

Compliance Certification Services (Kunshan) Inc.

Report No.: KSCR221000187402

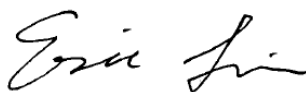
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TEST REPORT

Application No.: KSCR2210001874AT
FCC ID: 2ADTD-K3B631TXMED
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.Chongqing Hikvision Technology Co., Ltd.,
 4.WuHan Hikvision Technology Co. Ltd
Address of Factory: 1.No.700,Dongliu Road, Binjiang District, Hangzhou Ctiy,Zhejiang, 310052, China
 2.No.299,Qiushi Road,Tonglu Economic Development Zone,Tonglu County, Hangzhou,Zhejiang, 311500,China.
 3.NO.118.Haikang Road,Area C,Jianqiao Industrial Park,Dadukou District,Chongqing,401325,China.
 4.No. 12, Wenhua Road, Zhifang Street, Jiangxia District, Wuhan City
Equipment Under Test (EUT):
EUT Name: Swing Barrier
Model No.: Refer to page2
 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 15.231
Date of Receipt: 2022-10-11
Date of Test: 2022-10-30 to 2022-11-02
Date of Issue: 2022-11-04

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



Eric Lin
Laboratory Manager



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Model No.:

DS-K3B631TX-L,DS-K3B631TX-M,DS-K3B631TX-R,DS-K3B631TX-UHK,DS-K3B631TX-CKV,
DS-K3B631TX-UVS,DS-K3B631TX-KVO,DS-K3B631TX-HUN,DS-K3B631TX-L/D,DS-K3B631TX-M/D,
DS-K3B631TX-R/D,DS-K3B631TX-L/ED,DS-K3B631TX-M/ED,DS-K3B631TX-R/ED,DS-K3B631TX-L/M,
DS-K3B631TX-M/M,DS-K3B631TX-R/M,DS-K3B631TX-L/E,DS-K3B631TX-M/E,DS-K3B631TX-R/E



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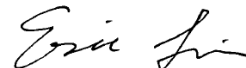
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Revision Record			
Version	Description	Date	Remark
00	Original	2022-11-04	/

Authorized for issue by:				
				
		Eric_Liu/Project Engineer		
				
		Eric Lin /Reviewer		



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2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.231	N/A	47 CFR Part 15, Subpart C 15.203	Customer Declaration

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)	47 CFR Part 15, Subpart C	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
20dB Bandwidth		ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.231(c)	Pass
Radiated Emissions below 1GHz		ANSI C63.10 (2013) Section 6.4&6.5	47 CFR Part 15C Section 15.231(b) and 15.209	Pass
Dwell Time (15.231(a))		ANSI C63.10 (2013) Section 7.5	47 CFR Part 15, Subpart C 15.231(a)	Pass
Field Strength of the Fundamental Signal (15.231(b))		ANSI C63.10 (2013) Section 6.5	47 CFR Part 15, Subpart C 15.231(b)	Pass
Radiated Emissions above 1GHz		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15C Section 15.231(b) and 15.209	Pass

Declaration of EUT Family Grouping:

Note: There are series models mentioned in this report, and they are the identical in electrical and electronic characters. Only the model DS-K3B631TXM/ED was tested since their differences were the model number and appearance (product support one side or two sides card reader function).



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4 General Information

4.1 Details of E.U.T.

Power supply:	AC100-240V,50/60Hz, 3A-1.25A
Operation Frequency:	433.60MHz
Modulation Type:	FSK
Antenna Type:	PCB Antenna

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
The EUT has been tested as an independent unit.			



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4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	8.4×10^{-8}
2	Timeout	2s
3	Duty Cycle	0.37%
4	Occupied Bandwidth	3%
5	RF Conducted Power	0.6dB
6	RF Power Density	2.9dB
7	Conducted Spurious Emissions	0.75dB
8	RF Radiated Power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
9	Radiated Spurious Emission Test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-18GHz)
		5.4dB (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 $k=2$.



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4.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

4.5 Test Facility

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

• CNAS

Compliance Certification Services (Kunshan) Inc. is accredited by the China National Accreditation Service for Conformity Assessment (CNAS). Registration No. CNAS L4354

• A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

• VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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5 Equipment List

Item	Equipment	Manufacturer	Model	Inventory No	Cal Date	Cal. Due Date
Conducted Emission at Mains Terminals (150kHz-30MHz)						
1	EMI Test Receive	R&S	ESCI	KS301101	01/22/2022	01/21/2023
2	LISN	R&S	ENV216	KS301197	01/22/2022	01/21/2023
3	LISN	Schwarzbeck	NNLK 8129	KS301091	01/22/2022	01/21/2023
4	Pulse Limiter	R&S	ESH3-Z2	KUS1902E001	01/22/2022	01/21/2023
5	CE test Cable	Thermax	/	CZ301102	11/14/2021	11/13/2022
6	Test Software	Farad	EZ-EMC	/	N.C.R	N.C.R
RF Radiated Test						
1	Spectrum Analyzer	R&S	FSV40	KUS1806E003	08/22/2022	08/21/2023
2	Universal Radio Communication Tester	R&S	CMW500	KSEM009-1	04/01/2022	03/31/2023
3	Signal Generator	Agilent	E8257C	KS301066	08/22/2022	08/21/2023
4	Loop Antenna	COM-POWER	AL-130R	KUS1806E001	04/13/2021	04/12/2023
5	Bilog Antenna	TESEQ	CBL 6112D	KUS1806E005	06/29/2021	06/28/2023
6	Bilog Antenna	SCHWARZBECK	VULB9160	CZ301016	04/13/2021	04/12/2024
7	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	KS301079	04/02/2022	04/01/2024
8	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	KS301186	02/22/2021	02/21/2023
9	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	CZ301058	03/17/2022	03/16/2023
10	Amplifier(30MHz~18GHz)	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-1	01/22/2022	01/21/2023
11	Amplifier(18~40GHz)	COM-POWER	PAM-840A	KUS1710E001	01/22/2022	01/21/2023
12	RE Test Cable	REBES MICROWAVE	/	CZ301097	11/14/2021	11/13/2022
13	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	01/04/2022	31/03/2023
14	Software	Faratronic	EZ_EMC-v 3A1	/	N/A	N/A



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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is loop antenna and no consideration of replacement.

Antenna location: Refer to Appendix(Internal Photos)



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7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Mains Power Port (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

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

*Decreases with the logarithm of the frequency.

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C

Humidity: 56 % RH

Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Tx mode_Keep 433MHz continuous operation



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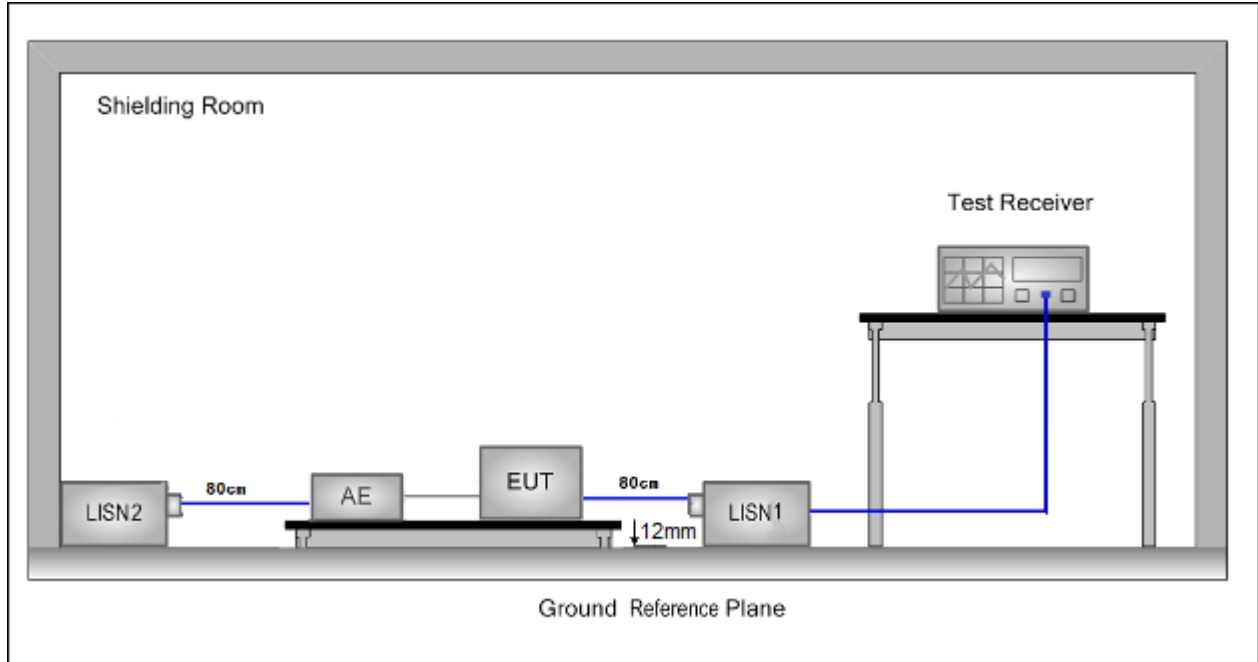
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7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic mat 12mm above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: Level=Read Level+ Cable Loss+ LISN Factor



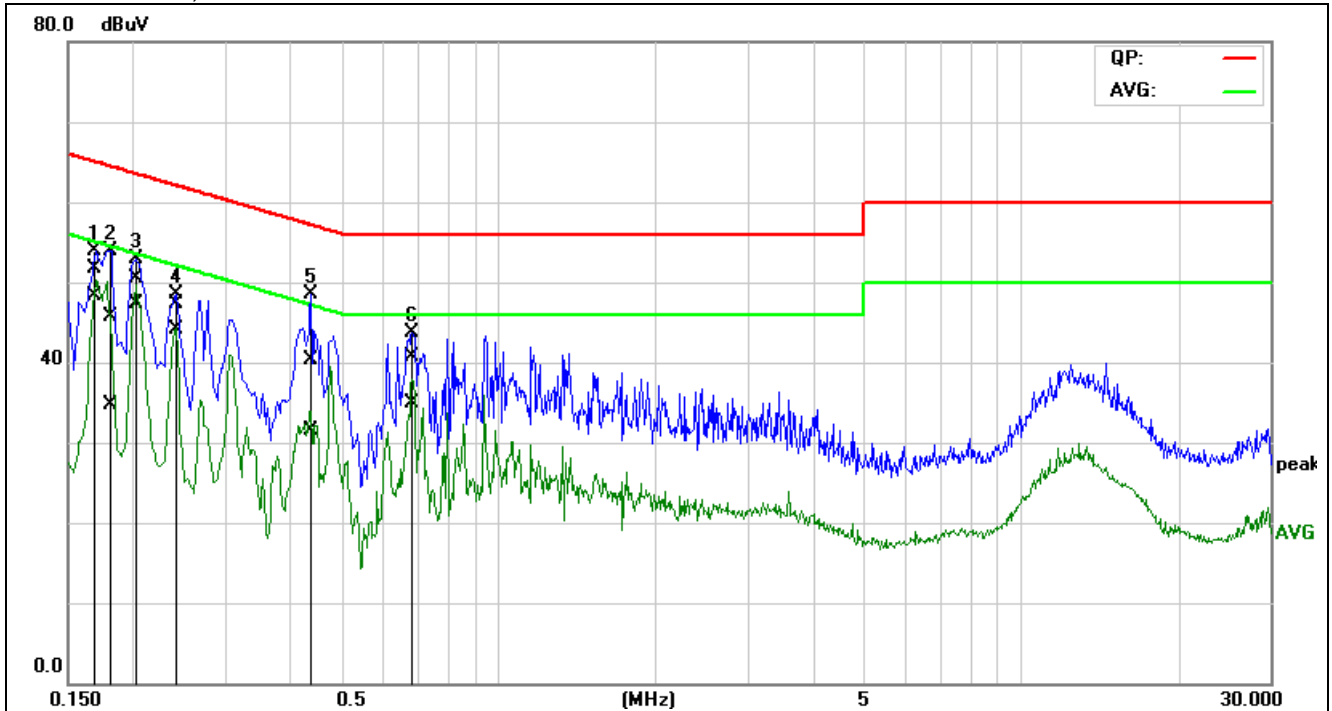
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Test Mode: 00; Line: Live line



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1682	32.14	28.72	19.50	51.64	48.22	65.05	55.05	-13.41	-6.83	Pass
2	0.1802	26.26	15.12	19.50	45.76	34.62	64.48	54.48	-18.72	-19.86	Pass
3*	0.2029	30.99	27.71	19.50	50.49	47.21	63.49	53.49	-13.00	-6.28	Pass
4	0.2385	27.77	24.70	19.50	47.27	44.20	62.15	52.15	-14.88	-7.95	Pass
5	0.4386	20.67	11.92	19.54	40.21	31.46	57.09	47.09	-16.88	-15.63	Pass
6	0.6787	21.15	15.24	19.57	40.72	34.81	56.00	46.00	-15.28	-11.19	Pass



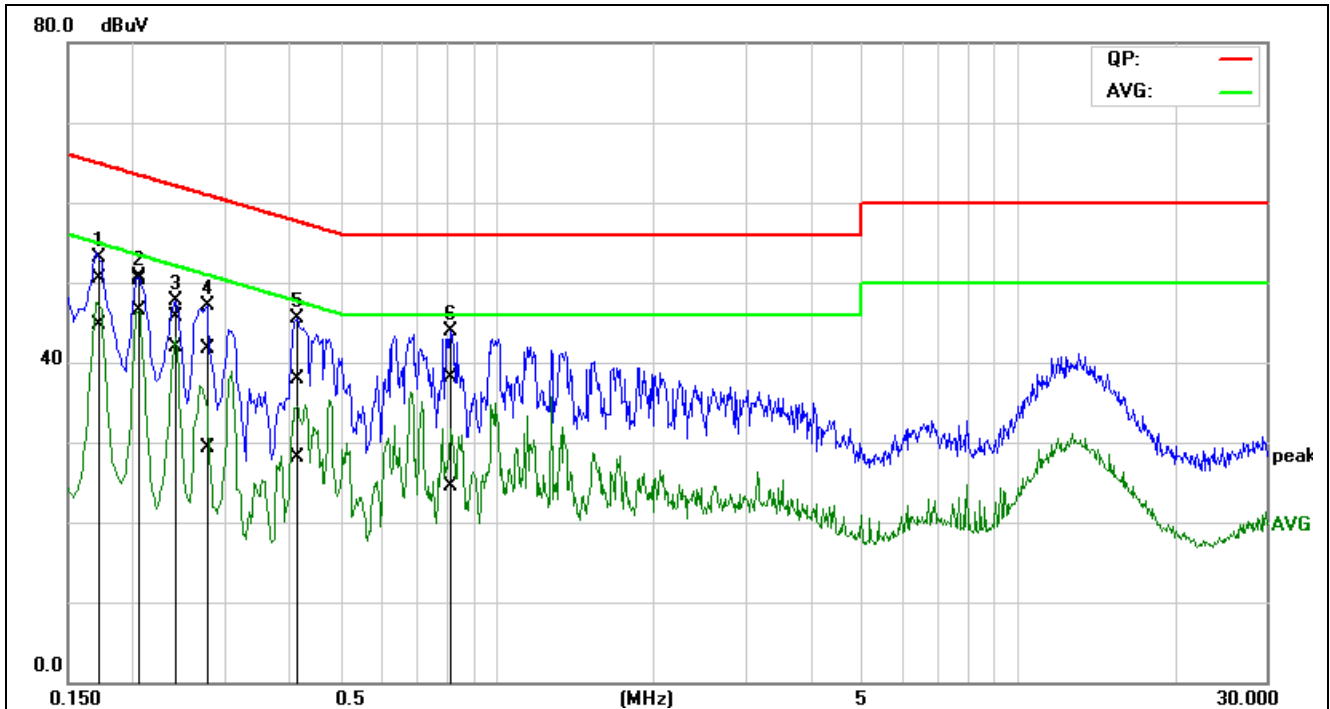
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Test Mode: 00; Line: Neutral Line



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1736	31.12	25.24	19.48	50.60	44.72	64.79	54.79	-14.19	-10.07	Pass
2*	0.2050	30.74	26.95	19.49	50.23	46.44	63.41	53.41	-13.18	-6.97	Pass
3	0.2406	26.14	22.50	19.49	45.63	41.99	62.08	52.08	-16.45	-10.09	Pass
4	0.2751	22.24	9.81	19.50	41.74	29.31	60.96	50.96	-19.22	-21.65	Pass
5	0.4154	18.34	8.54	19.54	37.88	28.08	57.54	47.54	-19.66	-19.46	Pass
6	0.8094	18.63	4.85	19.57	38.20	24.42	56.00	46.00	-17.80	-21.58	Pass



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7.2 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.231(c)

Test Method: ANSI C63.10 (2013) Section 6.9

Limit:

Frequency range(MHz)	Limit
70-900	No wider than 0.25% of the center frequency
Above 900	No wider than 0.5% of the center frequency

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.6 °C

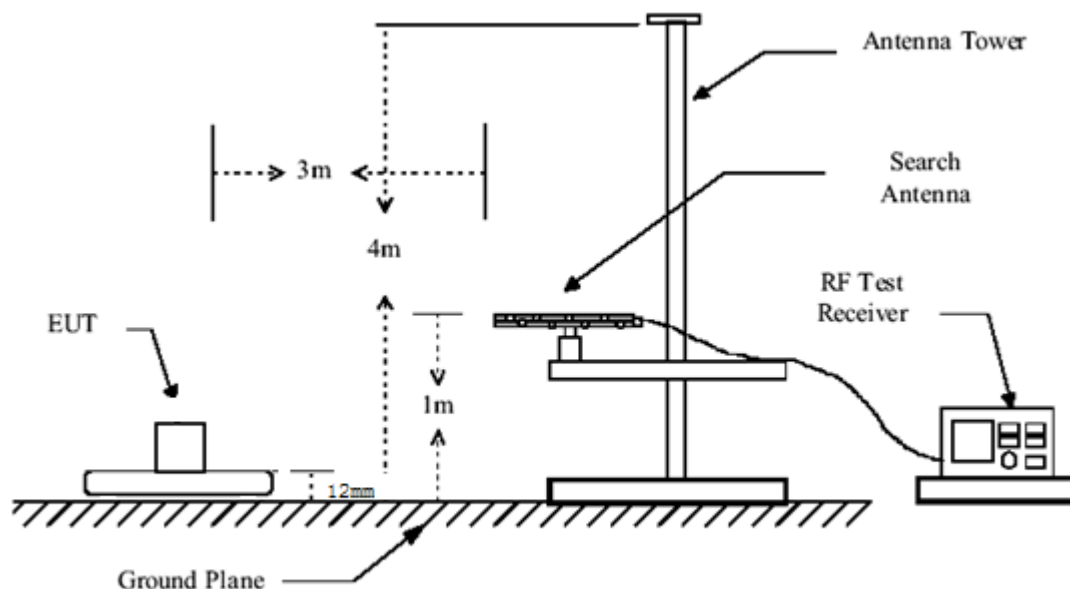
Humidity: 53.2 % RH

Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	Tx mode with 433MHz

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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7.3 Radiated Emissions below 1GHz

Test Requirement 47 CFR Part 15C Section 15.231(b) and 15.209

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

Limit:

Frequency(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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 21.3 °C Humidity: 56.4 % RH Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	Tx mode with 433MHz



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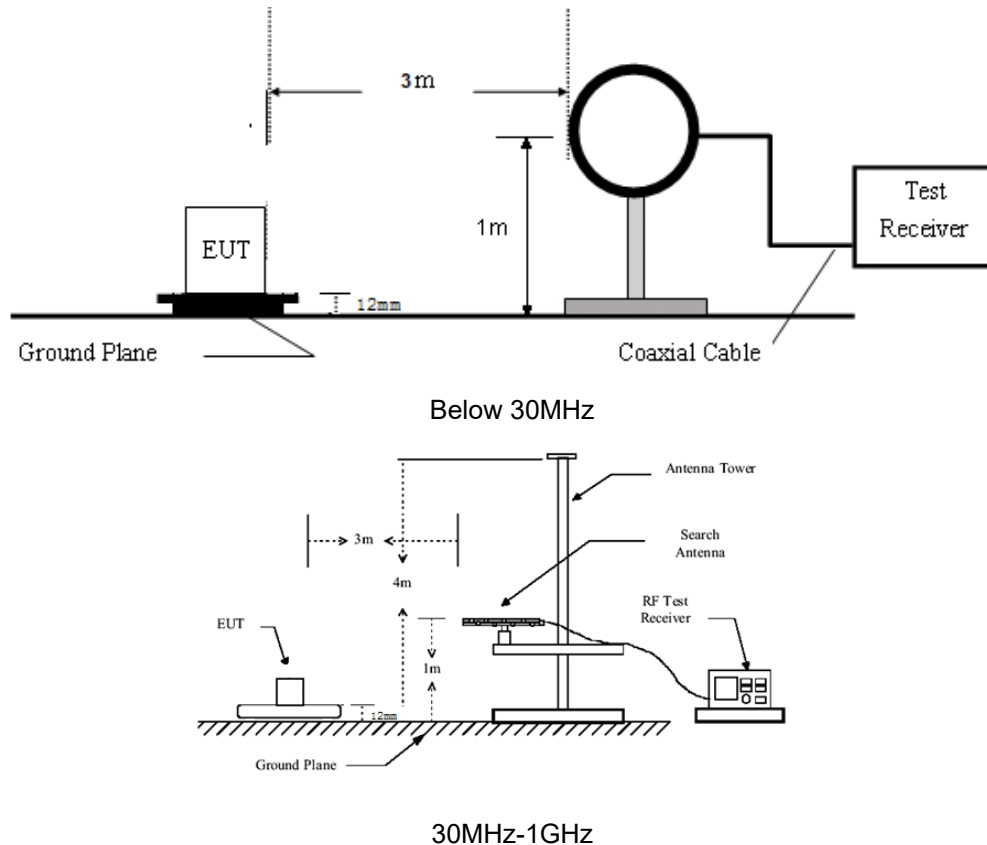
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7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

a. The EUT was placed on the top of a rotating table 12mm 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. 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 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. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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7.4 Dwell Time (15.231(a))

Test Requirement 47 CFR Part 15, Subpart C 15.231(a)

Test Method: ANSI C63.10 (2013) Section 7.5

Limit:

Device type	Limit
Manually operated transmitter	The switch automatically deactivate the transmitter within not more than 5 seconds of being released
Automatically activated transmitter	Cease transmission within 5 seconds after activation
Periodic transmissions to determine system integrity of transmitters used in security or safety applications	The total transmission time does not exceed 2 seconds per hour

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 21.3 °C

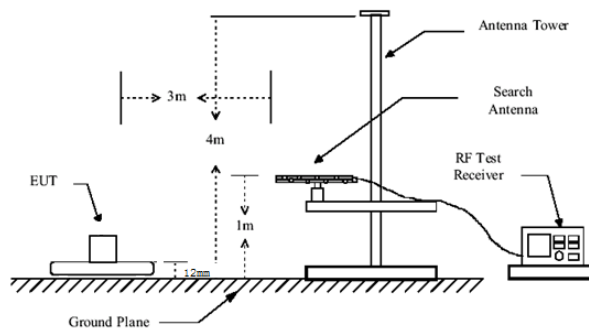
Humidity: 59.3 % RH

Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	Tx mode with 433MHz

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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7.5 Field Strength of the Fundamental Signal (15.231(b))

Test Requirement 47 CFR Part 15, Subpart C 15.231(b)

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

Limit:

Fundamental frequency(MHz)	Field strength of fundamental(microvolts/meter)	Field strength of spurious emissions(microvolts/meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750	125 to 375
174-260	3750	375
260-470	3750 to 12500	375 to 1250
Above 470	12500	1250

Remark: the emission limit is based on measurement instrumentation employing an average detector at a distance of 3 meters. The frequencies above 1000MHz are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 21.3 °C

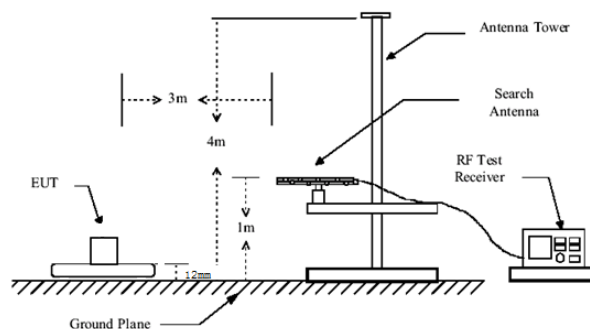
Humidity: 58.5 % RH

Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	Tx mode with 433MHz

7.5.3 Test Setup Diagram



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7.5.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 12mm above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 12mm above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. 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.
- e. 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.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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.
- h. 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.

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

Please Refer to Appendix for Details



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7.6 Radiated Emissions above 1GHz

Test Requirement 47 CFR Part 15C Section 15.231(b) and 15.209

Test Method: ANSI C63.10 (2013) Section 6.6

Limit:

For Restricted bands

Frequency(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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

For Other bands

Fundamental Frequency MHz	Field Strength of Fundamental (dBμV/m @ 3 m)	Field Strength of Hasrmonics and Spurious Emissions (dBμV/m @ 3 m)
40.66 to 40.70	67.04	47.04
70 to 130	61.94	41.94
130 to 174	**61.94 to 71.48	41.94 to 51.48
174 to 260	71.48	51.48
260 to 470	**71.48 to 81.94	51.48 to 61.94
Above 470	81.94	61.94
Detector:	Peak for pre-scan	
	QP for 30MHz to1000 MHz:120 kHz resolution bandwidth	
	Peak for Above 1 GHz: 1 MHz resolution bandwidth	

** linear interpolations

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

for the band 130-174 MHz, uV/m at 3 meters = 56.81818(F) - 6136.3636;

for the band 260-470 MHz, uV/m at 3 meters = 41.6667(F) - 7083.3333.

The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental



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level.]

The fundamental frequency of the EUT is 433.6 MHz

The limit for average or QP field strength dBuV/m for the fundamental emission= 80.81 dBuV/m

No fundamental is allowed in the restricted bands.

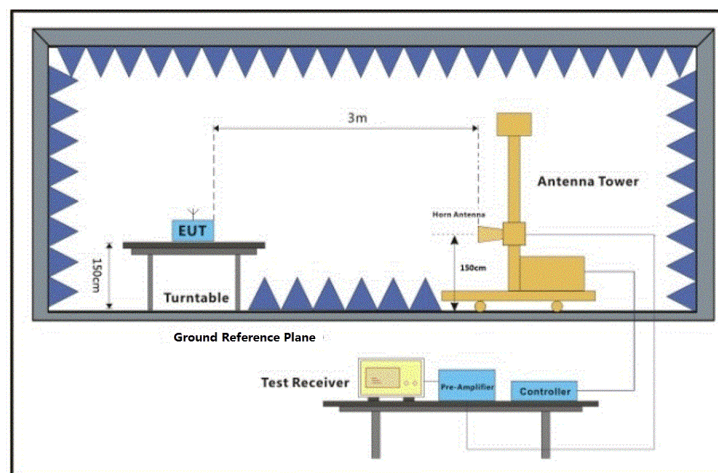
The limit for average field strength dBuV/m for the spurious emission=60.81 dBuV/m. Spurious in the restricted bands must be less than 60.81 dBuV/m or 15.209, whichever limit permits a higher field strength.

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: °C Humidity: % RH Atmospheric Pressure: mbar

7.6.2 Test Setup Diagram



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7.6.3 Measurement Procedure and Data

- a. For above 1GHz, the EUT was placed on the top of a rotating table 150cm above the ground at a 3 meter fully-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 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. 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.

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows: Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

2) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

Please Refer to Appendix for Details



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8 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2210001874AT

9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for KSCR2210001874AT



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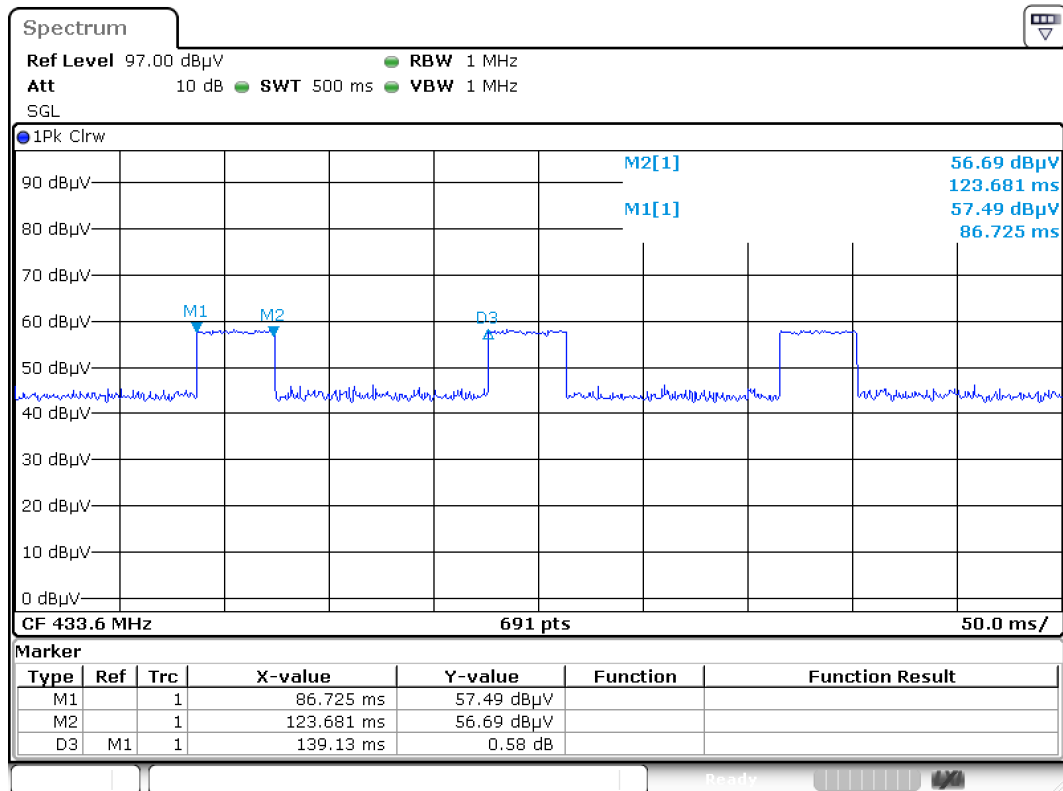
10 Appendix

11 Spurious Emissions

11.1 Field Strength of the Fundamental Signal

Test channel	Freq. (MHz)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
Channel 1	433.60	73.35	100.81	-27.46	Peak	Vertical
		73.20	100.81	-27.61	Peak	Horizontal
		70.70	80.81	-10.11	AVG	Vertical
		70.55	80.81	-10.26	AVG	Horizontal

433.60MHz



Remark:

1. If the Peak value below the AV Limit, the AV test doesn't perform for this submission.



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2. Average level=Peak level-Duty Cycle Factor
3. Duty Cycle Factor= $20\log(\text{Duty Cycle}) = -11.51\text{dB}$



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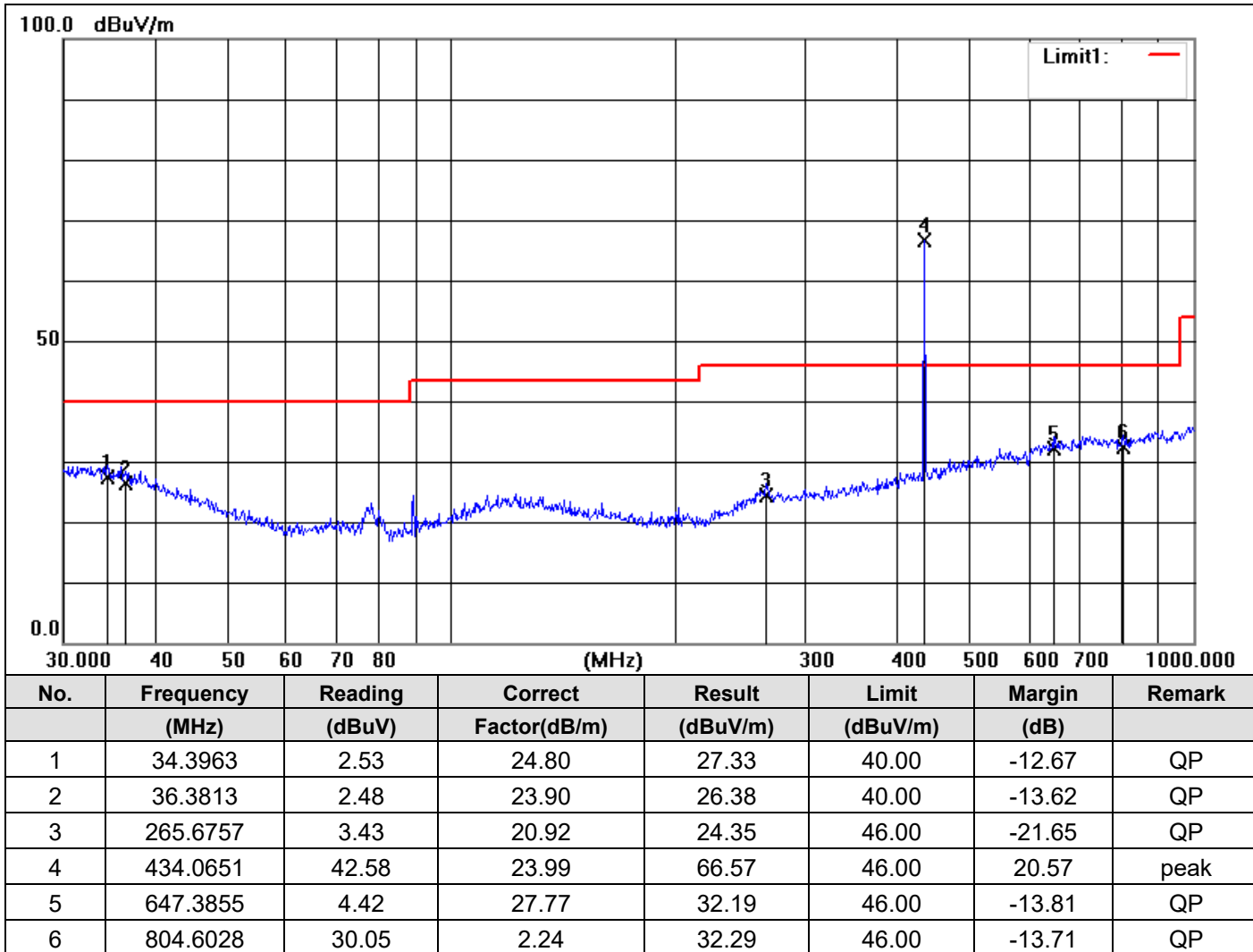
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11.2 Spurious Emissions

Below 1GHz

433.60MHz

Vertical:



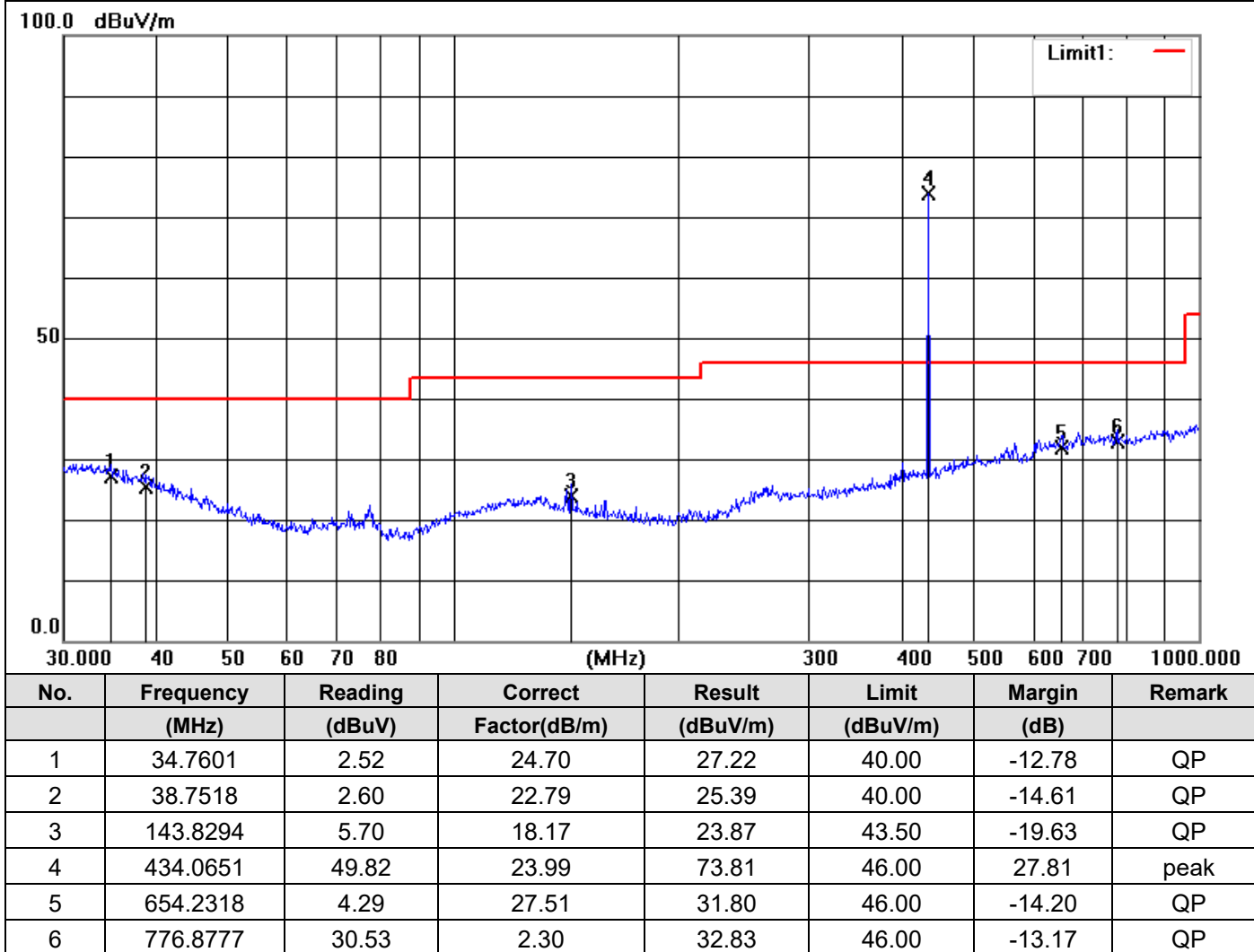
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Above 1GHz

433.60MHz

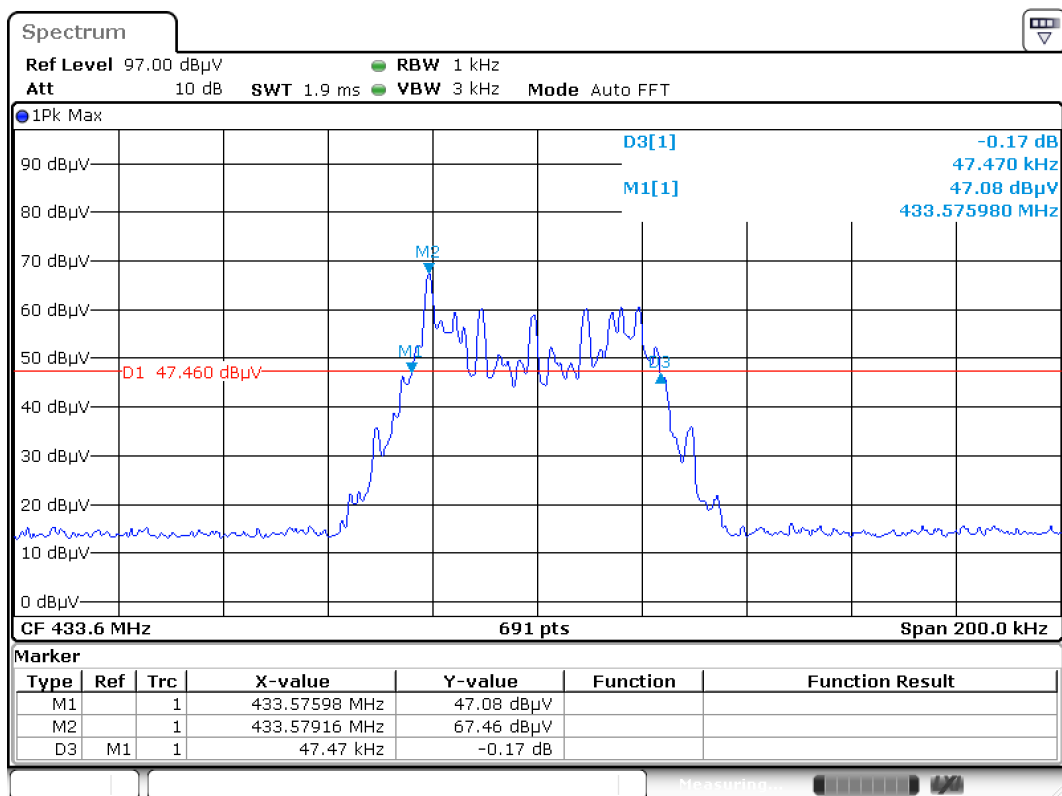
Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector	polarization
1	3104.000	57.80	-16.06	41.74	74.00	-32.26	peak	Vertical
2	3476.000	59.36	-15.42	43.94	74.00	-30.06	peak	Vertical
3	4212.000	56.94	-12.44	44.50	74.00	-29.50	peak	Vertical
4	2236.000	60.33	-18.81	41.52	74.00	-32.48	peak	Horizontal
5	3160.000	58.06	-15.78	42.28	74.00	-31.72	peak	Horizontal
6	3480.000	58.90	-15.39	43.51	74.00	-30.49	peak	Horizontal

20dB Bandwidth

Measurement Data:

Frequency(MHz)	20dB bandwidth (kHz)	Limit (kHz)	Results
433.60	47.47	1084	Pass

Test plot as follows:



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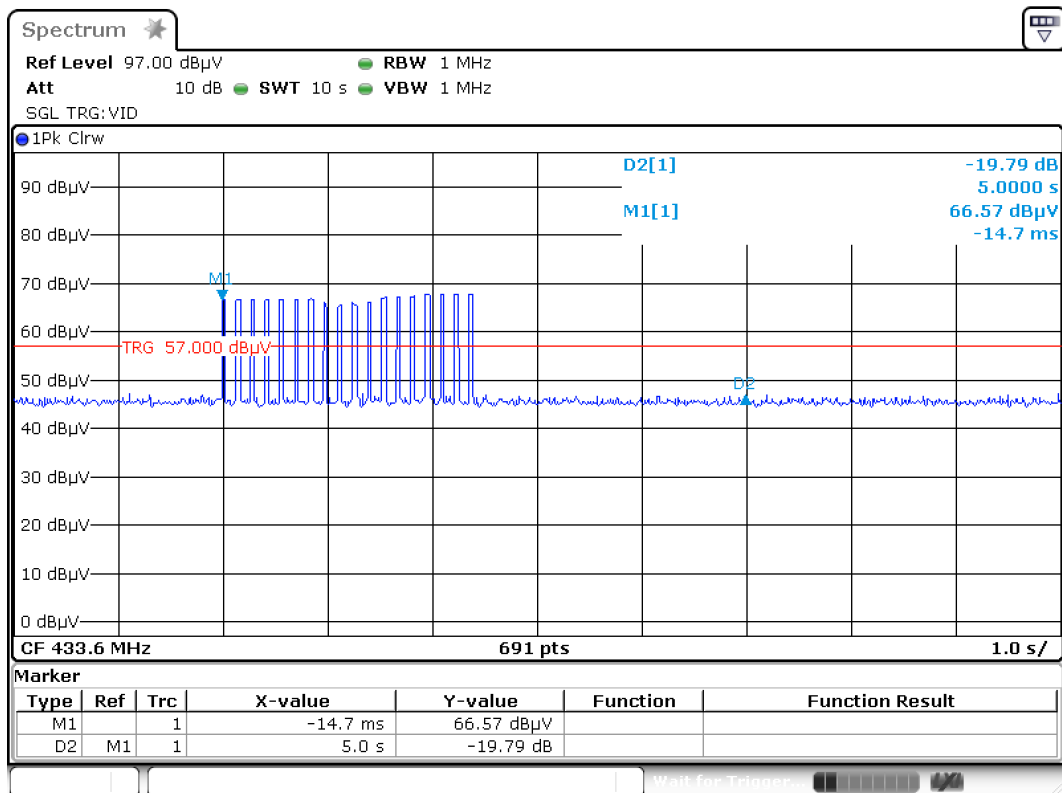
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12 Dwell Time

Measurement Data:

Test item	Limit (s)	Results
Transmission Duration	≤5s	Pass

Test plot as follows:



- End of the Report -



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