



TEST REPORT

Report No.: DHQ-18FE0119VTSPB
Test Model: DH-IPC-HDW8341XN-3D
Received: Feb.07, 2018
ISSUED: Feb.28, 2018

Applicant: ZHEJIANG DAHUA VISION TECHNOLOGY CO., LTD.
Address: No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China

Issued By: BUREAU VERITAS ADT (Shanghai) Corporation
Lab Location: No. 829, Xinzhuan Road, Shanghai, P.R.China (201612)

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1. TEST PROGRAM

PRODUCT: IP CAMERA

TEST MODEL: DH-IPC-HDW8341XN-3D

SERIES MODEL: DH-IPC-HDW8341XP-3D, IPC-HDW8341XP-3D,
DH-IPC-HDW8341XN-3D, IPC-HDW8341XN-3D,
DH-IPC-HDW8341X-3D, IPC-HDW8341X-3D,
DH-IPC-HDW7341X-E2, IPC-HDW7341X-E2

APPLICANT: ZHEJIANG DAHUA VISION TECHNOLOGY CO.,LTD.

TESTED: Feb.07 to Feb.28, 2018

STANDARDS: 47 CFR FCC Part15, Subpart B
ANSI C63.4:2014

We, BUREAU VERITAS ADT (Shanghai) Corporation, declare that the equipment above has been tested and found compliance with the requirement limits of applicable standards. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified.

PREPARED BY : Bing YE, **DATE:** Feb.28, 2018
Bing YE
Project Engineer

APPROVED BY : Joy ZHU, **DATE:** Feb.28, 2018
Joy ZHU
Testing Manager





2. Summary of Test Procedure and Test Results

EMISSION(47 CFR FCC Part15, Subpart B)		
Test Item	Normative References	Test Result
Conducted Emission	47 CFR FCC Part15, Subpart B 15.107	Meets the Class B requirements
Radiated Emission	47 CFR FCC Part15, Subpart B 15.109	Meets the Class B requirements



3. Test Configuration of Equipment under Test

3.1. Manufacturer information

Manufacturer : ZHEJIANG DAHUA VISION TECHNOLOGY CO.,LTD.

Address : No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China

3.2. Factory information

Factory (1) : ZHEJIANG DAHUA VISION TECHNOLOGY CO.,LTD.

Address : No.1199, Bin'an Road, Binjiang District, Hangzhou, P.R. China

Factory (2) : ZHEJIANG DAHUA ZHILIAN CO.,LTD.

Address : No.28, Dongqiao Road, Dongzhou Street, Fuyang District, Hangzhou,
P.R.China.

3.3. Feature of Equipment under Test

Product Name:	IP CAMERA
Test Model:	DH-IPC-HDW8341XN-3D
Series Model:	DH-IPC-HDW8341XP-3D, IPC-HDW8341XP-3D, DH-IPC-HDW8341XN-3D, IPC-HDW8341XN-3D, DH-IPC-HDW8341X-3D, IPC-HDW8341X-3D, DH-IPC-HDW7341X-E2, IPC-HDW7341X-E2
Model Discrepancy:	All models have same internal structure, just different appearance and model name.
EUT Power Rating:	12VDC 1A and POE(802.3af, 37-57V), 0.35A

Note: Please refer to user manual.

3.4. Description of support units

NO.	PRODUCT	BRAND	MODEL NO.
1	PC	Lenovo	Thinkpad L470
2	AC adapter	HUAWEI	HKA02412020-1K
3	POE injector	SUPLET	LAS60-57CN-RJ45
4	Network Cable	--	--



3.5. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

This listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement		Value
Conducted emissions		2.55 dB
Radiated emissions	30 MHz ~ 1GHz	3.22 dB
	Above 1GHz	2.89 dB

4. Test of Conducted Emission

4.1. Test Limit

TEST STANDARD:

CFR 47 FCC Part 15, Subpart B (Section: 15.107)

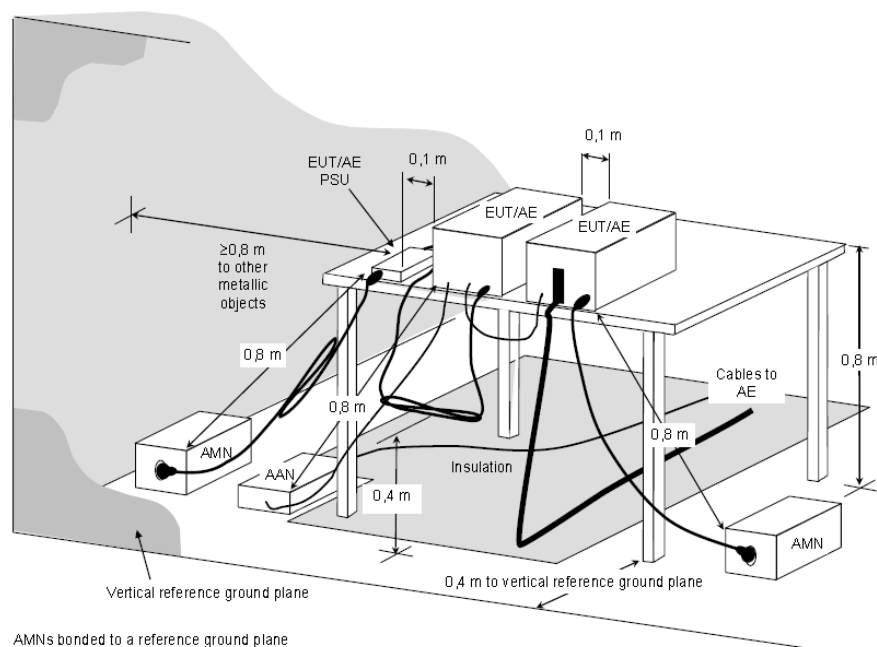
FREQUENCY (MHz)	Class A (dBμV)		Class B (dBμV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

- NOTES:**
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 0.50 MHz.
 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.

4.2. Test Procedures

- The EUT was placed on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
- Connect EUT to the power mains through a Artificial Mains Network (AMN).
- All the support units are connecting to the other AMN.
- The AMN provides 50 ohm coupling impedance for the measuring instrument.
- The CISPR states that a 50 ohm, 50 micro-Henry AMN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

4.3. Typical Test Setup



NOTE The 0.8 m distance specified between EUT/AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be ≥ 0.8 m.

**Figure D.2 – Example measurement arrangement for table-top EUT
(Conducted emission measurement – alternative 1)**



4.4. Measurement Equipment

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	E1R1002	Mar.26, 2018
LISN ROHDE & SCHWARZ	ENV216	E1L1011	Jul.24, 2018
LISN	ISNT800	E1C4010	Sep.18, 2018
LISN	ISNT8-CAT6	E1C4011	Sep.18, 2018
Software ADT	ADT_Cond_V7.3.0	N/A	N/A

4.5. Test Result and Data

4.5.1 Conducted Emission Test Data

For DC12 port test on AC adapter

Phase : LINE

Location: Conduction 1

Date: 2/23/2018

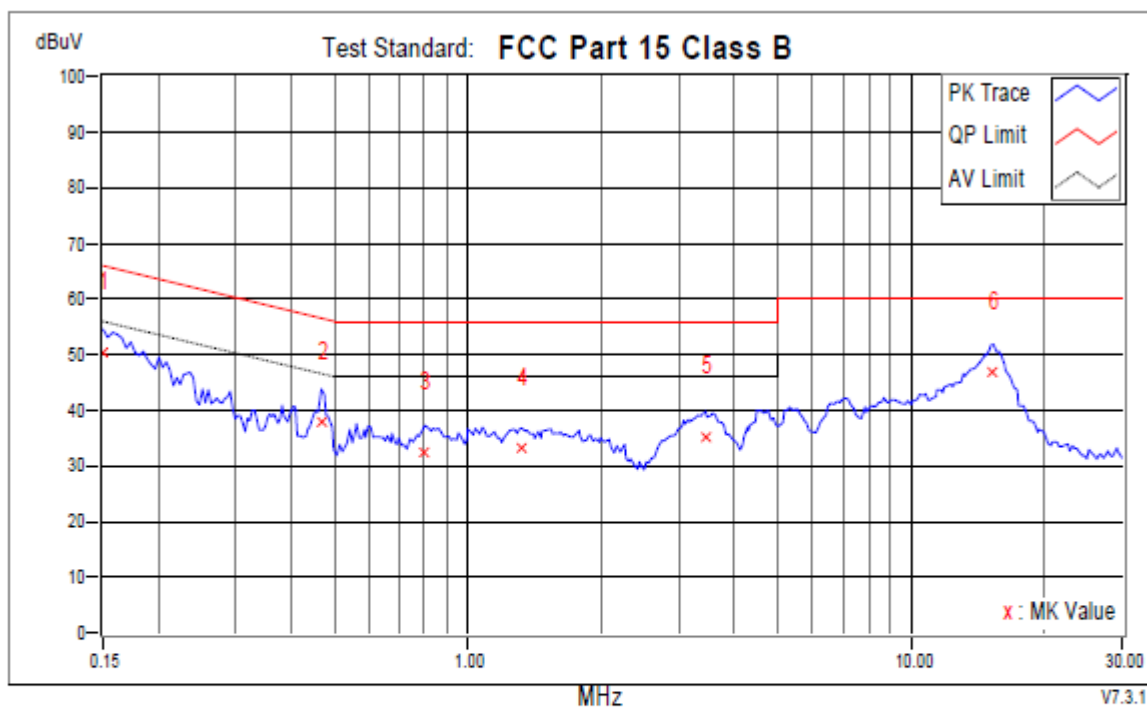
Time: 3:20:44 PM

Phase L1

Temperature (C): 25

Humidity (%): 48

Approved by:



No.	Frequency	Corr. Factor	Reading dBuV		Emission dBuV		Limit dBuV		Margins dB		Notes
	MHz	dB	QP	AV	QP	AV	QP	AV	QP	AV	
1	0.15000	9.60	40.77	24.22	50.37	33.82	66.00	56.00	-15.63	-22.18	
2	0.46671	9.60	28.33	23.23	37.93	32.83	56.57	46.57	-18.64	-13.74	
3	0.79906	9.60	23.00	16.73	32.60	26.33	56.00	46.00	-23.40	-19.67	
4	1.32062	9.60	23.67	19.51	33.27	29.11	56.00	46.00	-22.73	-16.89	
5	3.44375	9.60	25.62	21.48	35.22	31.08	56.00	46.00	-20.78	-14.92	
+6	15.33324	10.39	36.53	31.95	46.92	42.34	60.00	50.00	-13.08	-7.66	

Phase : NEUTRAL

Location: Conduction 1

Date: 2/23/2018

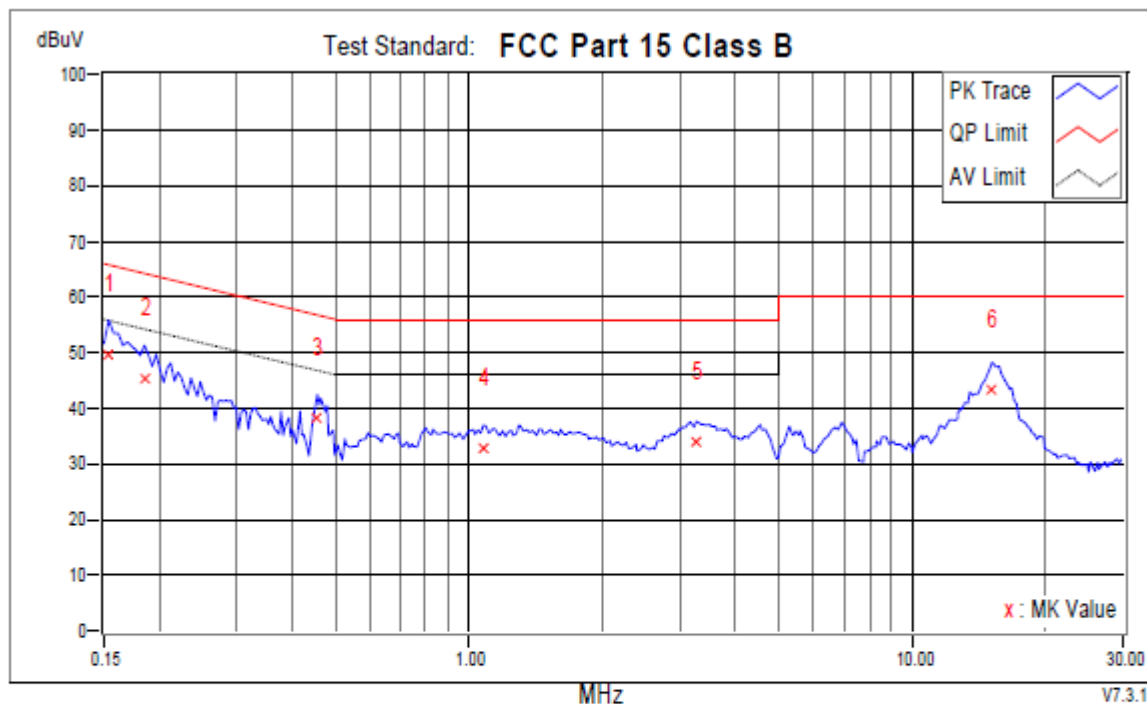
Time: 3:24:53 PM

Phase N

Temperature (C): 25

Humidity (%): 48

Approved by:



	Frequency	Corr. Factor	Reading dBuV		Emission dBuV		Limit dBuV		Margins dB		Notes
No.	MHz	dB	QP	AV	QP	AV	QP	AV	QP	AV	
1	0.15391	9.60	39.84	22.99	49.44	32.59	65.79	55.79	-16.35	-23.20	
2	0.18519	9.60	35.86	20.76	45.46	30.36	64.25	54.25	-18.79	-23.89	
3	0.45498	9.60	28.83	22.27	38.43	31.87	56.78	46.78	-18.35	-14.91	
4	1.07820	9.60	23.29	18.77	32.89	28.37	56.00	46.00	-23.11	-17.63	
5	3.25998	9.60	24.21	19.89	33.81	29.49	56.00	46.00	-22.19	-16.51	
+6	15.14947	10.49	32.79	27.95	43.28	38.44	60.00	50.00	-16.72	-11.56	

For POE port test on POE adapter

Phase : LINE

Location: Conduction 1

Date: 2/23/2018

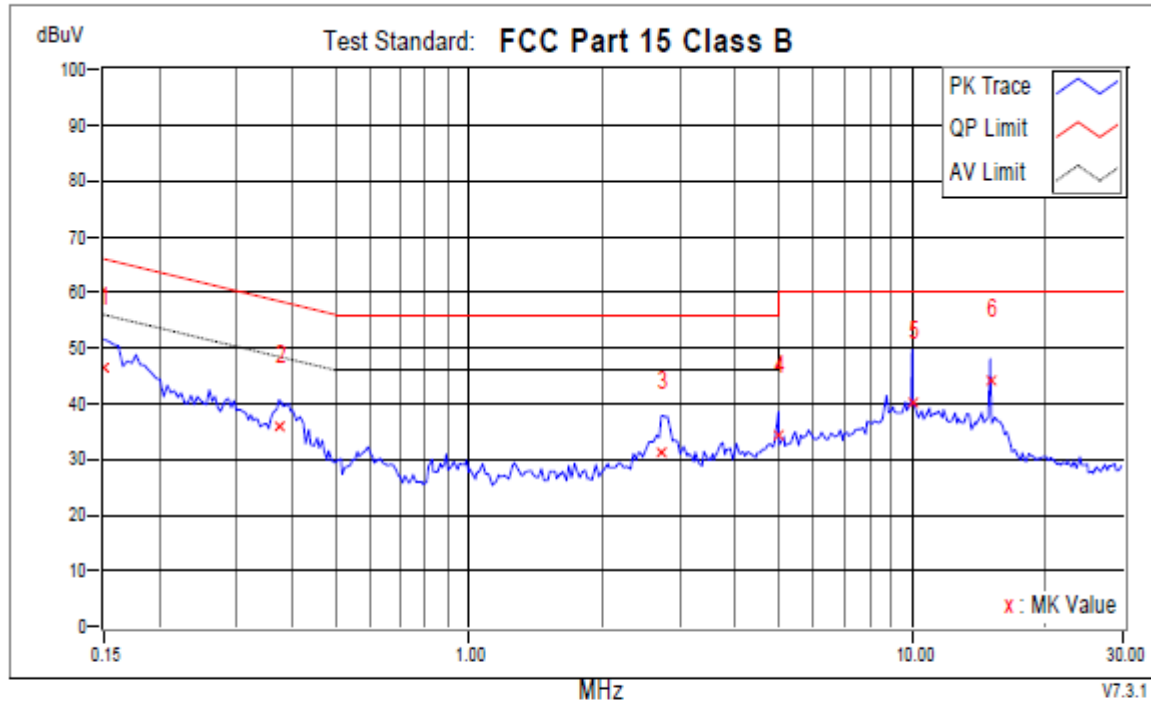
Time: 2:59:27 PM

Phase L1

Temperatuer (C): 25

Humidity (%): 48

Approved by:



	Frequency	Corr. Factor	Reading dBuV		Emission dBuV		Limit dBuV		Margins dB		Notes
No.	MHz	dB	QP	AV	QP	AV	QP	AV	QP	AV	
1	0.15000	9.60	37.00	24.67	46.60	34.27	66.00	56.00	-19.40	-21.73	
2	0.37287	9.60	26.39	21.57	35.99	31.17	58.44	48.44	-22.45	-17.27	
3	2.71649	9.60	21.73	17.10	31.33	26.70	56.00	46.00	-24.67	-19.30	
4	4.99602	9.63	24.58	11.53	34.21	21.16	56.00	46.00	-21.79	-24.84	
5	9.99691	9.10	30.97	18.93	40.07	28.03	60.00	50.00	-19.93	-21.97	
+6	15.00089	10.40	33.78	18.08	44.18	28.48	60.00	50.00	-15.82	-21.52	

Phase : NEUTRAL

Location: Conduction 1

Date: 2/23/2018

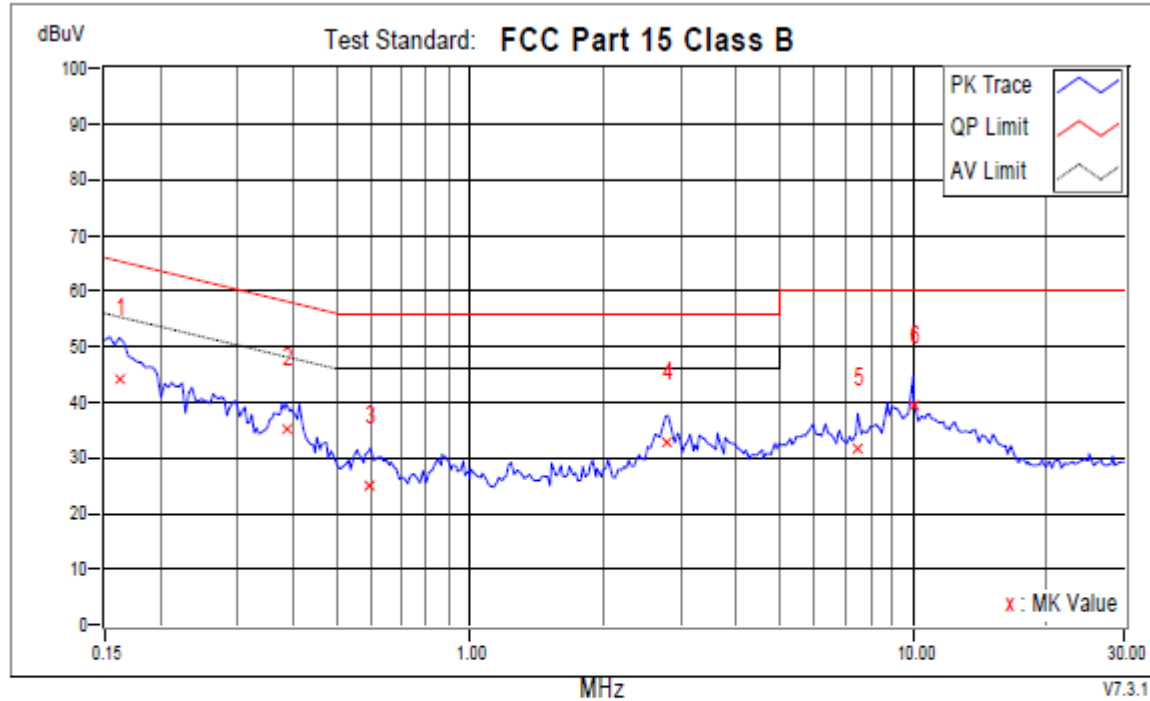
Time: 2:54:51 PM

Phase N

Temperature (C): 25

Humidity (%): 48

Approved by:



No.	Frequency MHz	Corr. Factor dB	Reading dBuV		Emission dBuV		Limit dBuV		Margins dB		Notes
			QP	AV	QP	AV	QP	AV	QP	AV	
1	0.16173	9.60	34.57	19.99	44.17	29.59	65.37	55.37	-21.20	-25.78	
+2	0.38460	9.60	25.53	20.83	35.13	30.43	58.18	48.18	-23.05	-17.75	
3	0.59574	9.60	15.25	10.21	24.85	19.81	56.00	46.00	-31.15	-26.19	
4	2.79469	9.60	23.18	18.19	32.78	27.79	56.00	46.00	-23.22	-18.21	
5	7.50233	9.72	21.92	11.37	31.64	21.09	60.00	50.00	-28.36	-28.91	
6	9.99691	9.80	29.82	17.52	39.62	27.32	60.00	50.00	-20.38	-22.68	

4.6. Test Photographs

AC adapter



POE adapter





5. Test of Radiated Emission

5.1. Test Limit

TEST STANDARD:

CFR 47 FCC Part 15, Subpart B (Section: 15.109)

FOR FREQUENCY BELOW 1000 MHz

FREQUENCY (MHz)	Class A (at 10m)		Class B (at 3m)	
	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 – 88	90	39.1	100	40.0
88 – 216	150	43.5	150	43.5
216 – 960	210	46.4	200	46.0
960 – 1000	300	49.5	500	54.0

LIMIT OF RADIATED EMISSION OF FCC PART 15, SUBPART B FOR FREQUENCY ABOVE 1000 MHz

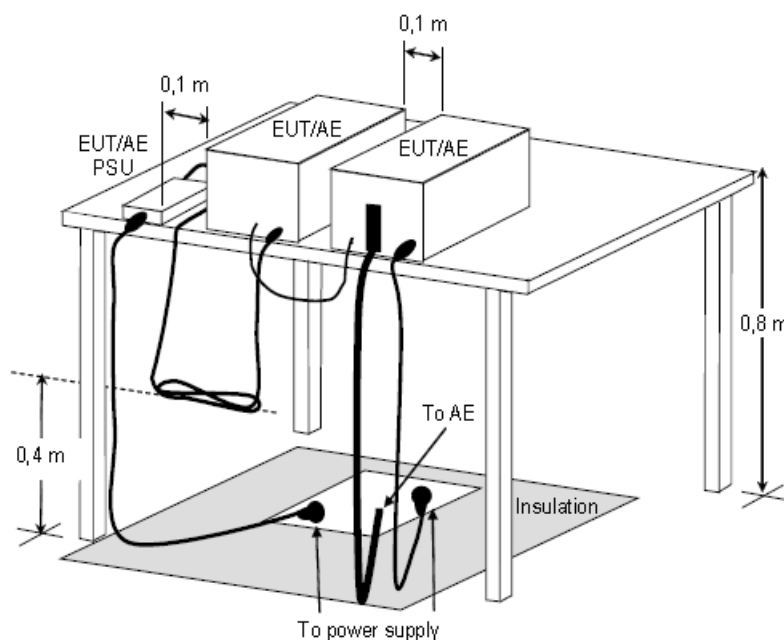
FREQUENCY (MHz)	Class A ($\text{dB}\mu\text{V/m}$) (at 3m)		Class B ($\text{dB}\mu\text{V/m}$) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80.0	60.0	74.0	54.0

- Note:** (1) The lower limit shall apply at the transition frequencies.
 (2) Emission level ($\text{dB}\mu\text{V/m}$) = $20 \log$ Emission level ($\mu\text{V/m}$).
 (3) All emanation 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.

5.2. Test Procedures

- The EUT was placed on a rotatable table top 0.8 meter above ground.
- The EUT was set 3/10 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- The antenna is a half wave dipole and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.

5.3. Typical Test Setup



**Figure D.8 – Example measurement arrangement for table-top EUT
(Radiated emission measurement)**



5.4. Measurement Equipment

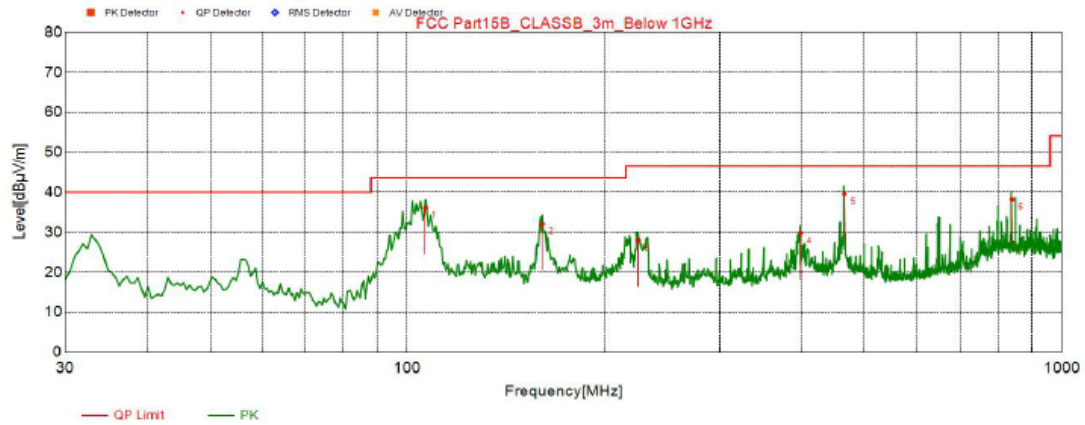
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
EMI Test Spectrum ROHDE & SCHWARZ	ESR7	E1R1005	Nov.28, 2018
Broad-Band Antenna Schwarzbeck	VULB9168	E1A1001	Feb.27, 2019
Double Riaged Vroadband Horn Antenna Schwarzbeck	BBHA9120D	E1A1017	Aug.26, 2019
Preamplifier Agilent	8447D	E1A2001	Oct.20, 2018
Preamplifier Agilent	8449B	E1A2002	Mar.26, 2019

5.5. Test Result and Data (30MHz ~ 1GHz)

DC 12V mode

Position: Horizontal

Test Graph

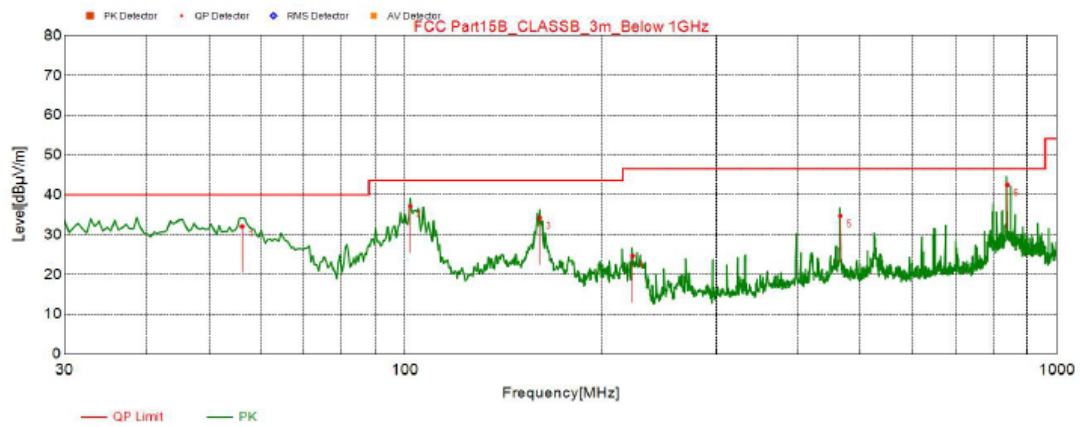


Final Data List

NO.	Freq. [MHz]	QP Value [dBμV]	Factor [dB]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	106.630	36.06	-17.94	43.5	7.44	200	172	Horizontal
2	160.950	32.16	-14.91	43.5	11.34	200	131	Horizontal
3	225.455	28.00	-16.7	46.5	18.50	100	84	Horizontal
4	399.085	29.74	-12.27	46.5	16.76	200	172	Horizontal
5	465.530	39.57	-11.41	46.5	6.93	100	162	Horizontal
6	839.950	38.20	-5.89	46.5	8.30	100	122	Horizontal

Position: Vertical

Test Graph

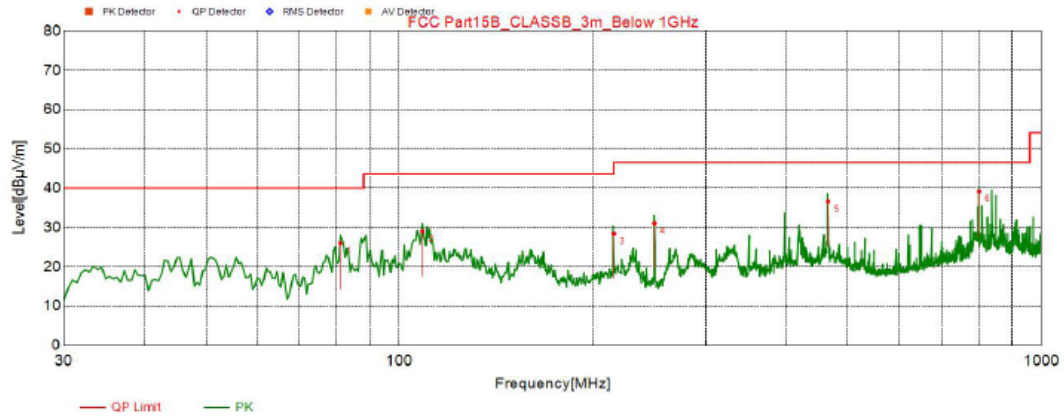


Final Data List								
NO.	Freq. [MHz]	QP Value [dBμV]	Factor [dB]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	56.190	32.09	-16.11	40	7.91	100	136	Vertical
2	101.780	37.07	-18.33	43.5	6.43	100	70	Vertical
3	160.950	34.12	-14.91	43.5	9.38	100	114	Vertical
4	223.515	24.57	-16.74	46.5	21.93	100	127	Vertical
5	465.530	34.62	-11.41	46.5	11.88	200	277	Vertical
6	839.950	42.52	-5.89	46.5	3.98	100	199	Vertical

POE mode

Position: Horizontal

Test Graph

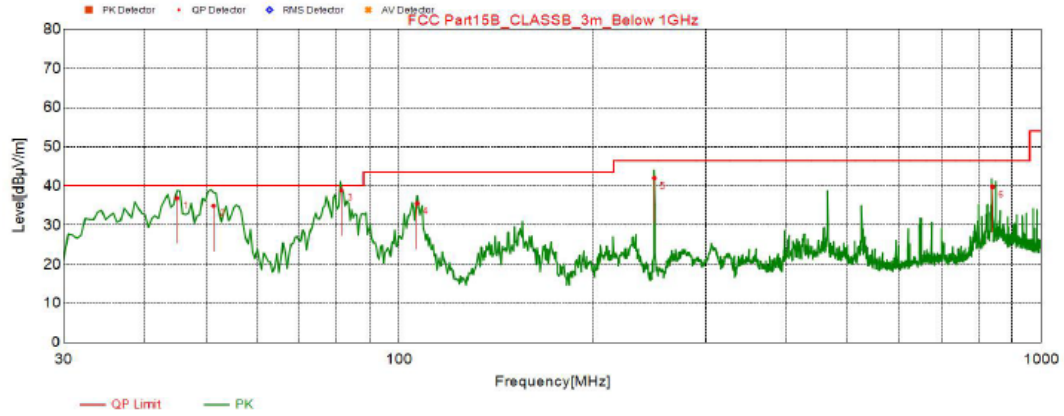


Final Data List

NO.	Freq. [MHz]	QP Value [dBμV]	Factor [dB]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	80.925	25.94	-19.07	40	14.06	200	220	Horizontal
2	108.570	29.01	-17.79	43.5	14.49	200	131	Horizontal
3	215.755	28.40	-16.91	43.5	15.10	100	167	Horizontal
4	249.705	31.07	-15.69	46.5	15.43	100	199	Horizontal
5	465.530	36.56	-11.41	46.5	9.94	200	21	Horizontal
6	800.180	39.12	-6.3	46.5	7.38	100	231	Horizontal

Position: Vertical

Test Graph



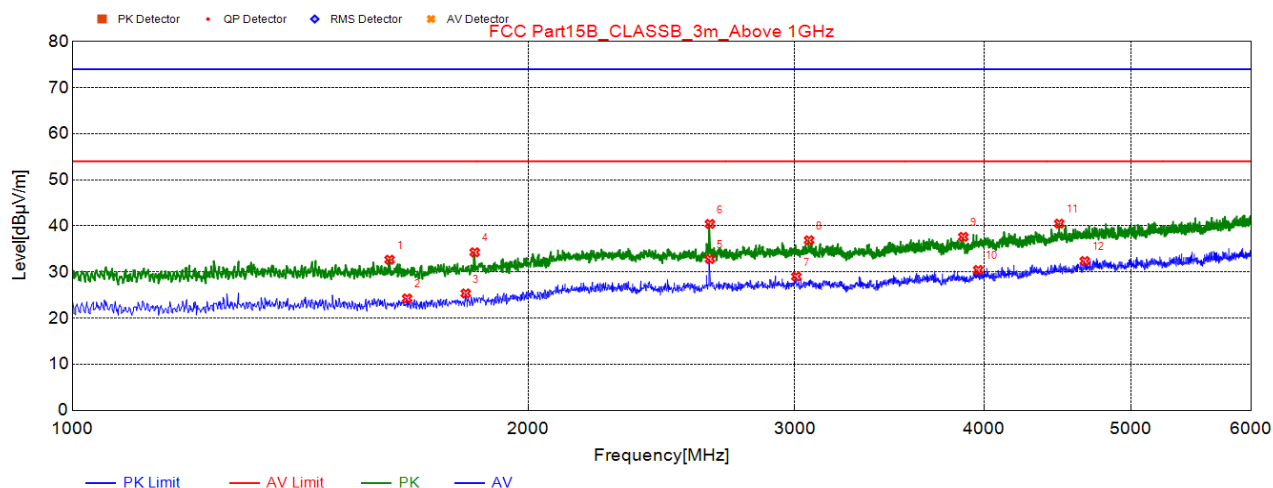
Final Data List

NO.	Freq. [MHz]	QP Value [dBμV]	Factor [dB]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	45.035	36.90	-15.69	40	3.10	100	161	Vertical
2	51.340	34.93	-15.51	40	5.07	124.9	214.3	Vertical
3	81.232	38.99	-19.08	40	1.01	117.6	158.6	Vertical
4	106.630	35.52	-17.94	43.5	7.98	100	23	Vertical
5	249.705	41.96	-15.69	46.5	4.54	100	305	Vertical
6	839.950	39.79	-5.89	46.5	6.71	100	170	Vertical

5.6. Test Result and Data (1GHz ~ 6GHz)

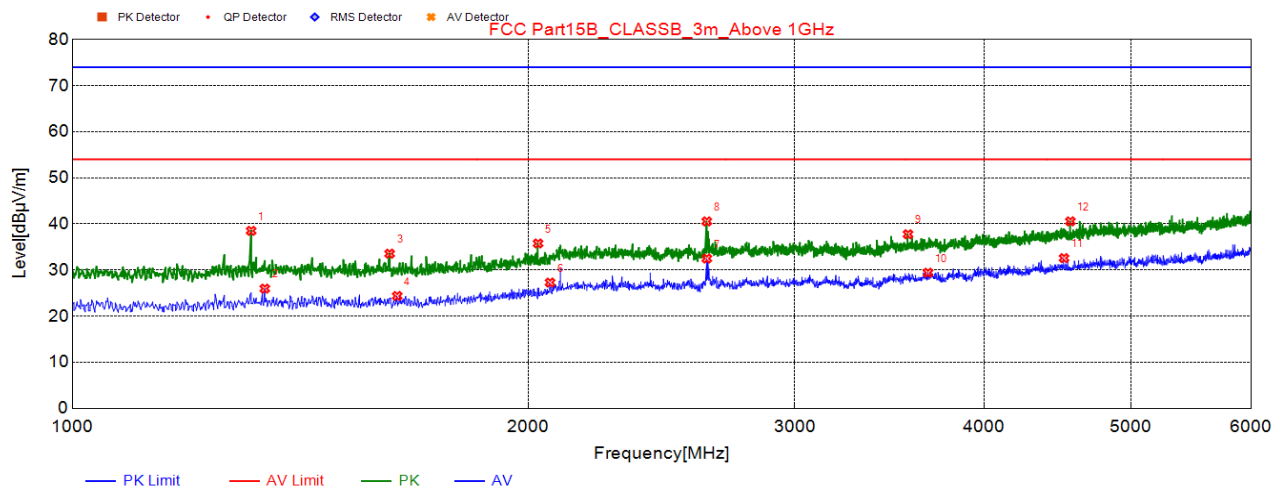
DC 12V mode

Position: Horizontal



Suspected List									
NO.	Freq. [MHz]	Readi ng [dBμ V/m]	Level [dB μV/m]	Limit [d BμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	1620.	38.44	32.68	74.00	41.32	100	178	Horizontal	PK
2	1663.	30.00	24.28	54.00	29.72	200	241	Horizontal	AV
3	1818.	30.38	25.37	54.00	28.63	100	132	Horizontal	AV
4	1843.	39.13	34.29	74.00	39.71	100	230	Horizontal	PK
5	2636.	34.17	32.83	54.00	21.17	100	230	Horizontal	AV
6	2636.	41.78	40.44	74.00	33.56	100	230	Horizontal	PK
7	3006.	29.69	29.02	54.00	24.98	100	355	Horizontal	AV
8	3065.	37.41	36.9	74.00	37.10	100	340	Horizontal	PK
9	3875.	36.31	37.63	74.00	36.37	100	19	Horizontal	PK
10	3964.	28.78	30.46	54.00	23.54	100	147	Horizontal	AV
11	4484.	37.32	40.5	74.00	33.50	100	230	Horizontal	PK
12	4662.	28.53	32.39	54.00	21.61	100	4	Horizontal	AV

Position: Vertical

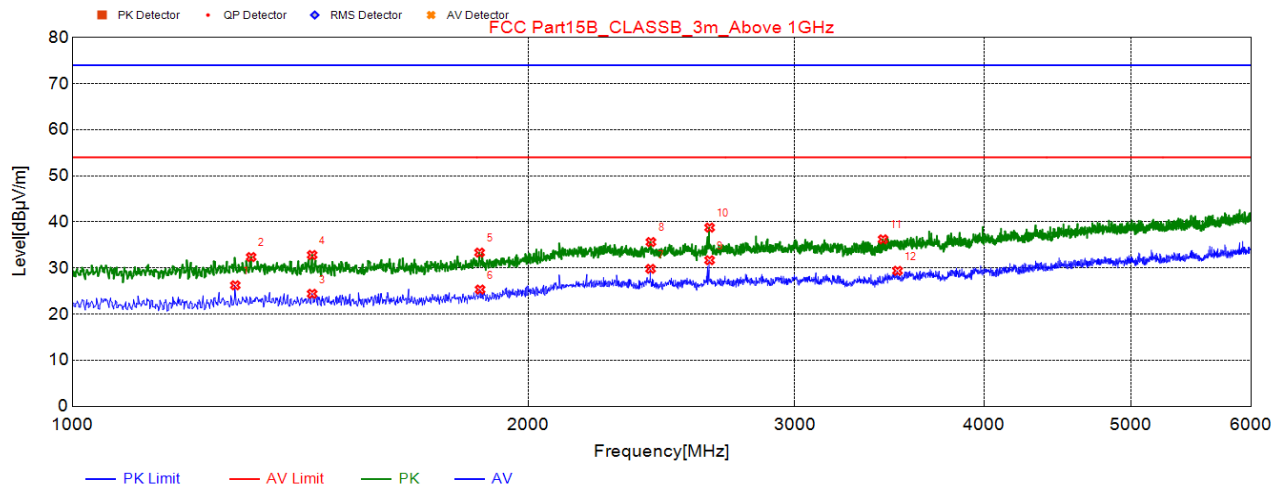


Suspected List									
NO.	Freq. [MHz]	Readi ng [dBμ V/m]	Level [dB μV/m]	Limit [d BμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	1312.	44.93	38.51	74.00	35.49	200	160	Vertical	PK
2	1340.	32.29	25.98	54.00	28.02	100	7	Vertical	AV
3	1620.	39.32	33.56	74.00	40.44	100	133	Vertical	PK
4	1638.	30.13	24.38	54.00	29.62	100	103	Vertical	AV
5	2030.	39.03	35.77	74.00	38.23	100	341	Vertical	PK
6	2067.	30.05	27.29	54.00	26.71	100	88	Vertical	AV
7	2624.	33.86	32.5	54.00	21.50	100	163	Vertical	AV
8	2624.	41.91	40.55	74.00	33.45	100	163	Vertical	PK
9	3563.	37.38	37.77	74.00	36.23	200	26	Vertical	PK
10	3673.	28.70	29.42	54.00	24.58	100	58	Vertical	AV
11	4517.	29.30	32.59	54.00	21.41	100	163	Vertical	AV
12	4560.	37.16	40.56	74.00	33.44	200	204	Vertical	PK



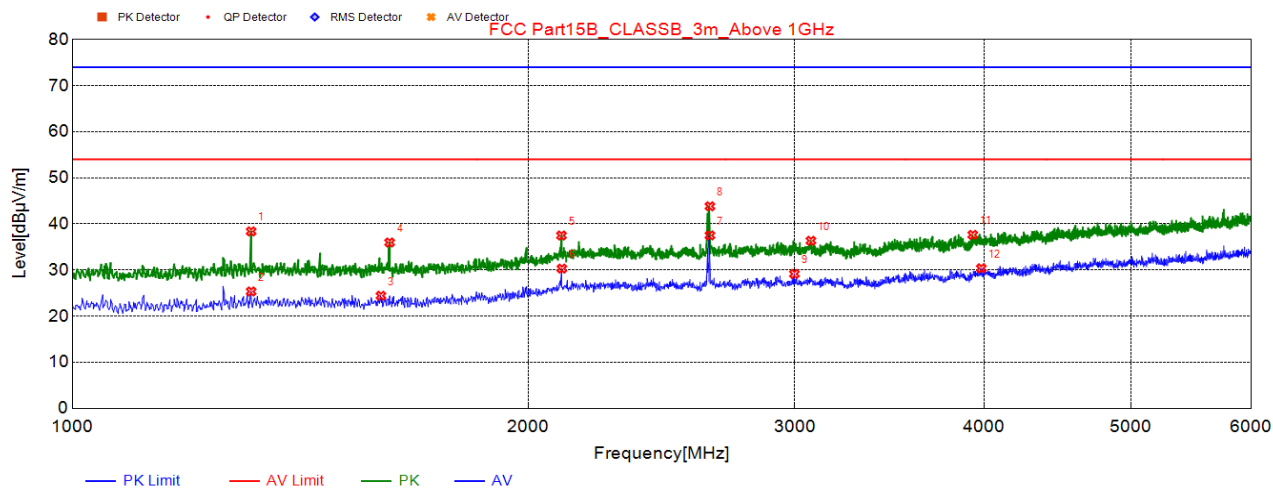
POE mode

Position: Horizontal



Suspected List									
NO.	Freq. [MHz]	Readadding [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	1281.	32.91	26.26	54.00	27.74	100	207	Horizontal	AV
2	1312.	38.81	32.39	74.00	41.61	200	152	Horizontal	PK
3	1440.	30.47	24.42	54.00	29.58	200	256	Horizontal	AV
4	1440.	38.88	32.83	74.00	41.17	200	256	Horizontal	PK
5	1857.	38.09	33.35	74.00	40.65	200	233	Horizontal	PK
6	1858.	30.08	25.34	54.00	28.66	200	345	Horizontal	AV
7	2409.	31.49	29.83	54.00	24.17	200	263	Horizontal	AV
8	2410.	37.30	35.64	74.00	38.36	200	271	Horizontal	PK
9	2635.	33.04	31.7	54.00	22.30	200	137	Horizontal	AV
10	2635.	40.12	38.78	74.00	35.22	200	137	Horizontal	PK
11	3430.	36.58	36.23	74.00	37.77	100	215	Horizontal	PK
12	3506.	29.23	29.4	54.00	24.60	100	348	Horizontal	AV

Position: Vertical

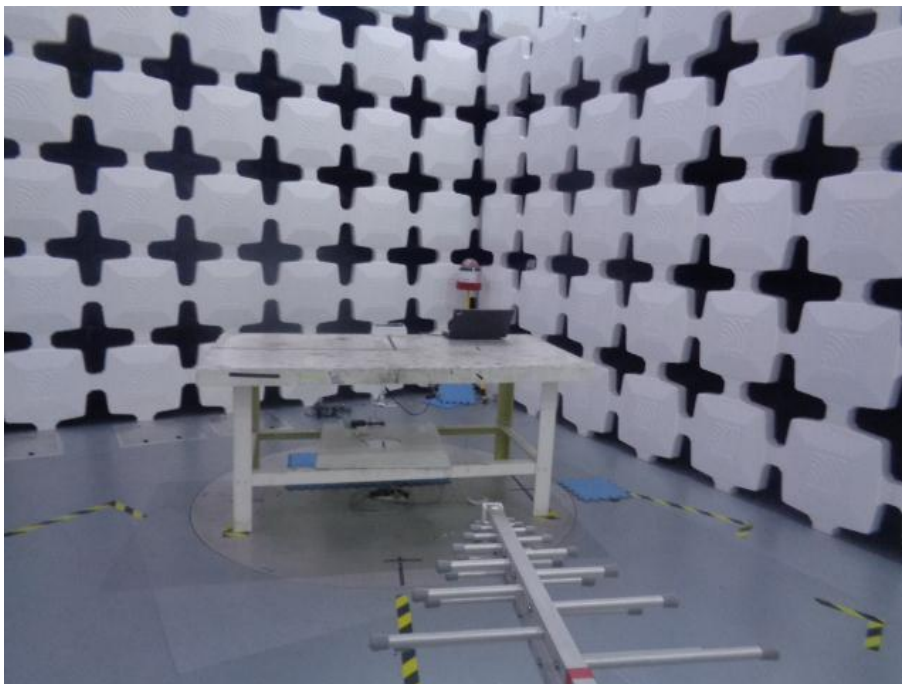
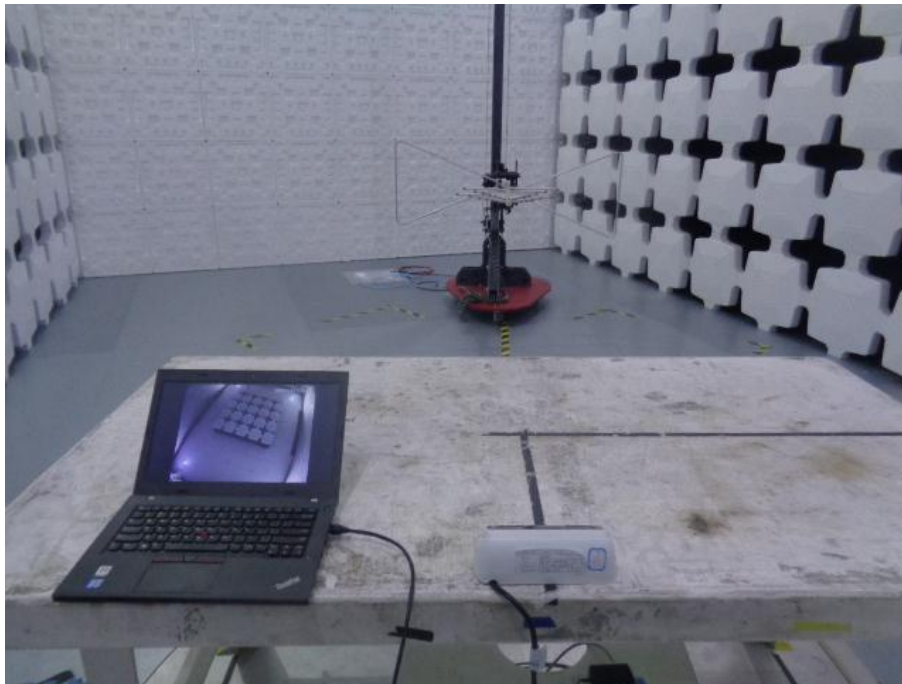


Suspected List									
NO.	Freq. [MHz]	Read- ing [dBμV/m]	Level [dB μV/m]	Limit [dB μV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity	Detector
1	1312.	44.81	38.39	74.00	35.61	200	166	Vertical	PK
2	1312.	31.78	25.36	54.00	28.64	200	174	Vertical	AV
3	1598.	30.22	24.43	54.00	29.57	200	174	Vertical	AV
4	1620.	41.74	35.98	74.00	38.02	100	133	Vertical	PK
5	2104.	39.80	37.5	74.00	36.50	100	156	Vertical	PK
6	2105.	32.60	30.31	54.00	23.69	100	163	Vertical	AV
7	2636.	38.86	37.52	54.00	16.48	100	156	Vertical	AV
8	2636.	45.17	43.83	74.00	30.17	100	156	Vertical	PK
9	2997.	29.84	29.16	54.00	24.84	100	118	Vertical	AV
10	3074.	36.86	36.36	74.00	37.64	200	63	Vertical	PK
11	3931.	36.10	37.64	74.00	36.36	100	200	Vertical	PK
12	3983.	28.63	30.38	54.00	23.62	200	285	Vertical	AV



**BUREAU
VERITAS**

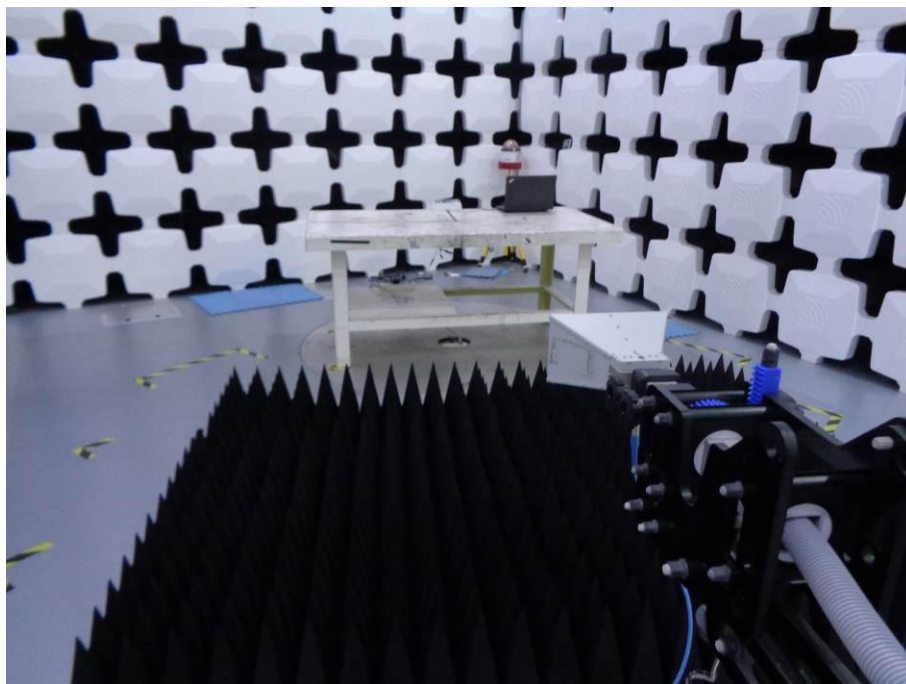
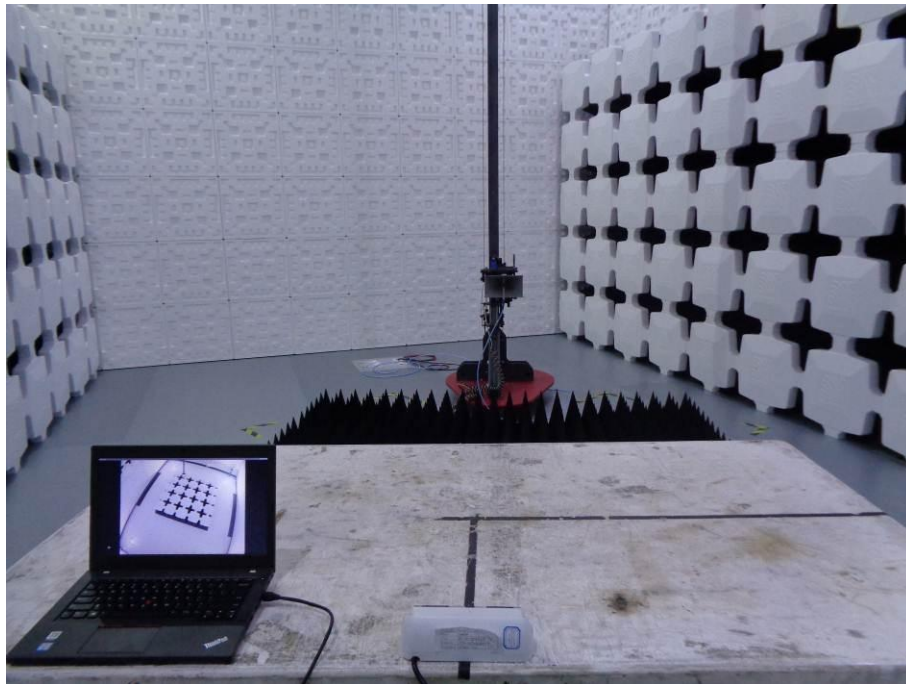
5.7. Test Photographs (30MHz ~ 1000MHz)





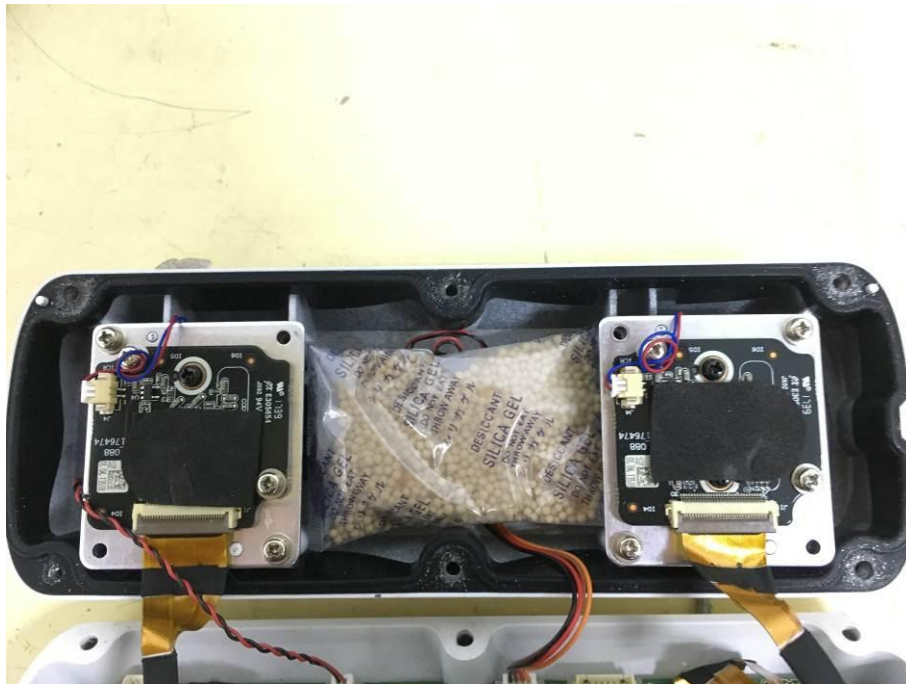
**BUREAU
VERITAS**

5.8. Test Photographs (1000MHz ~ 6000MHz)



6. Photographs of EUT





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