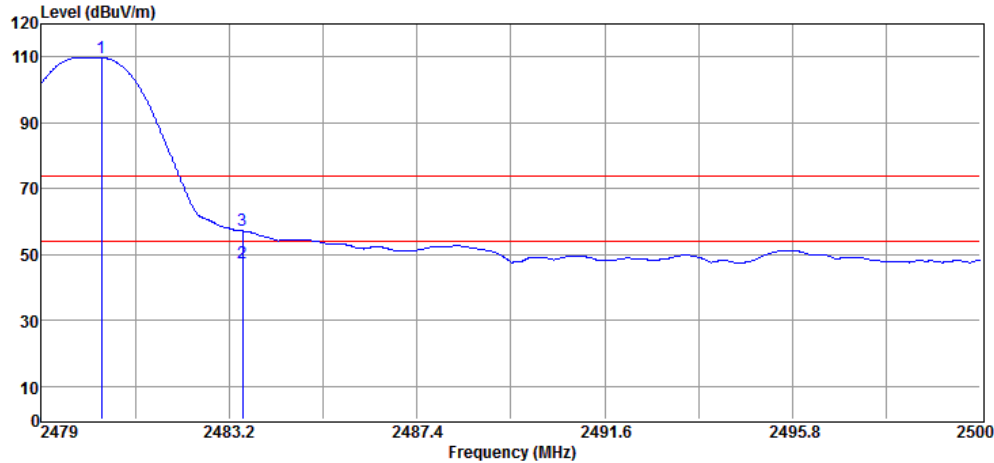


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2390.00	41.58	2.74	44.32	74.00	-29.68	Peak	HORIZONTAL
2	2400.00	60.39	2.78	63.17	81.37	-18.20	Peak	HORIZONTAL
3	2401.88	98.59	2.78	101.37	--	--	Peak	HORIZONTAL

Note: "F" denotes fundamental frequency.

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

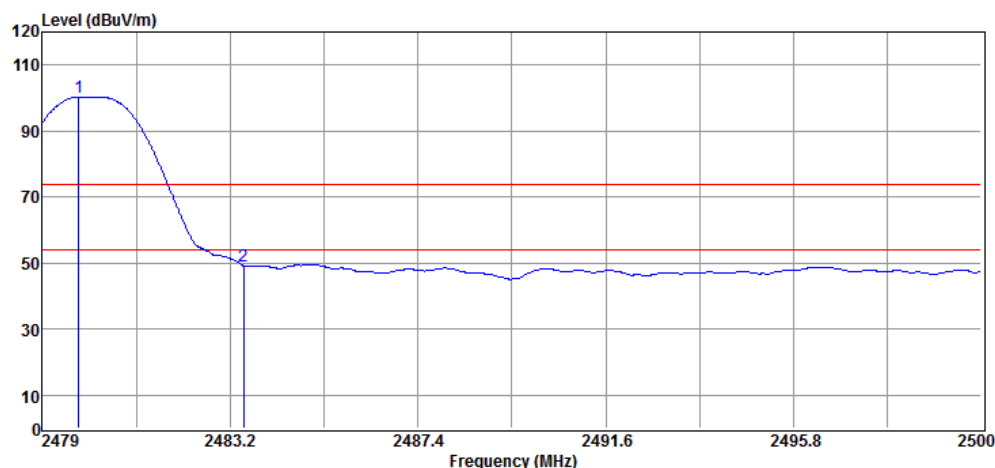
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Bandedge High Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2480.34	106.60	3.10	109.70	--	--	Peak	VERTICAL
2	2483.50	44.26	3.12	47.38	54.00	-6.62	Average	VERTICAL
3	2483.50	54.08	3.12	57.20	74.00	-16.80	Peak	VERTICAL

Note: "F" denotes fundamental frequency.

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840E Bandedge High Ch Tested by : Weitin Chen

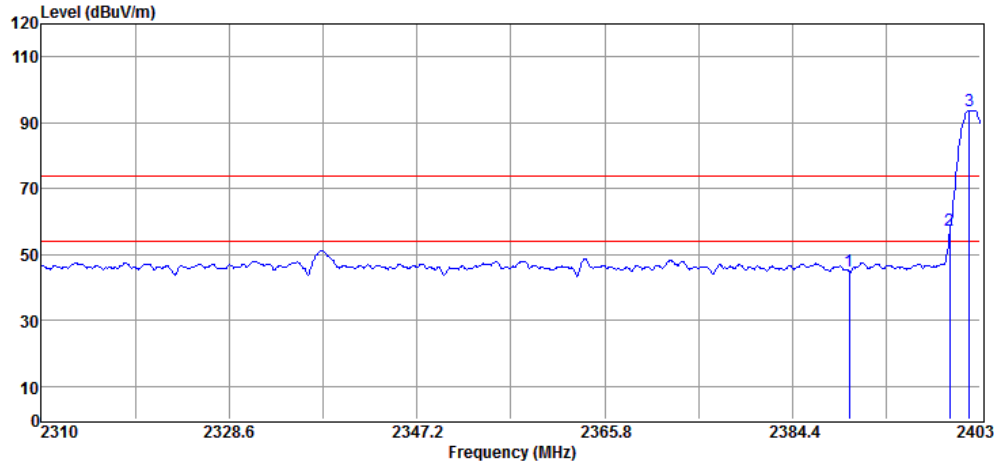


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2479.82	97.20	3.10	100.30	--	--	Peak	HORIZONTAL
2	2483.50	46.08	3.12	49.20	74.00	-24.80	Peak	HORIZONTAL

Report Number: ISL-18LR474FC-R3

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840M Bandedge Low Ch Tested by : Weitin Chen

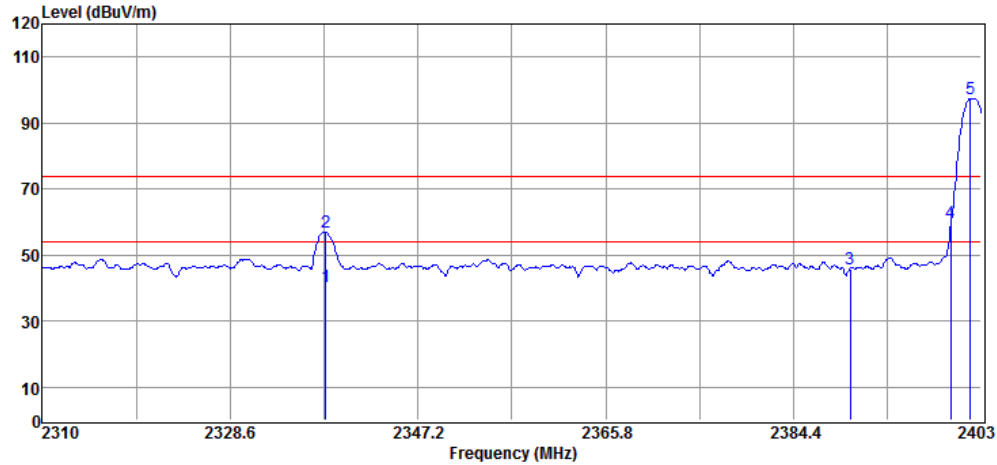


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2390.00	42.36	2.74	45.10	74.00	-28.90	Peak	VERTICAL
2	2400.00	54.43	2.78	57.21	73.78	-16.57	Peak	VERTICAL
3	2401.88	91.00	2.78	93.78	--	--	Peak	VERTICAL

Note: "F" denotes fundamental frequency.

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840M Bandedge Low Ch Tested by : Weitin Chen

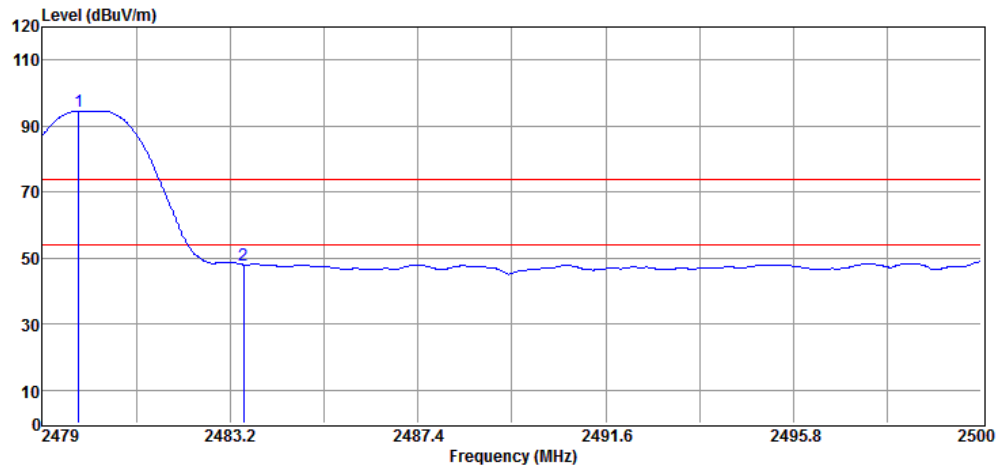


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2338.09	37.95	2.57	40.52	54.00	-13.48	Average	HORIZONTAL
2	2338.09	54.27	2.57	56.84	74.00	-17.16	Peak	HORIZONTAL
3	2390.00	43.14	2.74	45.88	74.00	-28.12	Peak	HORIZONTAL
4	2400.00	57.12	2.78	59.90	77.31	-17.41	Peak	HORIZONTAL
5	2401.88	94.53	2.78	97.31	--	--	Peak	HORIZONTAL

Note: "F" denotes fundamental frequency.

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

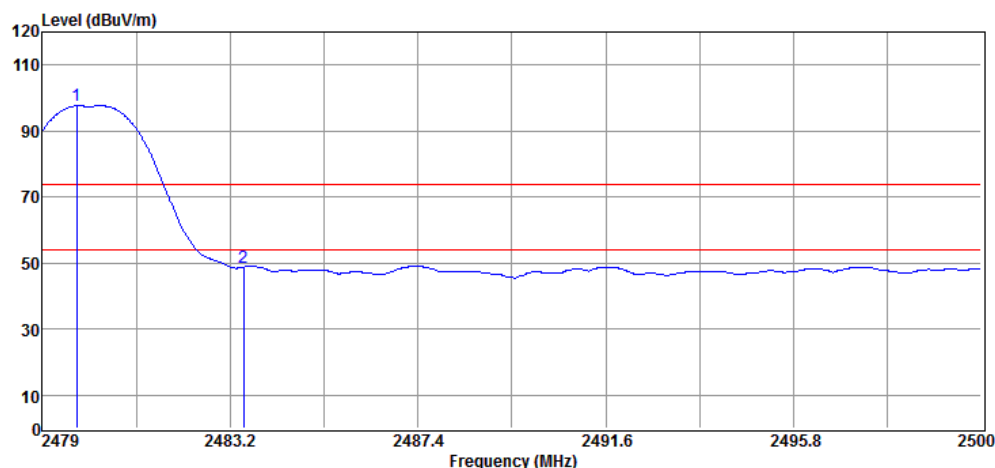
Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840M Bandedge High Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2479.82	91.48	3.10	94.58	--	--	Peak	VERTICAL
2	2483.50	44.89	3.12	48.01	74.00	-25.99	Peak	VERTICAL

Note: "F" denotes fundamental frequency.

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840M Bandedge High Ch Tested by : Weitin Chen

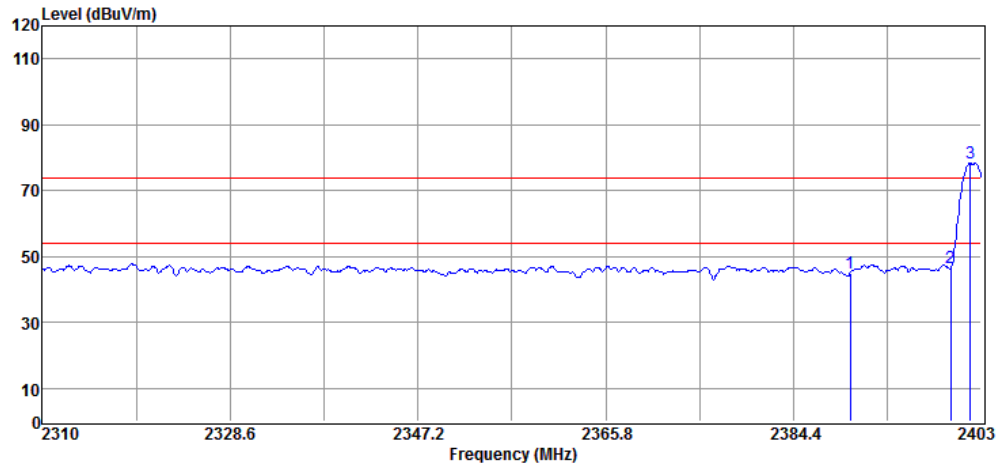


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2479.78	94.50	3.10	97.60	--	--	Peak	HORIZONTAL
2	2483.50	45.70	3.12	48.82	74.00	-25.18	Peak	HORIZONTAL

Report Number: ISL-18LR474FC-R3

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Bandedge Low Ch Tested by : Weitin Chen

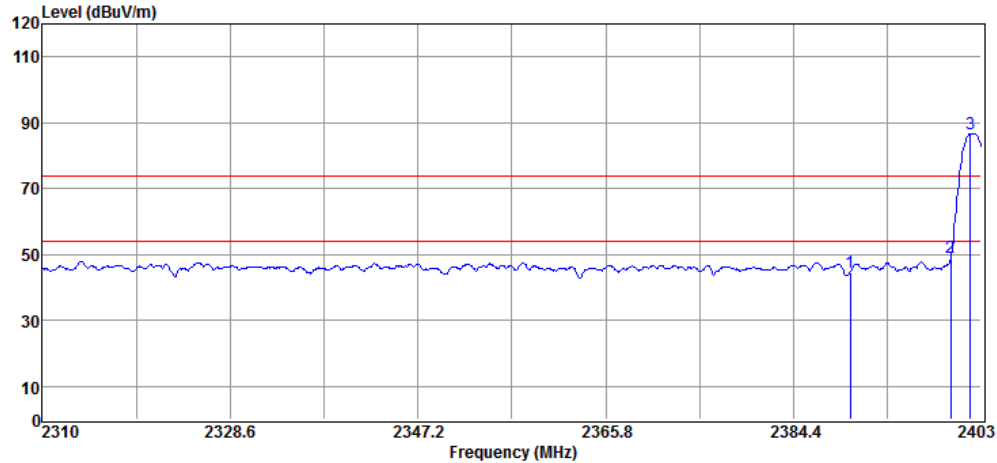


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2390.00	42.04	2.74	44.78	74.00	-29.22	Peak	VERTICAL
2	2400.00	43.89	2.78	46.67	58.29	-11.62	Peak	VERTICAL
3	2401.88	75.51	2.78	78.29	--	--	Peak	VERTICAL

Note: "F" denotes fundamental frequency.

International Standard Laboratory Corp.
Company Address:No.120,Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Bandedge Low Ch Tested by : Weitin Chen

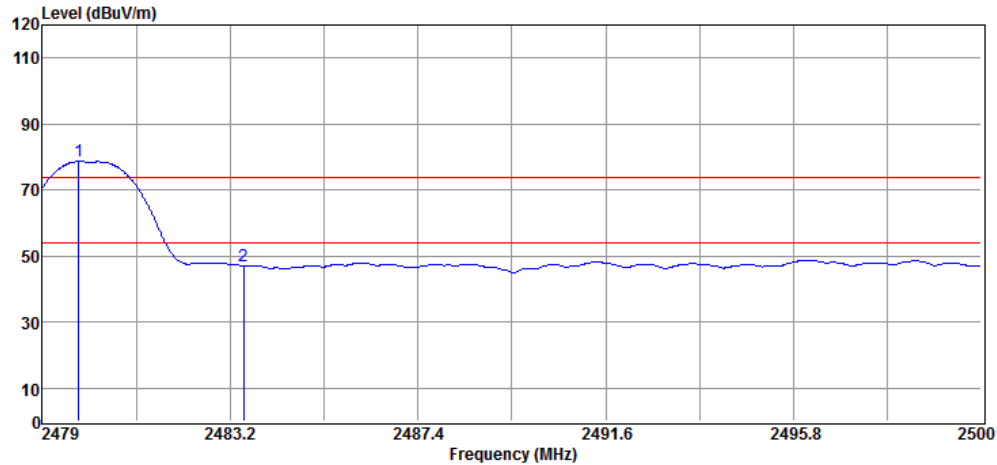


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2390.00	41.95	2.74	44.69	74.00	-29.31	Peak	HORIZONTAL
2	2400.00	46.47	2.78	49.25	66.72	-17.47	Peak	HORIZONTAL
3	2401.88	83.94	2.78	86.72	--	--	Peak	HORIZONTAL

Note: "F" denotes fundamental frequency.

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Bandedge High Ch Tested by : Weitin Chen

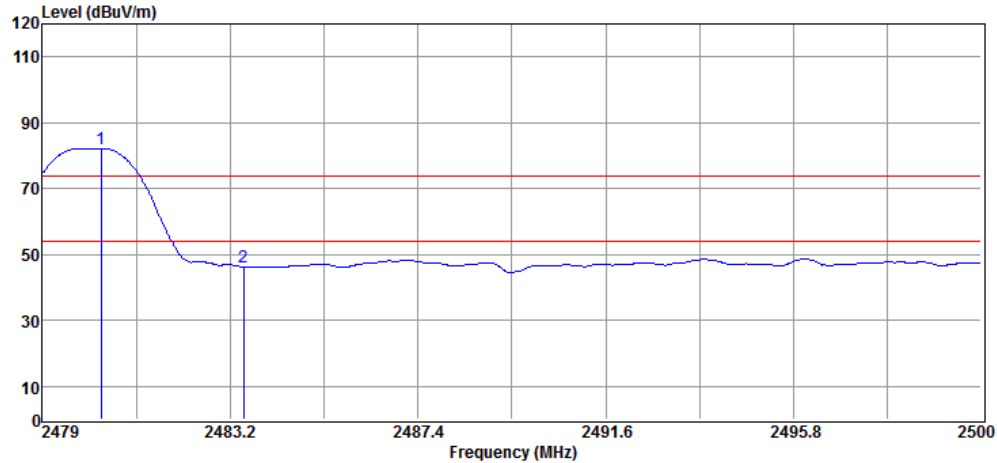


No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2479.82	75.55	3.10	78.65	--	--	Peak	VERTICAL
2	2483.50	44.01	3.12	47.13	74.00	-26.87	Peak	VERTICAL

Note: "F" denotes fundamental frequency.

International Standard Laboratory Corp.
Company Address: No. 120, Lane 180, Hsin Ho Rd.
Lung-Tan Dist., Tao Yuan City 325, Taiwan
Date: 2024-08-22

Project Number. : 18LR474-R3 Temp.(°C)/RH(%) : 26/57
Test Mode : BC840 Bandedge High Ch Tested by : Weitin Chen



No	Freq MHz	Reading dBuV	Factor dB/m	Level dBuV/m	Limit dBuV/m	Margin dB	Remark	Pol V/H
1	2480.32	79.15	3.10	82.25	--	--	Peak	HORIZONTAL
2	2483.50	43.15	3.12	46.27	74.00	-27.73	Peak	HORIZONTAL

Note: "F" denotes fundamental frequency.

8. Appendix

Location Conducted	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Chamber 19	Spectrum analyzer	R&S	FSV40	101919	07/13/2024	07/13/2025
Chamber 19	EMI Receiver	R&S	ESR3	102461	05/08/2024	05/08/2025
Chamber 19	Loop Antenna	EM	EM-6879	271	10/02/2023	10/02/2024
Chamber 19	Bilog Antenna (30MHz-1GHz)	Schwarzbeck	VULB9168 w 6dB Att.	9168-736	03/08/2024	03/08/2025
Chamber 19	Horn antenna (1GHz-18GHz)	ETS • LINDGREN	3117	00218718	10/04/2023	10/04/2024
Chamber 19	Horn antenna (18GHz-26GHz)	Com-power	AH-826	081001	11/24/2023	11/24/2024
Chamber 19	Horn antenna (26GHz-40GHz)	Com-power	AH-640	100A	03/19/2024	03/19/2025
Chamber 19	Preamplifier (9kHz-3GHz)	EM	EM330	060822	01/08/2024	01/08/2025
Chamber 19	Preamplifier (1GHz-26GHz)	HP	8449B	3008A02471	10/25/2023	10/25/2024
Chamber 19	Preamplifier (26GHz-40GHz)	MITEQ	JS4-26004000-27-5A	818471	05/13/2024	05/13/2025
Chamber 19	RF Cable (9kHz-26.5GHz)	Huber Suhner	Sucoflex 104A	MY1394/4A & 50886/4A	07/15/2024	07/15/2025
Chamber 19	RF Cable (18GHz-40GHz)	HUBER SUHNER	Sucoflex 102	27963/2&37421/2	11/22/2023	11/22/2024
Chamber 19	MXG Vector Signal Generator	Keysight	N5182B	MY53052399	12/26/2023	12/26/2024
Chamber 19	Test Software	Audix	E3 Ver:6.120203b	N/A	N/A	N/A

Location Conducted	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Conducted	Power Meter	Anritsu	ML2495A	1116010	09/27/2023	09/27/2024
Conducted	Power Sensor	Anritsu	MA2411B	34NKF50	09/27/2023	09/27/2024
Conducted	Temperature Chamber	KSON	THS-B4H100	2287	05/10/2024	05/09/2025
Conducted	DC Power supply	ABM	8185D	N/A	01/03/2024	01/03/2025
Conducted	AC Power supply	EXTECH	CFC105W	NA	N/A	N/A
Conducted	Spectrum analyzer	Keysight	N9010A	MY56070257	09/26/2023	09/26/2024
Conducted	Test Software	DARE	Radiation Ver:2013.1.23	NA	NA	NA
Conducted	Test Software	R&S	CMUGO Ver:2.0.0	N/A	N/A	N/A
Conducted	Wideband Radio Comm. Tester	R&S	CMW500	1201.002K50108793-JG	10/26/2023	10/26/2024
Conducted	Radio Communication Test Station	Anritsu	MT8000A	6272539604	08/30/2023	08/30/2024
Conducted	MT8000A Test Software	Anritsu	MX800000A Application Launcher V10.10.34.0	NA	NA	NA
Conducted	BT Simulator	Agilent	N4010A	MY48100200	NA	NA
Conducted	MXG Vector Signal Generator	Keysight	N5182B	MY53052399	12/26/2023	12/26/2024
Conducted (TS8997)	Wideband Radio Comm. Tester	R&S	CMW500	168811	09/13/2023	09/13/2024
Conducted (TS8997)	UP/DOWN converter	R&S	CMW-Z800A	100566	09/13/2023	09/13/2024
Conducted (TS8997)	Signal Generator	R&S	SMB100A	183701	09/14/2023	09/14/2024
Conducted (TS8997)	Vector Signal Generator	R&S	SMM100A	101908	09/13/2023	09/13/2024
Conducted (TS8997)	Signal analyzer 40GHz	R&S	FSV40	101884	09/13/2023	09/13/2024
Conducted (TS8997)	OSP150 extension unit CAM-BUS	R&S	OSP150	101107	09/15/2023	09/15/2024
Conducted (TS8997)	Test Software	R&S	EMC32 Ver: 12.00.00	NA	NA	NA

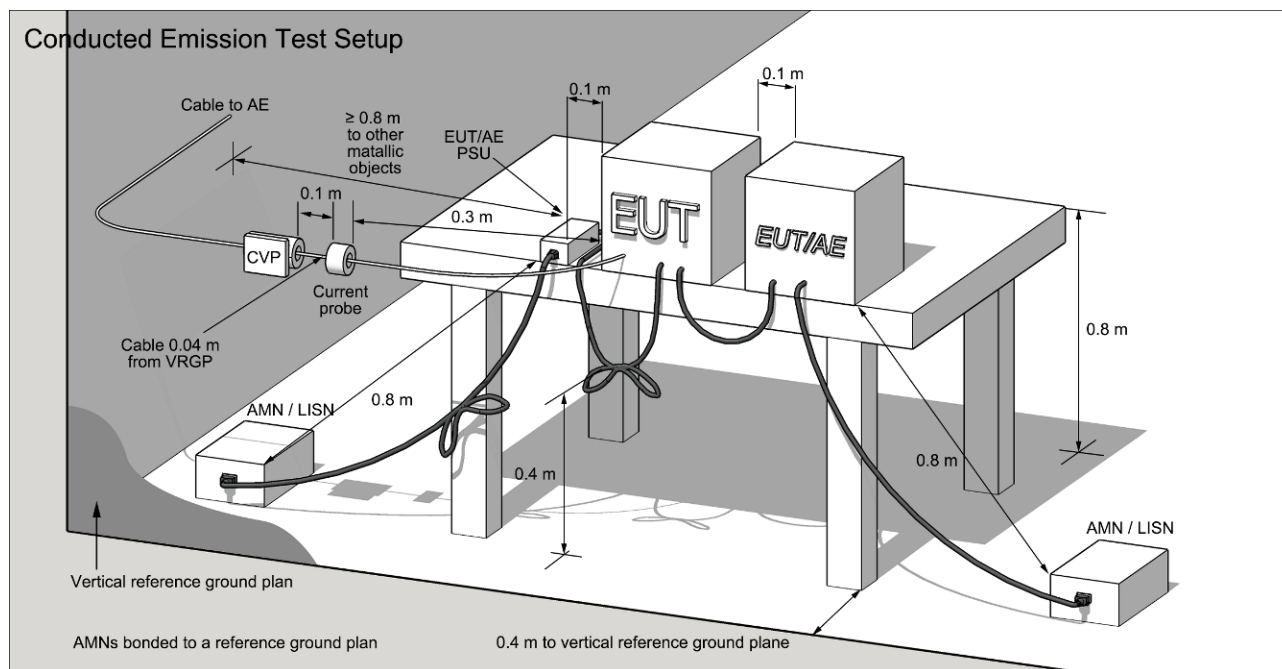
8.1 Appendix B: Uncertainty of Measurement

ISO/IEC 17025 requires that an estimate of measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ($k=2$)).

Parameters	Uncertainty ($k=2$)
Conducted Emission (AC power line)	± 0.64 dB
Spurious emissions, radiated	± 3.5 dB
RF power, conducted	± 1.6 dB
Power Density	± 1.7 dB
RF Frequency	$\pm 0.0041\%$
Time	$\pm 0.01\%$
DC Voltage	$\pm 0.03\%$

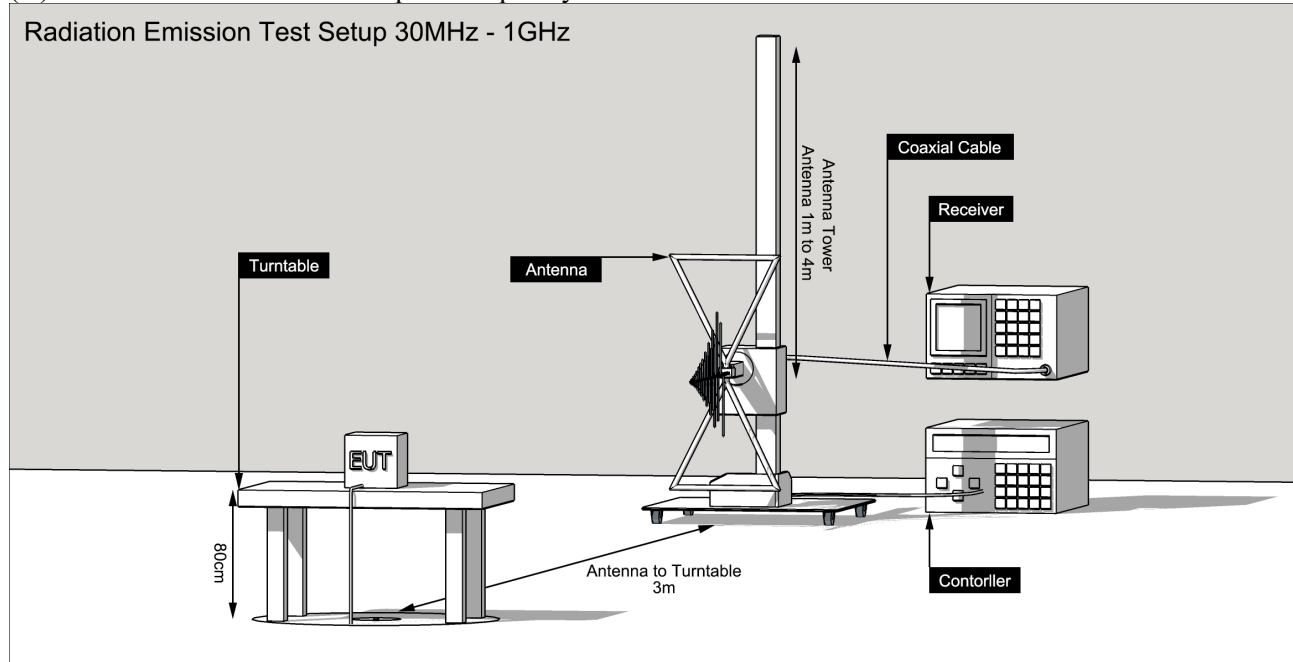
AC Line Conduced Emission Test Setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10-2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The EUT was placed flushed with the rear of the table.
3. The LISN was connected with 120Vac/60Hz power source.

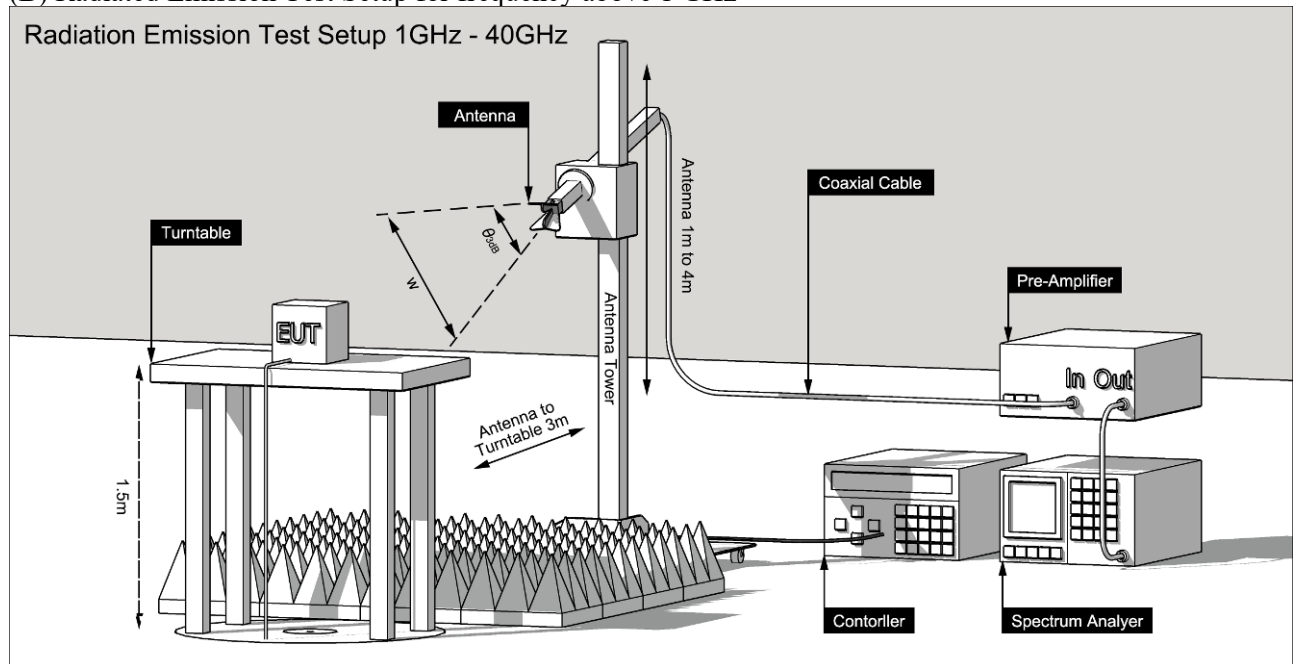


Radiated Spurious Emission Test & 100kHz Bandwidth of Band Edges Measurement Test Setup

(A) Radiated Emission Test Setup for frequency below 1000MHz



(B) Radiated Emission Test Setup for frequency above 1 GHz



RF Conducted Measurement Test Setup

