



EMC TEST REPORT



For Electromagnetic Compatibility of

Report Reference No.: EP1912081E01

Engineer (name + signature): Sam Gan 

Approved by (name + signature).....: Eric Liu 

Date of Receipt of EUT: 2019-12-27

Date of Test: 2019-12-27 to 2019-12-31

Date of issue: 2019-12-31

Testing Laboratory.....: DongGuan PuBiao Testing Technology Co., Ltd.

Address: No. 3, First Floor, Building A, No.30, Minghua Road, Juzhou village, Shijie Town, Dongguan City Guangdong China.

Applicant's name: Nicent Technology Co., Ltd.

Address: Rm1602-1, Block D, Information Port, 519080 Hi-Tech Park, Zhuhai, P.R.China

Manufacturer: Nicent Technology Co., Ltd.

Address: Rm1602-1, Block D, Information Port, 519080 Hi-Tech Park, Zhuhai, P.R.China

First Factory's name.....: Nicent Technology Co., Ltd.

Address.....: Rm1602-1, Block D, Information Port, 519080 Hi-Tech Park, Zhuhai, P.R.China

Test specification:

EUT description.....:	DVB
Trade Mark	INFINITY, DIGIMAX
Model/Type reference	3000 T2 HEVC, 8000 T2 HEVC, 3001 T2 HEVC, 8001 T2 HEVC
Test Sample.....	3000 T2 HEVC
Ratings	Input: 200-240V~, 50/60Hz, Max. 15W Output: 5Vdc, 1A
Tested Power.....:	I/P: 230Vac, 50Hz
Standards	EN 55032: 2015 EN 55035: 2017 EN 61000-3-2:2014 EN 61000-3-3:2013

The device described above was tested by DongGuan PuBiao Testing Technology Co., Ltd. to determine the maximum emission levels emanated from the device and severity levels of the device endure and its performance criterion. The measurement results are contained in this test report and DongGuan PuBiao Testing Technology Co., Ltd. assumes full responsibility for the accuracy and completeness of these measurements. This report shows the EUT is technically compliance with the above official standards.

This report applies to the above sample only and shall not be reproduced in part without written approval of DongGuan PuBiao Testing Technology Co., Ltd.

Table of Contents	Page
1 .GENERAL INFORMATION	6
1.1 PRODUCT INFORMATION	6
1.2 Details about the Test Laboratory	6
2. SUMMARY OF TEST RESULTS	7
2.1 MEASUREMENT UNCERTAINTY	9
2.2 DESCRIPTION OF TEST MODES	9
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	10
3. EMISSION TEST	11
3.1 CONDUCTED EMISSION MEASUREMENT	11
3.1.1 LIMITS OF CONDUCTED EMISSION(MAINS PORT)	11
3.1.2 MEASUREMENT INSTRUMENTS LIST	11
3.1.3 TEST PROCEDURE	11
3.1.4 DEVIATION FROM TEST STANDARD	12
3.1.5 TEST SETUP	13
3.1.6 EUT OPERATING CONDITIONS	13
3.1.7 TEST RESULTS	14
3.2 RADIATED EMISSION MEASUREMENT	17
3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	17
3.2.2 MEASUREMENT INSTRUMENTS LIST	18
3.2.3 TEST PROCEDURE	18
3.2.4 DEVIATION FROM TEST STANDARD	18
3.2.5 TEST SETUP	19
3.2.6 EUT OPERATING CONDITIONS	19
3.2.7 TEST RESULTS	20
3.3 HARMONICS CURRENT MEASUREMENT	23
3.3.1 LIMITS OF HARMONICS CURRENT MEASUREMENT	23
3.3.2 MEASUREMENT INSTRUMENTS LIST	24
3.3.3 TEST PROCEDURE	24
3.3.4 DEVIATION FROM TEST STANDARD	24
3.3.5 TEST SETUP	24
3.3.6 EUT OPERATING CONDITIONS	24
3.3.7 TEST RESULTS	24
3.4 VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT	25
3.4.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKSMEASUREMENT	25
3.4.2 MEASUREMENT INSTRUMENTS LIST	25
3.4.3 TEST PROCEDURE	25
3.4.4 DEVIATION FROM TEST STANDARD	25
3.4.5 TEST SETUP	26
4. IMMUNITY TEST	28
4.1 STANDARD COMPLIANCE/SERVURITY LEVEL/CRITERIA	28

Table of Contents	Page
4.2 GENERAL PERFORMANCE CRITERIA	29
4.3 GENERAL PERFORMANCE CRITERIA TEST SETUP	29
4.4 ESD TESTING	30
4.4.1 TEST SPECIFICATION	30
4.4.2 MEASUREMENT INSTRUMENTS	30
4.4.3 TEST PROCEDURE	30
4.4.4 DEVIATION FROM TEST STANDARD	31
4.4.5 TEST SETUP	31
4.4.6 TEST RESULTS	32
4.5 RS TESTING	33
4.5.1 TEST SPECIFICATION	33
4.5.2 MEASUREMENT INSTRUMENTS	33
4.5.3 TEST PROCEDURE	34
4.5.4 DEVIATION FROM TEST STANDARD	34
4.5.5 TEST SETUP	35
4.5.6 TEST RESULTS	36
4.6 EFT/BURST TESTING	37
4.6.1 TEST SPECIFICATION	37
4.6.2 MEASUREMENT INSTRUMENTS	37
4.6.3 TEST PROCEDURE	37
4.6.4 DEVIATION FROM TEST STANDARD	37
4.6.5 TEST SETUP	38
4.6.6 TEST RESULTS	39
4.7 SURGE TESTING	40
4.7.1 TEST SPECIFICATION	40
4.7.2 MEASUREMENT INSTRUMENTS	40
4.7.3 TEST PROCEDURE	40
4.7.4 DEVIATION FROM TEST STANDARD	41
4.7.5 TEST SETUP	41
4.7.6 TEST RESULTS	42
4.8 INJECTION CURRENT TESTING	43
4.8.1 TEST SPECIFICATION	43
4.8.2 MEASUREMENT INSTRUMENTS	43
4.8.3 TEST PROCEDURE	43
4.8.4 DEVIATION FROM TEST STANDARD	43
4.8.5 TEST SETUP	44
4.8.6 TEST RESULTS	45
4.9 VOLTAGE INTERRUPTION/DIPS TESTING	46
4.9.1 TEST SPECIFICATION	46
4.9.2 MEASUREMENT INSTRUMENTS	46
4.9.3 TEST PROCEDURE	46
4.9.4 DEVIATION FROM TEST STANDARD	46
4.9.5 TEST SETUP	47

Table of Contents	Page
4.9.6 TEST RESULTS	47
4.10.1 MEASUREMENT INSTRUMENTS	48
4.10.2 TEST LEVEL AND PERFORMANCE CRITERION	48
4.10.3 TEST PROCEDURE	48
4.10.4 DEVIATION FROM TEST STANDARD	48
4.10.5 TEST SETUP	48
4.10.6 TEST RESULTS	48
5. ATTACHMENT	49
5.1 EUT TEST PHOTO	49
5.2 EUT PHOTO	51

1 .GENERAL INFORMATION

1.1 PRODUCT INFORMATION

The equipment model 3000 T2 HEVC, 8000 T2 HEVC, 3001 T2 HEVC, 8001 T2 HEVC is DVB for the use in information technology equipment.

All tests was performed on model 3000 T2 HEVC

1.2 Details about the Test Laboratory

Test Site 1:

Company name: DongGuan PuBiao Testing Technology Co., Ltd

No. 3, First Floor, Building A, No.30, Minghua Road, Juzhou village, Shijie Town,
Dongguan City Guangdong China.

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Emission				
Standard	Test Item	Limit	Judgment	Remark
EN 55032: 2015	Conducted Emission	Class B	PASS	
	Radiated Emission Below 1 GHz	Class B	PASS	
	Radiated Emission Above 1 GHz	Class B	N/A	NOTE (1) NOTE (4)
EN 61000-3-2:2014	Harmonic Current Emission	Class A	N/A	NOTE (2)
EN 61000-3-3:2013	Voltage Fluctuations & Flicker	Clause 5	PASS	
Immunity (EN 55035: 2017)				
Section	Test Item	Performance Criteria	Judgment	Remark
EN 61000-4-2:2009	Electrostatic Discharge	B	PASS	
EN 61000-4-3:2006 +A1:2008+A2: 2010	RF electromagnetic field	A	PASS	
EN 61000-4-4:2012	Fast transients	B	PASS	
EN 61000-4-5:2014	Surges	B	PASS	
EN 61000-4-6:2014	Injected Current	A	PASS	
EN 61000-4-8:2010	Power Frequency Magnetic Field	A	N/A	
EN 61000-4-11:2004	Volt. Interruptions Volt. Dips	B / C / C NOTE (3)	PASS	

NOTE:

- (1)" N/A" denotes test is not applicable in this Test Report
- (2) The power consumption of EUT is less than 75W and no Limits apply.
- (3) Voltage dip: >95% reduction – Performance Criteria **B**
 Voltage dip: 30% reduction – Performance Criteria **C**
 Voltage Interruption: >95% reduction – Performance Criteria **C**

- (4) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1GHz, measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is less.
- (5) Test in the shielding room.

2.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U (dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	3.19	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U(dB)	NOTE
S02	ANSI	30MHz ~ 200MHz	V	3.69	
		30MHz ~ 200MHz	H	3.69	
		200MHz ~ 1,000MHz	V	3.67	
		200MHz ~ 1,000MHz	H	3.67	

2.2 DESCRIPTION OF TEST MODES

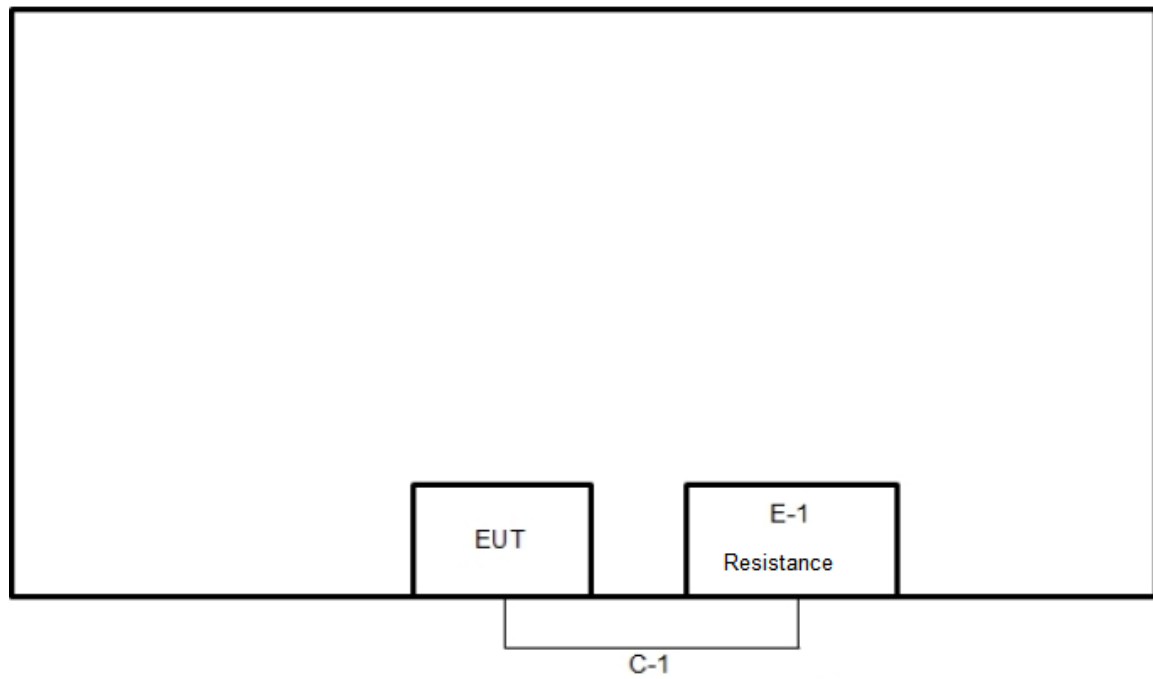
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

For Conducted Test	
Pretest Mode	Description
On	On

For Radiated Test	
Final Test Mode	Description
On	On

For EMS Test	
Final Test Mode	Description
Mode	On

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3. EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS OF CONDUCTED EMISSION(MAINS PORT) (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

(3) The test result calculated as following:

Measurement Value = Reading Level + Correct Factor

Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor (if use)

Margin Level = Measurement Value - Limit Value

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	ROHDE&SCHWARZ	ESCI	101315	2020-07-20
2	LISN	ROHDE&SCHWARZ	ENV216	102331	2020-07-20
3	Test Cable	N/A	N/A	1-2#	2020-07-20

Remark: " N/A" denotes No Model No. , Serial No. or No Calibration specified.

3.1.3 TEST PROCEDURE

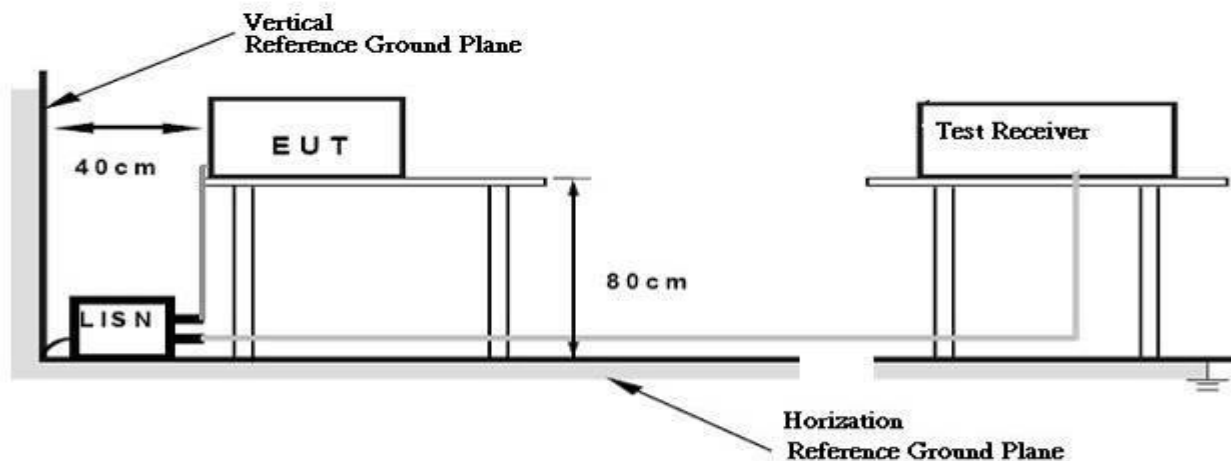
- The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.4 DEVIATION FROM TEST STANDARD

No deviation

3.1.5 TEST SETUP



3.1.6 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use.

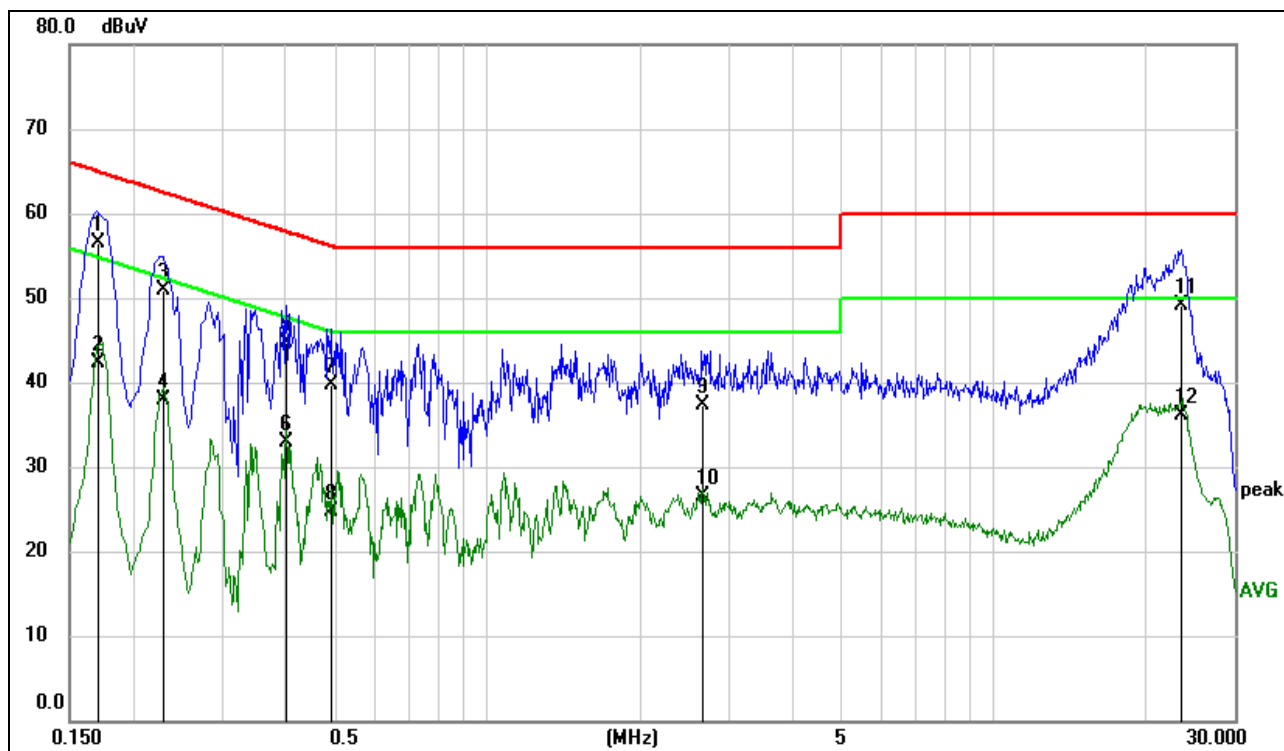
3.1.7 TEST RESULTS

EUT:	DVB	Model No. :	3000 T2 HEVC
Temperature:	26°C	Relative Humidity:	60 %
Pressure:	1008 hPa	Test Power :	AC 230V/50Hz
Test Mode :	On		

Remark:

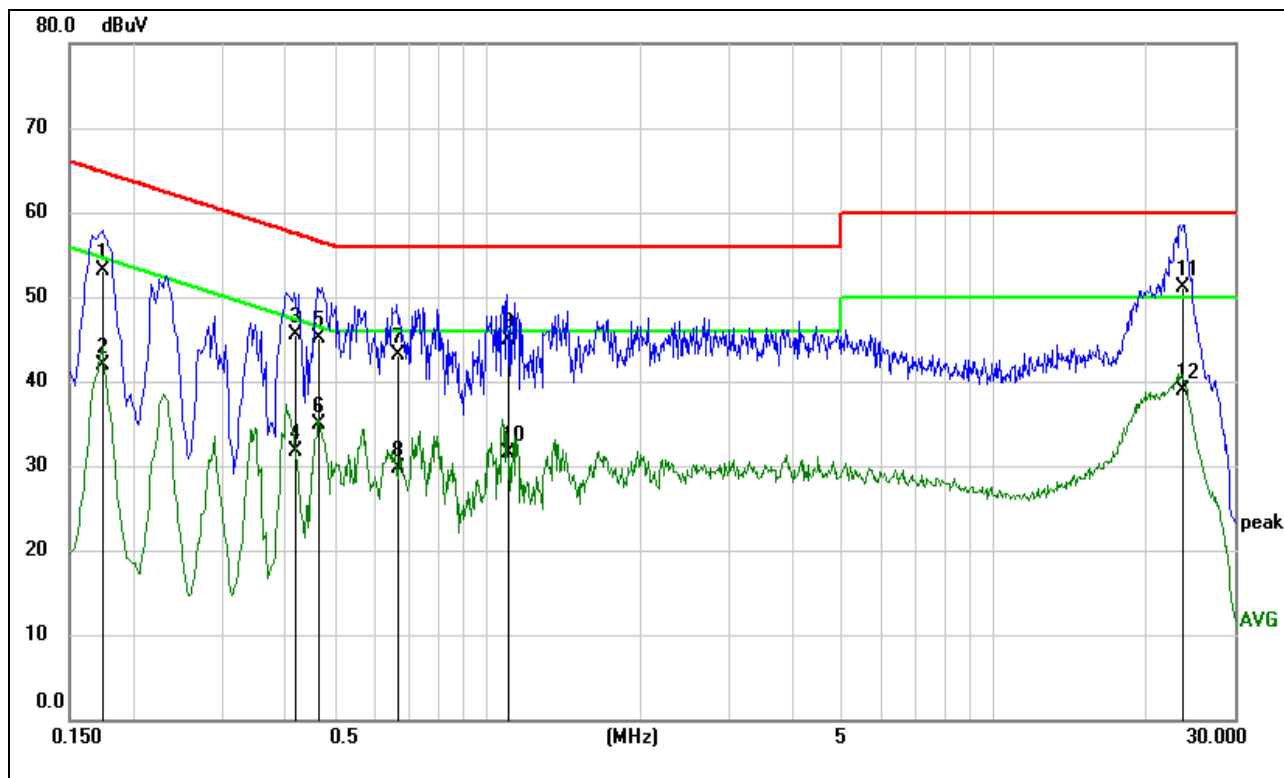
- (1) Reading in which marked as QP means measurements by using Quasi-Peak Detector ,and AV means measurements by using Average Detector.
- (2) All readings are QP Mode value unless otherwise stated AVG in column of 『Note』 . If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a “ * ” marked in AVG Mode column of Interference Voltage Measured.
- (3) Measuring frequency range from 150KHz to 30MHz.
- (4) This test was carried out in conducted emission shielded room.

EUT:	DVB	Probe:	L1
Model:	3000 T2 HEVC	PowerSource:	AC230V/50Hz
Mode:	On	Date:	2019/12/30
Temp./Hum.(%RH):	26/60%RH	Test By:	Sam
Standard:	EN55032 Class B Conduction(QP)		
Test item:	Conduction Test		
Note:			



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1700	46.86	9.60	56.46	64.96	-8.50	QP
2	0.1700	32.76	9.60	42.36	54.96	-12.60	AVG
3	0.2300	41.21	9.64	50.85	62.45	-11.60	QP
4	0.2300	28.33	9.64	37.97	52.45	-14.48	AVG
5	0.4020	35.09	9.68	44.77	57.81	-13.04	QP
6	0.4020	23.32	9.68	33.00	47.81	-14.81	AVG
7	0.4940	29.93	9.68	39.61	56.10	-16.49	QP
8	0.4940	14.97	9.68	24.65	46.10	-21.45	AVG
9	2.6580	27.62	9.71	37.33	56.00	-18.67	QP
10	2.6580	16.79	9.71	26.50	46.00	-19.50	AVG
11	23.4340	39.29	9.85	49.14	60.00	-10.86	QP
12	23.4340	26.24	9.85	36.09	50.00	-13.91	AVG

EUT:	DVB	Probe:	N
Model:	3000 T2 HEVC	PowerSource:	AC230V/50Hz
Mode:	On	Date:	2019/12/30
Temp./Hum.(%RH):	26/60%RH	Test By:	Sam
Standard:	EN55032 Class B Conduction(QP)		
Test item:	Conduction Test		
Note:			



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1740	43.52	9.61	53.13	64.77	-11.64	QP
2	0.1740	32.31	9.61	41.92	54.77	-12.85	AVG
3	0.4180	35.80	9.68	45.48	57.49	-12.01	QP
4	0.4180	21.98	9.68	31.66	47.49	-15.83	AVG
5	0.4660	35.52	9.68	45.20	56.58	-11.38	QP
6	0.4660	25.20	9.68	34.88	46.58	-11.70	AVG
7	0.6660	33.47	9.68	43.15	56.00	-12.85	QP
8	0.6660	20.02	9.68	29.70	46.00	-16.30	AVG
9	1.0980	35.19	9.68	44.87	56.00	-11.13	QP
10	1.0980	21.83	9.68	31.51	46.00	-14.49	AVG
11	23.7180	41.35	9.85	51.20	60.00	-8.80	QP
12	23.7180	29.11	9.85	38.96	50.00	-11.04	AVG

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

FREQUENCY (MHz)	Class A (at 3m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 – 230	50	40
230 – 1000	57	47

Notes:

- (1) The limit for radiated test was performed according to as following:
EN 55032/CISPR 32.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (GHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
1 ~ 3	76	56	74	54
3 ~ 6	80	60	70	50

Notes:

- (1) The limit for radiated test was performed according to EN 55032/CISPR 32.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 MEASUREMENT INSTRUMENTS LIST

3m Radiated Emission Measurement 30M-1G

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMI Test Receiver	Rohde & Schwarz	ESPI	101109	2020-07-20
2	Pre-Amplifier	HP	8447E	2727A02476	2020-07-20
3	Bilog Antenna	Schwarzbeck	CBL6111C	CBL6111C	2020-07-20
4	RF Cable	N/A	N/A	1-1#	2020-07-20
5	RF Cable	N/A	N/A	1-3#	2020-07-20
6	RF Cable	N/A	N/A	1-4#	2020-07-20
7	Antenna Mast	N/A	N/A	N/A	N/A
8	Turn Table	N/A	N/A	N/A	N/A

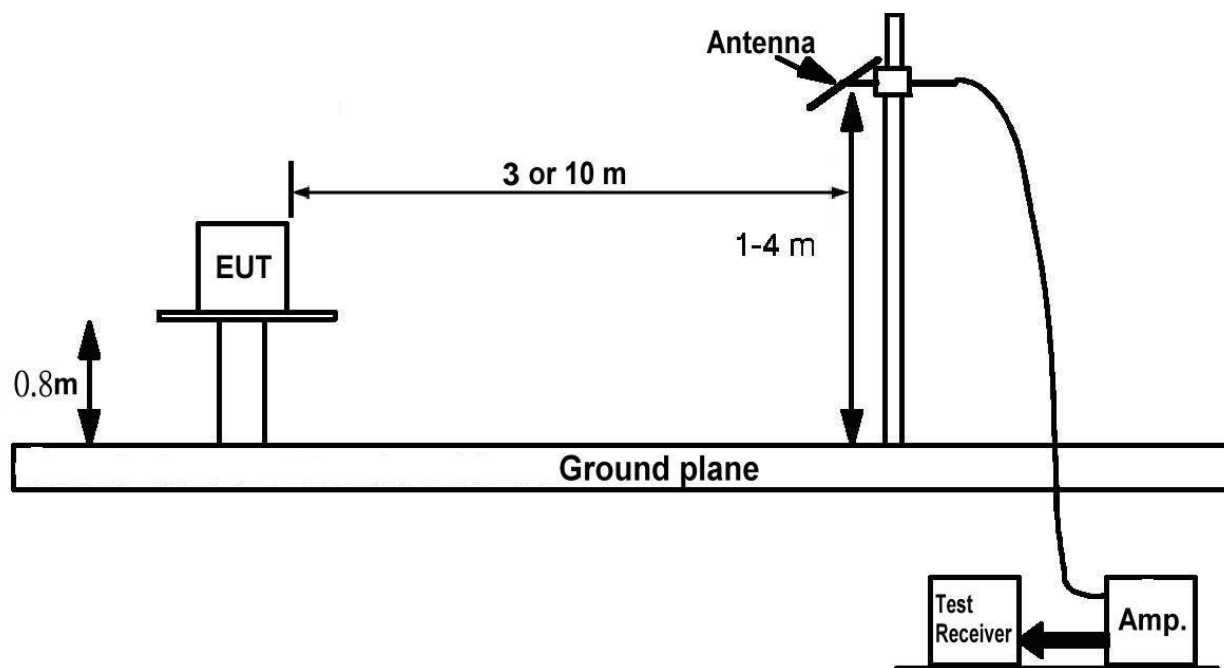
3.2.3 TEST PROCEDURE

- The measuring distance of at 3m or 10 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m or 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.4 DEVIATION FROM TEST STANDARD

No deviation

3.2.5 TEST SETUP



3.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 3.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.7 TEST RESULTS

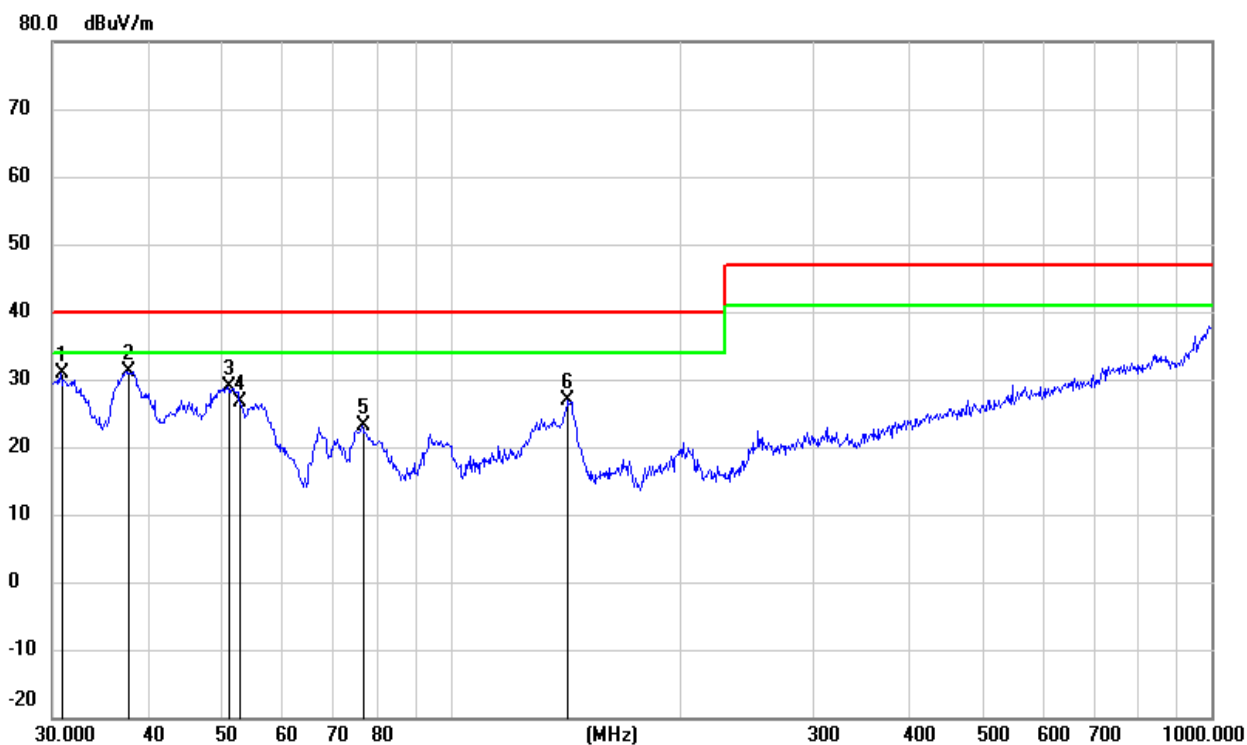
EUT:	DVB	Model No. :	3000 T2 HEVC
Temperature:	26°C	Relative Humidity:	60 %
Pressure:	1008 hPa	Test Power :	AC 230V/50Hz
Test Mode :	On		

Remark :

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Detector or Peak Detector.
- (2) All readings are Peak unless otherwise stated QP in column of 『Note 』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz.
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.
- (5) This test was carried out in 3m anechoic chamber.

Radiated Emission Test Result

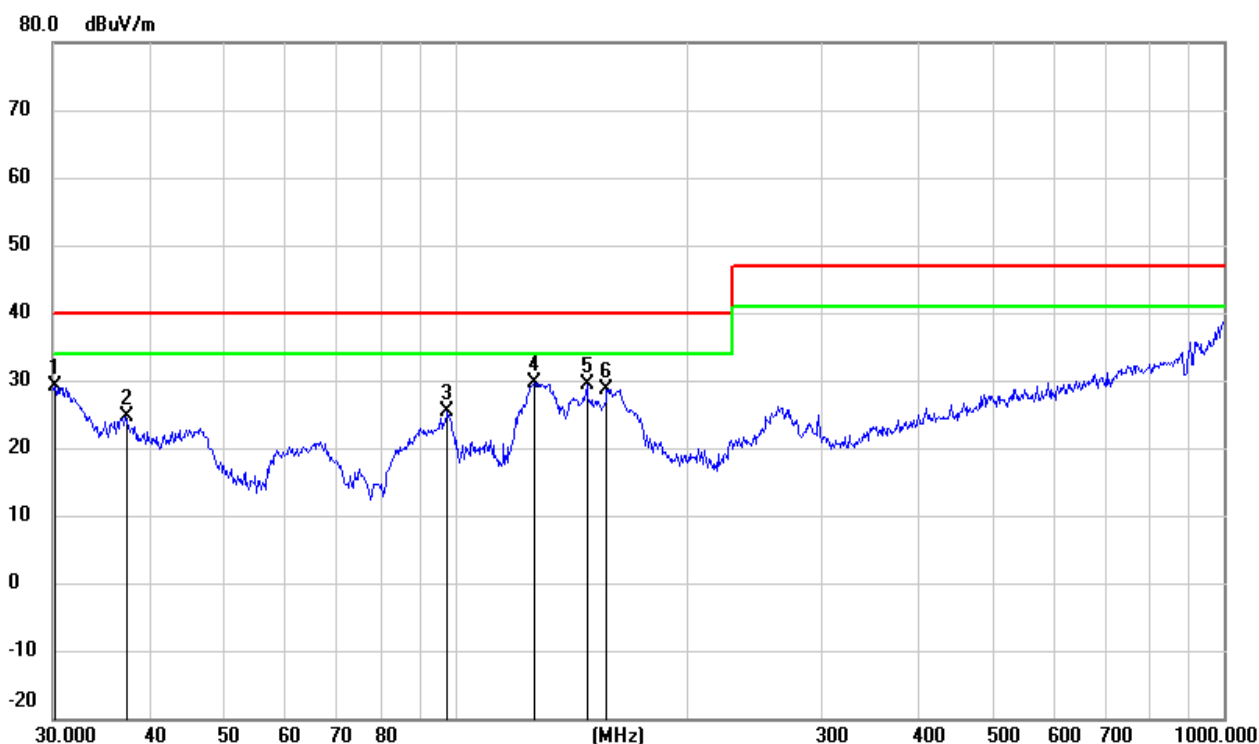
EUT:	DVB	Polarization:	Vertical
Model:	3000 T2 HEVC	Power Source:	AC 230V/50Hz
Mode:	On	Date:	2019/12/30
Temp./Hum.(%RH):	26/60%RH		
Standard:	EN55032 Class B 3M Radiation(QP)	Test By:	Sam
Test item:	Radiation Test	Distance:	
Note:			



No.	Frequency (MHz)	Reading (dBuV)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.7455	28.97	2.00	30.97	40.00	-9.03	peak
2	37.6798	33.46	-2.32	31.14	40.00	-8.86	peak
3	50.9420	37.06	-8.29	28.77	40.00	-11.23	peak
4	52.9453	36.23	-9.68	26.55	40.00	-13.45	peak
5	76.5121	35.95	-12.90	23.05	40.00	-16.95	peak
6	142.8243	34.30	-7.54	26.76	40.00	-13.24	peak

Radiated Emission Test Result

EUT:	DVB	Polarization:	Horizontal
Model:	3000 T2 HEVC	Power Source:	AC 230V/50Hz
Mode:	On	Date:	2019/12/30
Temp./Hum.(%RH):	26/60%RH	Test By:	Sam
Standard:	EN55032 Class B 3M Radiation(QP)	Distance:	
Test item:	Radiation Test		
Note:			



No.	Frequency (MHz)	Reading (dBuV)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	30.2111	26.58	2.49	29.07	40.00	-10.93	peak
2	37.2855	26.87	-2.24	24.63	40.00	-15.37	peak
3	97.7983	35.06	-9.73	25.33	40.00	-14.67	peak
4	126.7723	37.56	-7.96	29.60	40.00	-10.40	peak
5	148.4410	37.31	-8.05	29.26	40.00	-10.74	peak
6	157.5588	36.93	-8.20	28.73	40.00	-11.27	peak

3.3 HARMONICS CURRENT MEASUREMENT

3.3.1 LIMITS OF HARMONICS CURRENT MEASUREMENT

Table 1 – Limits for Class A equipment

Harmonic order n	Maximum permissible harmonic current A
Odd harmonics	
3	2,30
5	1,14
7	0,77
9	0,40
11	0,33
13	0,21
$15 \leq n \leq 39$	$0,15 \frac{15}{n}$
Even harmonics	
2	1,08
4	0,43
6	0,30
$8 \leq n \leq 40$	$0,23 \frac{8}{n}$

Table 2 – Limits for Class C equipment

Harmonic order n	Maximum permissible harmonic current expressed as a percentage of the input current at the fundamental frequency %
2	2
3	$30 \cdot \lambda^*$
5	10
7	7
9	5
$11 \leq n \leq 39$ (odd harmonics only)	3

* λ is the circuit power factor

Table 3 – Limits for Class D equipment

Harmonic order n	Maximum permissible harmonic current per watt mA/W	Maximum permissible harmonic current A
3	3,4	2,30
5	1,9	1,14
7	1,0	0,77
9	0,5	0,40
11	0,35	0,33
$13 \leq n \leq 39$ (odd harmonics only)	$\frac{3,85}{n}$	See Table 1

3.3.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	HARMONICS	California Instruments	500II XCTS-400 -413/PACS-1	1337A01345	2020-07-20

Remark: "N/A" denotes No Model No. / Serial No. and No Calibration specified.

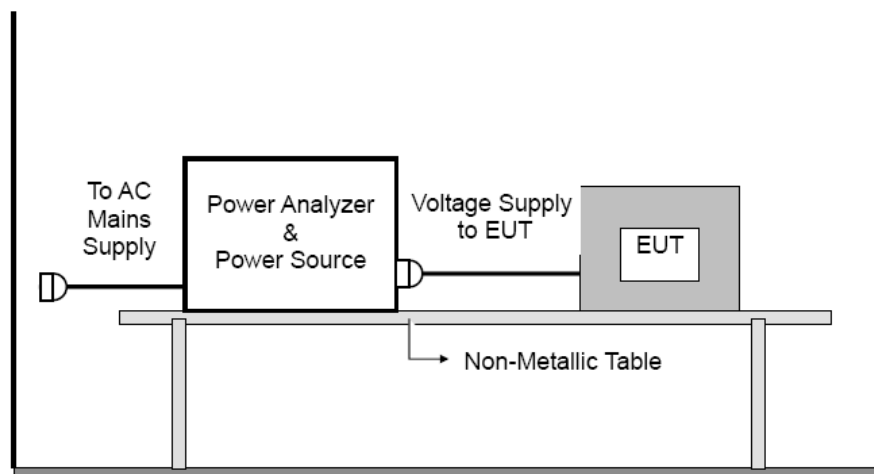
3.3.3 TEST PROCEDURE

- Test was performed according to the procedures specified in Clause 5.0 of IEC555-2 and/or Sub-clause 6.2 of IEC/EN 61000-3-2 depend on which standard adopted for compliance measurement.
- All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.3.4 DEVIATION FROM TEST STANDARD

No deviation

3.3.5 TEST SETUP



3.3.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 3.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

3.3.7 TEST RESULTS

The power consumption is less than 75W, so no limit is applicable.

3.4 VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT

3.4.1 LIMITS OF VOLTAGE FLUCTUATION AND FLICKS MEASUREMENT

Tests	Limits		Descriptions
	IEC555-3	IEC/EN 61000-3-2	
Pst	≤ 1.0 , Tp= 10 min.	≤ 1.0 , Tp= 10 min.	Short Term Flicker Indicator
Plt	N/A	≤ 0.65 , Tp=2 hr.	Long Term Flicker Indicator
dc	$\leq 3 \%$	$\leq 3.3 \%$	Relative Steady-State V-Chang
dmax	$\leq 4 \%$	$\leq 4 \%$	Maximum Relative V-change
d (t)	N/A	$\leq 3.3\%$ for > 500 ms	Relative V-change characteristic

3.4.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Flick	California Instruments	500IIXCTS-400 -413/PACS-1	1337A01345	2020-07-20

Remark: " N/A" denotes No Model No. / Serial No. and No Calibration specified.

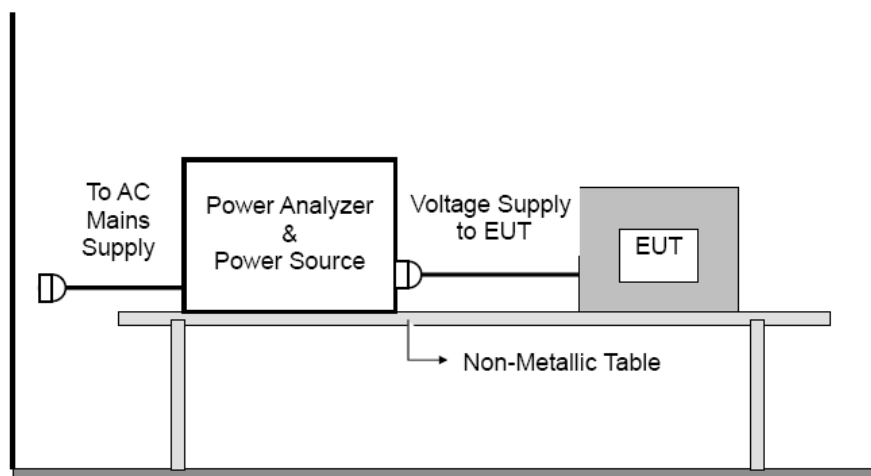
3.4.3 TEST PROCEDURE

- a. Harmonic Current Test:
Test was performed according to the procedures specified in Clause 5.0 of IEC555-2 and/or Sub-clause 6.2 of IEC/EN 61000-3-2 depend on which standard adopted for compliance measurement.
- b. Fluctuation and Flickers Test:
Tests was performed according to the Test Conditions/Assessment of Voltage Fluctuations specified in Clause 5.0/6.0 of IEC555-3 and/or Clause 6.0/4.0 of IEC/EN 61000-3-3 depend on which standard adopted for compliance measurement.
- c. All types of harmonic current and/or voltage fluctuation in this report are assessed by direct measurement using flicker-meter.
- d. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.4.4 DEVIATION FROM TEST STANDARD

No deviation

3.4.5 TEST SETUP



3.4.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 3.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

3.4.7 TEST RESULTS

EUT:	DVB	Model No. :	3000 T2 HEVC
Temperature:	21°C	Relative Humidity:	55 %
Pressure:	1009 hPa	Test Power :	AC 230V/50Hz
Test Mode :	On		

Flicker Test Summary per EN/IEC61000-3-3 Ed. 3.0 (2013) (Run time)

EUT: DVB M/N: 3000 T2 HEVC

Tested by: Tested by

Test category: All parameters (European limits)

Test Margin: 100

Test date: 2019/12/30

Start time: 9:37:59

End time: 9:48:30

Test duration (min): 10

Data file name: F-011320.cts_data

Comment: Comment

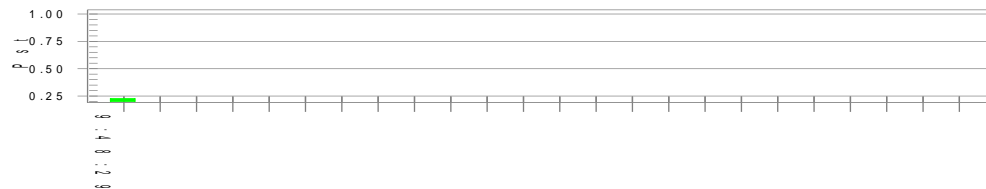
Customer: Customer information

Test Result: Pass

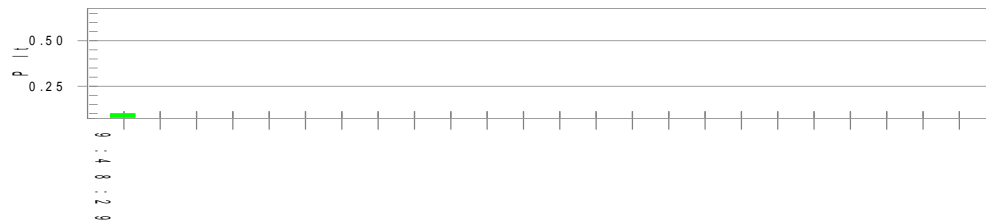
Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 230.12

Highest dt (%): 0.00

T-max (mS): 0

Highest dc (%): 0.00

Highest dmax (%): 0.04

Highest Pst (10 min. period): 0.229

Highest Plt (2 hr. period): 0.100

Test limit (%): N/A N/A

Test limit (mS): 500.0 Pass

Test limit (%): 3.30 Pass

Test limit (%): 4.00 Pass

Test limit: 1.000 Pass

Test limit: 0.650 Pass

4. IMMUNITY TEST

4.1 STANDARD COMPLIANCE/SERVRITY LEVEL/CRITERIA

Tests Standard No.	Test Specification	Test Mode Test Ports	Perform. Criteria	Remark
1. ESD IEC/EN 61000-4-2	8KV air discharge 4KV contact discharge	Direct Mode	B	PASS
	4KV HCP discharge 4KV VCP discharge	Indirect Mode	B	PASS
2. RS IEC/EN 61000-4-3	80 MHz to 1000 MHz, 1800, 2600, 3500, 5000 MHz 3V/m(rms), 1 KHz, 80%, AM modulated	Enclosure	A	PASS
3. EFT/Burst IEC/EN 61000-4-4	1.0KV(peak) 5/50ns Tr/Th 5KHz Repetition Freq.	AC Power Port	B	PASS
	0.5 KV(peak) 5/50ns Tr/Th 5KHz Repetition Freq.	CTL/Signal Data Line Port	B	N/A
4. Surges IEC/EN 61000-4-5	1 KV(5P/5N) 1.2/50(8/20) Tr/Th us	L-N	B	PASS
	2 KV(5P/5N) 1.2/50(8/20) Tr/Th us	L-PE N-PE	B	N/A
5 Injected Current IEC/EN 61000-4-6	0.15 MHz to 10 MHz 3V (rms), 10 MHz to 30 MHz 3V ~1V (rms), 30 MHz to 80 MHz 1V(rms), 1KHz 80%, AM Modulated 150Ω source impedance	CTL/Signal Port	A	N/A
		AC Power Port	A	PASS
		DC Power Port	A	N/A
6. Power Frequency Magnetic Field IEC/EN 61000-4-8	50Hz or 60Hz, 1A/m	Enclosure	A	N/A
7. Volt. Interruptions Volt. Dips IEC/EN 61000-4-11	Voltage dip > 95% / 30% Interruption > 95%	AC Power Port	B / C C See Remark(2)	PASS

* Remark:

- (1) "N/A": denotes test is not applicable in this Test Report.
- (2) Voltage dip: >95% reduction – Performance Criteria **B**
 Voltage dip: 30% reduction – Performance Criteria **C**
 Voltage Interruption: >95% reduction – Performance Criteria **C**

4.2 GENERAL PERFORMANCE CRITERIA

According to **EN55035:2017** standard, the general performance criteria as following:

Criterion A	The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion B	After the test, the equipment shall continue to operate as intended without operator Intervention. No degradation of performance or loss of function is allowed, after the application of the phenomenon below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is allowed. However, no change of operating state if stored data allowed to persist after the test. If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion C	Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

4.3 GENERAL PERFORMANCE CRITERIA TEST SETUP

The EUT tested system was configured as the statements of **3.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

4.4 ESD TESTING

4.4.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-2
Discharge Impedance:	330 ohm / 150 pF
Required Performance	B
Discharge Voltage:	Air Discharge: 2kV/4kV/8kV (Direct) Contact Discharge: 2kV/4kV (Direct/Indirect)
Polarity:	Positive & Negative
Number of Discharge:	Air Discharge: min. 20 times at each test point Contact Discharge: min. 200 times in total
Discharge Mode:	Contact and Air
Discharge Period:	1 second minimum

4.4.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Electrostatic discharge generator	Noiseken	ESS-2002EX	ESS1111157	2020-07-20

Remark: " N/A" denotes No Model No. / Serial No. and No Calibration specified.

4.4.3 TEST PROCEDURE

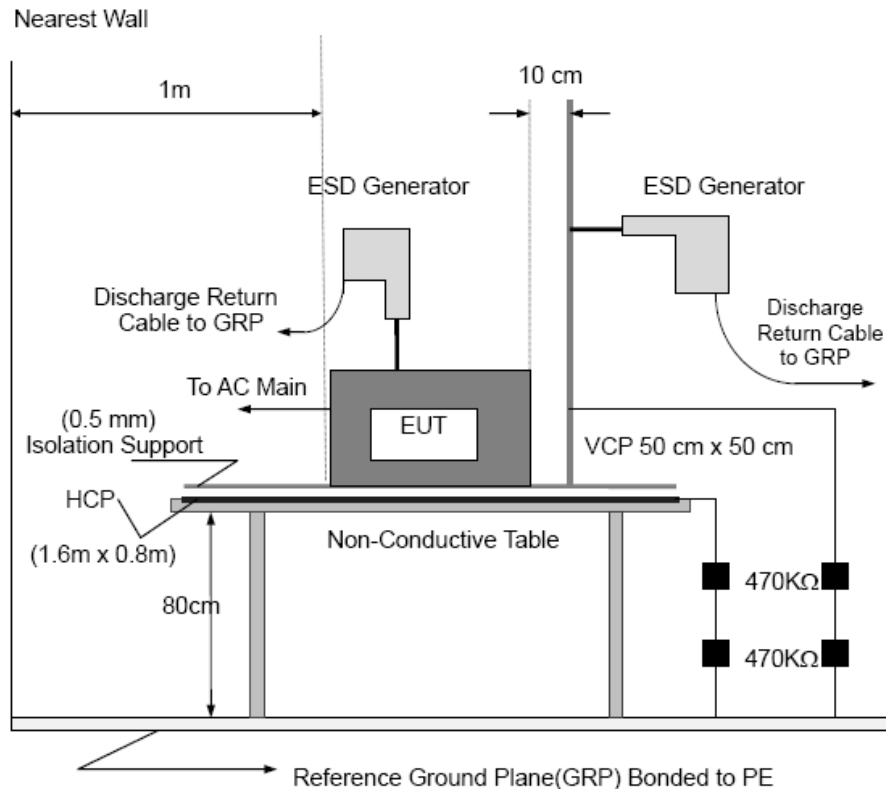
The test generator necessary to perform direct and indirect application of discharges to the EUT in the following manner:

- a. Contact discharge was applied to conductive surfaces and coupling planes of the EUT.
During the test, it was performed with single discharges. For the single discharge time between successive single discharges was at least 1 second. The EUT shall be exposed to at least 200 discharges, 100 each at negative and positive polarity, at a minimum of four test points. One of the test points shall be subjected to at least 50 indirect discharges to the center of the front edge of the horizontal coupling plane. The remaining three test points shall each receive at least 50 direct contact discharges.
If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode. Test shall be performed at a maximum repetition rate of one discharge per second.
Vertical Coupling Plane (VCP):
The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance 0.1m from, the EUT, with the Discharge Electrode touching the coupling plane.
The four faces of the EUT will be performed with electrostatic discharge.
Horizontal Coupling Plane (HCP):
The coupling plane is placed under to the EUT. The generator shall be positioned vertically at a distance of 0.1m from the EUT, with the Discharge Electrode touching the coupling plane.
The four faces of the EUT will be performed with electrostatic discharge.
- b. Air discharges at insulation surfaces of the EUT.
It was at least ten single discharges with positive and negative at the same selected point.
- c. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table 0.8 meters high standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum at least 0.25mm thick, and 2.5 meters square connected to the protective grounding system. A Horizontal Coupling Plane (1.6m x 0.8m) was placed on the table and attached to the GRP by means of a cable with 940k total impedance. The equipment under test, was installed in a representative system as described in section 7 of IEC /EN 61000-4-2, and its cables were placed on the HCP and isolated by an insulating support of 0.5mm thickness. A distance of 1-meter minimum was provided between the EUT and the walls of the laboratory and any other metallic structure.

FLOOR-STANDING EQUIPMENT

The equipment under test was installed in a representative system as described in section 7 of IEC/EN 61000-4-2, and its cables were isolated from the Ground Reference Plane by an insulating support of 0.1-meter thickness. The GRP consisted of a sheet of aluminum that is at least 0.25mm thick, and 2.5meters square connected to the protective grounding system and extended at least 0.5 meters from the EUT on all sides.

4.4.6 TEST RESULTS

Mode	Air Discharge								Contact Discharge							
	2KV		4KV		8KV		12KV		2KV		4KV		6KV		8KV	
Location	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N
1	--	--	A	A	A	A	--	--	--	--	--	--	--	--	--	--
2	--	--	--	--	--	--	--	--	A	A	A	A	--	--	--	--
3	-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
6	-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
8	--	--	--	--	-	--	--	--	--	--	--	--	--	--	--	--
9	--	--	--	--	-	--	--	--	--	--	--	--	--	--	--	--
Criteria	B								B							
Result	A								B							
Judgment	PASS								PASS							

Mode	HCP Discharge								VCP Discharge							
	2KV		4KV		6KV		8KV		2KV		4KV		6KV		8KV	
Location	P	N	P	N	P	N	P	N	P	N	P	N	P	N	P	N
1	-	--	A	A	--	--	--	--	-	--	A	A	--	--	--	--
2	--	--	A	A	--	--	--	--	--	--	A	A	--	--	--	--
3	--	--	A	A	-	--	--	--	--	--	A	A	-	--	--	--
4	-	--	A	A	--	--	--	--	-	--	A	A	--	--	--	--
Criteria	B								B							
Result	A								A							
Judgment	PASS								PASS							

Note:

- 1) P/N denotes the Positive/Negative polarity of the output voltage.
- 2) Test condition:
Direct discharges: Minimum 50 times (Positive/Negative) at each point. Air discharges / Indirect (HCP/VCP): Minimum 20 times (Positive/Negative) at each point.
- 3) Test location(s) in which discharge (Air and contact discharge) to be described as following
- 4) The Indirect (HCP/VCP) discharges description of test point as following:
1.left side 2.right side 3.front side 4.rear side
- 5) N/A - denotes test is not applicable in this test report
- 7) Criteria B: The EUT function loss during the test, but self-recoverable after the test.

Test location description:

No	Description	No	Description
1	Slot	4	4 points
2	Output port	5	1 point
3		6	

4.5 RS TESTING

4.5.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-3
Required Performance	A
Frequency Range:	80 MHz - 1000 MHz, 1800, 2600, 3500, 5000 MHz
Field Strength:	3 V/m
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Polarity of Antenna:	Horizontal and Vertical
Test Distance:	3 m
Antenna Height:	1.5 m
Dwell Time:	at least 3 seconds

4.5.2 MEASUREMENT INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Signal Generator	Agilent	N517113-50B	MY53050160	2020-07-20
Amplifier	A&R	150W1000M3	313157	2020-07-20
Amplifier	A&R	50SIG6M2	0342835	2020-07-20
Log-periodic Antenna	SCHWARZBECK	STLP 9128E	9128E-012	2020-07-20
Microwave log-periodic antenna	SCHWARZBECK	STLP 9149	9149.222	2020-07-20
Isotropic Field Probe	A&R	FL700	0342652	2020-07-20
10 meter anechoic chamber	Albatross	10m	/	2020-07-20

Remark: " N/A" denotes No Model No. / Serial No. and No Calibration specified.

4.5.3 TEST PROCEDURE

The EUT and support equipment, which are placed on a table that is 0.8 meter above ground and the testing was performed in a fully-anechoic chamber.

The testing distance from antenna to the EUT was 3 meters.

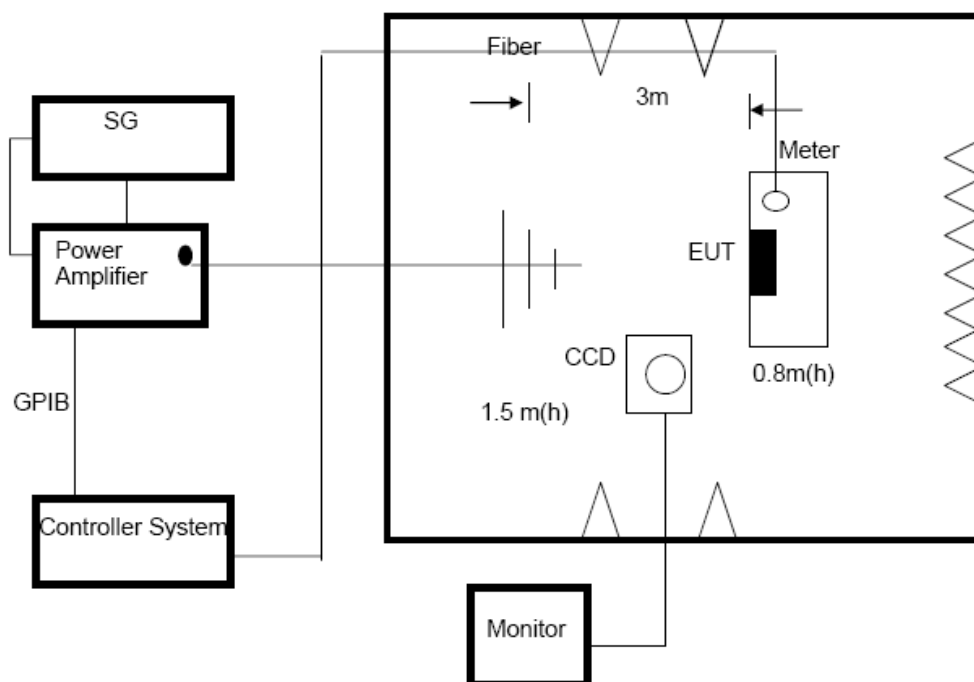
The other condition as following manner:

- a. The field strength level was 3V/m.
- b. The frequency range is swept from 80 MHz to 1000 MHz, 1800 MHz, 2600 MHz, 3500 MHz, 5000 MHz with the signal 80%amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5x 10-3 decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- c. The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- d. The test was performed with the EUT exposed to both vertically and horizontally polarized fields on each of the four sides.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive table 0.8 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-3 was placed on a non-conductive wood support 0.1 meters in height. The system under test was connected to the power and signal wire according to relevant installation instructions.

4.5.6 TEST RESULTS

Frequency Range (MHz)	Polarity of Antenna	R.F. Field Strength	Azimuth	Perform. Criteria	Results	Judgment
80MHz - 1000MHz	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	A	PASS
			Rear			
			Left			
			Right			

Frequency Range (MHz)	Polarity of Antenna	R.F. Field Strength	Azimuth	Perform. Criteria	Results	Judgment
1800, 2600, 3500, 5000 MHz	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	A	PASS
			Rear			
			Left			
			Right			

Note:

- 1) H/V denotes the Horizontal/Vertical polarity of Antenna.
- 2) N/A - denotes test is not applicable in this test report.
- 3) Criteria A: There was no change operated with initial operating during the test.
- 4) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 5) Criteria C: The system shut down during the test.

4.6 EFT/BURST TESTING

4.6.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-4
Required Performance	B
Test Voltage:	Power Line: ± 1 kV
Polarity:	Positive & Negative
Impulse Frequency:	5 kHz
Impulse Wave shape :	5/50 ns
Burst Duration:	15 ms
Burst Period:	300 ms
Test Duration:	Not less than 1 min.

4.6.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMC Immunity Test System	EMC-PARTNER	TRANSIENT 2000	1129	2020-07-20

Remark: " N/A" denotes No Model No. / Serial No. and No Calibration specified.

4.6.3 TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min.

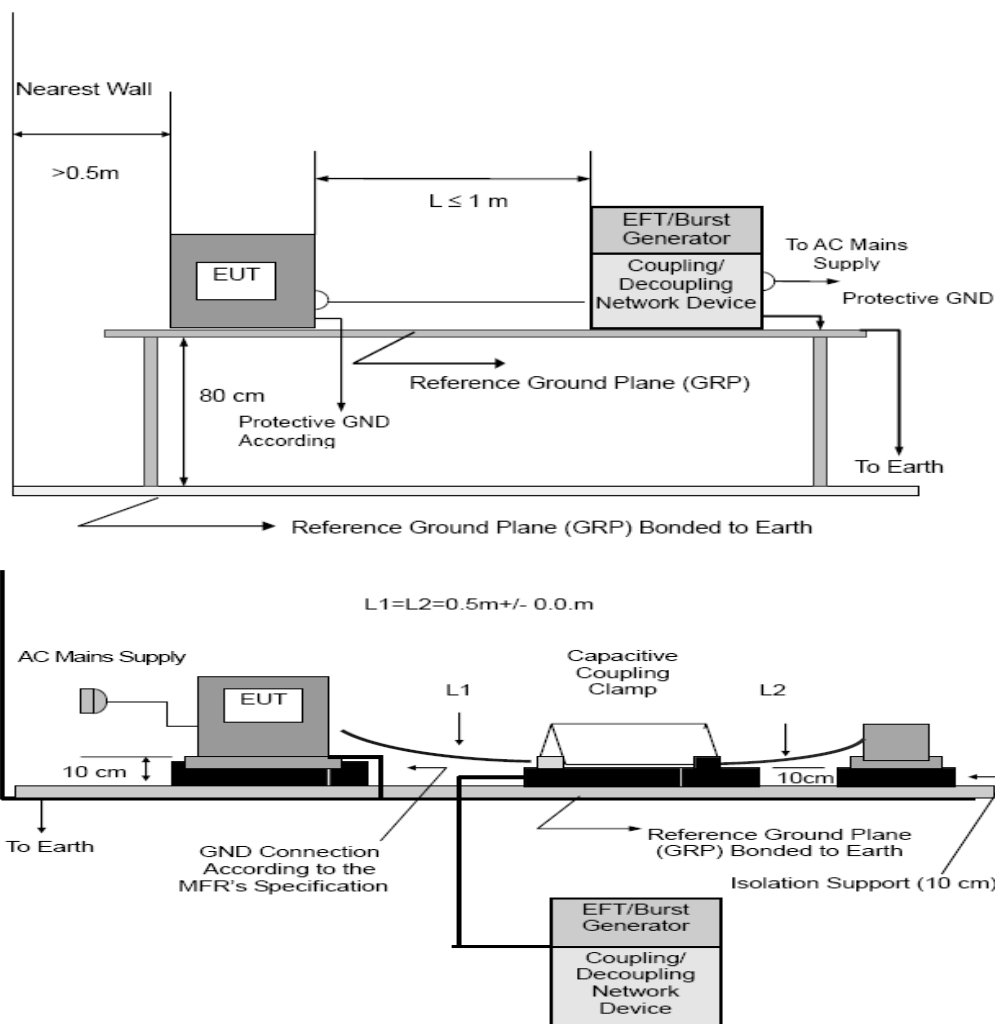
The other condition as following manner:

- The length of power cord between the coupling device and the EUT should not exceed 1 meter.
- Both positive and negative polarity discharges were applied.
- The duration time of each test sequential was 1 minute
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



Note:

TABLE-TOP EQUIPMENT

The configuration consisted of a wooden table (0.8m high) standing on the Ground Reference Plane. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system. A minimum distance of 0.5m was provided between the EUT and the walls of the laboratory or any other metallic structure.

FLOOR-STANDING EQUIPMENT

The EUT installed in a representative system as described in section 7 of IEC/EN 61000-4-4 and its cables, were isolated from the Ground Reference Plane by an insulating support that is 0.1-meter thick. The GRP consisted of a sheet of aluminum (at least 0.25mm thick and 2.5m square) connected to the protective grounding system.

4.6.6 TEST RESULTS

Mode	AC Power Line		DC Power Line		Signal/Control Line	
Test Level	1KV		0.5KV		0.5KV	
Port(s)	Polarity	Results	Polarity	Results	Polarity	Results
Line (L)	P	A	P		P	
	N	A	N		N	
Neutral (N)	P	A	P		P	
	N	A	N		N	
Ground (PE)	P		P		P	
	N		N		N	
Signal/Control Line	P		P		P	
	N		N		N	
Criteria	B		B		B	
Result	A		--		--	
Judgment	PASS		N/A		N/A	

- 1) P/N denotes the Positive/Negative polarity of the output voltage.
- 2) N/A - denotes test is not applicable in this test report
- 3) Criteria A: There was no change operated with initial operating during the test.
- 4) Criteria B: The EUT function loss during the test, but self-recoverable after the test.
- 5) Criteria C: The system shut down during the test.

4.7 SURGE TESTING

4.7.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-5
Required Performance	B
Wave-Shape:	Combination Wave 1.2/50 us Open Circuit Voltage 8 /20 us Short Circuit Current
Test Voltage:	Power Line: 0.5 kV, 1 kV, 2 kV
Surge Input/Output:	L-N, L-PE, N-PE
Generator Source:	2 ohm between networks
Impedance:	12 ohm between network and ground
Polarity:	Positive/Negative
Phase Angle:	0 /90/180/270
Pulse Repetition Rate:	1 time / min. (maximum)
Number of Tests:	5 positive and 5 negative at selected points

4.7.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EMC Immunity Test System	EMC-PARTNER	TRANSIENT 2000	1129	2020-07-20

Remark: " N/A" denotes No Model No. / Serial No. and No Calibration specified.

4.7.3 TEST PROCEDURE

a. For EUT:

The surge is to be applied to the EUT terminals via the capacitive coupling network. Decoupling networks are required in order to avoid possible adverse effects on equipment not under test that may be powered by the same lines, and to provide sufficient decoupling impedance to the surge wave. The power cord between the EUT and the coupling/decoupling networks shall be 2meters in length (or shorter).

b. For test applied to unshielded unsymmetrically operated interconnection lines of EUT:

The surge is applied to the lines via the capacitive coupling. The coupling /decoupling networks shall not influence the specified functional conditions of the EUT. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

c. For test applied to unshielded symmetrically operated interconnection /telecommunication lines of EUT:

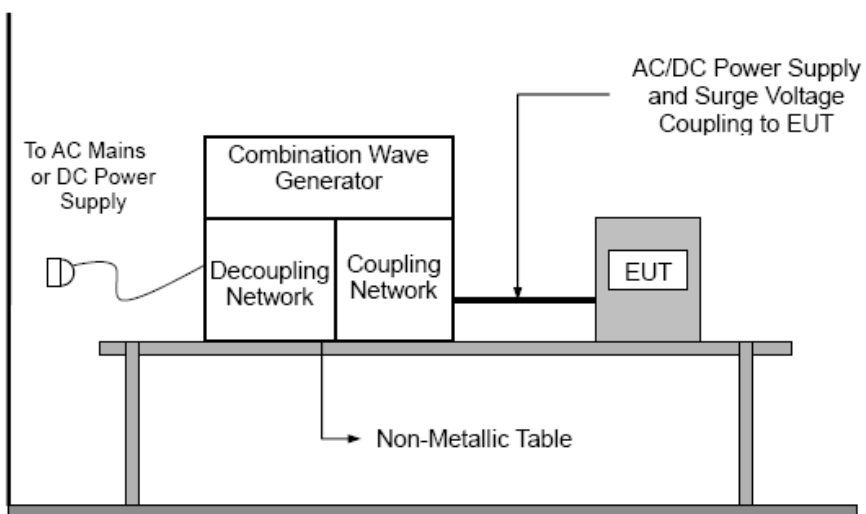
The surge is applied to the lines via gas arrestors coupling. Test levels below the ignition point of the coupling arrestor cannot be specified. The interconnection line between the EUT and the coupling/decoupling networks shall be 2 meters in length (or shorter).

d. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



4.7.6 TEST RESULTS

Wave Form EUT Ports Tested	1.2/50(8/20) us						Criteria	Judgment
	Polarity	Phase	Voltage					
0.5kV			1kV	1.5kV	2kV			
L - N	+/-	0°		A			B	PASS
	+/-	90°		A				
	+/-	180°		A				
	+/-	270°		A				
L - PE	+/-	0°					B	N/A
	+/-	90°						
	+/-	180°						
	+/-	270°						
N - PE	+/-	0°					B	N/A
	+/-	90°						
	+/-	180°						
	+/-	270°						
Signal Line (N/A)	+/-	0°					B	N/A
	+/-	90°						
	+/-	180°						
	+/-	270°						
Signal Line (N/A)	+/-	0°					B	N/A
	+/-	90°						
	+/-	180°						
	+/-	270°						

Note:

1) N/A - denotes test is not applicable in this Test Report

4.8 INJECTION CURRENT TESTING

4.8.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-6
Required Performance	A
Frequency Range:	3V (rms), 0.15MHz ~ 10MHz; 3V ~1V (rms), 10MHz ~ 30MHz; 1V (rms), 30MHz ~ 80MHz;
Field Strength:	3V (rms), 3V ~1V (rms), 1V (rms)
Modulation:	1kHz Sine Wave, 80%, AM Modulation
Frequency Step:	1 % of fundamental
Dwell Time:	at least 3 seconds

4.8.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Signal generator	PM	3010	020WX30201	2020-07-20
2	CDN	FCC	FCC-801-M3-16A	121804	2020-07-20
3	Power amplifier	ROHDE&SCHWARZ	PMM6000N	21044	2020-07-20

Remark: " N/A" denotes No Model No. / Serial No. and No Calibration specified.

4.8.3 TEST PROCEDURE

The EUT and support equipment, are placed on a table that is 0.8 meter above a metal ground plane measured 1m*1m min. and 0.65mm thick min.

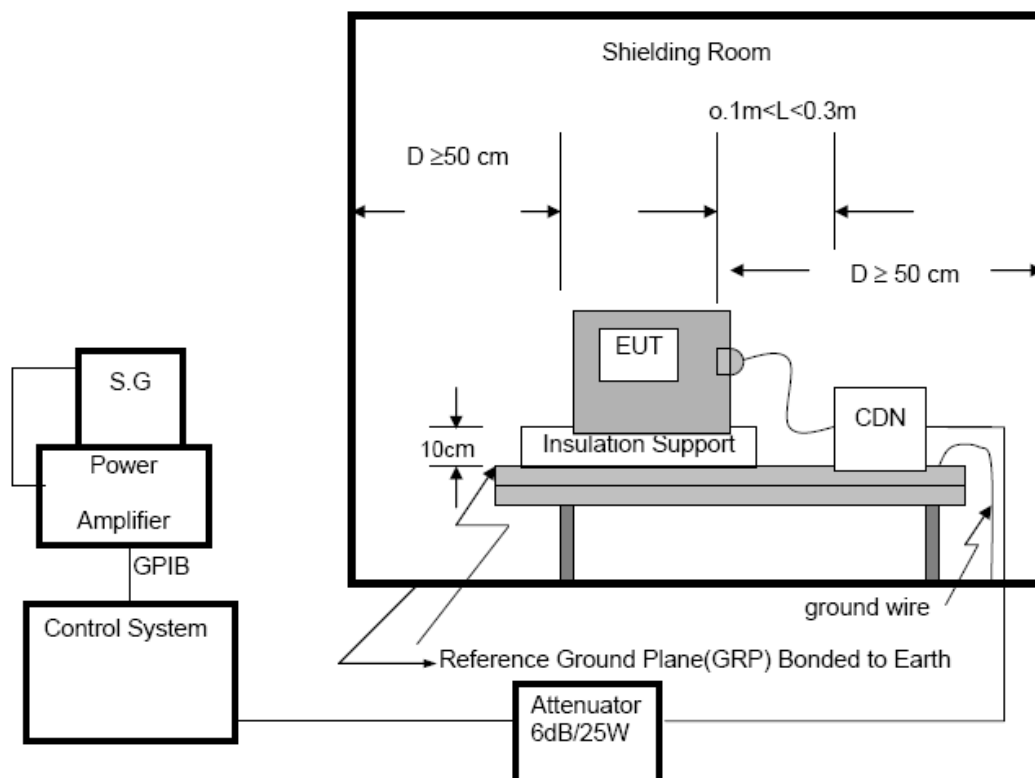
The other condition as following manner:

- The field strength level was 3V (rms), 3V ~1V (rms), 1V (rms).
- The frequency range is swept from 150 KHz to 80 MHz, with the signal 80%amplitude modulated with a 1kHz sine wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1% of fundamental.
- The dwell time at each frequency shall be not less than the time necessary for the EUT to be able to respond.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.8.4 DEVIATION FROM TEST STANDARD

No deviation

4.8.5 TEST SETUP



For the actual test configuration, please refer to the related Item –EUT Test Photos.

NOTE:

FLOOR-STANDING EQUIPMENT

The equipment to be tested is placed on an insulating support of 0.1 meters height above a ground reference plane. All relevant cables shall be provided with the appropriate coupling and decoupling devices at a distance between 0.1 meters and 0.3 meters from the projected geometry of the EUT on the ground reference plane.

4.8.6 TEST RESULTS

Test Ports (Mode)	Freq. Range MHz)	Field Strength	Perform. Criteria	Results	Judgment
Input/ Output AC. Power Port	0.15 ---10	3V(rms) AM Modulated	A	A	PASS
	10 ---30	3V~1V (rms) AM Modulated	A	A	PASS
	30 ---80	1V(rms) AM Modulated	A	A	PASS
Input/ Output DC. Power Port	0.15 ---10	3V(rms) AM Modulated	A	--	N/A
	10 ---30	3V~1V (rms) AM Modulated	A	--	N/A
	30 ---80	1V(rms) AM Modulated	A	--	N/A
Signal Line (N/A)	0.15 ---10	3V(rms) AM Modulated	A	--	N/A
	10 ---30	3V~1V (rms) AM Modulated	A	--	N/A
	30 ---80	1V(rms) AM Modulated	A	--	N/A

Note:

1) N/A - denotes test is not applicable in this Test Report.

4.9 VOLTAGE INTERRUPTION/DIPS TESTING

4.9.1 TEST SPECIFICATION

Basic Standard:	IEC/EN 61000-4-11
Required Performance:	B (For >95% Voltage Dips) C (For 30% Voltage Dips) C (For >95% Voltage Interruptions)
Test Duration Time:	Minimum three test events in sequence
Interval between Event:	Minimum ten seconds
Phase Angle:	0°
Test Cycle:	3 times

4.9.2 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Multifunction Immunity tester	EMC-PARTNER	TRANSIENT 2000	1129	2020-07-20

Remark: " N/A" denotes No Model No. / Serial No. and No Calibration specified.

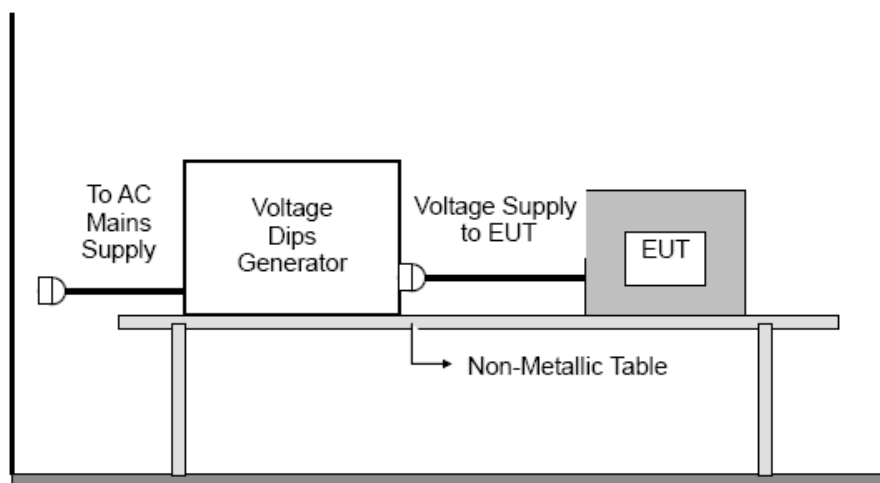
4.9.3 TEST PROCEDURE

The EUT shall be tested for each selected combination of test levels and duration with a sequence of three dips/interruptions with intervals of 10 s minimum (between each test event). Each representative mode of operation shall be tested. Abrupt changes in supply voltage shall occur at zero crossings of the voltage waveform.

4.9.4 DEVIATION FROM TEST STANDARD

No deviation

4.9.5 TEST SETUP



For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.9.6 TEST RESULTS

Input Rating:230V/50Hz

Voltage Reduction	Periods	Perform Criteria	Results	Judgment
Voltage dip >95%	0.5	B	A	PASS
Voltage dip 30%	25	C	B	PASS
Interruption >95%	250	C	C	PASS

Input Rating:230V/60Hz

Voltage Reduction	Periods	Perform Criteria	Results	Judgment
Voltage dip >95%	0.5	B	A	PASS
Voltage dip 30%	30	C	B	PASS
Interruption >95%	300	C	C	PASS

Note:

1) N/A - denotes test is not applicable in this test report.

4.10 POWER-FREQUENCY MAGNETIC FIELDS

4.10.1 MEASUREMENT INSTRUMENTS

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Magnetic Field Tester	EMC-PARTNER	MF1000-1	121	2020-07-20

Remark: "N/A" denotes No Model No. / Serial No. and No Calibration specified.

4.10.2 TEST LEVEL AND PERFORMANCE CRITERION

Level	Magnetic Field Strength A/m	Performance criterion
1	1	A

Performance criteria A description: During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended

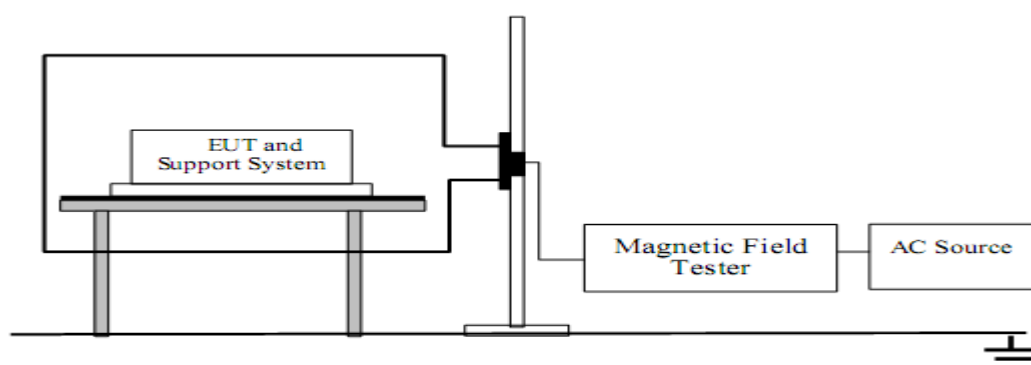
4.10.3 TEST PROCEDURE

The EUT shall be subjected to the test magnetic field by using the induction coil of standard dimensions (1m*1m) and shown in Section 13.3 The induction coil shall then be rotated by 90° in order to expose the EUT to the test field with different orientations. .

4.10.4 DEVIATION FROM TEST STANDARD

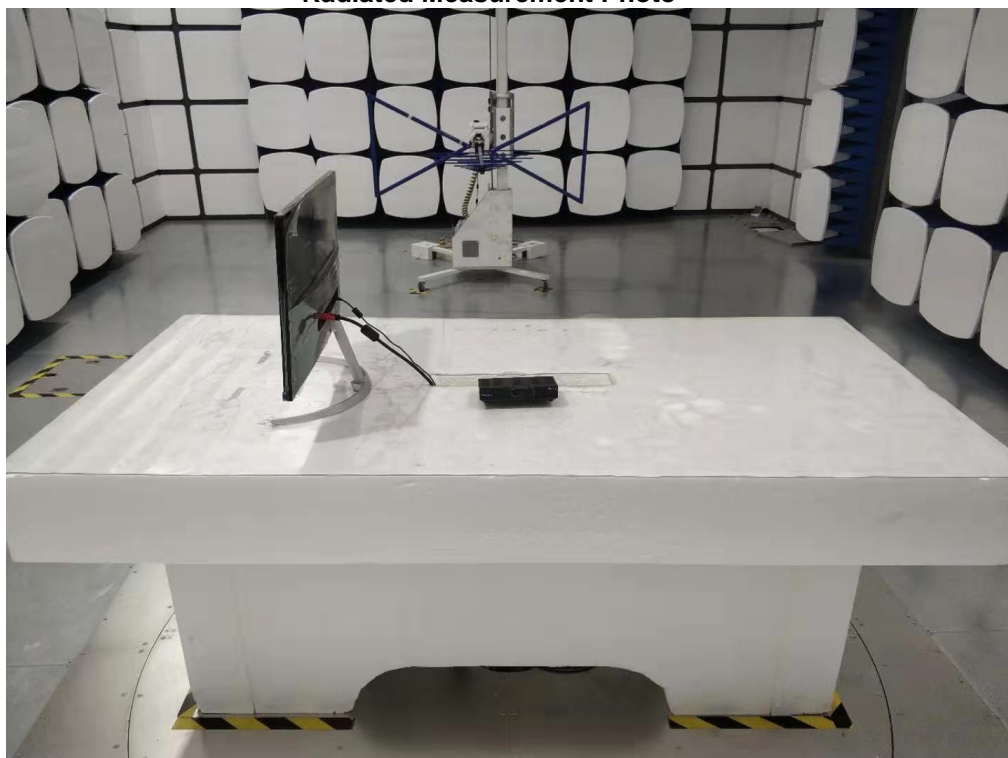
No deviation

4.10.5 TEST SETUP



4.10.6 TEST RESULTS

N/A

5. ATTACHMENT**5.1 EUT TEST PHOTO****Conducted Emission Measurement Photo****Radiated Measurement Photo**

ESD Measurement Photos**Surge, EFT, DIP Measurement Photos**

5.2 EUT PHOTO



Figure 1. Overall view of unit



Figure 2. Overall view of unit



Figure 3. Overall view of unit

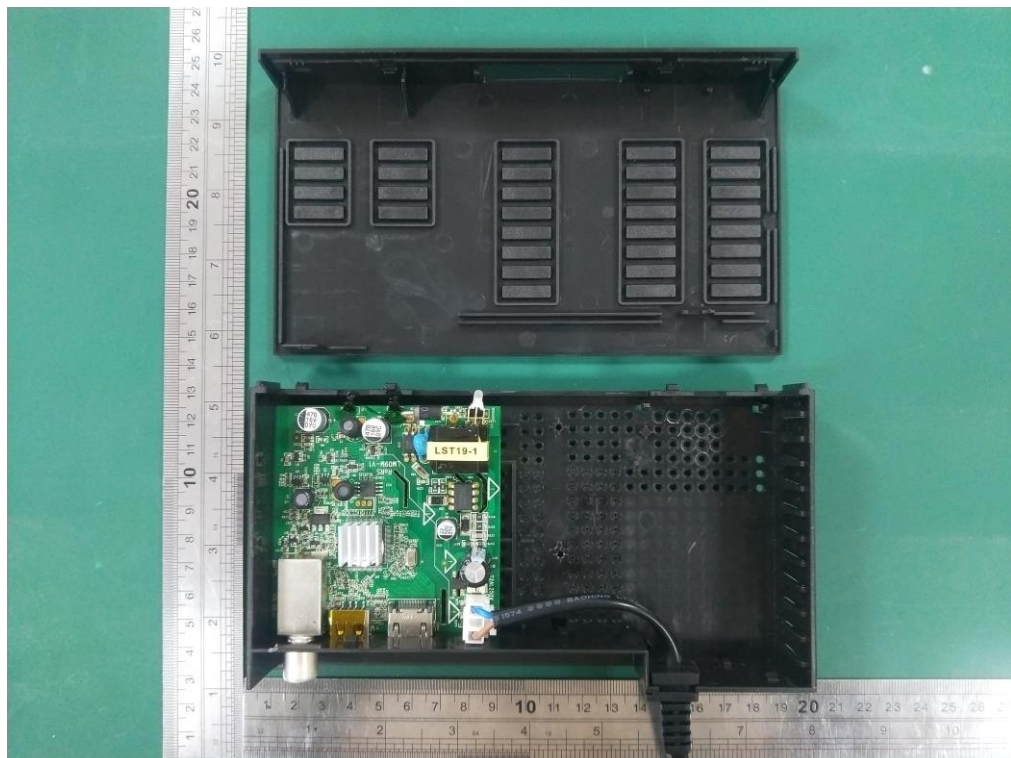


Figure 4. Inside view of unit

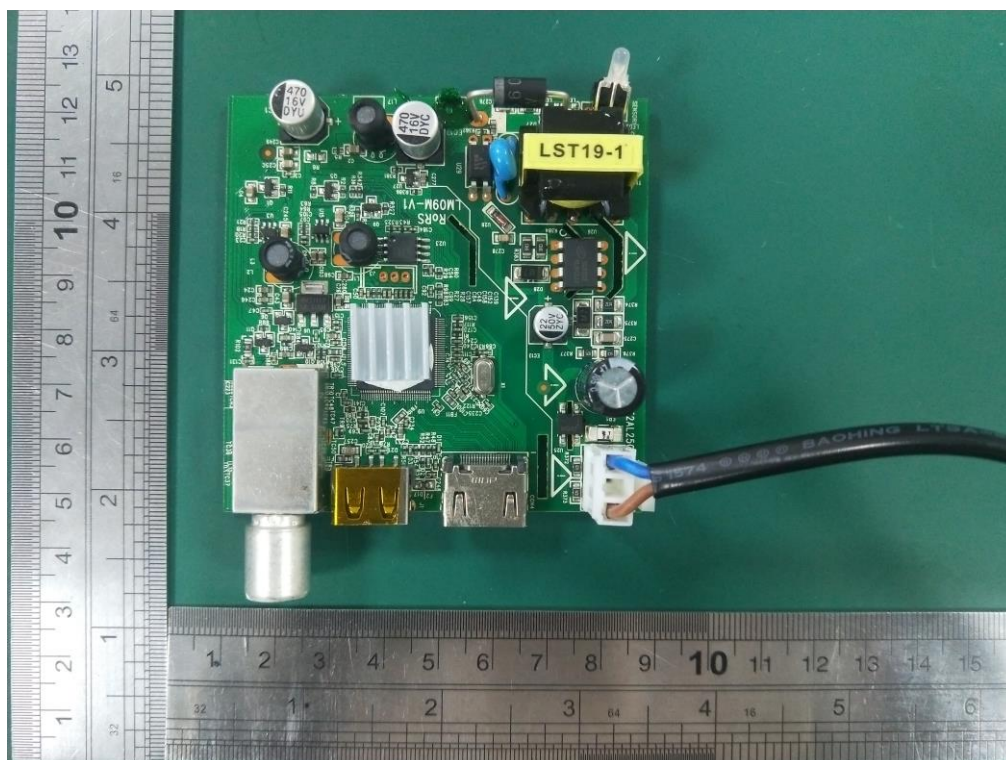


Figure 5. Top view of PCB

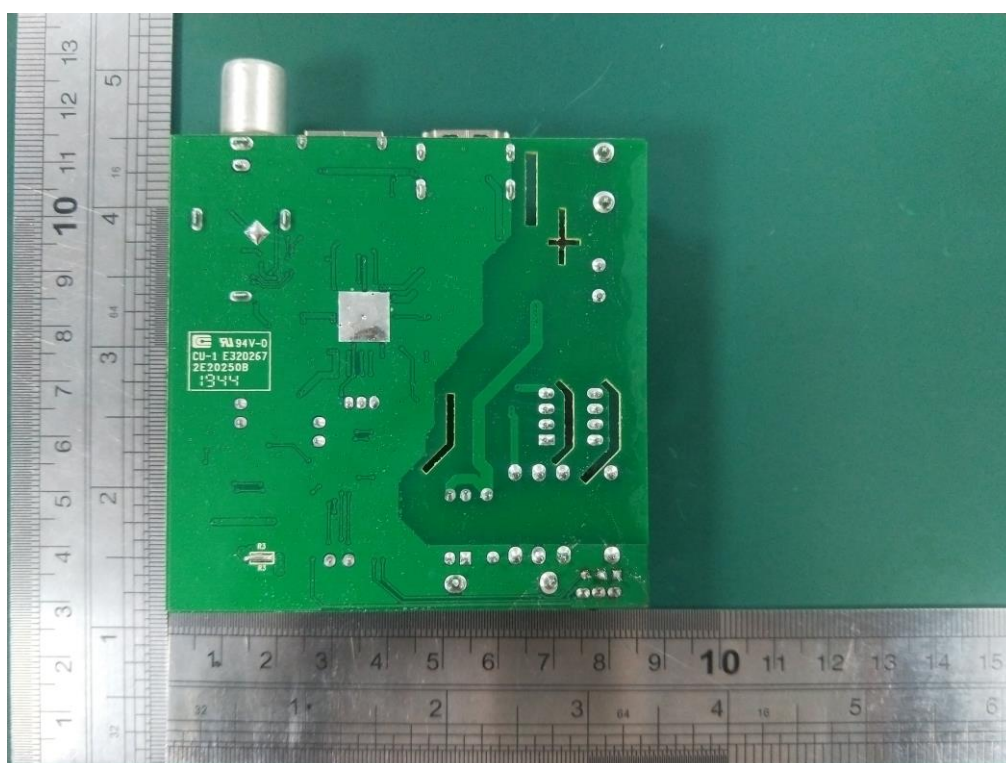


Figure 6. Bottom view of PCB