TEST REPORT

Applicant:	Ningbo Deli Imp. & Exp Co., Ltd.
Address:	301 Xuxiake Rd Deli Xinling Industrial Zone, Ninghai City, China

Manufacturer or Supplier	Ningbo Deli Imp. & Exp Co., Ltd.
Address	301 Xuxiake Rd Deli Xinling Industrial Zone, Ninghai City, China
Product:	BARCODE SCANNER
Brand Name:	deli
Model:	14953W
Additional Model & Model Difference	N/A
Date of tests:	Mar. 09, 2020 ~ Mar. 10, 2020

the tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart C, Section 15.249**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Tom Chen Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	Date: Apr. 26, 2020

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF200309N001	Original release	Apr. 26, 2020

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.249)			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
§15.203	Antenna Requirement	PASS	No antenna connector is used
§15.207 (a)	Conducted Emission	PASS	Compliant
§15.205	Restricted Band of Operation	PASS	Compliant
§15.209 §15.249(a)	Radiated Emission	PASS	Compliant
§15.215(c)	20dB Bandwidth Test	PASS	Compliant

2 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	UNCERTAINTY
Radiated emissions	9KHz ~ 30MHz	2.52dB
	30MHz ~ 1GMHz	4.60dB
	1GHz ~ 18GHz	5.02dB
	18GHz ~ 40GHz	5.02dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	BARCODE SCANNER
MODEL NO.	14953W
ADDITIONAL MODEL	N/A
FCC ID	2AVUZ-14953W
NOMINAL VOLTAGE	TX (Scanner):DC 3.7V from Li-ion Battery or DC 5V from USB Host Unit
MODULATION TECHNOLOGY	GFSK
OPERATING FREQUENCY	2410-2475MHz
ANTENNA TYPE	Spring Antenna, with 3dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB Line: Unshielded, Detachable 1.82m

NOTES:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. For the test results, the EUT had been tested with all conditions, but only the worst case was shown in test report.

3. Please refer to the EUT photo document (Reference No.: 200309N001) for detailed product photo.

3.2 DESCRIPTION OF TEST MODES

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and packet type. The worst case was found when the EUT was positioned on Y axis for radiated emission. The EUT was tested under the following mode.

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE<1G	RE≥1G	PLC	BW	
A	-	-	-	√	DC3.7V from Li-ion battery
B	√	√	√	-	DC5V from adapter

Where **RE<1G:** Radiated Emission below 1GHz **RE≥1G:** Radiated Emission above 1GHz
PLC: Power Line Conducted Emission **BW:** 20db bandwidth

NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

Following channel(s) was (were) selected for the test as listed below.

TESTED CHANNEL	TESTED FREQUENCY
Low	2410 MHz
Middle	2443 MHz
High	2475 MHz

Channel List

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	**2410**	17	2427	34	2444	51	2461
1	2411	18	2428	35	2445	52	2462
2	2412	19	2429	36	2446	53	2463
3	2413	20	2430	37	2447	54	2464
4	2414	21	2431	38	2448	55	2465
5	2415	22	2432	39	2449	56	2466
6	2416	23	2433	40	2450	57	2467
7	2417	24	2434	41	2451	58	2468
8	2418	25	2435	42	2452	59	2469
9	2419	26	2436	43	2453	60	2470
10	2420	27	2437	44	2454	61	2471
11	2421	28	2438	45	2455	62	2472
12	2422	29	2439	46	2456	63	2473
13	2423	30	2440	47	2457	64	2474
14	2424	31	2441	48	2458	**65**	**2475**
15	2425	32	2442	49	2459		
16	2426	**33**	**2443**	50	2460		

Note: The more detailed channel, please refer to the product specifications

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE	25deg. C, 55%RH	DC 5V from adapter	Alvin
BW	25deg. C, 55%RH	DC 3.7V from Fully Battery	Alvin
PLC	25deg. C, 55%RH	DC 5V from adapter	Alvin -

3.3 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, Section 15.249

ANSI C63.10-2013

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

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Adapter	N/A	C-P57	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	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.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Test Receiver	Rohde & Schwarz	ESCI	101152	Mar. 14, 2020	1 Year
L.I.S.N	Rohde & Schwarz	ENV 216	101317	Mar. 14, 2020	1 Year
L.I.S.N	Rohde & Schwarz	ESH2-Z5	893606/014	Mar. 14, 2020	1 Year
RF Switching Unit	Compliance Direction Systems Inc.	RSU-M2	38311	Mar. 14, 2020	1 Year
Test Software	EZ	EZ_EMC	N/A	N/A	N/A

NOTE: 1. The test was performed at Dongguan NTC. Co., Ltd.

2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.1.3 TEST PROCEDURES

a. 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.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

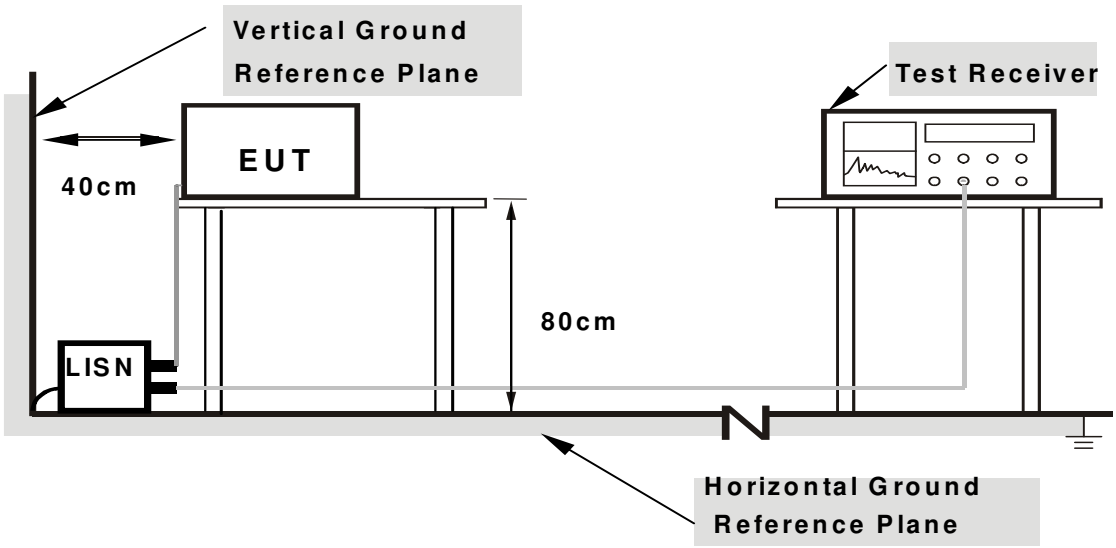
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

NOTE: 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



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.1.6 EUT OPERATING CONDITIONS

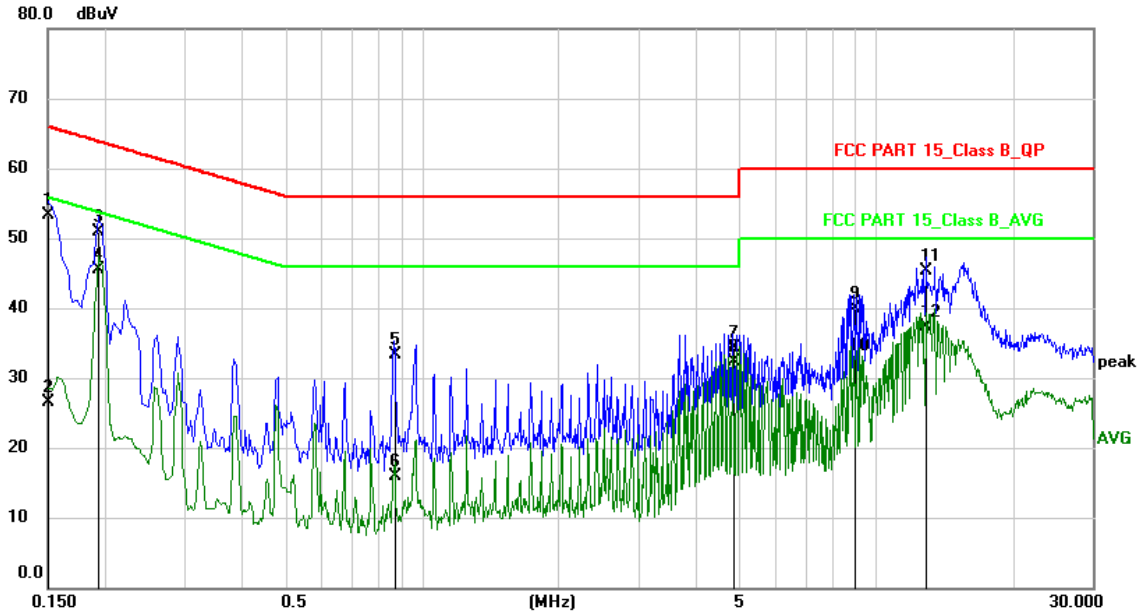
a) Turned on the power and connected of all equipment.
b) EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

4.1.7 TEST RESULTS

PHASE	Line	6dB BANDWIDTH	9kHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	42.80	10.60	53.40	66.00	-12.60	QP	
2		0.1500	16.00	10.60	26.60	56.00	-29.40	AVG	
3		0.1940	40.40	10.60	51.00	63.86	-12.86	QP	
4	*	0.1940	34.90	10.60	45.50	53.86	-8.36	AVG	
5		0.8700	22.62	10.68	33.30	56.00	-22.70	QP	
6		0.8700	5.22	10.68	15.90	46.00	-30.10	AVG	
7		4.8379	23.59	10.71	34.30	56.00	-21.70	QP	
8		4.8379	21.69	10.71	32.40	46.00	-13.60	AVG	
9		8.9619	29.17	10.73	39.90	60.00	-20.10	QP	
10		8.9619	21.77	10.73	32.50	50.00	-17.50	AVG	
11		12.8579	34.56	10.74	45.30	60.00	-14.70	QP	
12		12.8579	26.56	10.74	37.30	50.00	-12.70	AVG	

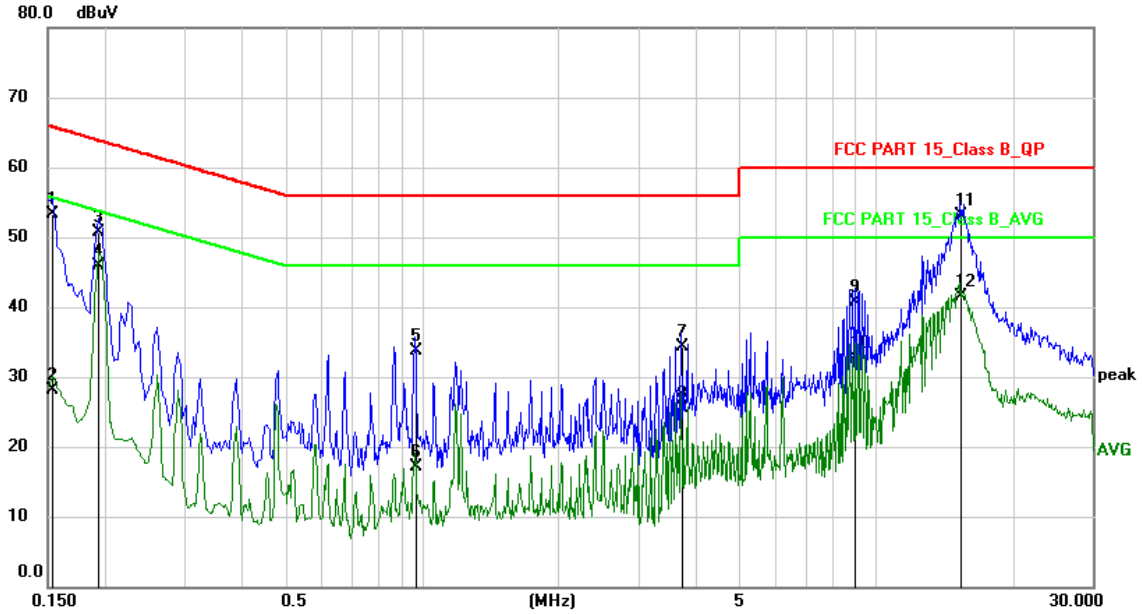
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



PHASE	Neutral	6dB BANDWIDTH	9kHz

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1539	42.80	10.60	53.40	65.79	-12.39	QP	
2		0.1539	17.60	10.60	28.20	55.79	-27.59	AVG	
3		0.1940	40.10	10.60	50.70	63.86	-13.16	QP	
4		0.1940	35.30	10.60	45.90	53.86	-7.96	AVG	
5		0.9660	23.01	10.69	33.70	56.00	-22.30	QP	
6		0.9660	6.41	10.69	17.10	46.00	-28.90	AVG	
7		3.7380	23.59	10.71	34.30	56.00	-21.70	QP	
8		3.7380	14.89	10.71	25.60	46.00	-20.40	AVG	
9		8.9979	29.97	10.73	40.70	60.00	-19.30	QP	
10		8.9979	22.07	10.73	32.80	50.00	-17.20	AVG	
11	*	15.3819	42.35	10.75	53.10	60.00	-6.90	QP	
12		15.3819	30.75	10.75	41.50	50.00	-8.50	AVG	

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

According to §15.249(a), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field strength of fundamental (milli-volts/meter)	Field strength of harmonics (micro-volts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), 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.

4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Test Receiver	Rohde & Schwarz	ESCI7	100837	Mar. 14, 2020	1 Year
Antenna	Schwarzbeck	VULB9162	9162-010	Mar. 23, 2020	1 Year
Positioning Controller	UC	UC 3000	N/A	N/A	N/A
Color Monitor	SUNSPO	SP-140A	N/A	N/A	N/A
Single Phase Power Line Filter	SAEMC	PF201A-32	110210	N/A	N/A
3 Phase Power Line Filter	SAEMC	PF401A-200	110318	N/A	N/A
DC Power Filter	SAEMC	PF301A-200	110245	N/A	N/A
Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	Mar. 14, 2020	1 Year
Horn Antenna	COM-Power	AH-118	071078	Mar. 23, 2020	1 Year
Loop Antenna	Schwarzbeck	FMZB 1513	1513-272	Apr. 24, 2019	1 Year
Pre-Amplifier	HP	HP 8449B	3008A00964	Mar. 14, 2020	1 Year
Pre-Amplifier	HP	HP 8447D	1145A00203	Mar. 14, 2020	1 Year
Test Software	EZ	EZ_EMC	N/A	N/A	N/A

NOTES:

1. The test was performed in Dongguan NTC. Co., Ltd.
2. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above1GHz if tested.
4. The FCC Site Registration No. is 907417.

4.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) above the ground at a 3 meters semi-anechoic chamber. 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. The antenna is a broadband antenna, and its height 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.

d. 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.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.

g. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTES:

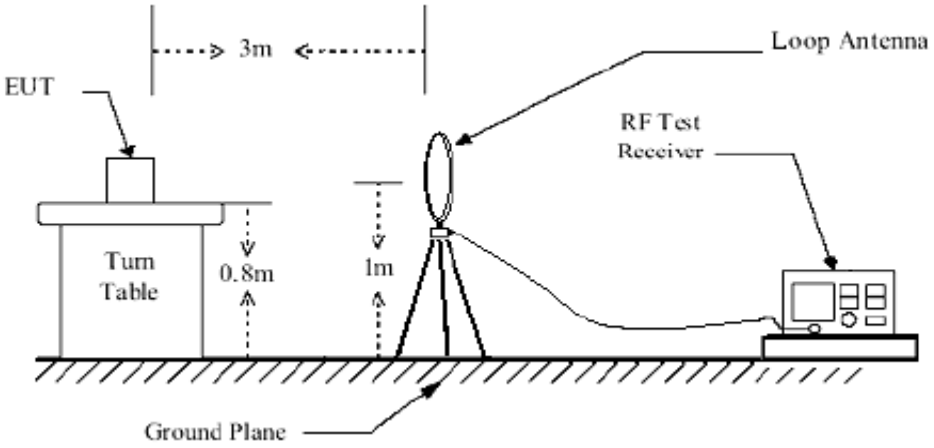
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

4.2.4 DEVIATION FROM TEST STANDARD

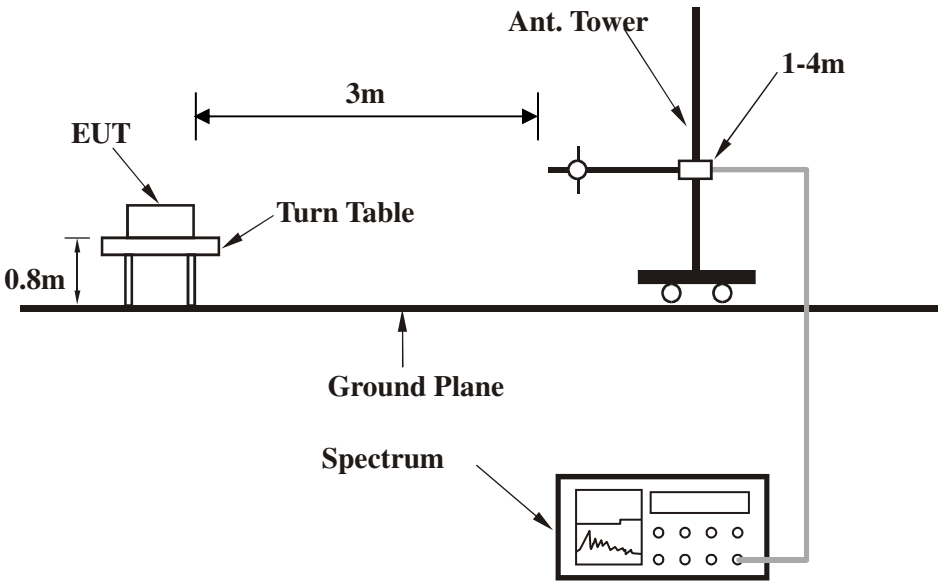
No deviation.

4.2.5 TEST SETUP

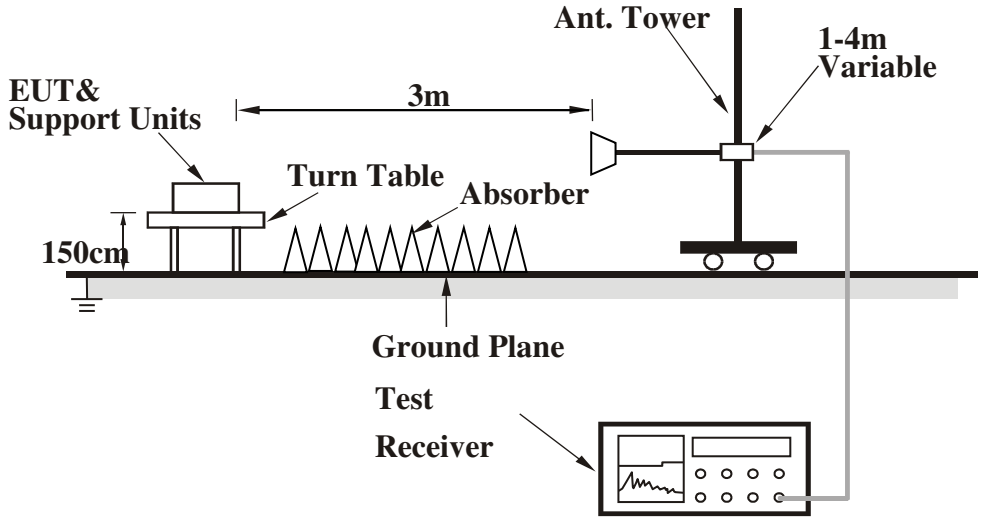
Below 30MHz test setup



Below 1GHz test setup



Above 1GHz test setup



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

4.2.6 EUT OPERATING CONDITIONS

c) Turned on the power of all equipment.

d) EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

4.2.7 TEST RESULTS

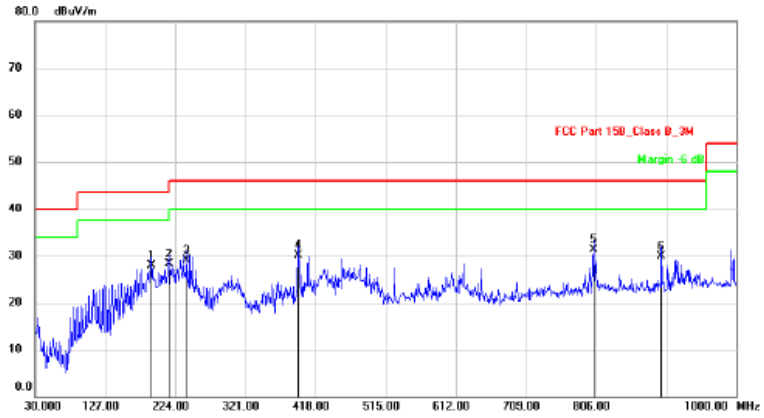
BELOW 1GHz WORST-CASE DATA

CHANNEL	TX Middle Channel	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	191.02	28.00 QP	43.50	-15.50	1.00 H	358	41.54	-13.54
2	215.27	28.30 QP	43.50	-15.20	1.00 H	326	41.41	-13.11
3	239.52	29.20 QP	46.00	-16.80	1.00 H	168	41.26	-12.06
4	393.75	30.20 QP	46.00	-15.80	1.00 H	25	39.34	-9.14
5	802.12	31.30 QP	46.00	-14.70	1.00 H	16	33.22	-1.92
6	896.21	30.00 QP	46.00	-16.00	1.00 H	189	31.21	-1.21

REMARK:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value

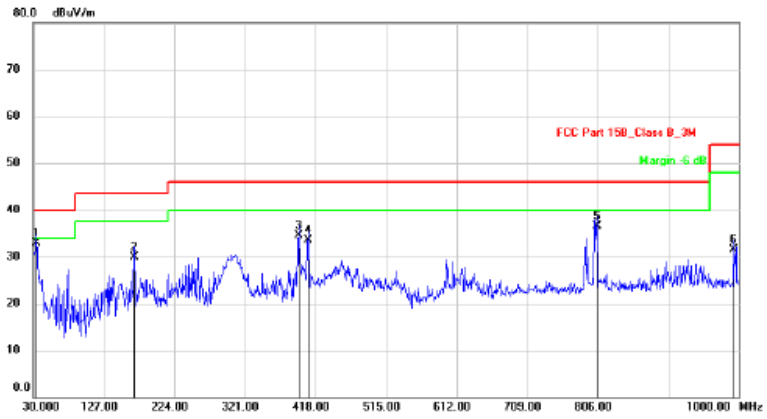


CHANNEL	TX Middle Channel	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	**33.88**	**32.90 QP**	**40.00**	**-7.10**	**1.00 V**	**24**	**48.47**	**-15.57**
2	168.71	30.00 QP	43.50	-13.50	1.00 V	358	47.85	-17.85
3	394.72	34.60 QP	46.00	-11.40	1.00 V	45	45.74	-11.14
4	408.30	33.50 QP	46.00	-12.50	1.00 V	116	44.83	-11.33
5	805.03	36.60 QP	46.00	-9.40	1.00 V	108	38.46	-1.86
6	992.24	31.50 QP	54.00	-22.50	1.00 V	0	31.76	0.26

REMARK:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value



ABOVE 1GHz WORST-CASE DATA:

CHANNEL	TX Low Channel	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

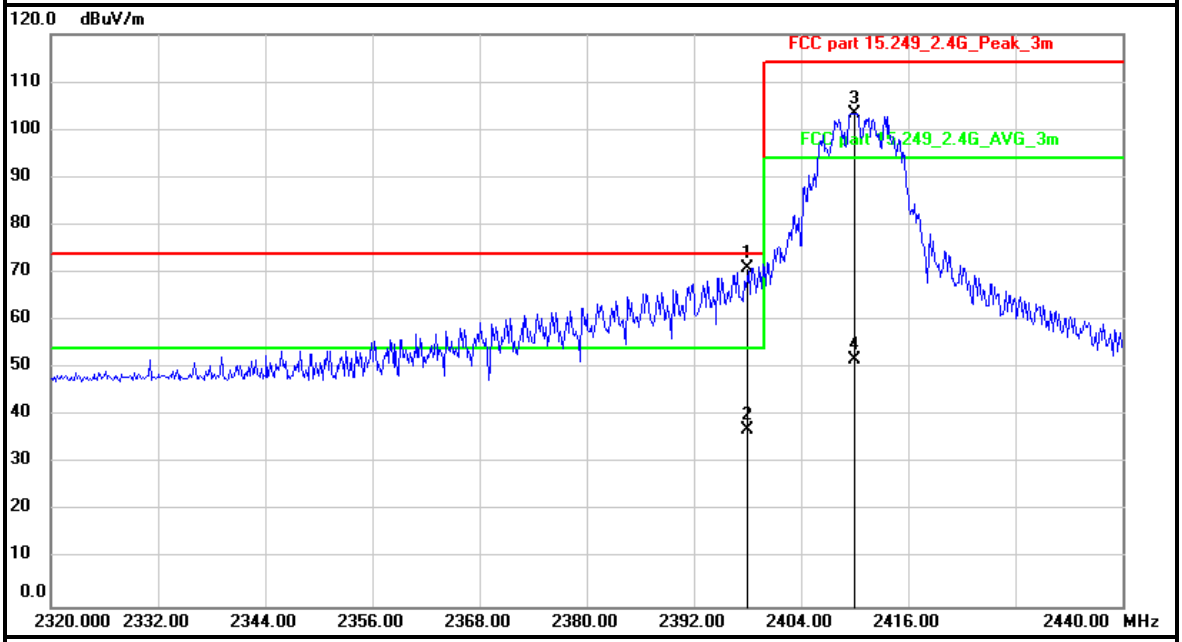
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	**2398.00**	**70.90 PK**	**74.00**	**-3.10**	**1.00 H**	**108**	**70.77**	**0.13**
2	2398.00	37.09 AV	54.00	-16.91	1.00 H	108	36.96	0.13
3	*2410.00	103.48 PK	114.00	-10.52	1.00 H	16	103.33	0.15
4	*2410.00	51.69 AV	94.00	-42.31	1.00 H	16	51.54	0.15
5	4820.00	62.11 PK	74.00	-11.89	1.16 H	321	55.74	6.37
6	4820.00	42.07 AV	54.00	-11.93	1.16 H	321	35.70	6.37
7	7230.00	57.32 PK	74.00	-16.68	1.33 H	26	46.85	10.47
8	7230.00	43.09 AV	54.00	-10.91	1.33 H	26	32.62	10.47
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2398.00	69.43 PK	74.00	-4.57	1.15 V	186	69.30	0.13
2	2398.00	39.05 AV	54.00	-14.95	1.15 V	186	38.92	0.13
3	*2410.00	102.98 PK	114.00	-11.02	1.13 V	186	102.83	0.15
4	*2410.00	51.55AV	94.00	-42.45	1.13 V	188	51.40	0.15
5	4820.00	64.23 PK	74.00	-9.77	1.17 V	100	57.86	6.37
6	4820.00	42.68 AV	54.00	11.32	1.17 V	100	36.31	6.37
7	7230.00	57.45 PK	74.00	-16.55	1.54 V	318	46.98	10.47
8	7230.00	41.66 AV	54.00	-12.34	1.54 V	318	31.19	1047

REMARK:

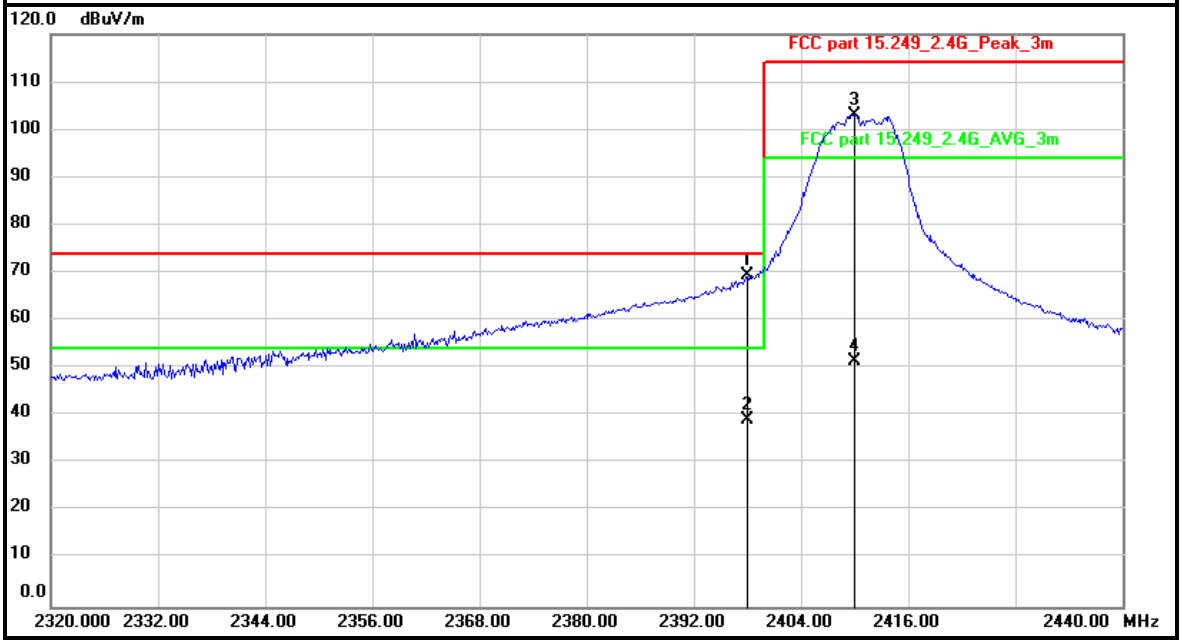
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

Band edge Plot

2410MHz Horizontal



2410MHz Vertical



CHANNEL	TX Middle Channel	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2443.00	102.37 PK	114.00	-11.63	1.13 H	80	102.13	0.24
2	*2443.00	48.94 AV	94.00	-45.06	1.13 H	80	48.70	0.24
3	**4886.00**	**63.42 PK**	**74.00**	**-10.58**	**1.57 H**	**100**	**56.80**	**6.62**
4	4886.00	42.66 AV	54.00	-11.34	1.57 H	100	36.04	6.62
5	7329.00	57.99 PK	74.00	-16.01	1.13 H	260	47.44	10.55
6	7329.00	43.25 AV	54.00	-10.75	1.13 H	260	32.70	10.55
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2443.00	102.13 PK	114.00	-11.87	1.19 V	358	101.89	0.24
2	*2443.00	48.96 AV	94.00	-45.04	1.19 V	358	48.72	0.24
3	4886.00	62.79 PK	74.00	-11.21	1.37 V	354	56.17	6.62
4	4886.00	42.63 AV	54.00	-11.37	1.37 V	354	36.01	6.62
5	7329.00	57.78 PK	74.00	-16.22	1.39 V	110	47.23	10.55
6	7329.00	42.60 AV	54.00	-11.40	1.39 V	110	32.05	10.55

REMARK:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

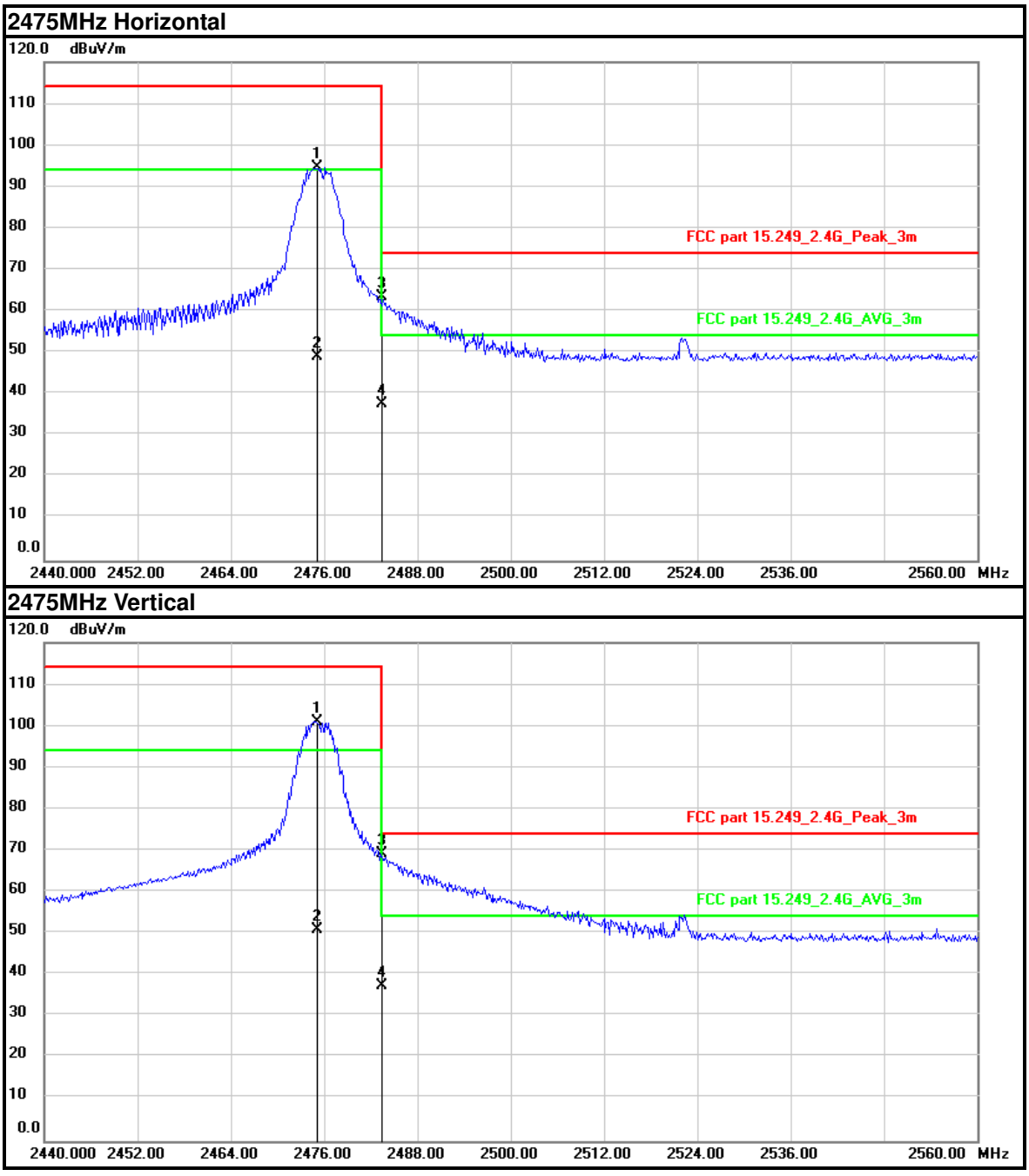
CHANNEL	TX High Channel	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2475.00	94.71 PK	114.00	-19.29	1.13 H	108	94.38	0.33
2	*2475.00	49.03 AV	94.00	-44.97	1.13 H	108	48.70	0.33
3	2483.50	63.53 PK	74.00	-10.47	1.16 H	340	63.19	0.34
4	2483.50	37.64 AV	54.00	-16.36	1.16 H	340	37.30	0.34
5	4950.00	62.28 PK	74.00	-11.72	1.37 H	275	55.42	6.86
6	4950.00	42.67 AV	54.00	-11.33	1.37 H	275	35.81	6.86
7	7425.00	58.91 PK	74.00	-15.09	1.17 H	200	48.32	10.59
8	7425.00	43.44 AV	54.00	-10.56	1.17 H	200	32.85	10.59
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2475.00	100.88 PK	114.00	-13.12	1.24 V	320	100.55	0.33
2	*2475.00	50.87 AV	94.00	-43.13	1.24 V	320	50.54	0.33
3	**2483.50**	**69.09 PK**	**74.00**	**-4.91**	**1.29 V**	**98**	**68.75**	**0.34**
4	2483.50	37.45 AV	54.00	-16.55	1.29 V	98	37.11	0.34
5	4950.00	62.21 PK	74.00	-11.79	1.17 V	342	55.35	6.86
6	4950.00	42.43 AV	54.00	-11.57	1.17 V	342	35.57	6.86
7	7425.00	57.46 PK	74.00	-16.54	1.45 V	256	46.87	10.59
8	7425.00	43.02 AV	54.00	-10.98	1.45 V	256	32.43	10.59

REMARKA:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

Band edge Plot



4.3 20dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 20dB BANDWIDTH MEASUREMENT

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

4.3.2 TEST INSTRUMENTS

Description	Manufacturer	Model Number	Serial Number	Characteristics	Calibration Date	Calibration Due Date
Test Receiver	Rohde & Schwarz	ESCI7	100837	9KHz~7GHz	Mar. 14, 2020	Mar. 13, 2021
Antenna	Schwarzbeck	VULB9162	9162-010	30MHz~7GHz	Mar. 23, 2020	Mar. 22, 2021
Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	20Hz~26.5GHz	Mar. 14, 2020	Mar. 13, 2021
Spectrum Analyzer	Keysight	N9020A	MY54200831	20Hz~26.5GHz	Apr. 24, 2019	Apr. 23, 2020
Spectrum Analyzer	Rohde & Schwarz	FSV40	101003	10Hz~40GHz	Apr. 24, 2019	Apr. 23, 2020
Horn Antenna	Schwarzbeck	BBHA9170	9170-372	15GHz~40GHz	Mar. 23, 2020	Mar. 22, 2021
Pre-Amplifier	EMCI	EMC 184045	980102	18GHz~40GHz	Apr. 24, 2019	Apr. 23, 2020
Power Sensor	DARE	RPR3006W	15I00041SNO 64	100MHz~6GHz	Mar. 14, 2020	Mar. 13, 2021
Communicati on Tester	Rohde & Schwarz	CMW500	149004	70MHz~6GHz	Mar. 14, 2020	Mar. 13, 2021
Horn Antenna	COM-Power	AH-118	071078	500MHz~18GHz	Mar. 23, 2020	Mar. 22, 2021
Pre-Amplifier	HP	HP 8449B	3008A00964	1GHz~26.5GHz	Mar. 14, 2020	Mar. 13, 2021
Pre-Amplifier	HP	HP 8447D	1145A00203	100KHz~1.3GHz	Mar. 14, 2020	Mar. 13, 2021
Loop Antenna	Schwarzbeck	FMZB 1513	1513-272	9KHz~30MHz	Apr. 24, 2019	Apr. 23, 2020
Temperature & Humidity Chamber	REMAFEE	SYHR225L	N/A	-40~150℃	Apr. 24, 2019	Apr. 23, 2020
DC Source	MY	MY8811	N/A	0~30V	N/A	N/A
Temporary antenna connector	TESCOM	SS402	N/A	9KHz~25GHz	N/A	N/A
Power Meter	Anritsu	ML2495A	1139001	100k-65GHz	Apr. 24, 2019	Apr. 23, 2020
Power Sensor	Anritsu	MA2411B	100345	300M-40GHz	Apr. 24, 2019	Apr. 23, 2020
Test Software	EZ	EZ_EMC	N/A	N/A	N/A	N/A

NOTE:

1. The test was performed in Dongguan NTC. Co., Ltd.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

4.3.3 TEST PROCEDURE

a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.

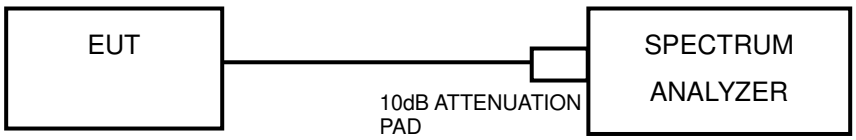
c. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.

d. Repeat above procedures until all frequencies measured were complete.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

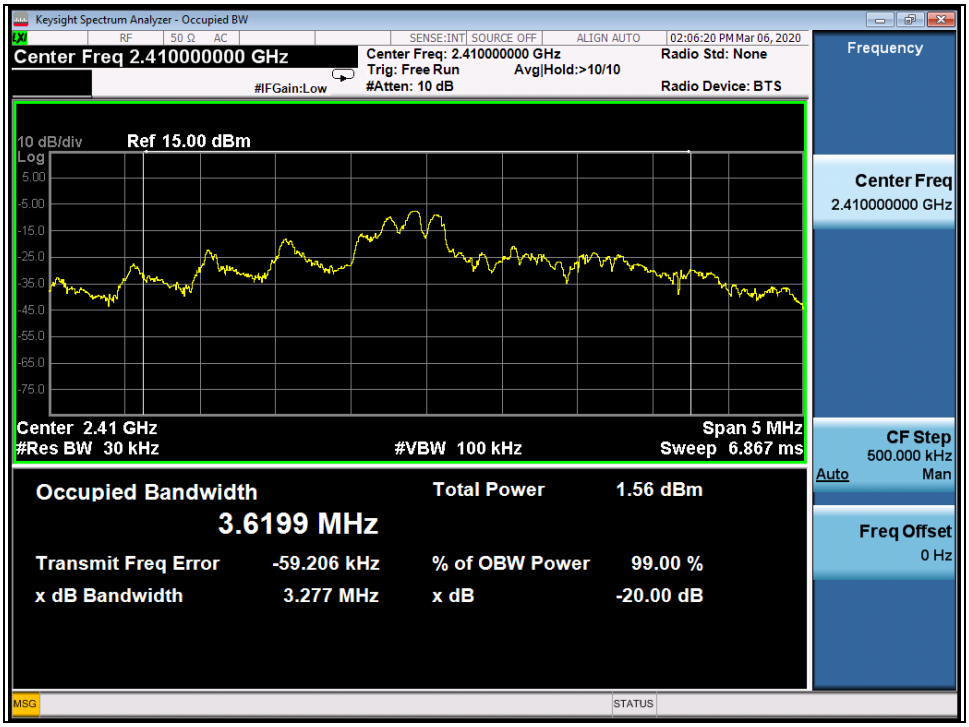
a) Turned on the power of all equipment.

b) EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

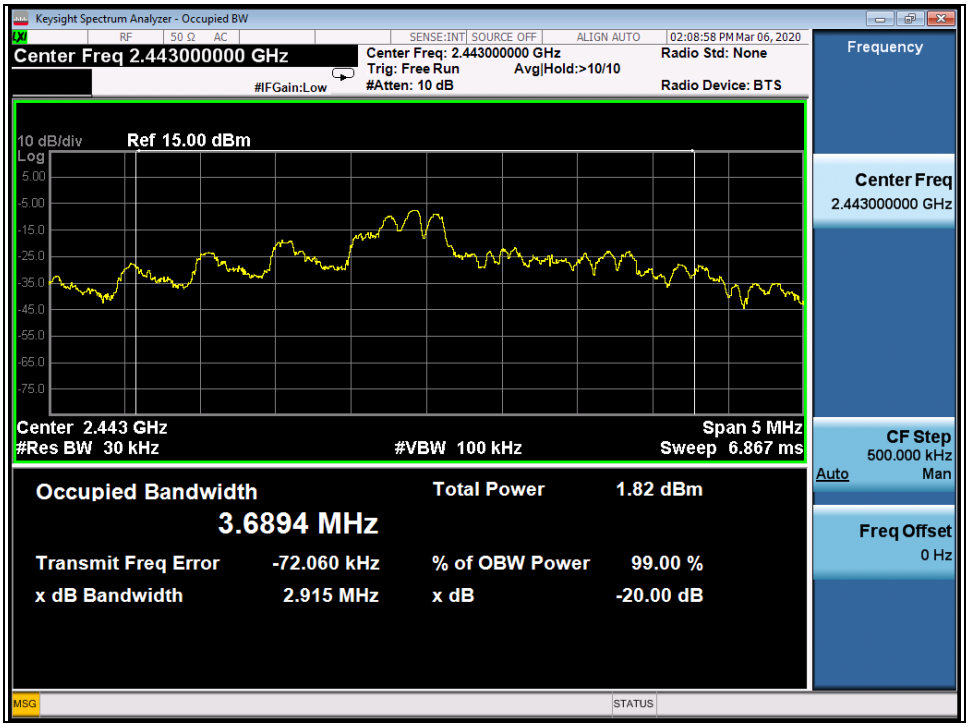
4.3.7 TEST RESULTS

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)
Low	2410	3.277
Middle	2443	2.915
High	2475	3.374

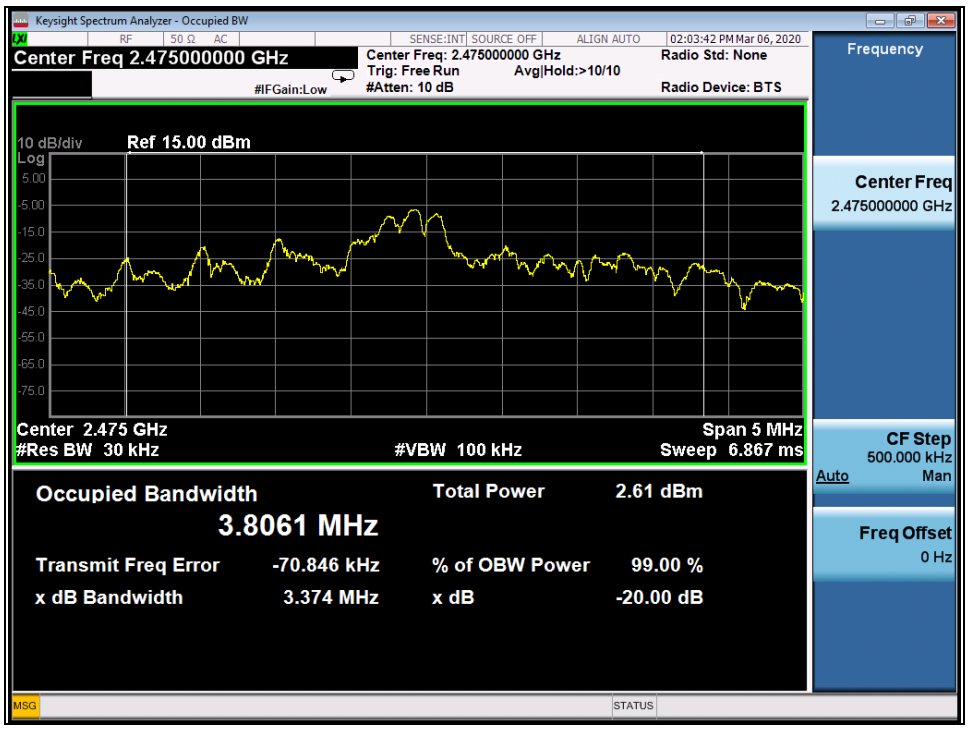
Test Data: Low channel



Test Data: Middle channel



Test Data: High channel



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

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