

FCC Test Report

Report No.: RFBCOR-WTW-P24100259

FCC ID: NRIWS270001

Test Model: LDD-700SW

Series Model: L(X)D-70(Y)S(Z), X can be D or B, Y can be 0 ~ 9, Z can be A~Z (denotes housing color)
(Refer to item 3.1 for the more details)

Received Date: 2024/10/15

Test Date: 2024/12/9 (for radiated emission below 1GHz and AC power conducted emission test only)
2025/12/8 ~ 2025/12/13 (for all tests except radiated emission below 1GHz and AC power conducted emission)

Issued Date: 2026/1/30

Applicant: IR-TEC International Ltd.

Address: 6 Rong An Road, Luzhu Taoyuan 33852, TAIWAN

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: (1) No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
(2) No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

FCC Registration / Designation Number: (1) 788550 / TW0003
(2) 281270 / TW0032



This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

Table of Contents

Release Control Record	3
1 Certificate of Conformity.....	4
2 Summary of Test Results	5
2.1 Measurement Uncertainty	5
2.2 Modification Record	5
3 General Information.....	6
3.1 General Description of EUT	6
3.2 Description of Test Modes	6
3.2.1 Test Mode Applicability and Tested Channel Detail.....	7
3.3 Duty Cycle of Test Signal	8
3.4 Description of Support Units	8
3.4.1 Configuration of System under Test	8
3.5 General Description of Applied Standards	8
4 Test Types and Results	9
4.1 Radiated Emission and Bandedge Measurement.....	9
4.1.1 Limits of Radiated Emission and Bandedge Measurement	9
4.1.2 Test Instruments	10
4.1.3 Test Procedures.....	12
4.1.4 Deviation from Test Standard	13
4.1.5 Test Setup.....	13
4.1.6 EUT Operating Conditions.....	14
4.1.7 Test Results	15
4.2 Conducted Emission Measurement	27
4.2.1 Limits of Conducted Emission Measurement.....	27
4.2.2 Test Instruments	27
4.2.3 Test Procedures.....	28
4.2.4 Deviation from Test Standard	28
4.2.5 Test Setup.....	28
4.2.6 EUT Operating Conditions.....	28
4.2.7 Test Results	29
4.3 20dB Bandwidth Measurement.....	31
4.3.1 Limits of 20dB bandwidth Measurement	31
4.3.2 Test Instruments	31
4.3.3 Test Procedures.....	31
4.3.4 Deviation from Test Standard	31
4.3.5 Test Setup.....	31
4.3.6 EUT Operating Conditions.....	31
4.3.7 Test Results	32
5 Pictures of Test Arrangements.....	33
Appendix – Information of the Testing Laboratories	34

Release Control Record

Issue No.	Description	Date Issued
RFBCOR-WTW-P24100259	Original Release	2026/1/30

1 Certificate of Conformity

Product: Line Voltage Dual-Tech Dimming Wall Switch Sensor

Brand: 

Test Model: LDD-700SW

Series Model: L(X)D-70(Y)S(Z), X can be D or B, Y can be 0 ~ 9, Z can be A~Z (denotes housing color)
(Refer to item 3.1 for the more details)

Sample Status: Engineering Sample

Applicant: IR-TEC International Ltd.

Test Date: 2024/12/9 (for radiated emission below 1GHz and AC power conducted emission test only)

2025/12/8 ~ 2025/12/13 (for all tests except radiated emission below 1GHz and AC power conducted emission)

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.245)
ANSI C63.10-2020

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by :



Date: 2026/1/30

Vera Huang / Specialist

Approved by :



Date: 2026/1/30

Jeremy Lin / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.245)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -8.01 dB at 4.43400 MHz.
15.245	Radiated Emission Test	Pass	Meet the requirement of limit. Minimum passing margin is -4.9 dB at 201.69 MHz.
15.215 (c)	20dB Bandwidth	Pass	Meet the requirement.
15.203	Antenna Requirement	Pass	No antenna connector is used.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
AC Power Conducted Emission	150kHz ~ 30MHz	2.90 dB
Radiated Emissions	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 1GHz	2.92 dB
	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB
	40GHz ~ 100GHz	5.40 dB
20dB Bandwidth	-	206.5 Hz

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Line Voltage Dual-Tech Dimming Wall Switch Sensor
Brand	
Test Model	LDD-700SW
Series Model	L(X)D-70(Y)S(Z), X can be D or B, Y can be 0 ~ 9, Z can be A~Z (denotes housing color)
Model Difference	Refer to Note
Sample Status	Engineering Sample
Power Supply Rating	120~277Vac
Modulation Type	Pulsed CW
Operating Frequency	10.5 ~ 10.55GHz

Note:

1. All models are listed as below. The model LDD-700SW was chosen for final test.

Product Name	Brand Name	Model Name	Difference
Line Voltage Dual-Tech Dimming Wall Switch Sensor		LDD-700SW	For marketing purpose
		L(X)D-70(Y)S(Z), X can be D or B, Y can be 0 ~ 9, Z can be A~Z (denotes housing color)	

2. The antenna information is listed as below.

Antenna Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
8	10.50~10.55	Patch antenna	N/A

* Due to radiated measurements are made and the antenna gain is already accounted for this device, so provide an antenna datasheet and/or antenna measurement report is not required. The antenna dimensions and pictures (include antenna wire length if have) are stated in EUT photo exhibit.

3.2 Description of Test Modes

1 channel is provided for test:

Channel	Frequency (GHz)
1	10.51173

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE $\geq$ 1G	RE<1G	PLC	BW	
-	√	√	√	√	-

Where RE $\geq$ 1G: Radiated Emission above 1GHz & Bandedge Measurement RE<1G: Radiated Emission below 1GHz
 PLC: Power Line Conducted Emission BW: 20dB Bandwidth Measurement

Note: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.

Radiated Emission Test (Above 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Tested Channel	Modulation Type
1	Pulsed CW

Radiated Emission Test (Below 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Tested Channel	Modulation Type
1	Pulsed CW

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Tested Channel	Modulation Type
1	Pulsed CW

20dB Bandwidth Measurement:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

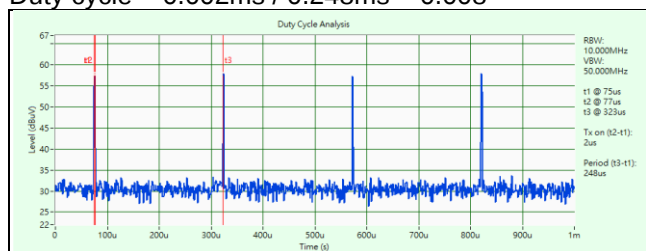
Tested Channel	Modulation Type
1	Pulsed CW

Test Condition:

Applicable to	Environmental Conditions	Input Power (System)	Tested by
RE $\geq$ 1G	22deg. C, 67%RH	120Vac, 60Hz	Wade Huang
RE<1G	22deg. C, 67%RH	120Vac, 60Hz	Wade Huang
PLC	25deg. C, 75%RH	120Vac, 60Hz	Charles Hsiao
BW	22deg. C, 67%RH	120Vac, 60Hz	Wade Huang

3.3 Duty Cycle of Test Signal

Duty cycle = $0.002\text{ms} / 0.248\text{ms} = 0.008$

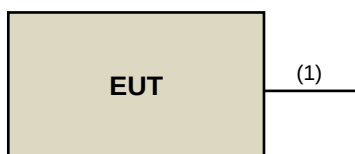


3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	AC Cable	1	1.3	No	0	Provided by Lab

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.245)

ANSI C63.10-2020

All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental (millivolts/meter)	Field Strength of Fundamental (dBuV/meter)	Field strength of harmonics (millivolts/meter)	Field strength of harmonics (dBuV/meter)
902-928	500	113.9	1.6	64.0
2435-2465	500	113.9	1.6	64.0
5785-5815	500	113.9	1.6	64.0
10500-10550	2500	127.9	25.0	87.9
24075-24175	2500	127.9	25.0	87.9

- (1) Regardless of the limits shown in the above table, harmonic emissions in the restricted bands below 17.7 GHz, as specified in § 15.205, shall not exceed the field strength limits shown in § 15.209. Harmonic emissions in the restricted bands at and above 17.7 GHz shall not exceed the following field strength limits:
 - (i) For the second and third harmonics of field disturbance sensors operating in the 24075-24175 MHz band and for other field disturbance sensors designed for use only within a building or to open building doors, 25.0 mV/m.
 - (ii) For all other field disturbance sensors, 7.5 mV/m.
 - (iii) Field disturbance sensors designed to be used in motor vehicles or aircraft must include features to prevent continuous operation unless their emissions in the restricted bands, other than the second and third harmonics from devices operating in the 24075-24175 MHz band, fully comply with the limits given in § 15.209. Continuous operation of field disturbance sensors designed to be used in farm equipment, vehicles such as fork lifts that are intended primarily for use indoors or for very specialized operations, or railroad locomotives, railroad cars and other equipment which travels on fixed tracks is permitted. A field disturbance sensor will be considered not to be operating in a continuous mode if its operation is limited to specific activities of limited duration (e.g., putting a vehicle into reverse gear, activating a turn signal, etc.).
- (2) Field strength limits are specified at a distance of 3 meters.
- (3) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 Test Instruments

For Radiated Emission test: (Below 40GHz)

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower KaiTuo	NA	NA	NA	NA
Antenna Tower Controller KaiTuo	KT-2000	NA	NA	NA
Turn Table Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208675	NA	NA
Test Receiver Agilent	N9038A	MY52260177	2024/9/19 2025/10/3	2025/9/18 2026/10/2
PXA Signal Analyzer Keysight	N9030B	MY57140488	2024/3/6 2025/3/11	2025/3/5 2026/3/10
Preamplifier EMCI	EMC330N	980783	2024/1/15 2025/1/14	2025/1/14 2026/1/13
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-995	2024/10/9 2025/9/17	2025/10/8 2026/9/16
RF Coaxial Cable EMCI	EMCCFD400-NM- NM-9000	201252(with PAD)	2024/1/15 2025/1/14	2025/1/14 2026/1/13
RF Coaxial Cable EMCI	EMCCFD400-NM- NM-3000	201250	2024/1/15 2025/1/14	2025/1/14 2026/1/13
RF Coaxial Cable EMCI	EMCCFD400-NM- NM-500	201245	2024/1/15 2025/1/14	2025/1/14 2026/1/13
Preamplifier EMCI	EMC184045SE	980787	2024/1/15 2025/1/14	2025/1/14 2026/1/13
Horn Antenna Schwarzbeck	BBHA 9170	9170-1048	2024/11/10 2025/11/9	2025/11/9 2026/11/8
RF Coaxial Cable EMCI	EMC101G-KM-KM- 5000	201261	2024/1/15 2025/1/14	2025/1/14 2026/1/13
RF Coaxial Cable EMCI	EMC101G-KM-KM- 3000	201258	2024/1/15 2025/1/14	2025/1/14 2026/1/13
RF Coaxial Cable EMCI	EMC101G-KM-KM- 2000	201255	2024/1/15 2025/1/14	2025/1/14 2026/1/13

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in WM - 966 Chamber 7.
3. Test Date:
2024/12/9 (for radiated emission below 1GHz)
2025/12/8 ~ 2025/12/13 (for radiated emission 1GHz – 40GHz)

For Radiated Emission test: (Above 40GHz)

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer Agilent	N9010A	MY52220314	2024/12/24	2025/12/23
Spectrum Analyzer (50~110GHz) Keysight	V3050A	US60360159	2024/4/16	2026/4/15
4CH Infiniivision Oscilloscope Keysight	DSOX6004A	MY55190202	2024/6/17	2026/6/16
*OXE89 Horn Antenna (33~55GHz) QuinStar	QWH-UCRR00	QWH-QPRR00-1	2024/4/9	2026/4/8
*Conical Horn Antenna (50~75GHz) Keysight	WR15CH-Conical	RCHO15RL-1	2024/4/9	2026/4/8
*Conical Horn Antenna (75~110GHz) Keysight	WR10CH-Conical	RCHO10RL-1	2024/4/9	2026/4/8
*Conical Horn Antenna (110~170GHz) Keysight	WR6.5CH-Conical	RCHO10RL-1	2024/4/9	2026/4/8
*Conical Horn Antenna (140~220GHz) Keysight	WR5.1CH-Conical	RCHO5RL-1	2024/4/9	2026/4/8
N9029AV06-DC9 - 110-170 GHz VDI Standard Downconverter Keysight	N9029AV06	SAX723	2024/4/16	2026/4/15
*N9029AV05-DC9 - 140-220 GHz VDI Standard Downconverte Keysight	N9029AV05	SAX722	2024/4/16	2026/4/15
USB Thermocouple Power Sensors (10MHz-120GHz) Keysight	U8489A	US59290810	2024/3/8	2026/3/7
*Power Meter (above 110GHz) VDI	PM5B	571V	2024/4/16	2026/4/15

Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in WM - 966 Chamber 7.
 3. Test Date: 2025/12/13

For other test items:

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Signal & Spectrum Analyzer R&S	FSW43	101582	2025/4/15	2026/4/14
Software BV	ADT_RF Test Software V7.6.5.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HW Oven room.
 3. Test Date: 2025/12/9

4.1.3 Test Procedures

For Radiated emission: Below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission: 30MHz ~ 55GHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The distance at which limits are typically specified is 3 meter; however, closer measurement distances may be utilized.
- c. Begin handheld measurements with the test antenna (horn) at a distance of 1 meter from the EUT, in a horizontally polarized position. Slowly adjust its position, entirely covering the plane 1 meter from the EUT.
- d. Repeat (b) with the horn in a vertically polarized position.
- e. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- f. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- g. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- h. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

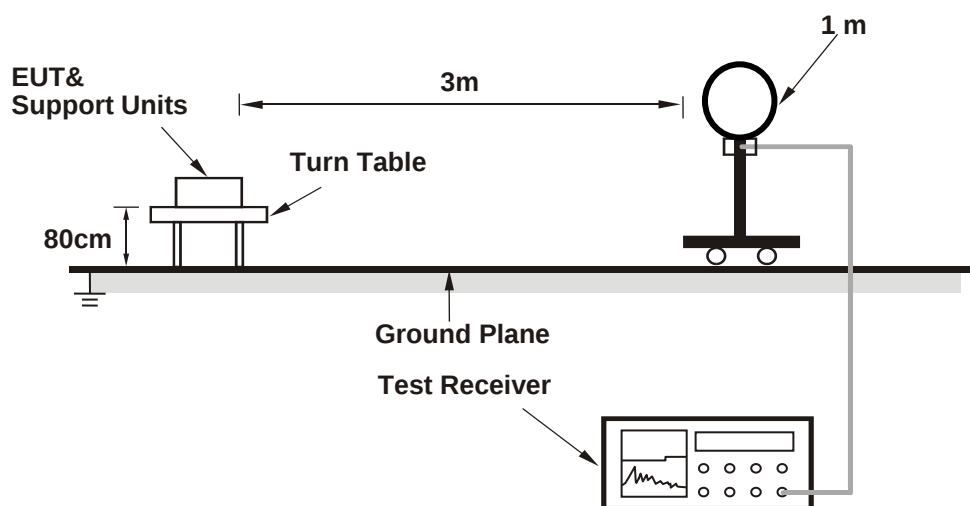
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

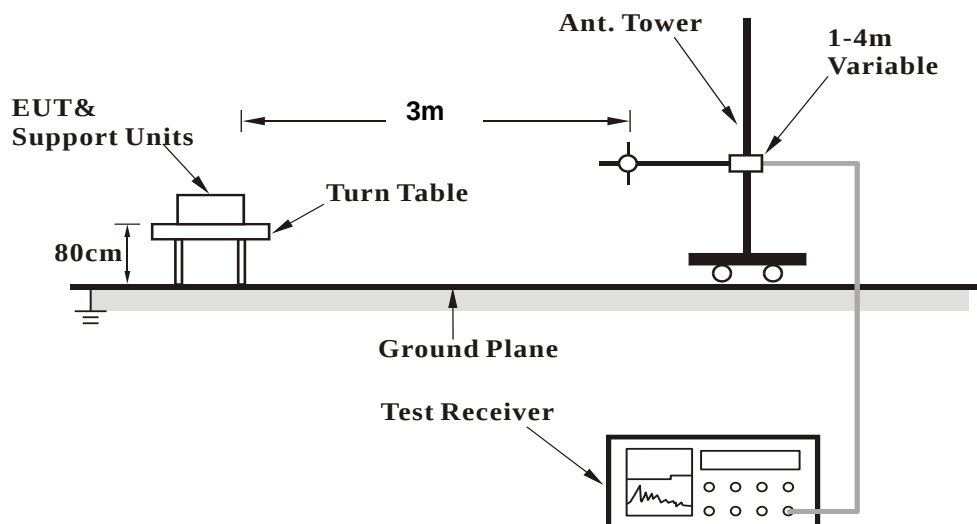
No deviation.

4.1.5 Test Setup

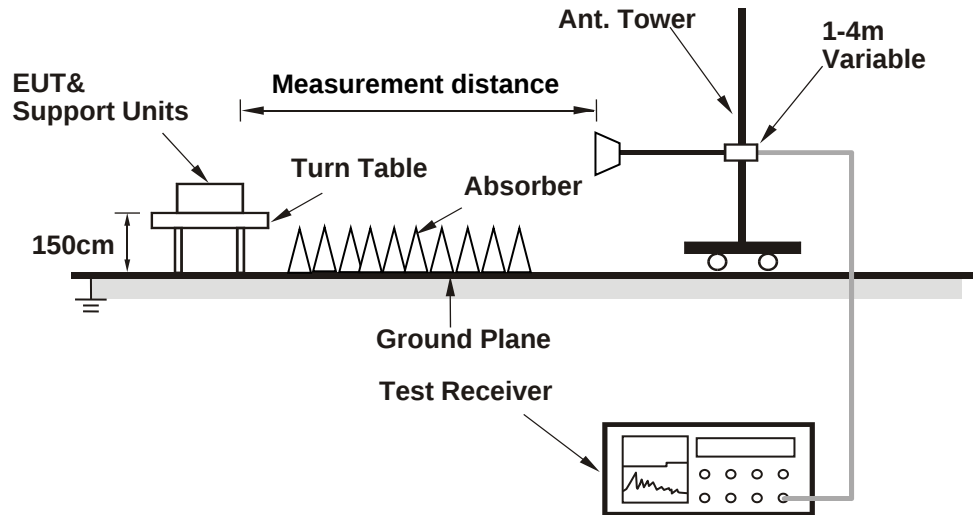
For Radiated emission below 30MHz



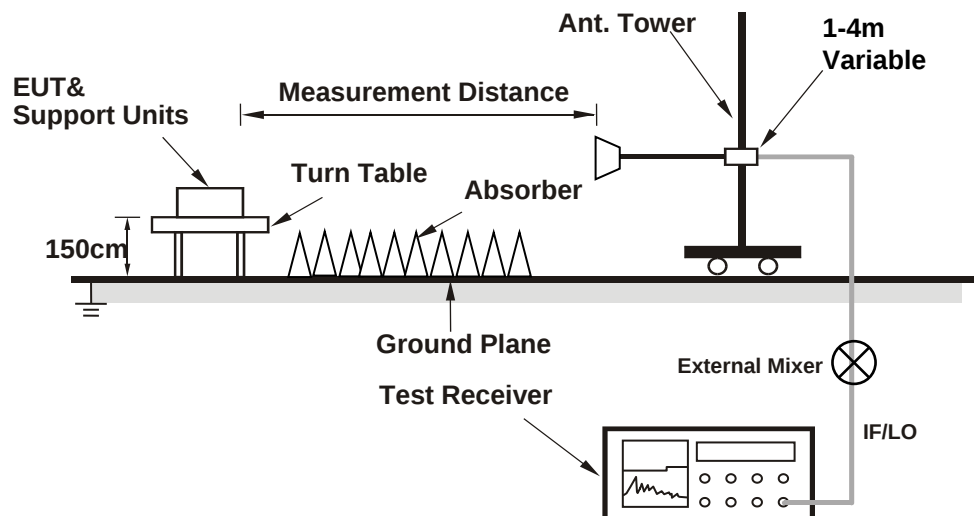
For Radiated emission 30MHz to 1GHz



For Radiated emission 1GHz ~ 40GHz



For Radiated emission above 40GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data:

RF Mode	TX	Channel	CH 1 : 10.51173GHz
Frequency Range	10.3GHz ~ 10.75GHz	Detector Function	Peak (PK) Average (AV)

PK power

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*10511.73	104.5	147.9	-43.4	135H	24	48.5	56.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*10511.73	114.0	147.9	-33.9	113V	0	58.0	56.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)–Pre-Amplifier Factor(dB)+ Pulse desensitization factor.
3. Pulse desensitization factor α_p (dB) = $20 \log(\tau \times B_{imp}) = 20 \log(2 \times 10^{-6} \times 1.48 \times 10^6) = 9.43$
4. Margin value = Emission Level –Limit value.
5. The other emission levels were very low against the limit.
- 6.“ * “ : Fundamental frequency.
7. Fieldstrength limits are specified at a distance of 3 meters

AV power

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*10511.73	71.1	127.9	-56.8	135H	24	24.5	46.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*10511.73	78.8	127.9	-49.1	113V	0	32.2	46.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)–Pre-Amplifier Factor(dB)
3. Margin value = Emission Level –Limit value.
4. The other emission levels were very low against the limit.
- 5.“ * “ : Fundamental frequency.
6. Fieldstrength limits are specified at a distance of 3 meters

RF Mode	TX	Channel	CH 1 : 10.51173GHz
Frequency Range	1GHz ~ 18GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	17983.00	53.1 PK	74.0	-20.9	1.75 H	113	32.9	20.2
2	17983.00	46.5 AV	54.0	-7.5	1.75 H	113	26.3	20.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	17983.00	53.3 PK	74.0	-20.7	1.15 V	23	33.1	20.2
2	17983.00	46.7 AV	54.0	-7.3	1.15 V	23	26.5	20.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. Field strength limits are specified at a distance of 3 meters

RF Mode	TX	Channel	CH 1 : 10.51173GHz
Frequency Range	18GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	21023.46	75.9 PK	97.5	-21.6	1.43 H	299	81.1	-5.2
2	21023.46	52.2 AV	77.5	-25.3	1.43 H	299	57.4	-5.2
3	31535.19	67.7 PK	97.5	-29.8	1.68 H	277	74.9	-7.2
4	31535.19	44.4 AV	77.5	-33.1	1.68 H	277	51.6	-7.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	21023.46	73.0 PK	97.5	-24.5	1.52 V	276	78.2	-5.2
2	21023.46	49.2 AV	77.5	-28.3	1.52 V	276	54.4	-5.2
3	31535.19	66.1 PK	97.5	-31.4	1.42 V	20	73.3	-7.2
4	31535.19	43.3 AV	77.5	-34.2	1.42 V	20	50.5	-7.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. Field strength limits are specified at a distance of 3 meters

RF Mode	TX	Channel	CH 1 : 10.51173GHz
Frequency Range	40GHz ~ 50GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	42046.92	57.8 PK	97.5	-39.7	1.47 H	20	62.5	-4.7
2	42046.92	36.3 AV	77.5	-41.2	1.47 H	20	41.0	-4.7
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	42046.92	56.5 PK	97.5	-41.0	1.43 V	330	61.2	-4.7
2	42046.92	33.9 AV	77.5	-43.6	1.43 V	330	38.6	-4.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. Field strength limits are specified at a distance of 3 meters

RF Mode	TX	Channel	CH 1 : 10.51173GHz
Frequency Range	50GHz ~ 55GHz	Detector Function	Peak (PK) Average (AV)

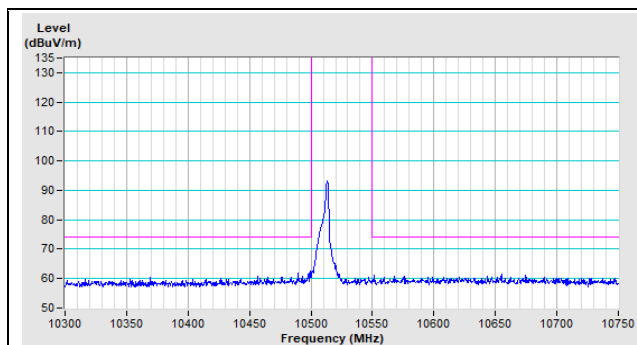
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	54500.00	55.2 PK	74.0	-18.8	1.56 H	131	63.2	-8.0
2	54500.00	43.8 AV	54.0	-10.2	1.56 H	131	51.8	-8.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	54500.00	55.4 PK	74.0	-18.6	1.47 V	20	63.4	-8.0
2	54500.00	44.0 AV	54.0	-10.0	1.47 V	20	52.0	-8.0

Remarks:

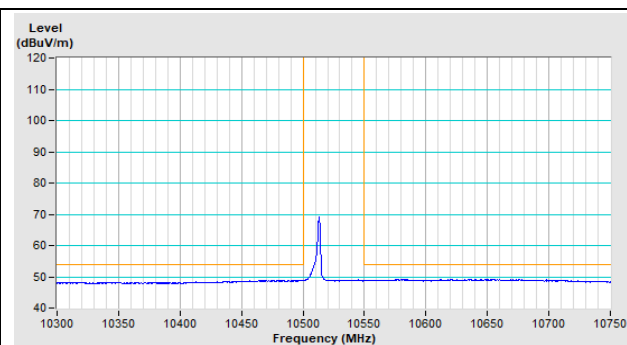
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. Field strength limits are specified at a distance of 3 meters

Plot of Band Edge

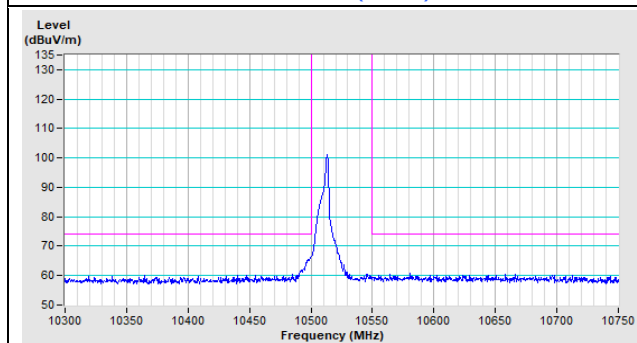
Frequency Range	10.3GHz ~ 10.75GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=3 MHz, DET=RMS
-----------------	--------------------	-------------------------------	---



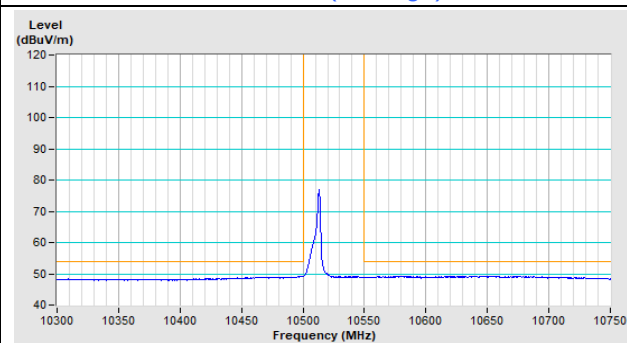
Horizontal (Peak)



Horizontal (Average)



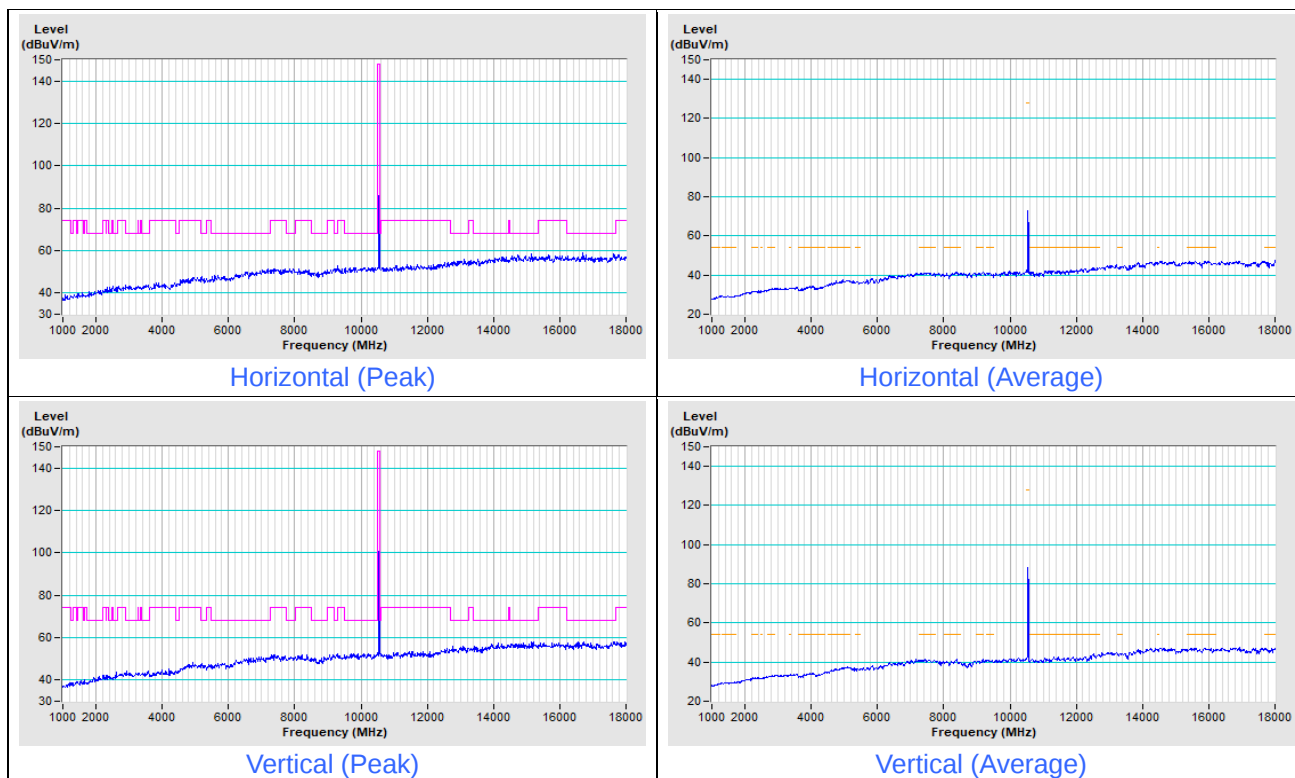
Vertical (Peak)



Vertical (Average)

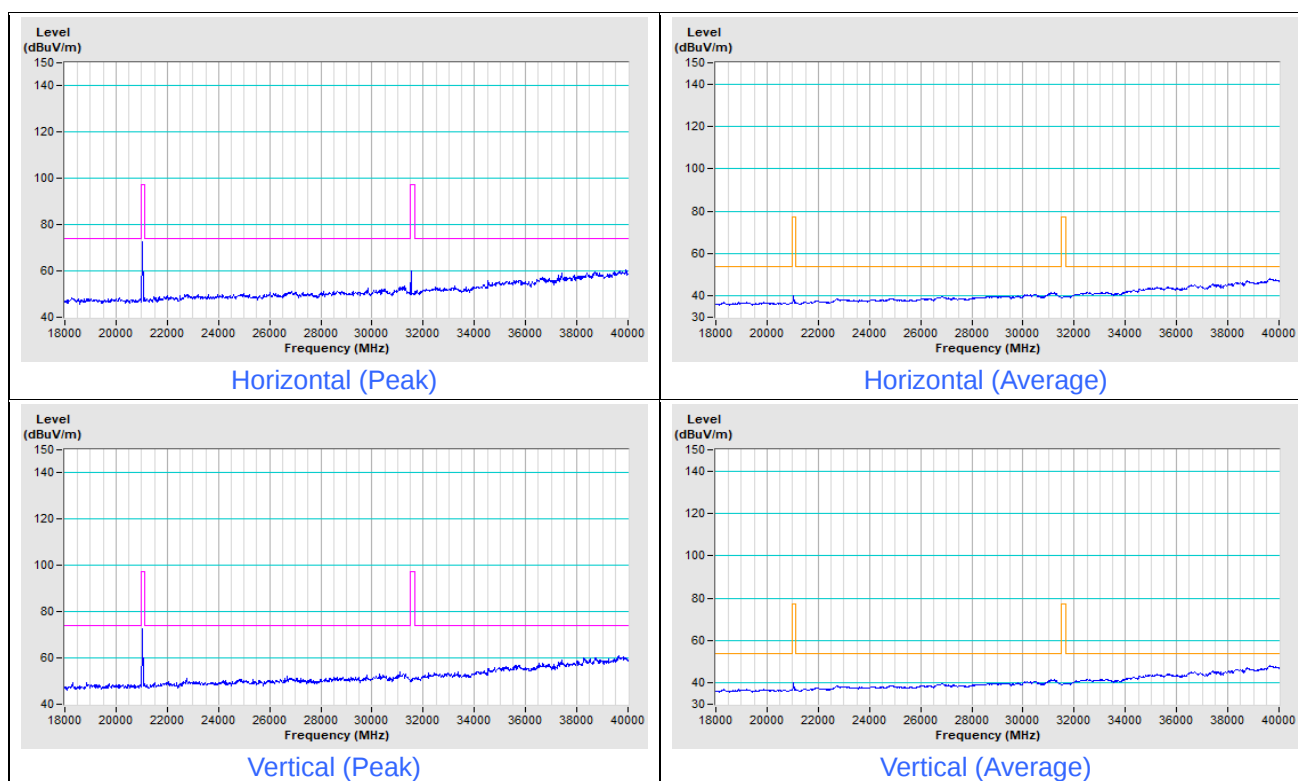
Plot of other emissions

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=3 MHz, DET=RMS
-----------------	----------------	-------------------------------	---



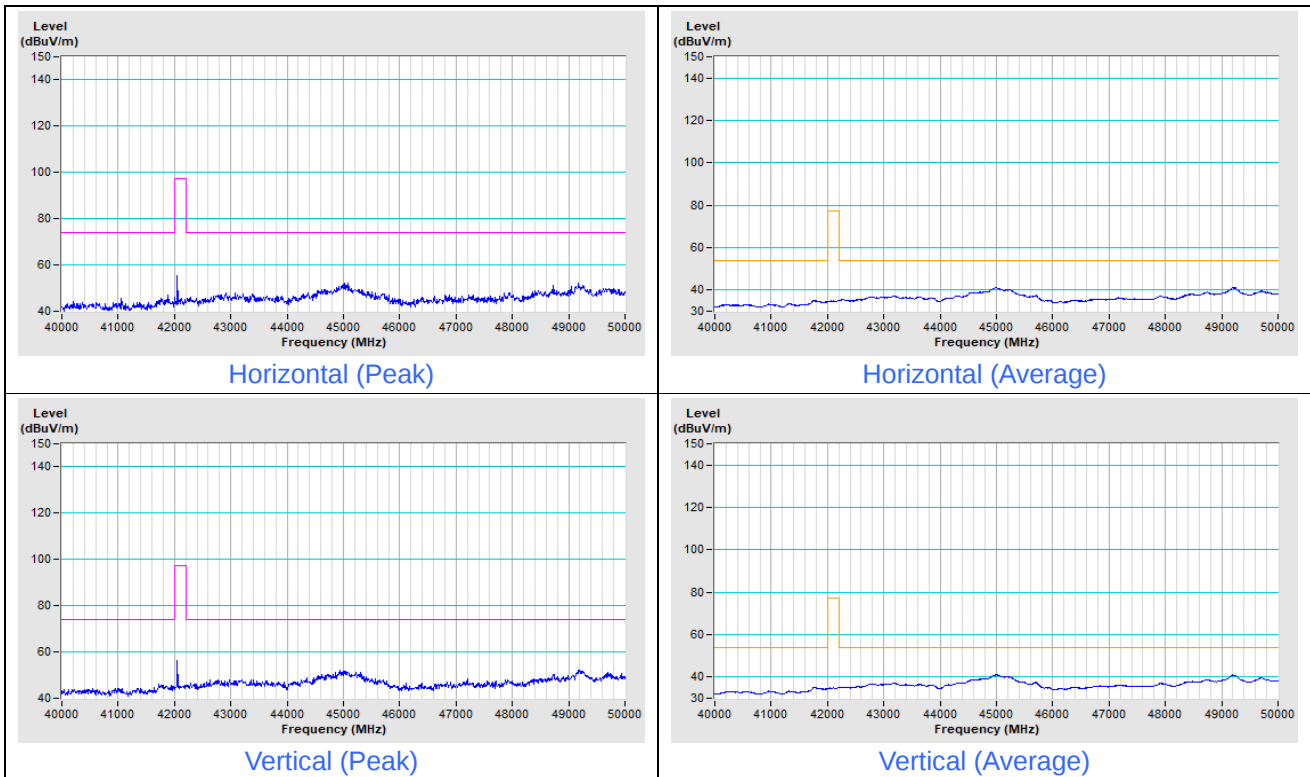
Note: For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.

Frequency Range	18 GHz ~ 40 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=3 MHz, DET=RMS
-----------------	-----------------	-------------------------------	---



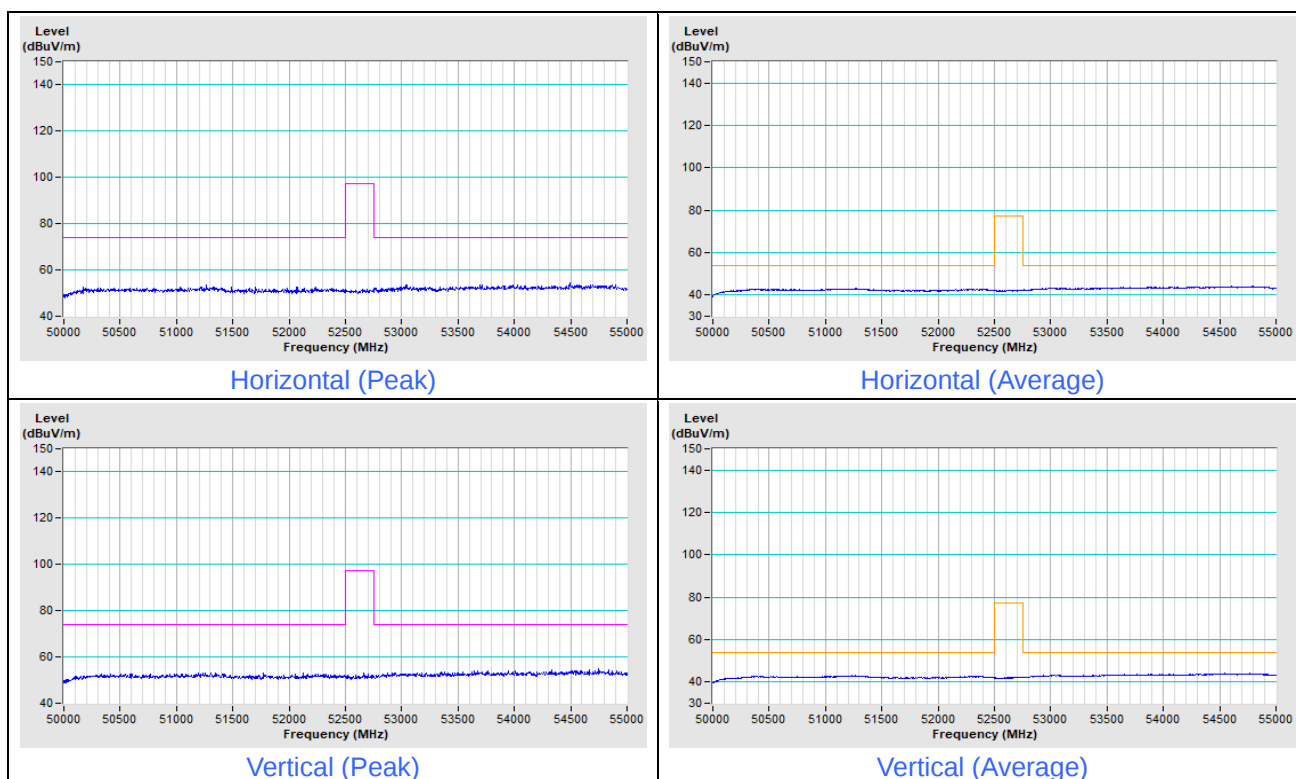
Note: For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.

Frequency Range	40 GHz ~ 50 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=3 MHz, DET=RMS
-----------------	-----------------	-------------------------------	---



Note: For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.

Frequency Range	50 GHz ~ 55 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=3 MHz, DET=RMS
-----------------	-----------------	-------------------------------	---



Note: For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.

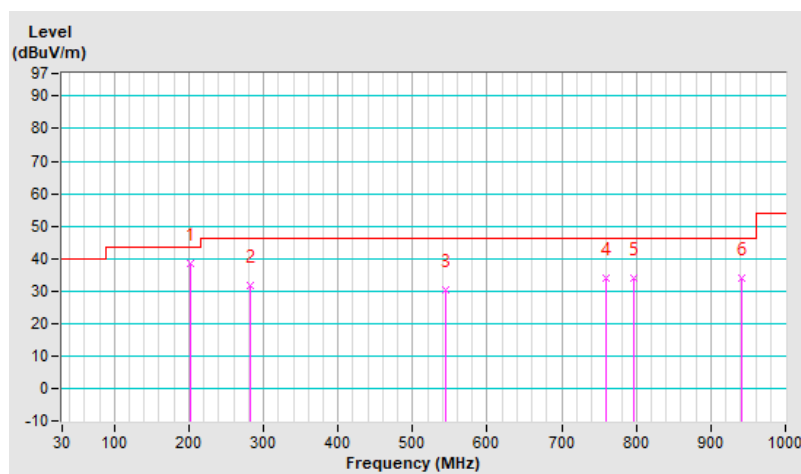
Below 1GHz Data:

RF Mode	TX	Channel	CH 1 : 10.51173GHz
Frequency Range	30kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	201.69	38.6 QP	43.5	-4.9	1.01 H	251	54.9	-16.3
2	282.20	31.5 QP	46.0	-14.5	1.01 H	239	44.2	-12.7
3	544.10	30.5 QP	46.0	-15.5	1.51 H	219	37.1	-6.6
4	760.41	33.8 QP	46.0	-12.2	2.00 H	337	36.3	-2.5
5	797.27	34.1 QP	46.0	-11.9	1.01 H	324	36.2	-2.1
6	940.83	34.0 QP	46.0	-12.0	2.00 H	337	33.9	0.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

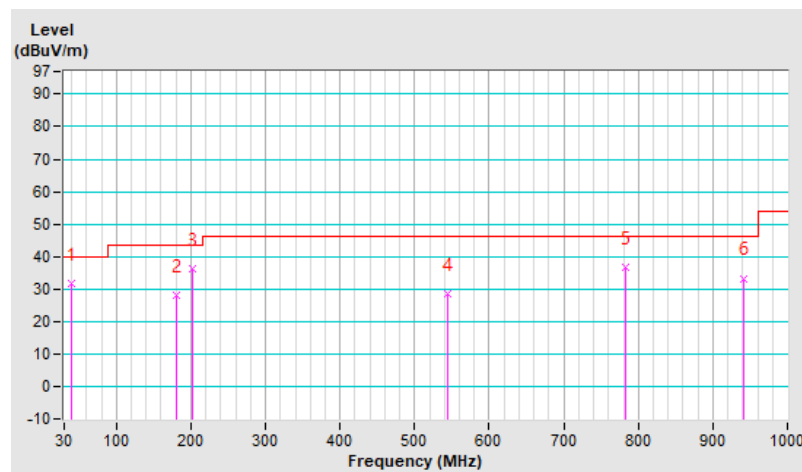


RF Mode	TX	Channel	CH 1 : 10.51173GHz
Frequency Range	30kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	40.67	31.6 QP	40.0	-8.4	1.00 V	18	45.0	-13.4
2	181.32	28.3 QP	43.5	-15.2	2.00 V	95	43.0	-14.7
3	201.69	36.2 QP	43.5	-7.3	1.00 V	256	52.5	-16.3
4	545.07	28.5 QP	46.0	-17.5	1.50 V	234	35.1	-6.6
5	783.69	36.7 QP	46.0	-9.3	1.00 V	11	38.7	-2.0
6	941.80	33.3 QP	46.0	-12.7	1.00 V	9	33.2	0.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
EMI Test Receiver R&S	ESR3	102783	2023/12/13	2024/12/12
RF Coaxial Cable Woken	5D-FB	Cable-cond2-01	2024/8/25	2025/8/24
LISN R&S	ESH2-Z5	100100	2024/3/6	2025/3/5
LISN R&S	ESH3-Z5	100116	2024/2/21	2025/2/20
Software BVADT	BVADT_Conc_ V7.4.1.0	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2.

3. The VCCI Site Registration No. is C-2047.

4. Test Date: 2024/12/9

4.2.3 Test Procedures

- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

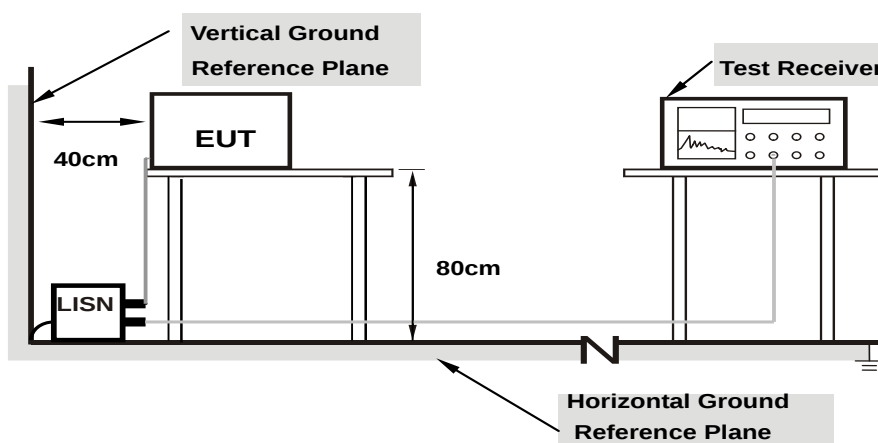
Note:

- The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

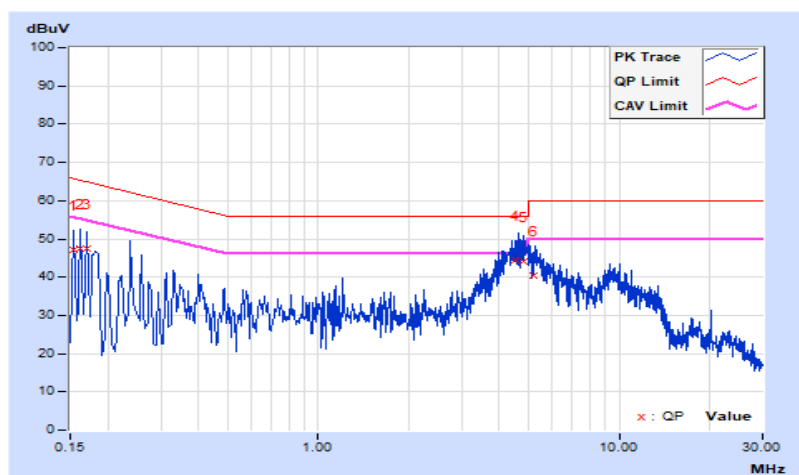
4.2.7 Test Results

RF Mode	TX	Channel	CH 1 : 10.51173GHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.10	36.99	21.07	47.09	31.17	65.78	55.78	-18.69	-24.61
2	0.16105	10.10	37.37	21.29	47.47	31.39	65.41	55.41	-17.94	-24.02
3	0.16932	10.10	37.43	21.84	47.53	31.94	64.99	54.99	-17.46	-23.05
4	4.49400	10.25	34.35	20.75	44.60	31.00	56.00	46.00	-11.40	-15.00
5	4.79000	10.26	33.76	19.81	44.02	30.07	56.00	46.00	-11.98	-15.93
6	5.17000	10.26	30.22	16.38	40.48	26.64	60.00	50.00	-19.52	-23.36

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

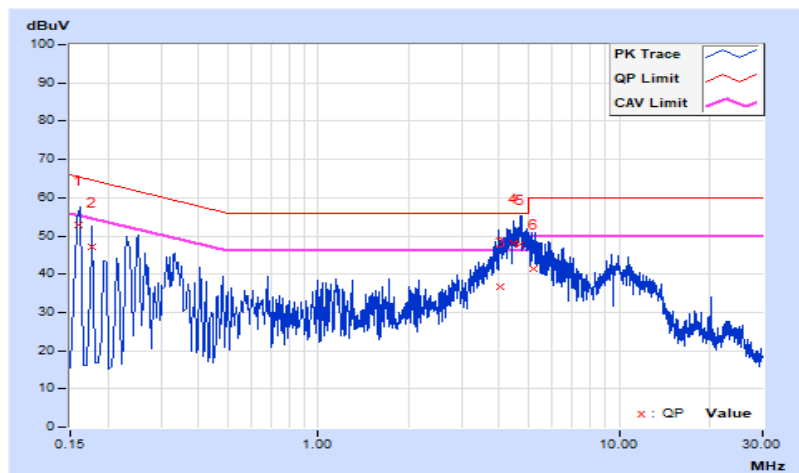


RF Mode	TX	Channel	CH 1 : 10.51173GHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15895	10.13	42.81	25.01	52.94	35.14	65.52	55.52	-12.58	-20.38
2	0.17615	10.14	36.91	20.63	47.05	30.77	64.67	54.67	-17.62	-23.90
3	4.00600	10.29	26.57	16.00	36.86	26.29	56.00	46.00	-19.14	-19.71
4	4.43400	10.30	37.69	26.38	47.99	36.68	56.00	46.00	-8.01	-9.32
5	4.66600	10.30	37.55	25.76	47.85	36.06	56.00	46.00	-8.15	-9.94
6	5.17400	10.31	31.17	19.28	41.48	29.59	60.00	50.00	-18.52	-20.41

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



4.3 20dB Bandwidth Measurement

4.3.1 Limits of 20dB bandwidth Measurement

According to 15.215(c), the requirement is to ensure the 20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified, is contained within the frequency band designated in the rule section under which the equipment is operated.

4.3.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

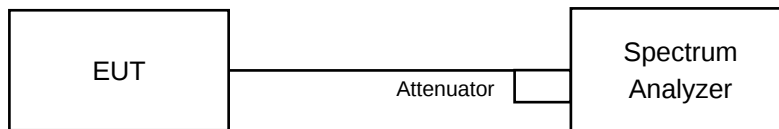
4.3.3 Test Procedures

- Set resolution bandwidth (RBW) = 1% to 5% of the OBW.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

4.3.4 Deviation from Test Standard

No deviation

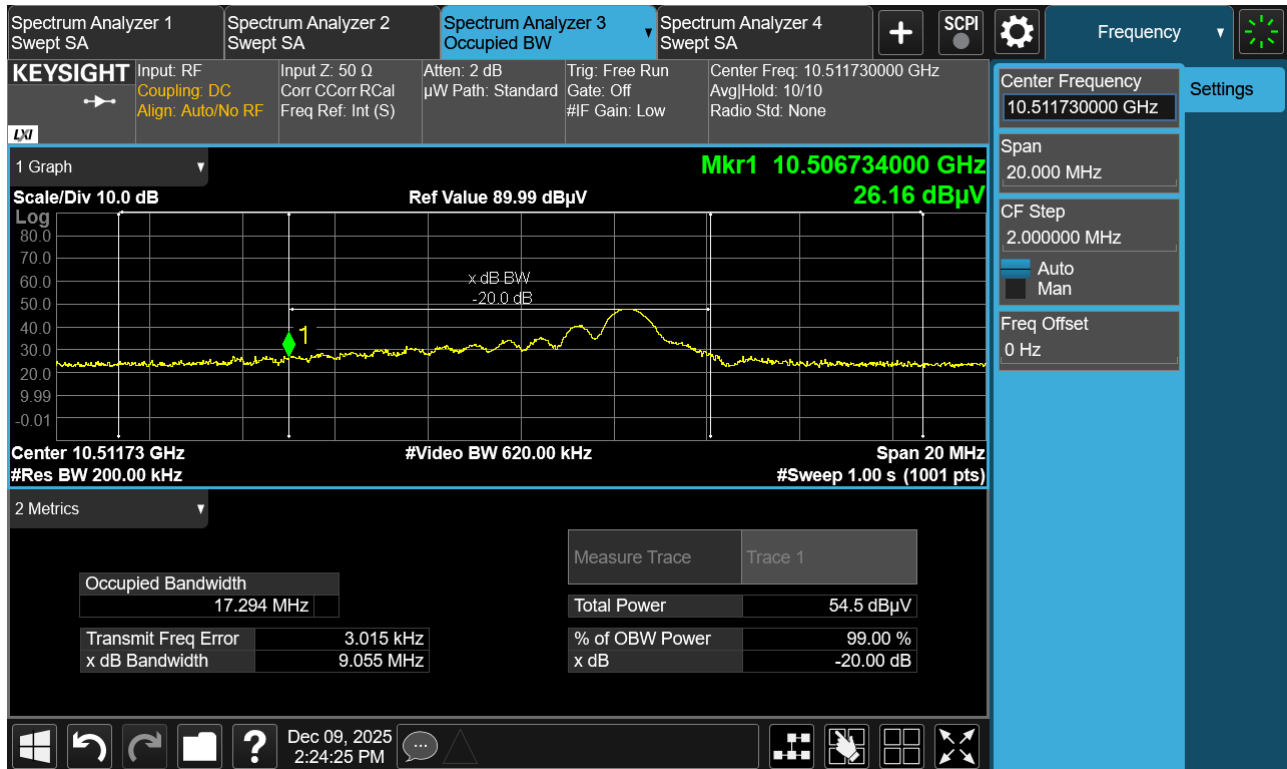
4.3.5 Test Setup



4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously.

4.3.7 Test Results



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: <http://ee.bureauveritas.com.tw>

The address and road map of all our labs can be found in our web site also.

--- END ---