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Report No.: SHEM180400314502

Page: 1 of 14

TEST REPORT

Application No.: SHEM1804003145CR
FCC ID 2ADTD-K1T803EF
Applicant: Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Applicant: No. 555 Qianmo Road, Binjiang District, Hangzhou 310052, China
Manufacturer: Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Manufacturer: No. 555 Qianmo Road, Binjiang District, Hangzhou 310052, China
Factory: 1. Hangzhou Hikvision Technology Co., Ltd.
2. Hangzhou Hikvision Electronics Co., Ltd.
3. Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Factory: 1. No. 700, Dongliu Road, Binjiang District, Hangzhou City, Zhejiang, 310052, China
2. No. 299, Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou, Zhejiang, 310052, China
3. No. 555, Qianmo Road, Binjiang District, Hangzhou City, Zhejiang Province, China
Equipment Under Test (EUT):
EUT Name: Fingerprint Access Control Terminal
Model No.: DS-K1T804EF, DS-K1T804F, DS-K1T804EF-1, DS-K1T804F-1, DS-K1T804EF-E, DS-K1T804F-E, DS-K1T803F, DS-K1T803EF, DS-K1T803EF-1, DS-K1T803F-1, DS-K1T8003F, DS-K1T8003EF, DS-K1T804EFHGO, DS-K1T804FHGO, DS-K1T804EFOQU, DS-K1T804FOQU, DS-K1T804EFGPR, DS-K1T804FGPR, DS-K1T804EFROG, DS-K1T804FROG, DS-K1T804EFURG, DS-K1T804FURG, DS-K1T803XYZ-UVW
□ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Trade mark: HIKVISION
Standard(s) : 47 CFR Part 15, Subpart C 15.209
Date of Receipt: 2018-04-26
Date of Test: 2018-05-04 to 2018-05-14
Date of Issue: 2018-05-22

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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Revision Record			
Version	Description	Date	Remark
00	Update Report	2018-05-22	Base on SZEM170800857402 (SHEM170200060902)

Authorized for issue by:				
				
		<hr/>		
		Vincent Zhu / Project Engineer		
				
		<hr/>		
		Parlam Zhan / Reviewer		

2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.209	N/A	47 CFR Part 15, Subpart C 15.203	See Note 2

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.209	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	See Note 2
20dB Bandwidth	47 CFR Part 15, Subpart C 15.209	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.237(b)	See Note 2
Radiated Emissions (9kHz-30MHz)	47 CFR Part 15, Subpart C 15.209	ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.237(c)	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart C 15.209	ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15, Subpart C 15.237(c)	Pass

Note 1: Declaration of EUT Family Grouping:

There are series models mentioned in this report and they are the similar in electrical and electronic characters. Only the model DS-K1T804EF was tested since their differences are silk and their naming

Note 2: Updated report base on SZEM170800857402.

Note 3: The model DS-K1T804EF only exchange RTC schematic with original report



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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 12V 1A
Test voltage:	AC 120V 60Hz
Operation Frequency	125KHz
Antenna Type	Loop Antenna
Modulation Type	ASK

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
AC Adapter	DVE	DSA-12G-12FEU	/
Laptop	Lenovo	ThinkPad X100e	/
SecureCRT	VanDyke	V 6.2.0	/
Serial port adapter plate	/	Test Plate 3	/

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25 x 10-8
2	Timeout	2s
3	Duty cycle	0.37%
4	Occupied Bandwidth	3%
5	RF conducted power	0.75dB
6	RF power density	2.84dB
7	Conducted Spurious emissions	0.75dB
8	RF Radiated power	4.5dB (Below 1GHz)
		4.8dB (Above 1GHz)
9	Radiated Spurious emission test	4.2dB (Below 30MHz)
		4.4dB (30MHz-1GHz)
		4.6dB (1GHz-18GHz)
		5.2dB (Above 18GHz)
10	Temperature test	1 °C
11	Humidity test	3%
12	Supply voltages	1.5%
13	Time	3%

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



4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **NVLAP (Certificate No. 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). Certificate No. 201034-0.

- **FCC –Designation Number: CN5033**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, 1C-4336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



5 Equipment List

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Conducted Test					
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2017-12-20	2018-12-19
Spectrum Analyzer	Agilent	N9020A	SHEM181-1	2017-09-26	2018-09-25
Power meter	R&S	NRP	SHEM057-1	2017-12-26	2018-12-25
Power Sensor	R&S	NRP-Z22	SHEM136-1	2017-07-22	2018-07-21
Power Sensor	R&S	NRP-Z91	SHEM057-2	2017-12-26	2018-12-25
Signal Generator	R&S	SMR40	SHEM058-1	2017-07-03	2018-07-02
Signal Generator	Agilent	N5182A	SHEM182-1	2017-09-26	2018-09-25
Communication Tester	R&S	CMW270	SHEM183-1	2017-10-22	2018-10-21
Switcher	Tonscend	JS0806	SHEM184-1	2017-09-26	2018-09-25
Splitter	Anritsu	MA1612A	SHEM185-1	/	/
Coupler	e-meca	803-S-1	SHEM186-1	/	/
High-low Temp Cabinet	Suzhou Zhihe	TL-40	SHEM087-1	2017-09-26	2018-09-25
AC Power Stabilizer	WOCEN	6100	SHEM045-1	2017-12-26	2018-12-25
DC Power Supply	QJE	QJ30003SII	SHEM046-1	2017-12-26	2018-12-25
Conducted test Cable	/	RF01, RF 02	/	2017-12-26	2018-12-25
Radiated Test					
EMI test receiver	R&S	ESU40	SHEM051-1	2017-12-20	2018-12-19
Spectrum Analyzer	R&S	FSP-30	SHEM002-1	2017-12-20	2018-12-19
Loop Antenna (9kHz-30MHz)	Schwarzbeck	FMZB1519	SHEM135-1	2017-04-10	2020-04-09
Antenna (25MHz-2GHz)	Schwarzbeck	VULB9168	SHEM048-1	2017-02-28	2020-02-27
Antenna (25MHz-3GHz)	Schwarzbeck	HL562	SHEM010-1	2017-02-28	2020-02-27
Horn Antenna (1-8GHz)	Schwarzbeck	HF906	SHEM009-1	2017-10-24	2020-10-23
Horn Antenna (1-18GHz)	Schwarzbeck	BBHA9120D	SHEM050-1	2017-01-14	2020-01-13
Horn Antenna (14-40GHz)	Schwarzbeck	BBHA 9170	SHEM049-1	2017-12-03	2020-12-02
Pre-amplifier (9KHz-2GHz)	CLAVIIO	BDLNA-0001-412010	SHEM164-1	2017-08-22	2018-08-21
Pre-amplifier (1-18GHz)	CLAVIIO	BDLNA-0118-352810	SHEM050-2	2017-08-22	2018-08-21
High-amplifier (14-40GHz)	Schwarzbeck	10001	SHEM049-2	2017-12-20	2018-12-19
Band filter	LORCH	9BRX-875/X150-SR	SHEM156-1	/	/
Band filter	LORCH	13BRX-1950/X500-SR	SHEM083-2	/	/
Band filter	LORCH	5BRX-2400/X200-SR	SHEM155-1	/	/
Band filter	LORCH	5BRX-5500/X1000-SR	SHEM157-2	/	/
High pass Filter	Wainwright	WHK3.0/18G-100SS	SHEM157-1	/	/
High pass Filter	Wainwright	WHKS1700-3SS	SHEM157-3	/	/
Semi/Fully Anechoic	ST	11*6*6M	SHEM078-2	2017-07-22	2020-07-21
RE test Cable	/	RE01, RE02, RE06	/	2017-12-26	2018-12-25

6 Radio Spectrum Matter Test Results

6.1 Radiated Emissions

Test frequency range: 9KHz – 1GHz

Test Site: Measurement Distance: 3m

Receiver Setup:

Frequency (MHz)	RBW	VBW	Detector
0.009-0.015	200Hz	1KHz	Quasi-peak
0.015-30	9kHz	30KHz	Quasi-peak
30-1000	120 kHz	300KHz	Quasi-peak

Note: The emission limits shown in the above table are based on measurement instrumentation employing a CISPR quasi-peak detector. For the frequency bands 9~90 kHz, 110~490 kHz and above 1000 MHz, the radiated emission limits are based on measurements employing an average detector.

Limit:

Frequency (MHz)	Field strength (μV/m)	Measurement distance (m)	Limit (dBμV/m)	Limit @3m (dBμV/m)
0.009-0.490	2400/F(kHz)	300	48.5 ~ 13.8	128.5 ~ 93.8
0.490-1.705	24000/F(kHz)	30	33.8 ~ 23.0	73.8 ~63.0
1.705-30	30	30	29.5	69.5
30-88	100	3	40.0	40.0
88-216	150	3	43.5	43.5
216-960	200	3	46.0	46.0
960-1000	500	3	54.0	54.0

NOTE:

- (1) For test distance other than what is specified, but fulfilling the requirements of section 15.31(f) (2) the field strength is calculated by adding additionally an extrapolation factor of 40dB/decade (inverse linear distance for field strength measurements).

So the Distance Extrapolation Factor in dB is $40 \cdot \log(D_{TEST} / D_{SPEC})$ where D_{TEST} = Test Distance and D_{SPEC} = Specified Distance.

Field strength limit (dBμV/m)@test distance= Field strength limit (dBμV/m)@specified distance -Distance Extrapolation Factor

- (2) The lower limit shall apply at the transition frequencies.

Limit:

(Fundamental signal)

Test Procedure:

Frequency	Limit (dBuV/m @3m)	Remark
13.56MHz	124	Quasi-peak Value

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) 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. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- g. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report.

Test Setup:

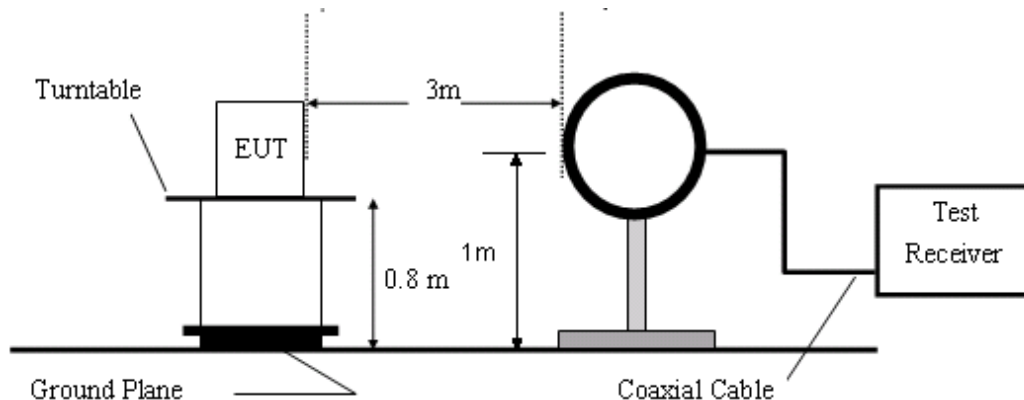


Figure 1. Below 30MHz

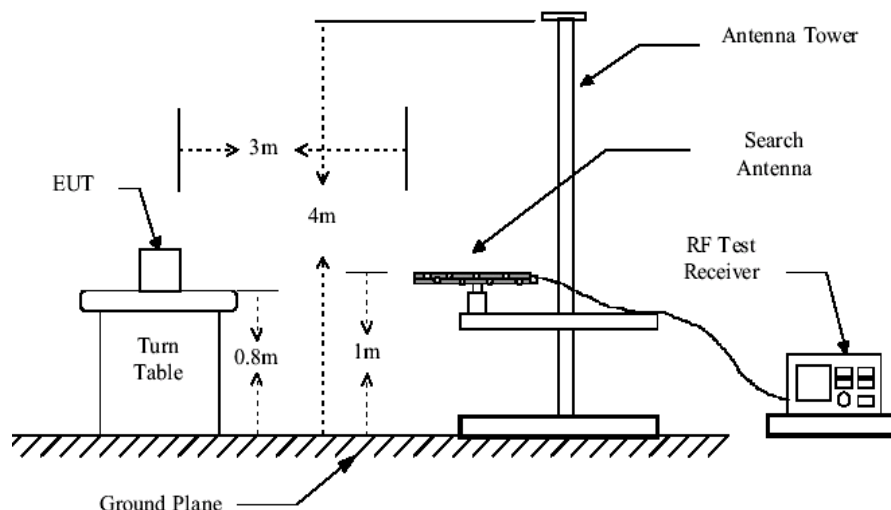
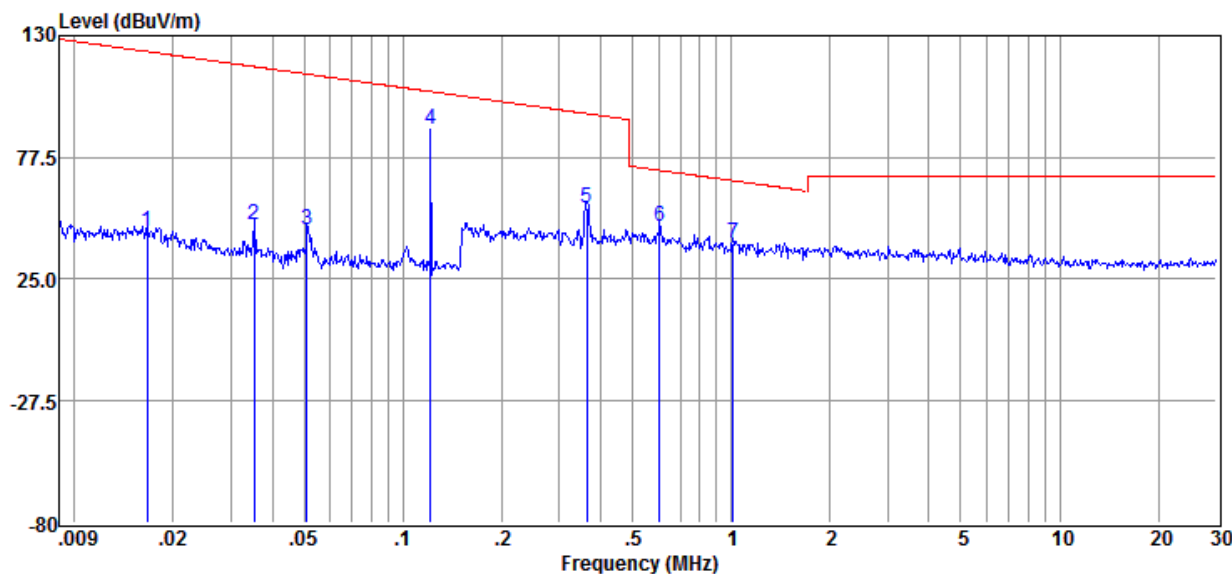


Figure 2. 30MHz to 1GHz

Test Results: Pass



Item	Freq.	Read Level	Antenna Factor	Cable Loss	Result Level@3m	Distance Factor	Result Level	Limit Line	Over Limit	Detector
(Mark)	(MHz)	(dBuV)	(dB/m)	(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	0.02	25.18	20.55	0.03	45.76	80	-34.24	114.24	-77.39	QP
2	0.04	28.19	20.19	0.04	48.42	80	-31.58	111.58	-68.25	QP
3	0.05	26.35	19.99	0.04	46.38	80	-33.62	113.62	-67.05	QP
4	0.12	69.45	19.90	0.05	89.40	80	9.4	70.6	-16.50	Peak
5	0.36	36.10	19.80	0.06	55.96	80	-24.04	16.39	-40.43	QP
6	0.61	27.93	19.66	0.07	47.66	40	7.66	32.34	-24.30	QP
7	1.01	21.22	19.30	0.07	40.59	40	0.59	39.41	-26.94	QP

Result Level = Read Level + Antenna Factor + Cable loss - Preamp Factor

6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.237(c)

Test Method: ANSI C63.10 (2013) Section 6.4&6.5

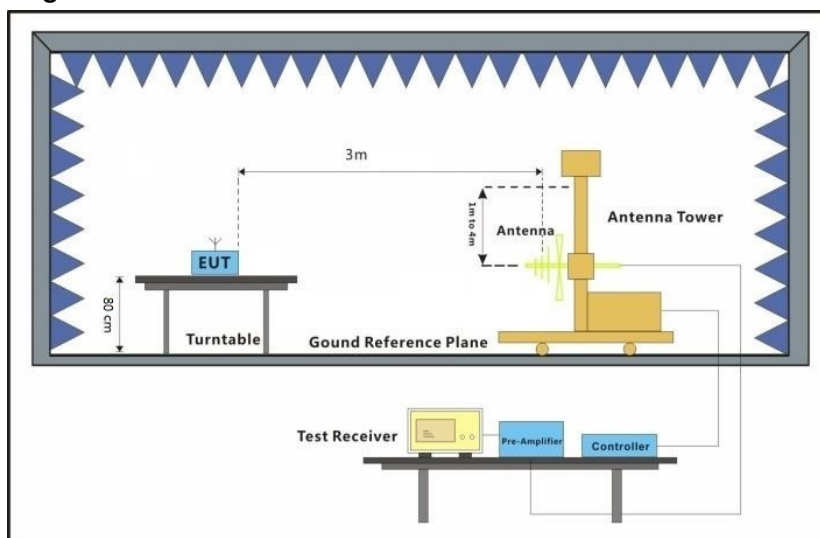
6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

Test mode b:TX mode_Keep the EUT in transmitting with modulation mode.

6.2.2 Test Setup Diagram

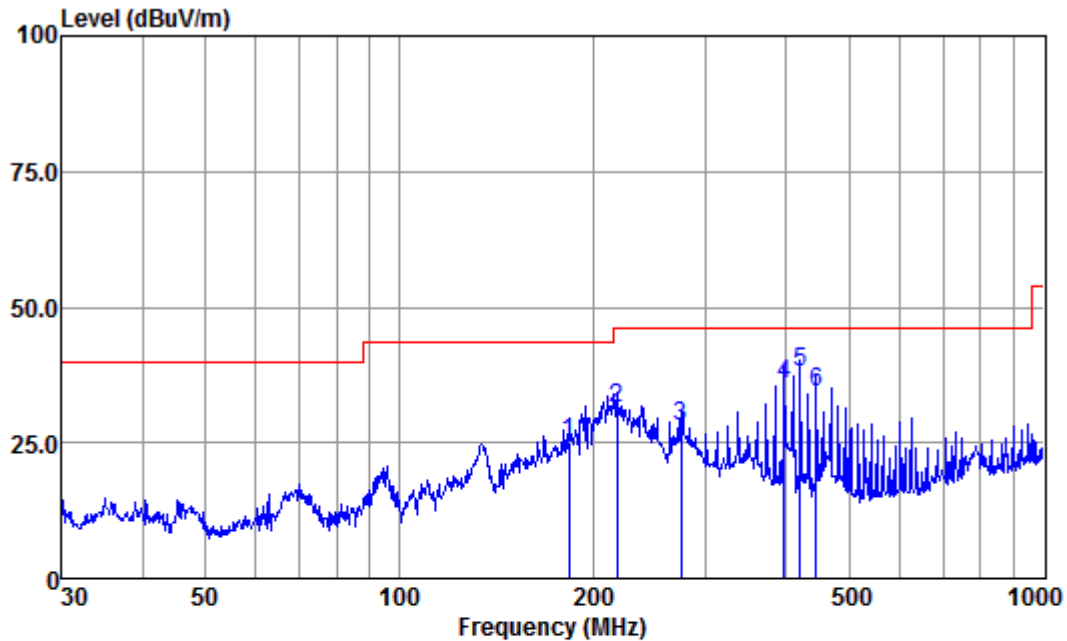


6.2.3 Measurement Procedure and Data

- The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna 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.
- 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel, the middle channel, the Highest channel
- The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.
- Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

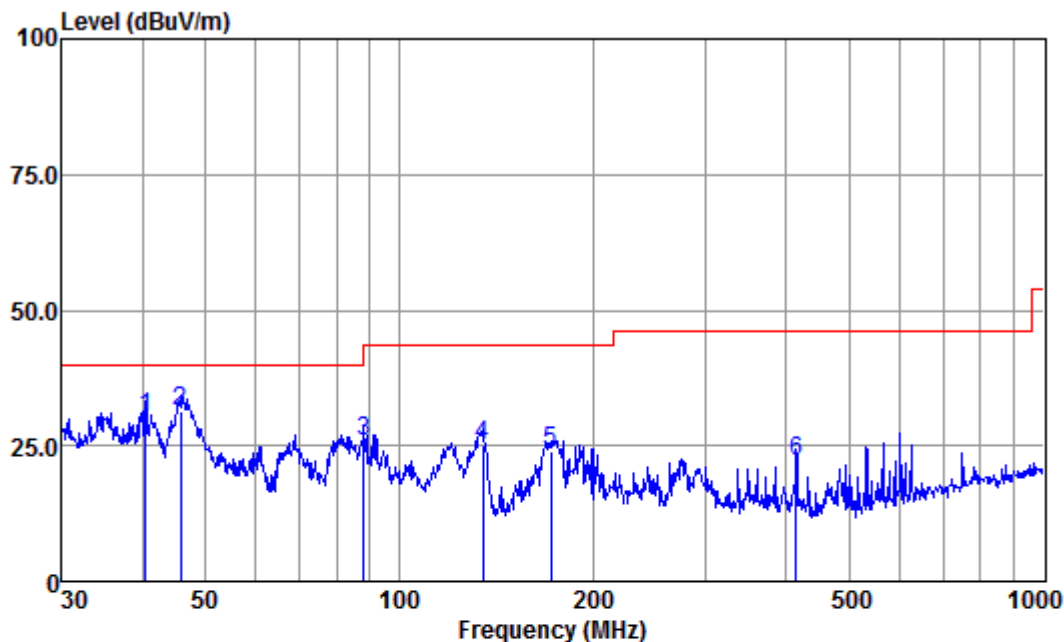
Mode: b



Antenna Polarity :HORIZONTAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	183.84	55.71	11.26	0.67	42.55	25.09	43.50	-18.41	QP
2	218.31	62.80	10.22	0.72	42.50	31.24	46.00	-14.76	QP
3	274.19	57.15	12.35	0.81	42.43	27.88	46.00	-18.12	QP
4	396.24	62.03	15.03	0.99	42.11	35.94	46.00	-10.06	QP
5	420.58	63.59	15.57	1.03	42.11	38.08	46.00	-7.92	QP
6	444.85	59.17	16.10	1.08	42.12	34.23	46.00	-11.77	QP

Mode: b



Antenna Polarity :VERTICAL

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Emission Level	Limit Line	Over Limit	Remark
	MHz	dBuv	dB/m	dB	dB	dBuv/m	dBuv/m	dB	
1	40.42	56.56	16.03	0.22	42.62	30.19	40.00	-9.81	QP
2	45.86	60.83	12.83	0.24	42.63	31.27	40.00	-8.73	QP
3	88.34	60.00	8.08	0.41	42.68	25.81	43.50	-17.69	QP
4	135.03	55.24	12.01	0.60	42.64	25.21	43.50	-18.29	QP
5	171.99	54.26	11.66	0.65	42.57	24.00	43.50	-19.50	QP
6	413.27	47.99	15.40	1.02	42.10	22.31	46.00	-23.69	QP

Note:Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



7 Test Setup Photographs

Refer to the < Test Setup Photos-FCC >

8 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

- End of the Report -