



Test Report No.:  
**FCCSZ2025-0077-RF4**

## RF Test Report

FCC ID : 2A3HVP1601

NAME OF SAMPLE : Hydrow Touchscreen Monitor


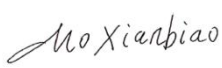

APPLICANT : Hydrow, Inc

CLASSIFICATION OF TEST : N/A

**CVC Testing Technology (Shenzhen) Co., Ltd.**



Applicant	Hydrow, Inc
Address	10 Summer St, Floor 5, Boston, MA,USA

Manufacturer	Hydrow, Inc		
Address	10 Summer St, Floor 5, Boston, MA,USA		
Product Name	Hydrow Touchscreen Monitor		
Brand Name	N/A		
Model Name	P1601		
Additional Model	N/A		
Date of Receipt.	Jul.30, 2025		
Date of testing	Jul.30, 2025 ~ Aug.30, 2025		
Sample No.	N/A		
Standard(s)	<b>FCC Part 15, Subpart C, Section 15.249</b>		
<b>CONCLUSION:</b>	<p>The equipment under test was found to comply with the requirements of the standard(s) applied.</p> <p style="text-align: right;">Seal of CVC <b>Issue Date:</b> Aug.30, 2025</p>		
Compiled by: Liang Jiatong		Reviewed by: Mo Xianbiao	Approved by: Dong Sanbi
Signature: 		Signature: 	Signature: 

This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.



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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCCSZ2025-0077-RF4	Original release	Aug.30, 2025



## 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit
15.249(a) 15.209	Radiated Emissions	PASS	Meet the requirement of limit.
15.249(a) 15.249(d)	Field Strength & Out of band emissions	PASS	Meet the requirement of limit.
15.215(c)	20dB bandwidth	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Meet the requirement of limit.



## 1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial Number	Cal. interval	Cal. Due
Radiation Spurious(Above 1GHz)					/
Signal&Spectrum Analyzer	Rohde&Schwarz	FSV 40	101898	1 year	2026.4.22
EMI Test Receiver	Rohde&Schwarz	ESR3	102693	1 year	2026.5.21
Antenna(30MHz~1001MHz)	SCHWARZBECK	VULB 9168	1133	1 year	2026.1.22
Horn antenna(1GHz-18GHz)	ETS	3117	227611	1 year	2026.3.28
Horn antenna(18GHz-40GHz)	QMS	QMS-00880	22051	1 year	2026.3.21
3m anechoic chamber	MORI	966	CS0300011	3 year	2026.5.18
Filter group(RSE-BT/WiFi)	Rohde&Schwarz	WiFi /BT Variant 1	100820	1 year	2026.4.22
Filter group(RSE-Cellular)	Rohde&Schwarz	Cellular Variant 1	100768	1 year	2026.4.22
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100799	1 year	2026.4.22
Preamplifier(1GHz-18GHz)	Rohde&Schwarz	SCU-18F	100801	1 year	2026.4.22
Preamplifier(18Gz-40GHz)	Rohde&Schwarz	SCU-40A	101209	1 year	2026.4.22
#2 control room	MORI	433	CS0200059	3 year	2026.5.16
Coax	/	30MHz-1GHz	RF-RSE-007	1 year	2026.4.09
Coax	/	30MHz-40GHz	RF-RSE-009	1 year	2026.4.09
Coax	/	30MHz-18GHz	RF-RSE-005	1 year	2026.4.09
Temperature and humidity meter	/	C193561517	C193561517	1 year	2026.4.28
CE Test - 3M Chamber					
EMI Test Receiver	Rohde&Schwarz	ESR3	102693	1 year	2026.5.21
limiter (10 dB)	Rohde&Schwarz	ESH3-Z2	102824	1 year	2026.5.15
Voltage probe	Rohde&Schwarz	CVP9222C	00028	1 year	2026.4.28
Current probe	Rohde&Schwarz	EZ-17	101442	1 year	2026.4.22
ISN network	Rohde&Schwarz	ENV 81	100401	1 year	2026.4.22
ISN network	Rohde&Schwarz	ENV 81 Cat6	101896	1 year	2026.4.22
#1Shielding room	MORI	854	N/A	3 year	2026.5.16
Coax	/	9KHz-3GHz	CS0200082		2026.4.09
LISN	SCHWARZBECK	NSLK 8129	05021	1 year	2026.4.22
Temperature and humidity meter	/	C193561430	C193561430	1 year	2026.4.28
RE Test - 3M Chamber(Below 1GHz)					
EMI Test Receiver	Rohde&Schwarz	ESR 26	101718	1 year	2026.5.21
Loop antenna (8.3k~30MHz)	Rohde&Schwarz	HFH2-Z2E	100951	1 year	2026.6.18
Antenna(30MHz~1000MHz)	SCHWARZBECK	VULB 9168	01132	1 year	2026.1.12
3m anechoic chamber	MORI	966	N/A	1 year	2026.5.18
Preamplifier(10kHz-1GHz)	Rohde&Schwarz	SCU-01F	100298	1 year	2026.4.22
Attenuator	boyang	BY--N-2W-5dB	/	1 year	2026.1.22
Coax	/	9KHz-1GHz	CS0200079	1 year	2026.4.11
#1 control room	MORI	433	/	1 year	2026.5.16
Temperature and humidity meter	/	C193561473	C193561473	1 year	2026.4.28

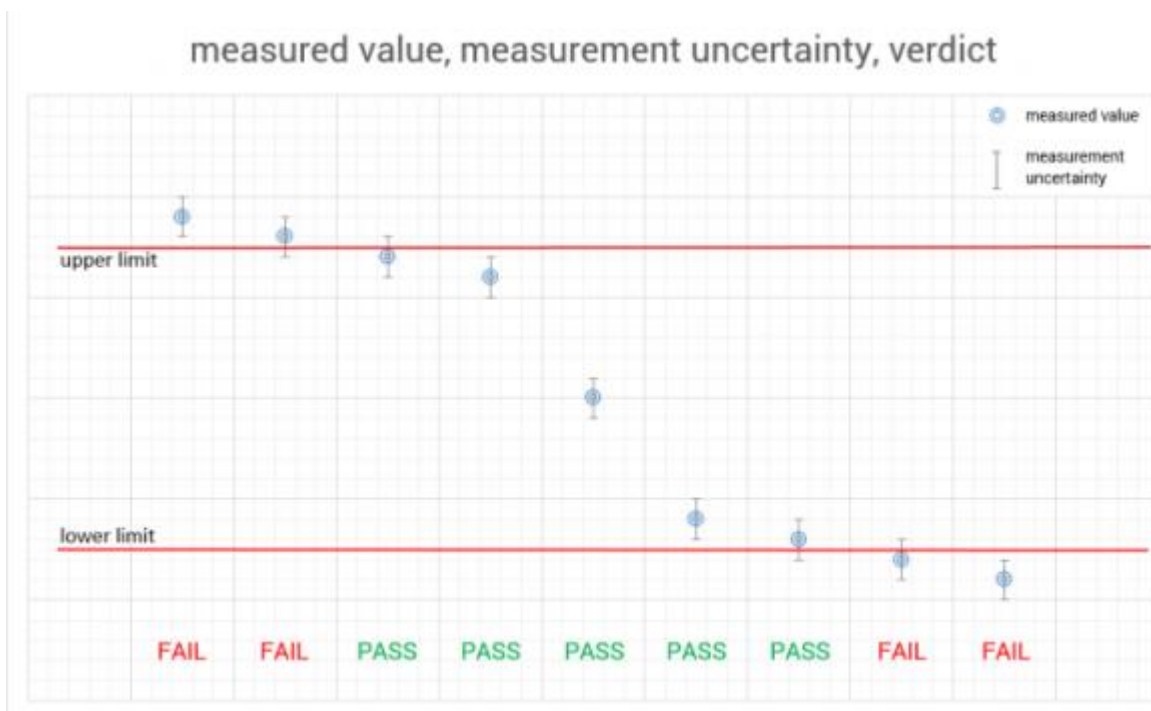
## 1.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

No.	Item	Measurement Uncertainty
1	Conducted emission test	+/-2.7 dB
2	Radiated emission 9kHz-30MHz	+/-5.6 dB
3	Radiated emission 30MHz-1GHz	+/-4.6 dB
4	Radiated emission 1GHz-18GHz	+/-4.4 dB
5	Radiated emission 18GHz-40GHz	+/-5.1 dB
6	Radiated Emissions(40GHz-60GHz)	±4.8dB
7	Radiated Emissions(60GHz-90GHz)	±4.8dB
8	Radiated Emissions(90GHz-140GHz)	±5.0dB
9	Radiated Emissions(140GHz-220GHz)	±5.1dB
10	Radiated Emissions(220GHz-300GHz)	±4.8dB
11	RF power	+/-0.9 dB
12	Power Spectral Density	+/-0.8 dB
13	Conducted spurious emissions	+/-2.7 dB
14	Transmission Time	+/-0.27%
15	Occupied Bandwidth	+/-1.86%
<b>Remark: 95% Confidence Levels, k=2.</b>		

Only the measured values related to their corresponding limits will be used to decide whether the equipment under test meets the requirements of the test standards listed.

The measurement uncertainty is mentioned in this test report, but is not taken into account - neither to the limits nor to the measurement results. Measurement results with a smaller margin to the corresponding limits than the measurement uncertainty have a potential risk of more than 5% that the decision might be wrong.





## 1.3 TEST LOCATION

The tests and measurements refer to this report were performed by EMC testing Lab. of CVC Testing Technology (Shenzhen) Co., Ltd.

Lab Address: No. 1301-14, Guanguang Road, Xinlan Community, Guanlan Subdistrict, Longhua District, Shenzhen, Guangdong, China

Post Code: 518110 Tel: 0755-23763060-8805

Fax: 0755-23763060 E-mail: sz-kf@cvc.org.cn

FCC(Test firm designation number: CN1363)

IC(Test firm CAB identifier number: CN0137)

CNAS(Test firm designation number: L16091)





## 2 GENERAL INFORMATION

### 2.1 GENERAL PRODUCT INFORMATION

PRODUCT NAME	Hydrow Touchscreen Monitor
BRAND NAME	N/A
MODEL NAME	P1601
ADDITIONAL MODEL	N/A
POWER SUPPLY	DC 15V 2A From Adapter
MODULATION TYPE	GFSK
OPERATING FREQUENCY	2457MHz
NUMBER OF CHANNEL	1
ANTENNA TYPE(Remark 3)	PCB Antenna
HARDWARE VERSION:	N/A
SOFTWARE VERSION:	N/A
FIX FREQUENCY SOFTWARE	SecureCRT .exe
I/O PORTS	Refer to user's manual
Remark: 1. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report. 3. Since the above data and/or information is provided by the client, CVC is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.	

### 2.2 OTHER INFORMATION

The EUT only have one channel.

CHANNEL	FREQUENCY (MHz)
1	2457



## 2.3 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, xyz axis and antenna ports

EUT CONFIGURE MODE	APPLICABLE TEST ITEMS				DESCRIPTION
	RE<1G	RE≥1G	PLC	BW	
A	√	√	√	√	ANT+

Where **RE<1G**: Radiated Emission below 1GHz  
**PLC**: Power Line Conducted Emission

**RE≥1G**: Radiated Emission above 1GHz  
**BW**: 20db bandwidth

### RADIATED EMISSION TEST :

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna diversity architecture) and packet type.
- ☒ The worst case was found when positioned on x axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE
A	1	1	GFSK	default

For the test results, only the worst case was shown in test report.

### 20DB BANDWIDTH MEASUREMENT:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TYPE	DATA RATE
A	1	1	GFSK	default

### TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE (SYSTEM)	TESTED BY
RE<1G	25.5deg. C, 55%RH	DC 15V 2A From Adapter	Wang Zhiming
RE≥1G	24.5deg. C, 55%RH	DC 15V 2A From Adapter	Wang Zhiming
PLC	25.5deg. C, 55%RH	DC 15V 2A From Adapter	Zhou Ye
APCM	25.1deg. C, 54%RH	DC 15V 2A From Adapter	Liu Yuan



## 2.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

**FCC PART 15, Subpart C. Section 15.249**

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

## 2.5 DESCRIPTION OF SUPPORT UNITS

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

Support Equipment							
NO	Description	Brand		Model No.	Serial Number	Supplied by	
1	Laptop	HP		N/A	N/A	LAB	
2	Adapter	Anker		A2669	N/A	LAB	
Support Cable							
NO	Description	Quantity (Number)	Length (cm)	Detachable (Yes/ No)	Shielded (Yes/ No)	Cores (Number)	Supplied by
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

## 3 TEST TYPES AND RESULTS

### 3.1 CONDUCTED EMISSION

#### 3.1.1 Limits

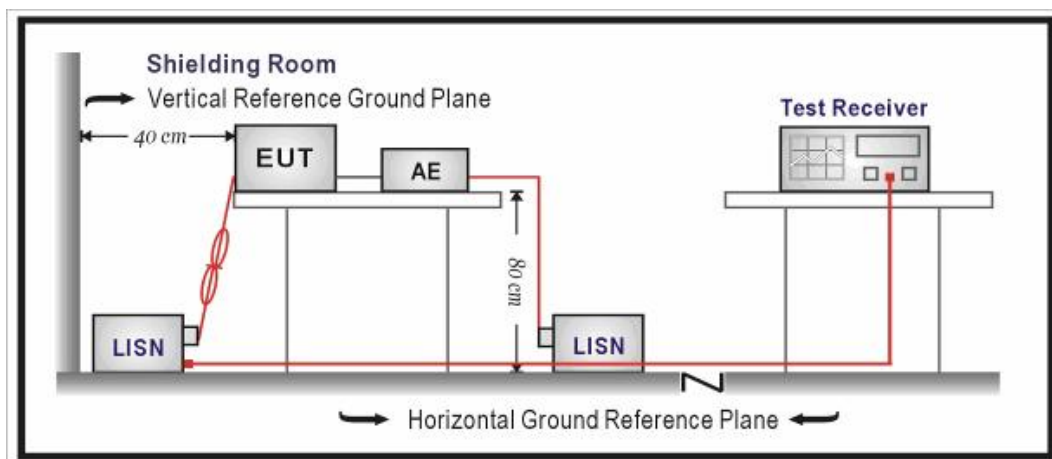
Frequency (MHz)	Conducted Limits(dBμV)	
	Quasi-peak	Average
0.15 - 0.5	66 to 56 *	56 to 46*
0.5 - 5	56	46
5 - 30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.  
NOTE: 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

#### 3.1.2 Test Procedures

- The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the Test photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source. The equipment under test shall be placed on a support of non-metallic material, the height of which shall be 1.5m above the ground,
- The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
- Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

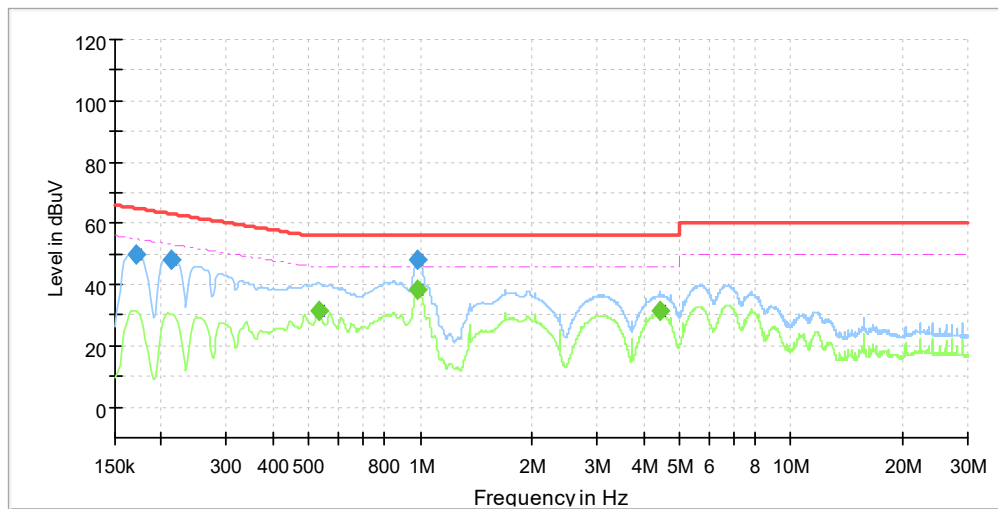
#### 3.1.3 Test setup





## 3.1.4 Test Results

Test Mode	ANT+	Frequency Range	150kHz ~ 30MHz
Test Voltage	120V 60Hz	PHASE	Line (L)
Environmental Conditions	24.7deg. C, 52% RH	Tested By	Zhou Ye

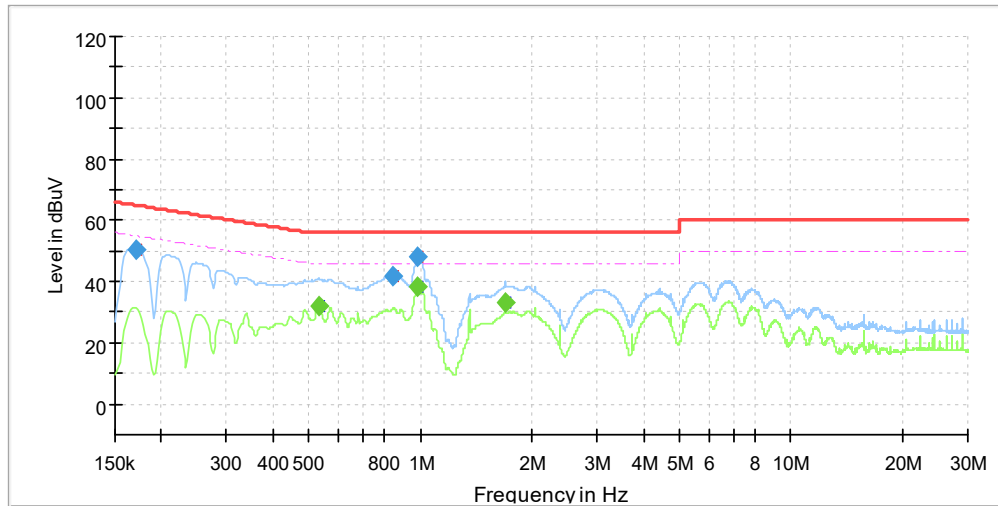


NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)
1	0.170	50.1	---	64.9	14.8	L1	20.1
2	0.213	48.1	---	63.1	15.0	L1	20.1
3	0.530	---	31.2	46.0	14.8	L1	20.1
4	<b>0.980</b>	---	<b>38.3</b>	<b>46.0</b>	<b>7.7</b>	<b>L1</b>	<b>20.1</b>
5	0.987	47.9	---	56.0	8.1	L1	20.1
6	4.414	---	31.3	46.0	14.7	L1	20.2

Remark: The emission levels of other frequencies were very low against the limit.



Test Mode	ANT+	Frequency Range	150kHz ~ 30MHz
Test Voltage	120V 60Hz	PHASE	Line (N)
Environmental Conditions	24.7deg. C, 52% RH	Tested By	Zhou Ye



NO	Frequency (MHz)	QuasiPeak (dBuV)	Average (dBuV)	Limit (dBuV)	Margin (dB)	Line	Corr.Factor (dB)
1	0.170	50.5	---	64.9	14.4	N	20.1
2	0.530	---	31.7	46.0	14.3	N	20.1
3	0.843	41.8	---	56.0	14.2	N	20.1
4	0.978	---	38.2	46.0	7.8	N	20.1
5	0.987	48.1	---	56.0	7.9	N	20.1
6	1.698	---	33.1	46.0	12.9	N	20.1

Remark: The emission levels of other frequencies were very low against the limit.



## 3.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

### 3.2.1 Limit

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

FREQUENCIES (MHz)	FIELD STRENGTH (Microvolts/Meter)	MEASUREMENT DISTANCE (Meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE: 1. The lower limit shall apply at the transition frequencies.  
NOTE: 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).  
NOTE: 3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

### 3.2.2 Measurement procedure

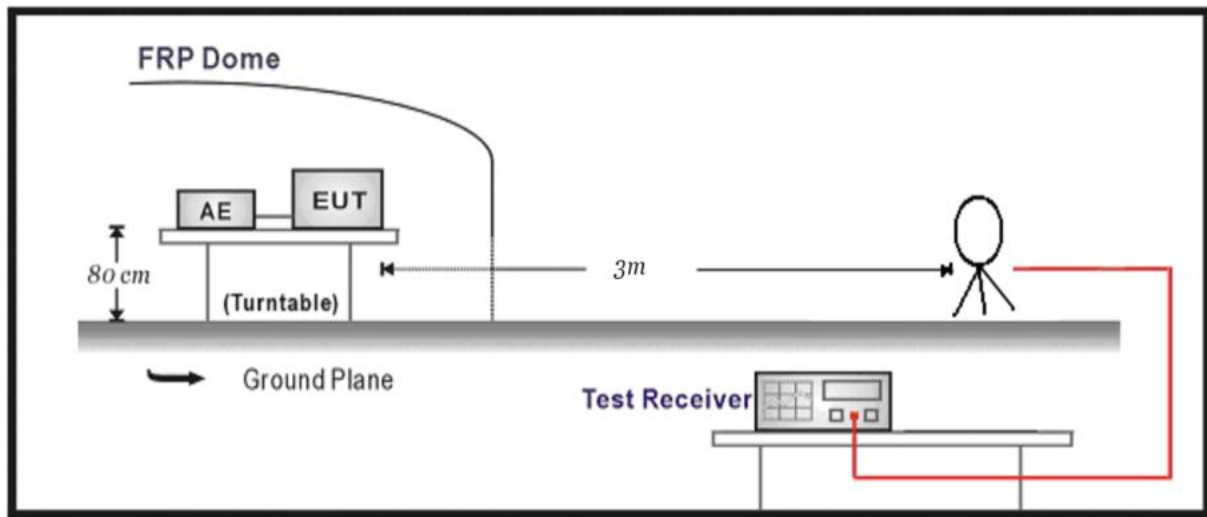
- The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- For below 1GHz was used bilog antenna, and above 1GHz was used horn antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.
- During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.

**NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98%) or 10Hz (Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

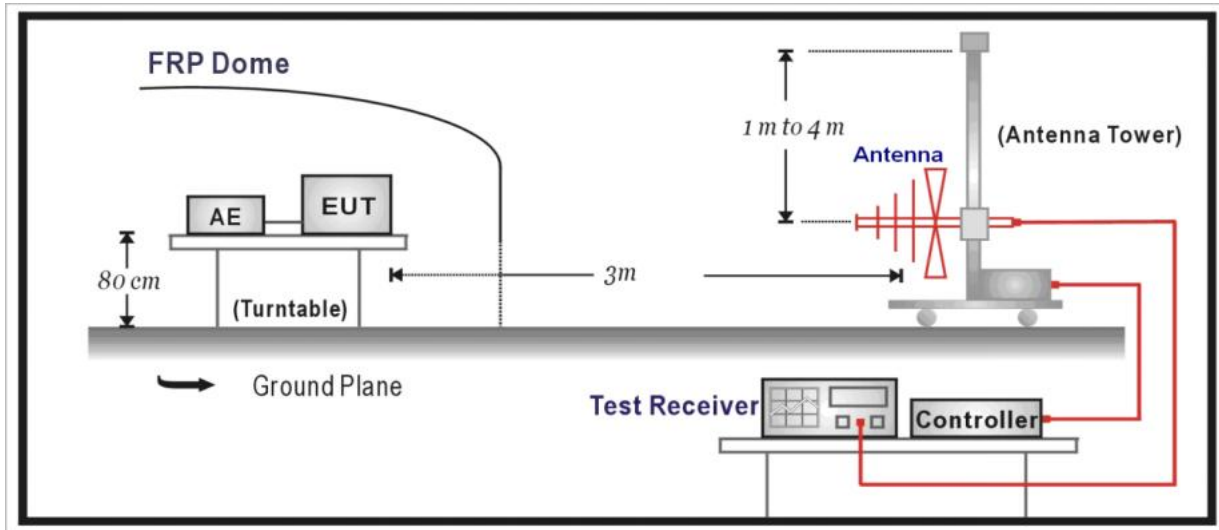
**3.2.3 Test setup**

Below 30MHz Test Setup:

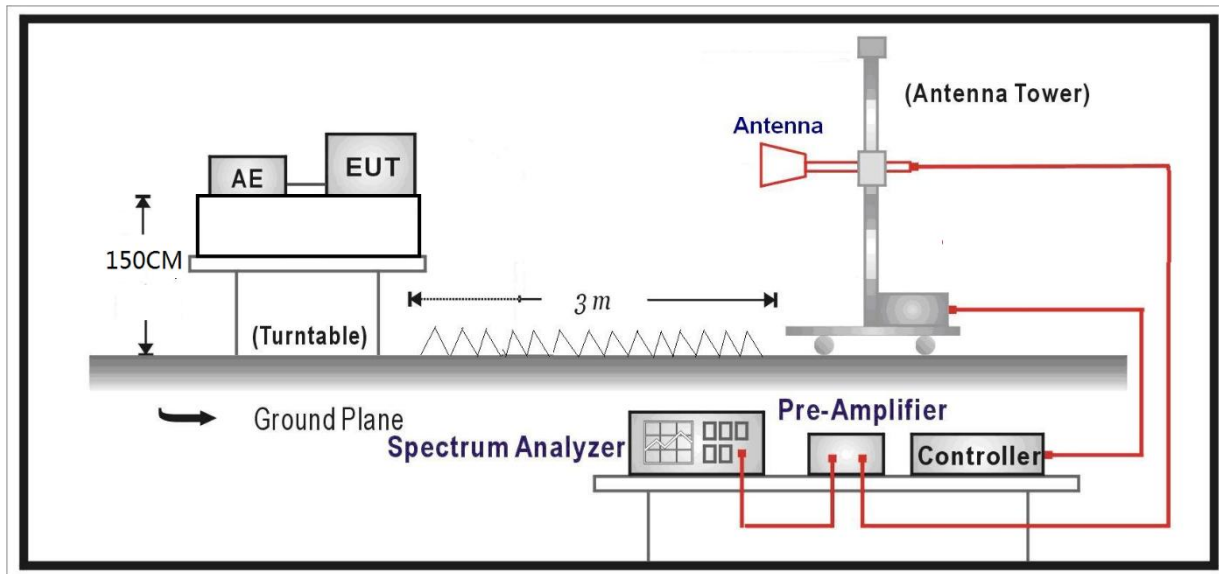




Below 1GHz Test Setup:



Above 1GHz Test Setup:





#### 3.2.4 Test results(9kHz-30MHz)

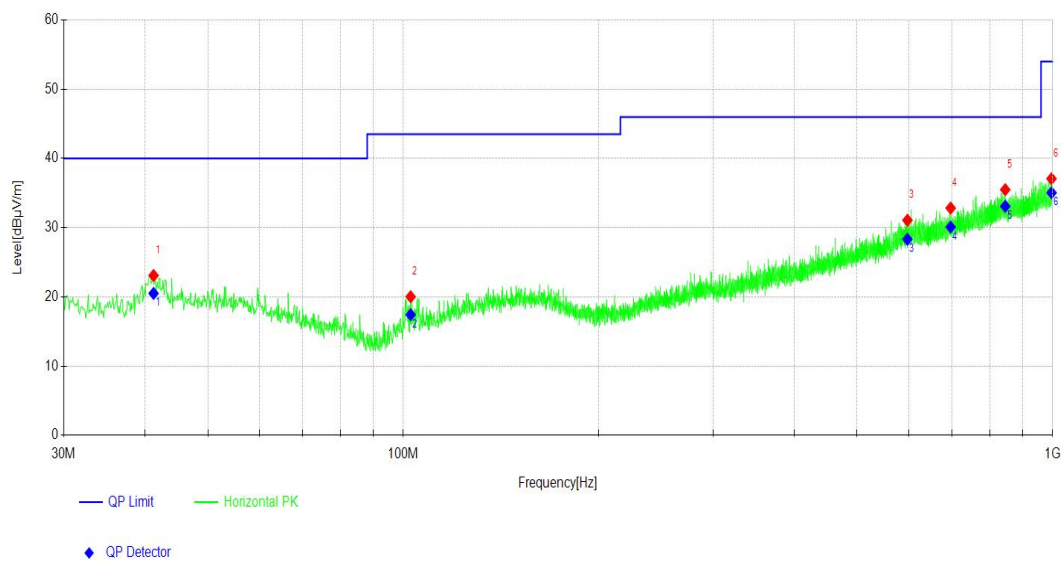
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.



## 3.2.5 Test results(30MHz-1GHz)

Test Mode:	ANT+	Frequency Range	30-1000MHz
Test Voltage	120V 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25.1deg. C, 54% RH	Tested By	Zhou Ye

### Horizontal



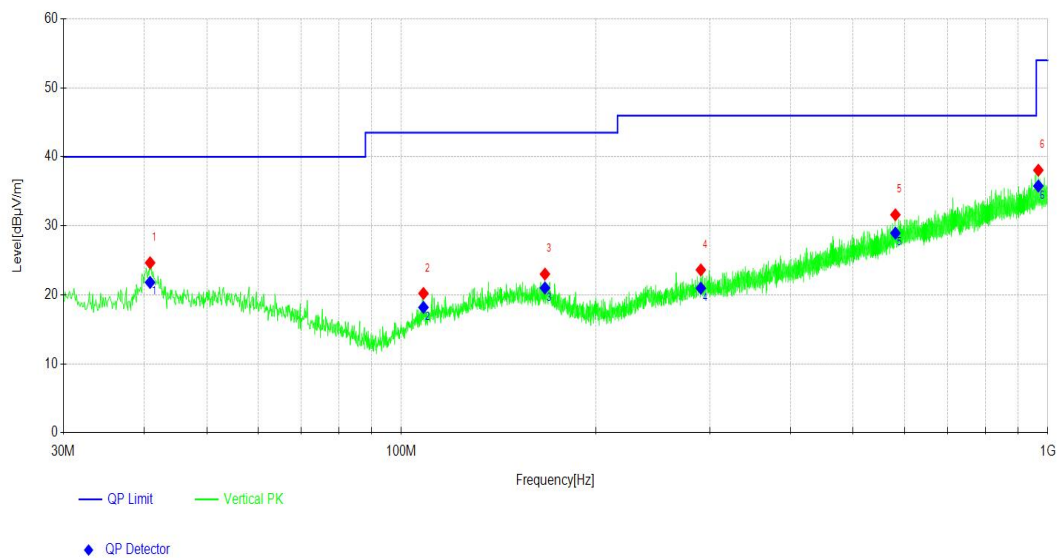
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	49.887	20.27	22.21	40.00	17.79	100	231	Horizontal
2	177.358	18.68	27.22	43.50	16.28	100	260	Horizontal
3	212.669	17.26	24.02	43.50	19.48	100	243	Horizontal
4	585.575	26.91	28.39	46.00	17.61	100	341	Horizontal
5	709.941	28.84	30.78	46.00	15.22	100	115	Horizontal
6	843.426	30.82	32.31	46.00	13.69	100	346	Horizontal

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.  
2. The emission levels of other frequencies were greater than 20dB margin.  
3. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).  
4. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
5. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Test Mode:	ANT+	Frequency Range	30-1000MHz
Test Voltage	120V 60Hz	Detector Function	Quasi-Peak
Environmental Conditions	25.1deg. C, 54% RH	Tested By	Zhou Ye

## Vertical



NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	33.007	18.63	34.88	40.00	5.12	100	268	Vertical
2	35.627	18.91	26.77	40.00	13.23	100	286	Vertical
3	50.178	20.26	25.82	40.00	14.18	100	128	Vertical
4	85.781	14.34	26.17	40.00	13.83	100	315	Vertical
5	713.627	28.91	30.99	46.00	15.01	100	354	Vertical
6	794.824	30.23	33.03	46.00	12.97	100	10	Vertical

Remark: 1. 9KHz~30MHz have been test and test data more than 20dB margin.  
2. The emission levels of other frequencies were greater than 20dB margin.  
3. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).  
4. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
5. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



## 3.2.6 Test results(1GHz-18GHz)

Test Mode			ANT+		Frequency Range		Above 1GHz	
Test Voltage			120V 60Hz		Detector Function		PK/AV	
Environmental Conditions			25.1deg. C,54% RH		Tested By		Zhou Ye	
Horizontal								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4914.00	42.30	10.20	52.50	74.00	21.50	PK	Horizontal
2	4914.00	34.03	10.20	44.23	54.00	9.77	AV	Horizontal
3	7371.00	29.20	11.74	40.94	74.00	33.06	PK	Horizontal
4	7371.00	21.09	11.74	32.83	54.00	21.17	AV	Horizontal
5	9828.00	27.31	14.67	41.98	74.00	32.02	PK	Horizontal
6	9828.00	19.98	14.67	34.65	54.00	19.35	AV	Horizontal
Vertical								
NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	4914.00	41.75	10.20	51.95	74.00	22.05	PK	Vertical
2	4914.00	33.73	10.20	43.93	54.00	10.07	AV	Vertical
3	7371.00	20.71	11.74	32.45	54.00	21.55	AV	Vertical
4	7371.00	28.65	11.74	40.39	74.00	33.61	PK	Vertical
5	9828.00	26.25	14.67	40.92	74.00	33.08	PK	Vertical
6	9828.00	19.22	14.67	33.89	54.00	20.11	AV	Vertical
Remark: 1. Above 18GHz have been test and test data more than 20dB margin. 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB). 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB). 4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]								



## 3.2.7 Test results(18GHz-40GHz)

Mode	ANT+	Modulation	GFSK
Frequency Range	18GHz~40G	Detector Function	PK/AV

### Horizontal

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	19399.06	46.31	-6.95	39.36	54.00	14.64	AV	Horizontal
2	20146.10	54.69	-6.40	48.29	74.00	25.71	PK	Horizontal
3	24573.30	42.41	-3.15	39.26	54.00	14.74	AV	Horizontal
4	27192.42	52.30	-3.33	48.97	74.00	25.03	PK	Horizontal
5	34610.76	45.65	-1.63	44.02	54.00	9.98	AV	Horizontal
6	34626.76	54.10	-1.53	52.57	74.00	21.43	PK	Horizontal

### Vertical

NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Detector	Polarity
1	18709.03	54.78	-6.82	47.96	74.00	26.04	PK	Vertical
2	19439.07	46.95	-6.84	40.11	54.00	13.89	AV	Vertical
3	27252.42	51.24	-3.05	48.19	74.00	25.81	PK	Vertical
4	29703.53	44.23	-2.29	41.94	54.00	12.06	AV	Vertical
5	34606.75	55.40	-1.66	53.74	74.00	20.26	PK	Vertical
6	39917.00	44.61	2.38	46.99	54.00	7.01	AV	Vertical

Remark: 1. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).  
2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).  
3. Margin(dB) = Limit[dBuV/m] - Level [dBuV/m]

### 3.3 20DB BANDWIDTH MEASUREMENT

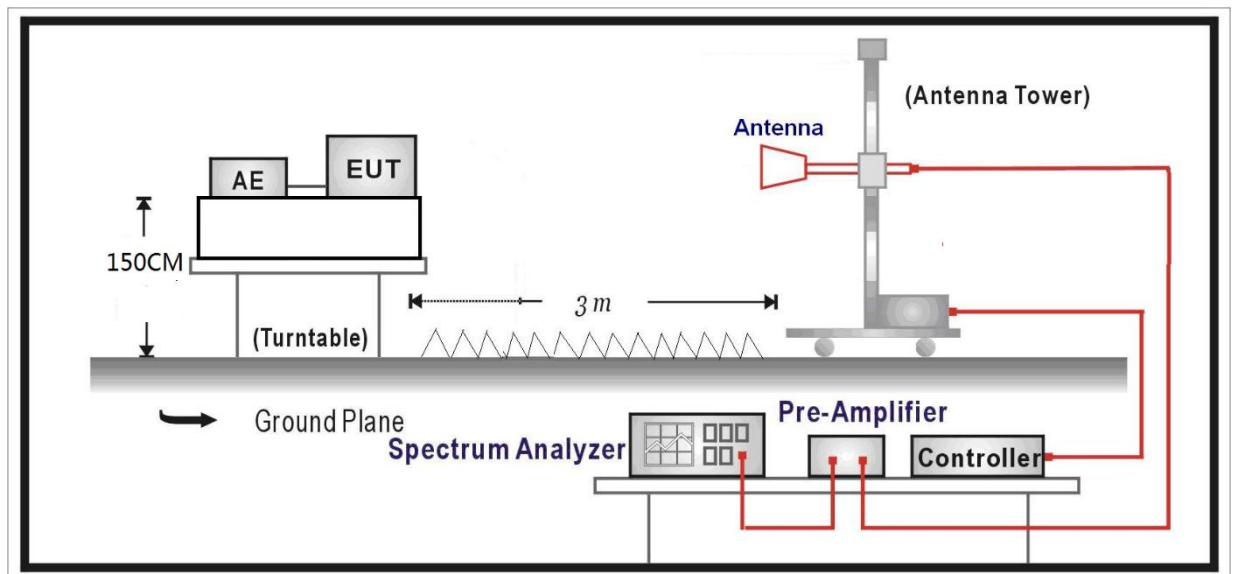
#### 3.3.1 Limits

This section is for reporting purpose only, there is on restriction limit of bandwidth

#### 3.3.2 Measurement procedure

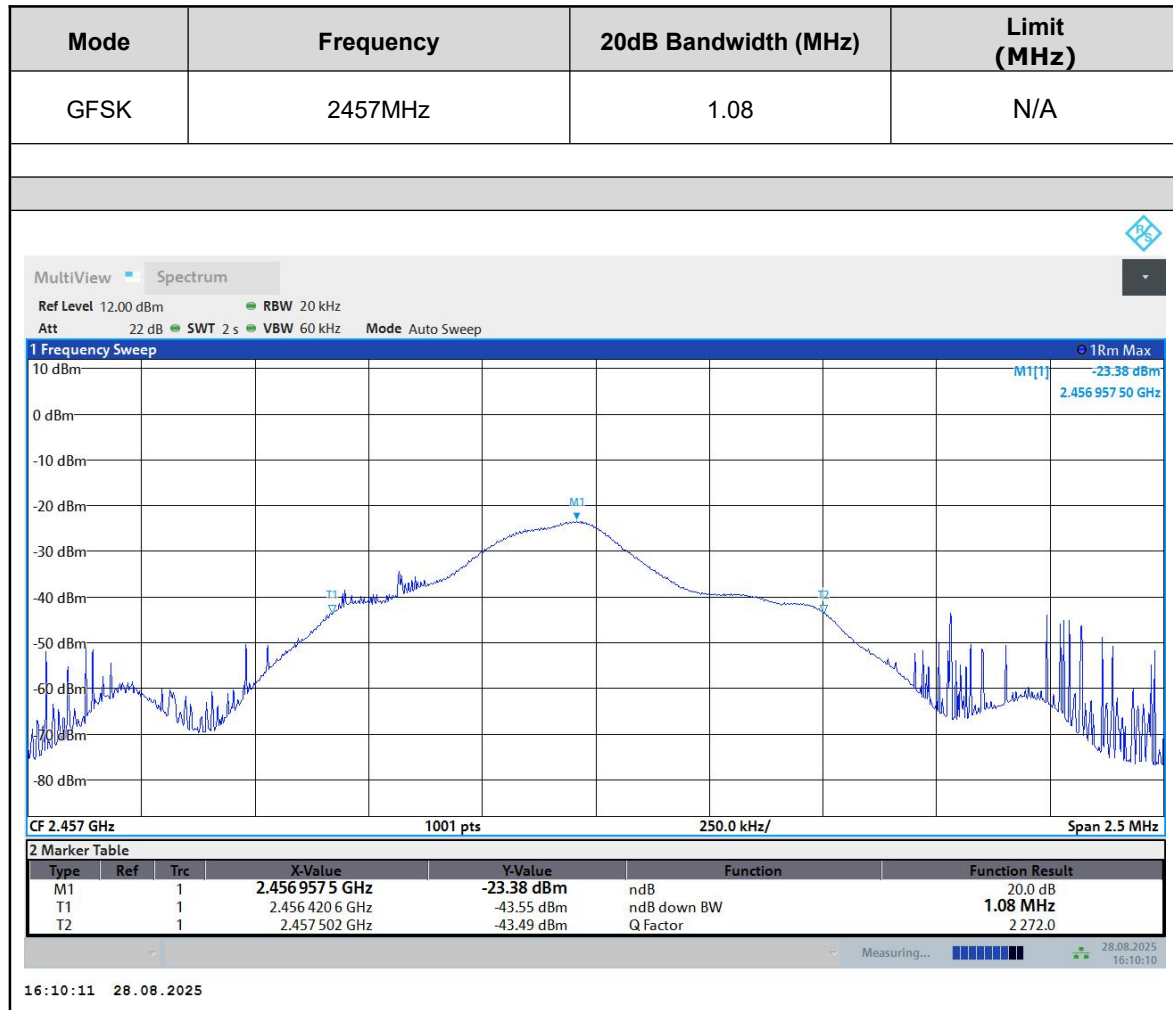
- Set resolution bandwidth (RBW) = 1% to 5% of the OBW.
- Set the video bandwidth (VBW)  $\geq 3 \times$  RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### 3.3.3 Test setup





## 3.3.4 Test result





## 3.4 FIELD STRENGTH & OUT OF BAND EMISSION MEASUREMENT

### 3.4.1 Limits

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

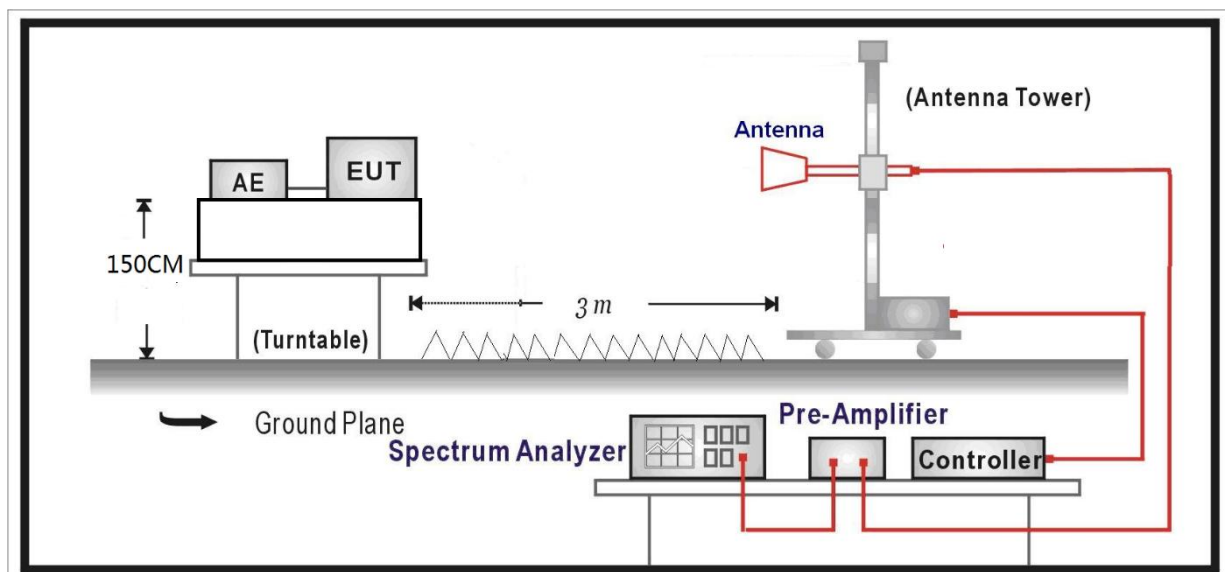
Fundamental Frequency	Field strength of fundamental (milli-volts/meter)	Field strength of harmonics (micro-volts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

### 3.4.2 Measurement procedure

- The EUT is placed on a turntable, which is 1.5m above ground plane.
- The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- The spectrum analyzer or receiver is set as: (1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto (2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto
- Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

### 3.4.3 Test setup



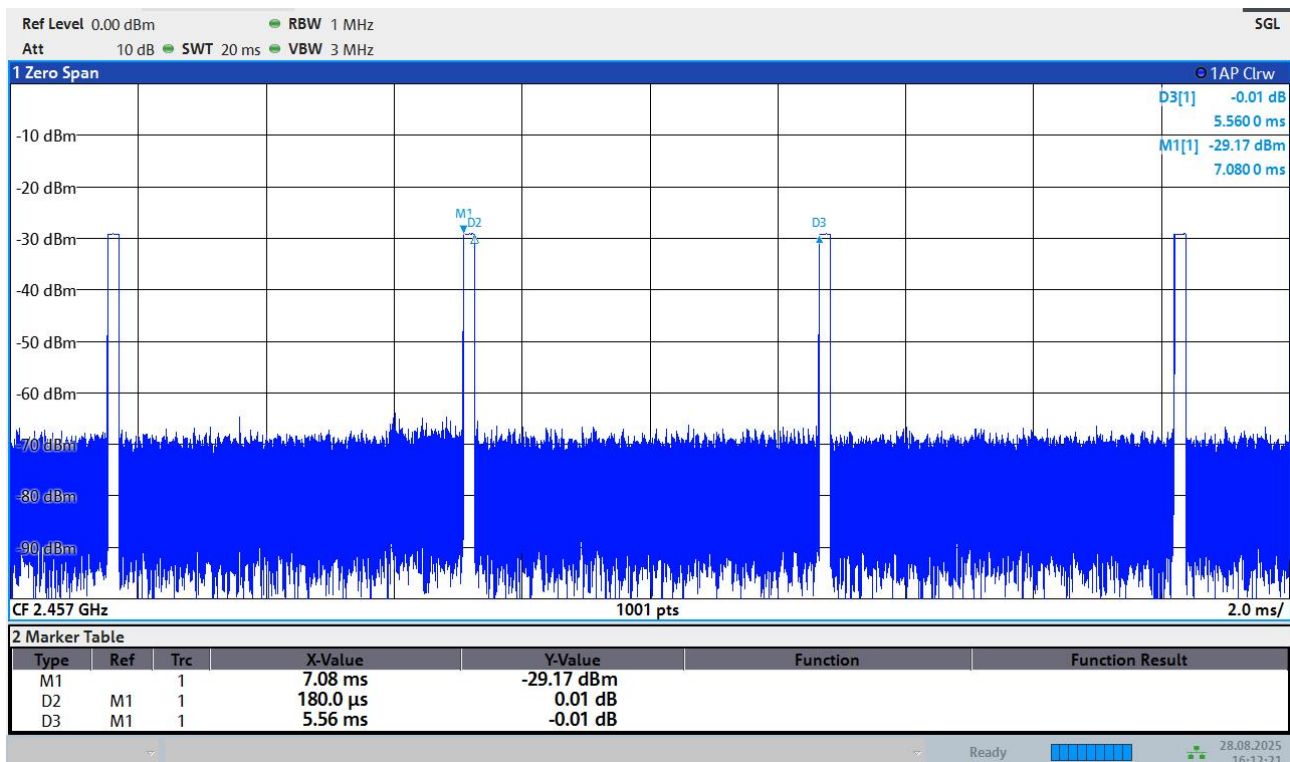


## 3.4.4 Test result

Duty Cycle

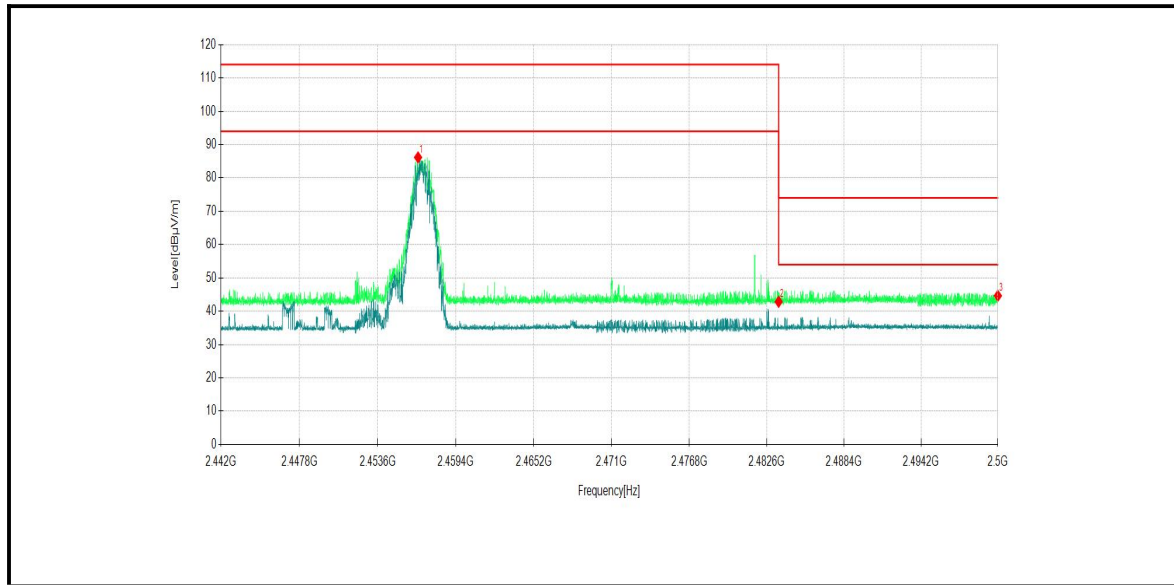
Time on(ms)	Total time (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)
0.18	5.56	3.2	-29.90

Note 1: Duty Cycle=On time/Total time =0.2ms/5.6ms=3.2%  
Note 2: Duty Cycle Factor=20\*Log(Duty Cycle).  
Note 3: Duty Cycle Correction Factor: 20Log (0.032)=-29.90





Mode	ANT+	Modulation	GFSK
Frequency Range	2457MHz	Detector Function	PK/AV

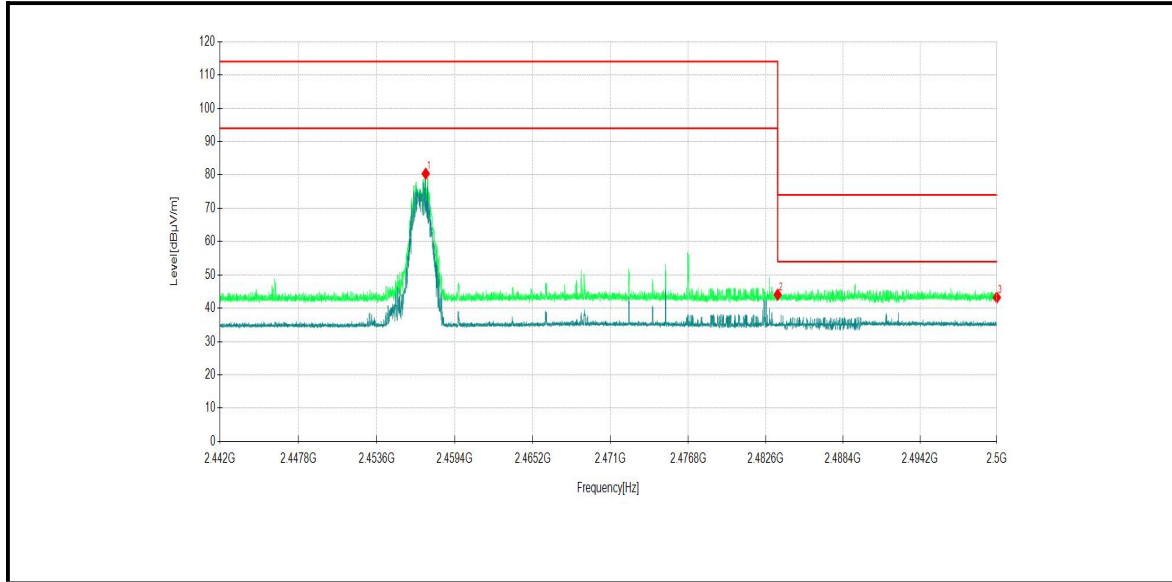


NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2457.00PK	83.24	-1.19	82.05	114.00	27.84	Horizontal
2	2483.50PK	44.00	-1.15	42.85	74.00	31.15	Horizontal
3	2500.00PK	45.67	-1.02	44.65	74.00	29.35	Horizontal
4	2457.00AV	/	/	52.15	94.00	37.74	Horizontal

Note1: Fundamental AV value = PK Emission + 20\*log(duty cycle) Where the duty factor is calculated from following formula:  $20 \log(\text{Duty cycle}) = 20 \log(3.2\%) = -29.90 \text{ dB}$ , Please see page 26 for plotted duty.



Mode	ANT+	Modulation	GFSK
Frequency Range	2457MHz	Detector Function	PK/AV

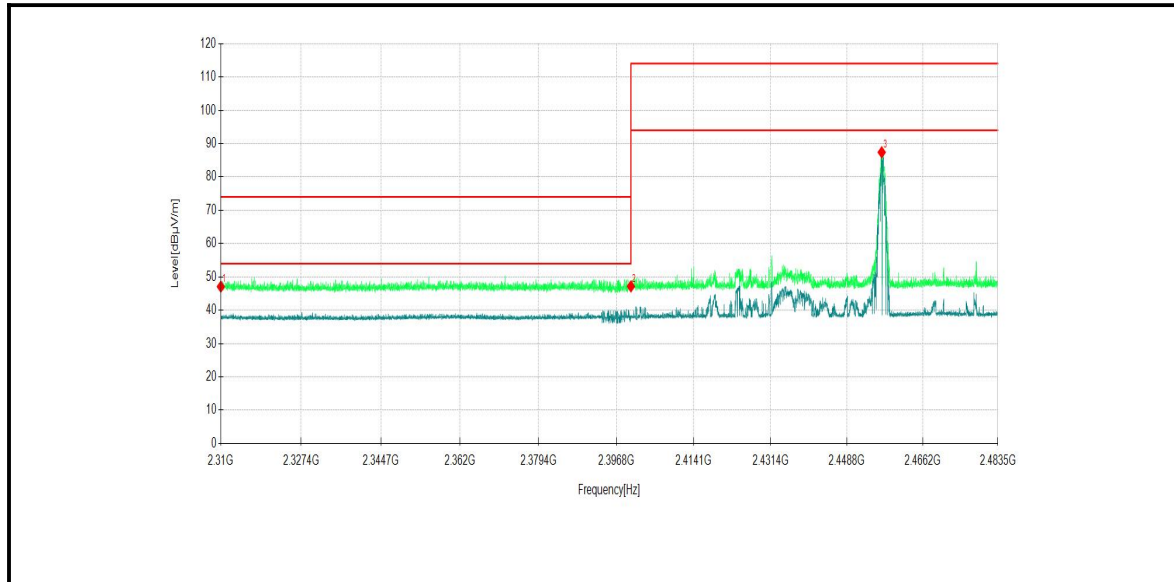


NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2457.00PK	75.82	-1.19	74.63	114.00	39.37	Vertical
2	2483.50PK	45.21	-1.15	44.06	74.00	29.94	Vertical
3	2500.00PK	44.24	-1.02	43.22	74.00	30.78	Vertical
4	2457.00AV	/	/	44.73	94.00	49.27	Vertical

Note1: Fundamental AV value = PK Emission + 20\*log(duty cycle) Where the duty factor is calculated from following formula:  $20 \log (\text{Duty cycle}) = 20 \log (3.2\%) = -29.90 \text{ dB}$ , Please see page 26 for plotted duty.



Mode	ANT+	Modulation	GFSK
Frequency Range	2457MHz	Detector Function	PK/AV

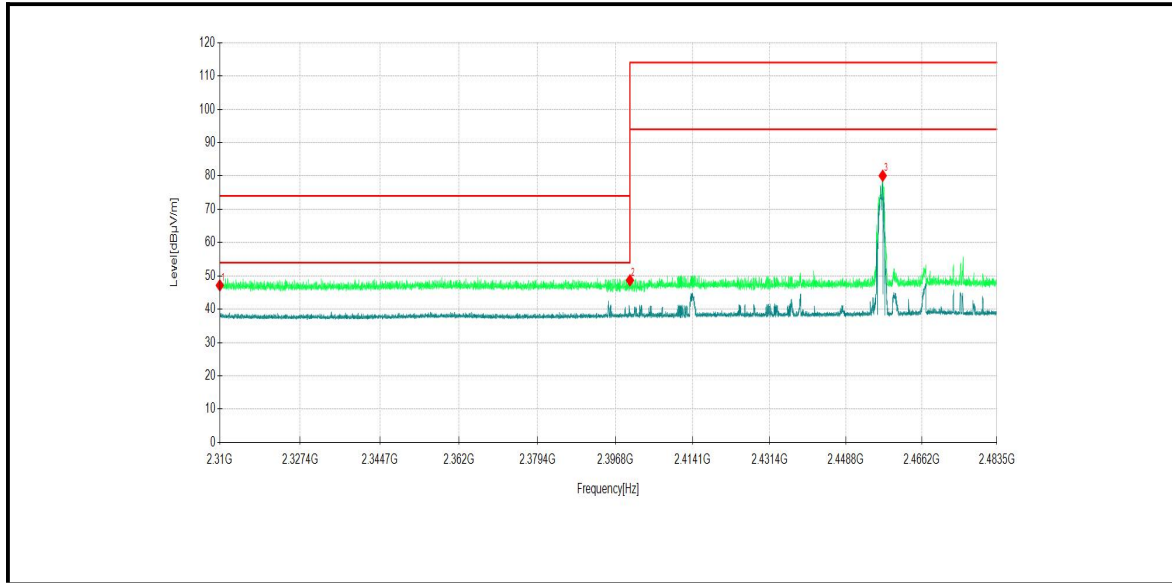


NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2310.00PK	48.43	-1.35	47.08	74.00	26.92	Horizontal
2	2400.00PK	48.42	-1.27	47.15	114.00	66.85	Horizontal
3	2457.00PK	86.43	-1.19	85.24	114.00	26.60	Horizontal
4	2457.00AV	/	/	55.34	94.00	36.50	Horizontal

Note1: Fundamental AV value = PK Emission + 20\*log(duty cycle) Where the duty factor is calculated from following formula:  $20 \log (\text{Duty cycle}) = 20 \log (3.2\%) = -29.90 \text{ dB}$ , Please see page 26 for plotted duty.



Mode	ANT+	Modulation	GFSK
Frequency Range	2457MHz	Detector Function	PK/AV



NO.	Freq. [MHz]	Reading [dBμV]	Factor [dB/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Polarity
1	2310.00	48.51	-1.35	47.16	74.00	26.84	Vertical
2	2400.00	49.96	-1.27	48.69	114.00	65.31	Vertical
3	2457.00PK	74.75	-1.19	73.56	114.00	40.44	Vertical
4	2457.00AV	/	/	43.66	94.00	50.34	Vertical

Note1: Fundamental AV value = PK Emission + 20\*log(duty cycle) Where the duty factor is calculated from following formula:  $20 \log (\text{Duty cycle}) = 20 \log (3.2\%) = -29.90 \text{ dB}$ , Please see page 26 for plotted duty.



## **3.5 ANTENNA REQUIREMENT**

### **3.5.1 LIMITS OFFREQUENCY STABILITY**

For intentional device, according to FCC 47 CFR Section 15.203, 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. And according to FCC 47 CFR Section 15.247 (b) , if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### **3.5.2 ANTENNA ANTI-REPLACEMENT CONSTRUCTION**

The antenna used for this product is PCB Antenna and that no antenna other than that furnished by the responsible party shall be used with the device



#### **4 PHOTOGRAPHS OF TEST SETUP**

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

----- End of the Report -----

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## Important

- (1) The test report is invalid without the official stamp of CVC;
- (2) Any part photocopies of the test report are forbidden without the written permission from CVC;
- (3) The test report is invalid without the signatures of tester, reviewer and approval;
- (4) The test report is invalid if altered;
- (5) Objections to the test report must be submitted to CVC within 15 days;
- (6) Generally, commission test results apply to the samples as received. The sample information is provided by the customer and laboratory is not responsible for its authenticity;
- (7) As for the test result “-” or “N” means “not applicable”, “/” means “not test”, “P” means “pass” and “F” means “fail”

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