TEST REPORT

Report No.: SHATBL2211023W05

Applicant	:	Shenzhen Xianku Intelligent Co.,Ltd.
Product Name	:	3D Smart Body Measurement Mirror
Brand Name	:	XIANKU
Model Name	:	XK-H003
FCC ID	:	2A9EU-XKH003
Test Standard	:	FCC Part 15.247
Date of Test	:	2022.12.6-2023.1.1

Report Prepared by : Chris Xu
(Chris Xu)

Report Approved by : Ghost Li.
(Ghost Li)

Authorized Signatory : Terry Yang
(Terry Yang)

TEST RESULT CERTIFICATION

Applicant:	Shenzhen Xianku Intelligent Co.,Ltd.
Address :	2401, Block C, Mingzhi Shared Commercial Center North Station Society,Minzhi Residential District, Longhua Shenzhen Guangdong China
Manufacturer's Name:	Shenzhen Xianku Intelligent Co.,Ltd.
Address:	2401, Block C, Mingzhi Shared Commercial Center North Station Society,Minzhi Residential District, Longhua Shenzhen Guangdong China

Product Description

Product Name:	3D Smart Body Measurement Mirror
Brand Name:	XIANKU
Model Name:	XK-H003
Series Model:	XK-H00**("*" =0-9、A-Z、a-z)
Test Standards:	FCC Part15.247
Test Procedure:	ANSI C63.10-2013

The device has been tested by ATBL, and the test results show that the equipment under test (EUT) is in compliance with the FCC Part15.247 requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test

Date of receipt of test item:	2022.11.22
Date (s) of performance of tests:	2022.12.6-2023.1.1
Date of Issue:	2023.1.6
Test Result:	Pass

TABLE OF CONTENTS

Revision History

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
SHATBL2211023W05	Rev. 01	Initial issue of report	Jan. 06, 2023

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:
KDB 558074 D01 15.247 Meas Guidance v05r02.

FCC Part15.247,Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	--
15.247(a)(1)	Hopping Channel Separation	PASS	--
15.247(a)(1)&(b)(1)	Output Power	PASS	--
15.209	Radiated Spurious Emission	PASS	--
15.247(d)	Conducted Spurious & Band Edge Emission	PASS	--
15.247(a)(1)(iii)	Number of Hopping Frequency	PASS	--
15.247(a)(1)(iii)	Dwell Time	PASS	--
15.247(a)(1)	Bandwidth	PASS	--
15.205	Restricted bands of operation	PASS	--
Part 15.247(d)/part 15.209(a)	Band Edge Emission	PASS	--
15.203	Antenna Requirement	PASS	--

NOTE:

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

(2)All tests are according to ANSI C63.10-2013.

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	3D Smart Body Measurement Mirror	
Trade Name	XIANKU	
Model Name	XK-H003	
Series Model	XK-H00**("*" =0-9、A-Z、a-z)	
Model Difference	The external color is different,and the internal structure is unchanged.	
Product Description	The EUT is a 3D Smart Body Measurement Mirror	
	Operation Frequency:	2402~2480 MHz
	Modulation Type:	GFSK(1Mbps), π/4-DQPSK(2Mbps), 8DPSK(3Mbps)
	Bluetooth Configuration:	BR+EDR
	Bluetooth Version:	5.2
	Number Of Channel:	79
	Antenna Designation:	Please refer to the Note 3.
	AntennaGain (dBi):	1.45 dBi
Channel List	Please refer to the Note 2.	
Adapter	N/A	
Battery	N/A	
Hardware version number	HDF621013_P03	
Software version number	V1.1.8_V2.3.0.0	
Connecting I/O Port(s)	Please refer to the Note 1.	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.

2.

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N\A	N\A	PCB Antenna	N/A	1.45 dBi	BT Antenna

2.2 DESCRIPTION OF THE 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.

Worst Mode	Description	Data Rate/Modulation
Mode 1	TX CH00	1Mbps/GFSK
Mode 2	TX CH39	1Mbps/GFSK
Mode 3	TX CH78	1Mbps/GFSK
Mode 4	TX CH00	2 Mbps/π/4-DQPSK
Mode 5	TX CH39	2 Mbps/π/4-DQPSK
Mode 6	TX CH78	2 Mbps/π/4-DQPSK
Mode7	TX CH00	3 Mbps/8DPSK
Mode 8	TX CH39	3 Mbps/8DPSK
Mode 9	TX CH78	3 Mbps/8DPSK
Mode 10	Hopping	GFSK
Mode 11	Hopping	π/4-DQPSK
Mode 12	Hopping	8DPSK

Note:

(1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.

(2) Wetested for all available U.S. voltage and frequencies (For 120V, 50/60Hz and 240V, 50/60Hz) for which the device is capable of operation, and the worst case of 120V/ 60Hz is shown in the report.

For Conducted Emission

Test Case	
Conducted Emission	Mode 13 : Keeping BT TX

2.3 FREQUENCY HOPPING SYSTEM REQUIREMENTS

(1)Standard and Limit

According to FCC Part 15.247(a)(1), The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.

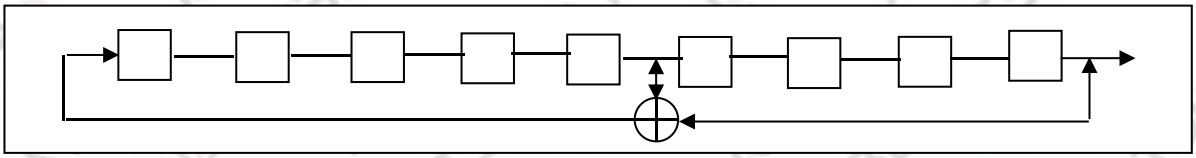
The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

(2)The Pseudorandom sequence may be generated in a nin-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first one of 9 consecutive ones: i.e. the shift register is initialized with nine ones.

Numver of shift register stages:9

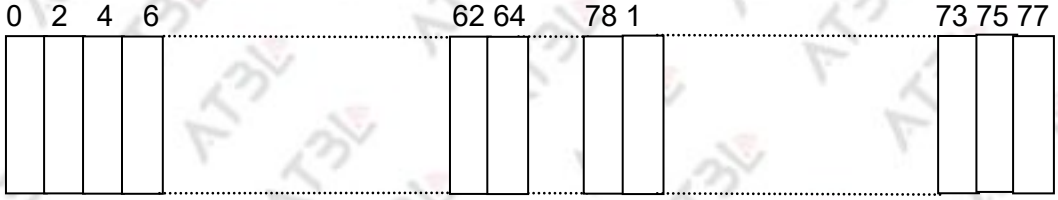
Length of pseudo-random sequence:2^9-1=511bits

Longest sequence of zeros: 8(non-inverted signal)



Liner Feedback Shift Register for Generator of the PRBS sequence

An example of Pseudorandom Frequency Hoppong Sequence as follow:



Each frequency used equally on th average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies ini synchronization with the transmitted signals.

(3)Frequency Hopping System

This transmitter device is frequency hopping device, and complies with FCC part 15.247 rule.

This device uses Bluetooth radio which operates in 2400-2483.5 MHz band. Bluetooth uses a radio technology called frequency-hopping spread spectrum, which chops up the data being sent and transmits chunks of it on up to 79 bands (1 MHz each; centred from 2402 to 2480 MHz) in the range 2,400-2,483.5MHz. The transmitter switches hop frequencies 1,600 times per second to assure a high degree of data security. All Bluetooth devices participating in a given piconet are synchronized to the frequency-hopping channel for the piconet. The frequency hopping sequence is determined by the master's device address and the phase of the hopping sequence (the

frequency to hop at a specific time) is determined by the master's internal clock. Therefore, all slaves in a piconet must know the master's device address and must synchronize their clocks with the master's clock.

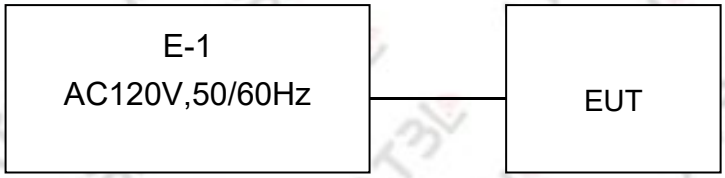
Adaptive Frequency Hopping (AFH) was introduced in the Bluetooth specification to provide an effective way for a Bluetooth radio to counteract normal interference. AFH identifies "bad" channels, where either other wireless devices are interfering with the Bluetooth signal or the Bluetooth signal is interfering with another device. The AFH-enabled Bluetooth device will then communicate with other devices within its piconet to share details of any identified bad channels. The devices will then switch to alternative available "good" channels, away from the areas of interference, thus having no impact on the bandwidth used.

This device was tested with a bluetooth system receiver to check that the device maintained

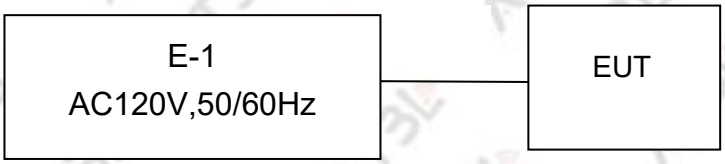
RF Function	Type	Mode Or Modulation type	Ant Gain(dBi)	Antenna Type	Software For Testing
BT	BR+EDR	GFSK	1.45	PCB Antenna	QRCT
		π/4-DQPSK	1.45		
		8DPSK	1.45		

2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious EmissionTest



Conduction Emission Test



2.5LABORATORY INFORMATION

Company Name:	Shanghai ATBL Technology Co., Ltd.
Address:	Building 8,No.160 Basheng Road,Waigaoqiao Free Trade Zone,Pudong New Area,Shanghai
Telephone:	+86(0)21-51298625
The FCC Registration Number (FRN):	0031025281
A2LA Number:	6184.01
CNAS Number:	CNAS L14531

2.6 MEASUREMENT UNCERTAINTY

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

No.	Item	Uncertainty
1	RF output power, conducted	±0.958dB
2	Conducted spurious emissions	±2.988dB
3	All emissions, radiated 30MHz-1GHz	±2.50dB
4	All emissions, radiated 1GHz-18GHz	±3.51dB
5	Occupied bandwidth	±2.320Hz
6	Power spectral density	±0.886dB

2.7 DESCRIPTION OF NECESSARY ACCESSORIES AND 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.

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
N/A	N/A	N/A	N/A	N/A	N/A

Support units

Item	Equipment	Manufacturer	Model No.	Serial No.	Note
1	External Power Source	N/A	N/A	N/A	N/A
2	Display	Philips	2064VL	ATBL-A00018	N/A

Note:

(1) For detachable type I/O cable should be specified the length in cm in『Length』column.

2.8 EQUIPMENTS LIST

2.8.1 Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Management number	Calibrated until
Test Receiver	R&S	ESCI	100469	SHATBL-E003	2023.09.27
Spectrum Analyzer	Agilent	N9020A	MY50200811	SHATBL-E017	2023.09.27
Bilog Antenna	SCHWARZBECK	VLUB 9168	01174	SHATBL-E008	2023.09.27
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	SHATBL-E009	2023.09.27
Pre-Amplifier (0.1M-3GHz)	JPT	JPA-10M1G35	21010100035001	SHATBL-E005	2023.09.27
Pre-Amplifier (1G-18GHz)	JPT	JPA0118-55-303A	1910001800055000	SHATBL-E006	2023.09.27
Temperature & Humidity	DeLi	DeLi	N/A	SHATBL-E016	2023.09.27
Antenna/Turntable Controller	Brilliant	N/A	N/A	SHATBL-E007	N/A
Test SW	FALA	EMC-RI(Ver.4A2)		SHATBL-E046	N/A

2.8.2 Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Management number	Calibration date
Test Receiver	R&S	ESPI	101679	SHATBL-E012	2023.09.27
LISN	R&S	ENV216	101300	SHATBL-E013	2023.09.27
LISN	R&S	ENV216	100333	SHATBL-E041	2023.09.27
Temperature & Humidity	DeLi	DeLi	N/A	SHATBL-E015	2023.09.27
Test SW	FALA	EZ-EMC(Ver.EMC-CON3A1.1)		SHATBL-E044	N/A

2.8.3 RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	equipment number	Calibrated until
MIMO Power measurement test Set	DARE	RPR3006W	16I00054SN016	SHATBL-W006	2023.09.27
			RPR6W-20001005	SHATBL-W013	2023.09.27
Signal Analyzer	Agilent	N9020A	MY57300196	SHATBL-W004	2023.09.27
Signal Generator	Agilent	N5182B	MY46240556	SHATBL-W005	2023.09.27
Wireless Communications Test Set	R&S	CMW500	101331	SHATBL-W007	2023.09.27
Temperature & Humidity	Deli	deli	N/A	SHATBL-W011	2023.09.27
Attenuator	Agilent	8494B	DC-18G	SHATBL-W009	2023.09.27
Attenuator	Agilent	8496B	DC-18G	SHATBL-W010	2023.09.27
power splitter	MNK	MPD-DC/6-2S	62315 G51	SHATBL-W015	2023.09.27
			62315 G52	SHATBL-W016	2023.09.27
Filter	Chengdu kangmaiwei	ZBSF-C2400-2483.5-T3	N/A	SHATBL-W021	N/A
Constant temperature and humidity box	KSON	THS-B6C-150	6159K	SHATBL-W019	2024.01.16
Test SW	FALA	LZ-RF(Ver.LzRF-03A3.1)		SHATBL-W020	N/A

3.EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table.

FREQUENCY (MHz)	Conducted Emissionlimit (dBuV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	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.

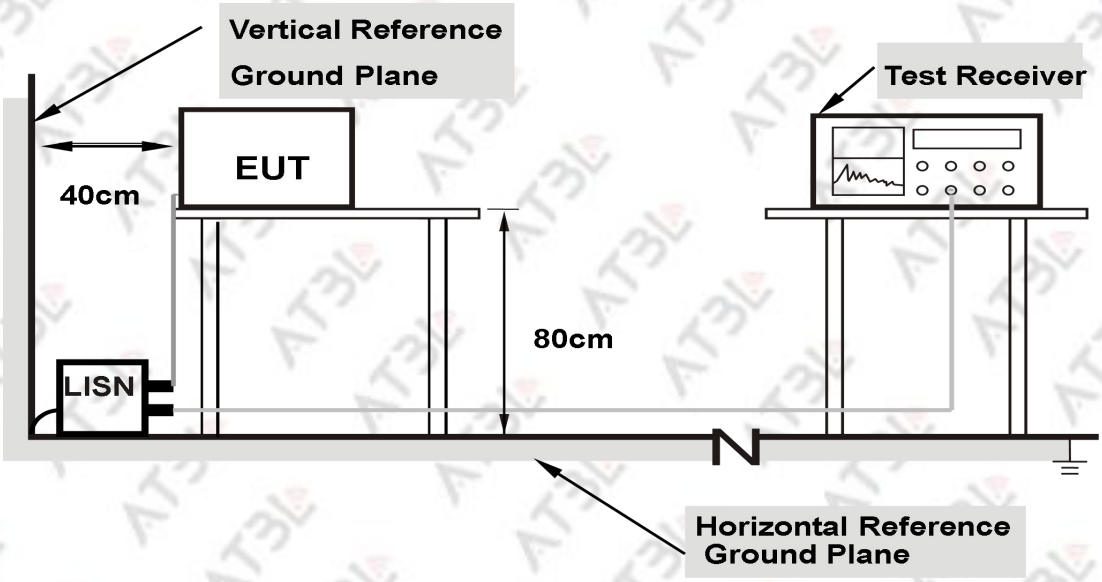
The following table is the setting of the receiver

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

3.1.2 TEST PROCEDURE

a. The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 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 is at least 80 cm from the nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes support units.

3.1.4 EUT OPERATING CONDITIONS

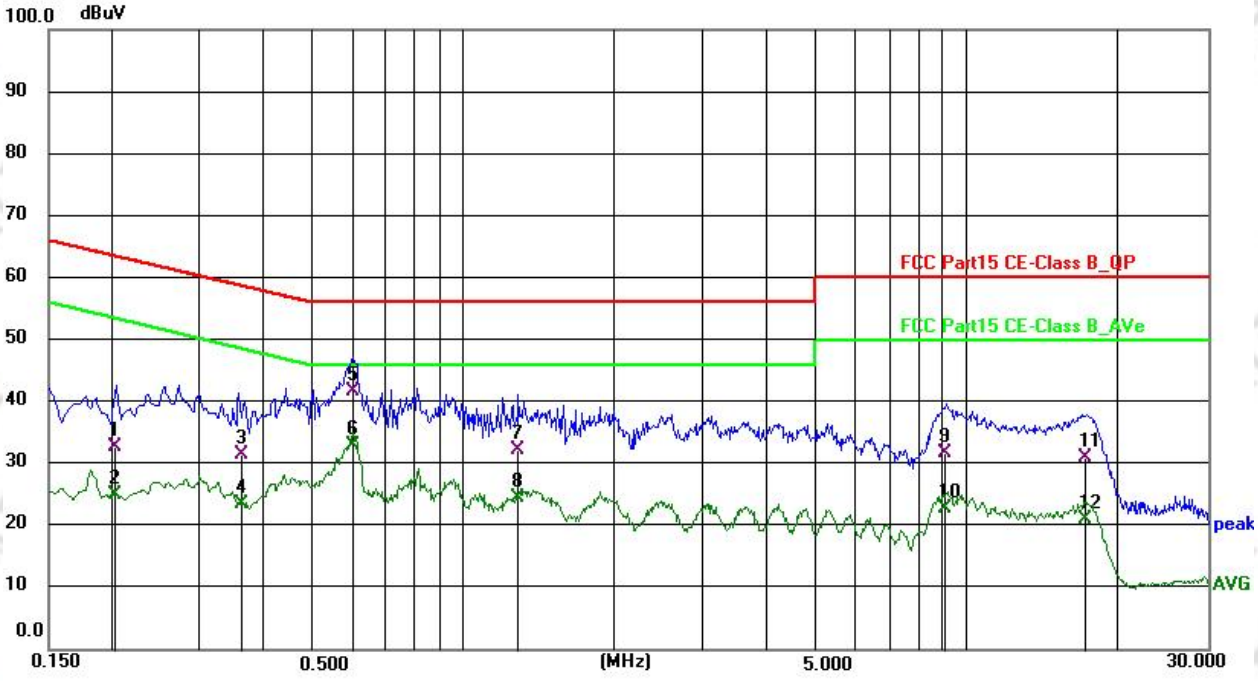
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.5 TEST RESULT

Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode:	Mode 13		

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.2033	22.02	10.75	32.77	63.47	-30.70	QP
2	0.2033	14.24	10.75	24.99	53.47	-28.48	AVG
3	0.3634	20.80	10.68	31.48	58.65	-27.17	QP
4	0.3634	12.75	10.68	23.43	48.65	-25.22	AVG
5	0.6066	31.11	10.68	41.79	56.00	-14.21	QP
6	0.6066	22.30	10.68	32.98	46.00	-13.02	AVG
7	1.2925	21.41	10.73	32.14	56.00	-23.86	QP
8	1.2925	13.71	10.73	24.44	46.00	-21.56	AVG
9	9.1006	21.12	10.65	31.77	60.00	-28.23	QP
10	9.1006	12.09	10.65	22.74	50.00	-27.26	AVG
11	17.2351	19.93	10.94	30.87	60.00	-29.13	QP
12	17.2351	10.07	10.94	21.01	50.00	-28.99	AVG

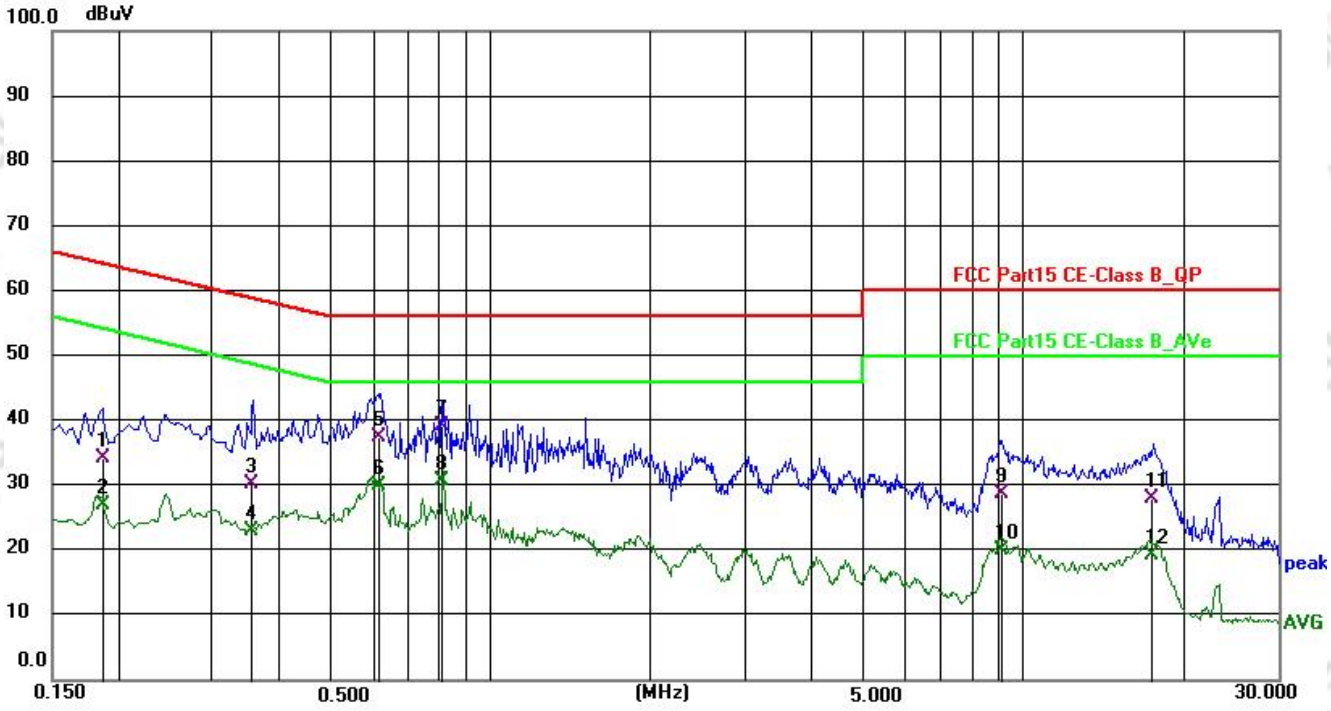
Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit.
3. Factor=LISN factor+Cable loss+Limiter (10dB)



Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	N
Test Mode:	Mode 13		

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1870	23.75	10.41	34.16	64.17	-30.01	QP
2	0.1870	16.49	10.41	26.90	54.17	-27.27	AVG
3	0.3528	19.98	10.31	30.29	58.90	-28.61	QP
4	0.3528	12.79	10.31	23.10	48.90	-25.80	AVG
5	0.6187	27.17	10.34	37.51	56.00	-18.49	QP
6	0.6187	19.57	10.34	29.91	46.00	-16.09	AVG
7	0.8122	28.84	10.35	39.19	56.00	-16.81	QP
8	0.8122	20.34	10.35	30.69	46.00	-15.31	AVG
9	9.1071	18.37	10.36	28.73	60.00	-31.27	QP
10	9.1071	9.68	10.36	20.04	50.00	-29.96	AVG
11	17.5092	17.08	10.82	27.90	60.00	-32.10	QP
12	17.5092	8.45	10.82	19.27	50.00	-30.73	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit.
3. Factor=LISN factor+Cable loss+Limiter (10dB)



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205 (a)&209(a) limit in the table and according to ANSI C63.10-2013below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (0.009MHz - 1000MHz)

Frequencies (MHz)	Field Strength (micorvolts/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

LIMITS OF RADIATED EMISSION MEASUREMENT (1GHz-25 GHz)

FREQUENCY (MHz)	(dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

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

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RESTRICTED FREQUENCY BANDS

FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (GHz)
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

For Radiated Emission

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/QP/AV
Start Frequency	9 kHz/150kHz(Peak/QP/AV)
Stop Frequency	150kHz/30MHz(Peak/QP/AV)
RB / VB (emission in restricted band)	200Hz (From 9kHz to 0.15MHz)/ 9kHz (From 0.15MHz to 30MHz); 200Hz (From 9kHz to 0.15MHz)/ 9kHz (From 0.15MHz to 30MHz)

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/QP
Start Frequency	30 MHz(Peak/QP)
Stop Frequency	1000 MHz (Peak/QP)
RB / VB (emission in restricted band)	120 kHz / 300 kHz

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/AV
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier hamonic(Peak/AV)
RB / VB (emission in restricted band)	1MHz / 3MHz(Peak) 1 MHz/1/T MHz(AVG)

For Restricted band

Spectrum Parameter	Setting
Detector	Peak/AV
Start/Stop Frequency	2310MHz to 2500MHz
RB / VB	1 MHz / 3 MHz(Peak) 1 MHz/1/T MHz(AVG)

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

a. The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz,and above 1GHz.
b. The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m anechoic chamber test site. The table was rotated 360 degree to determine the position of the highest radiation.
c. The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarization of the antenna are set to make the measurement.
d. 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 QuasiPeak detector mode will be re-measured.
e. If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

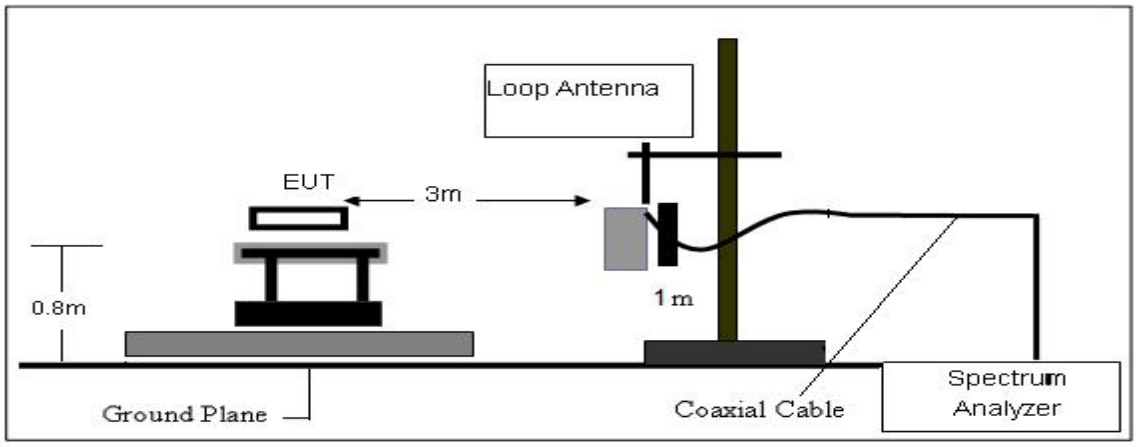
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

3.2.3 DEVIATION FROM TEST STANDARD

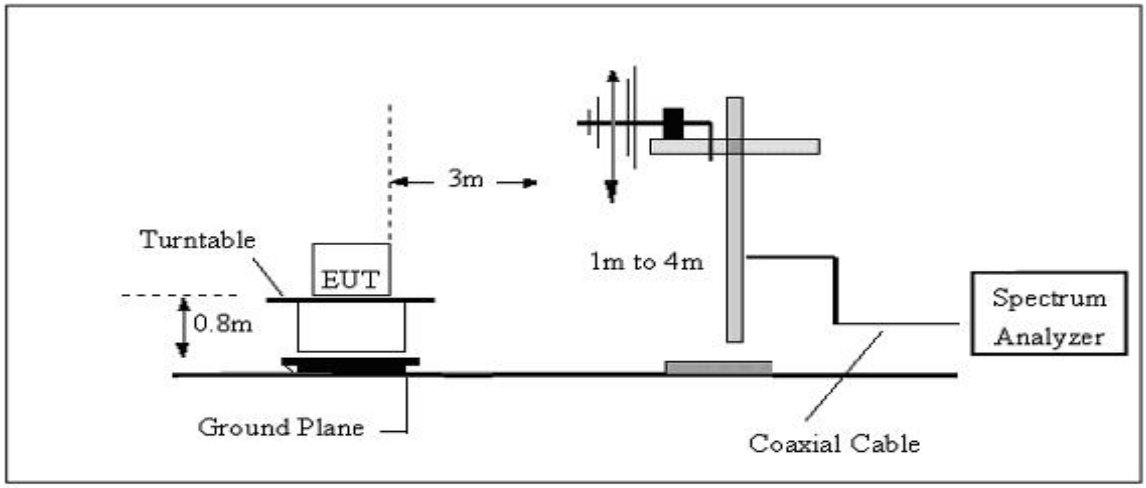
No deviation.

3.2.4 TESTSETUP

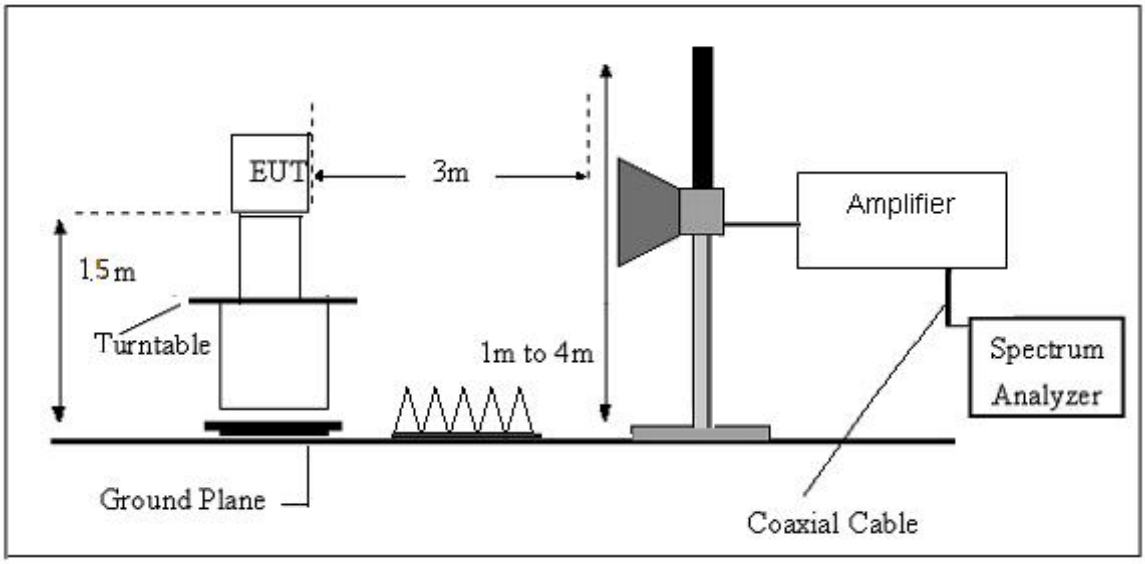
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

Please refer to section 3.1.4 of this report.

3.2.6 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting theAmplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

Factor=AF+CL-AG

3.2.7 TEST RESULTS

(9kHz-30MHz)

Temperature:	25℃	Relative Humidity:	53%RH
Test Voltage:	AC 120V/60Hz	Test Mode:	TX Mode

Freq.	Reading	Limit	Margin	State	Test Result
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F	
--	--	--	--	--	PASS
--	--	--	--	--	PASS

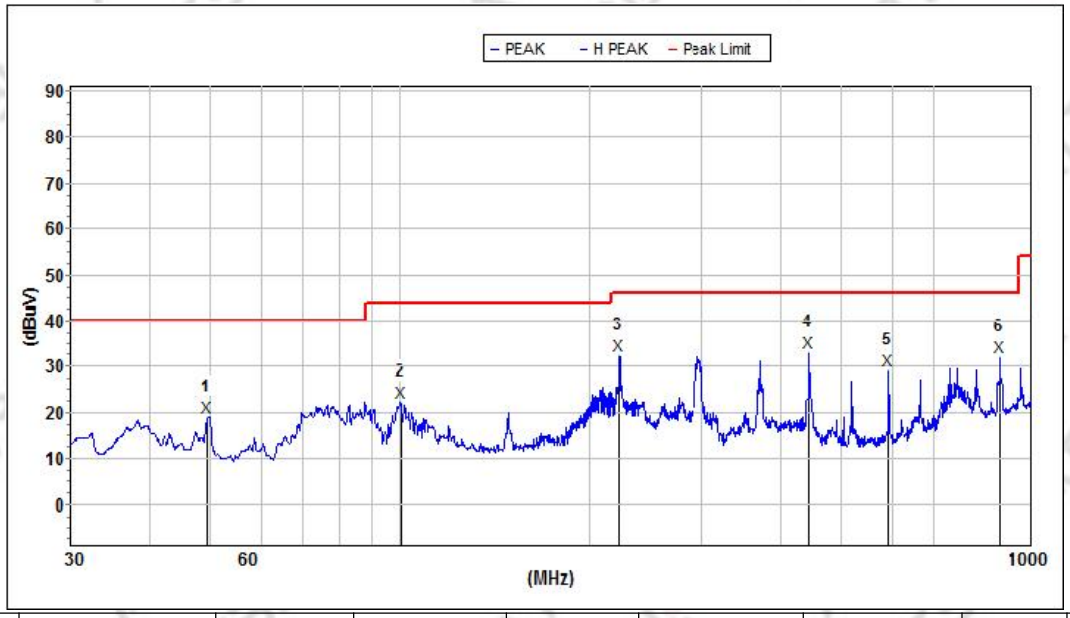
Note:
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits (dBuv) + distance extrapolation factor.

(30MHz-1000MHz)

Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 1		

Remark:
1. Margin = Result (Result =Reading + Factor)–Limit
2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2402 Horizontal



Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	49.359419	19.1	40.0	20.9	13.6	32.6	0.8	H
2	100.228572	22.4	43.5	21.1	10.2	32.9	1.4	H
3	222.169797	32.3	46.0	13.7	10.7	32.8	2.4	H
4	445.632082	33.1	46.0	12.9	14.3	32.4	2.7	H
5	593.049668	29.3	46.0	16.7	15.9	32.4	3.3	H
6	890.727788	32.1	46.0	13.9	19.6	31.7	3.6	H

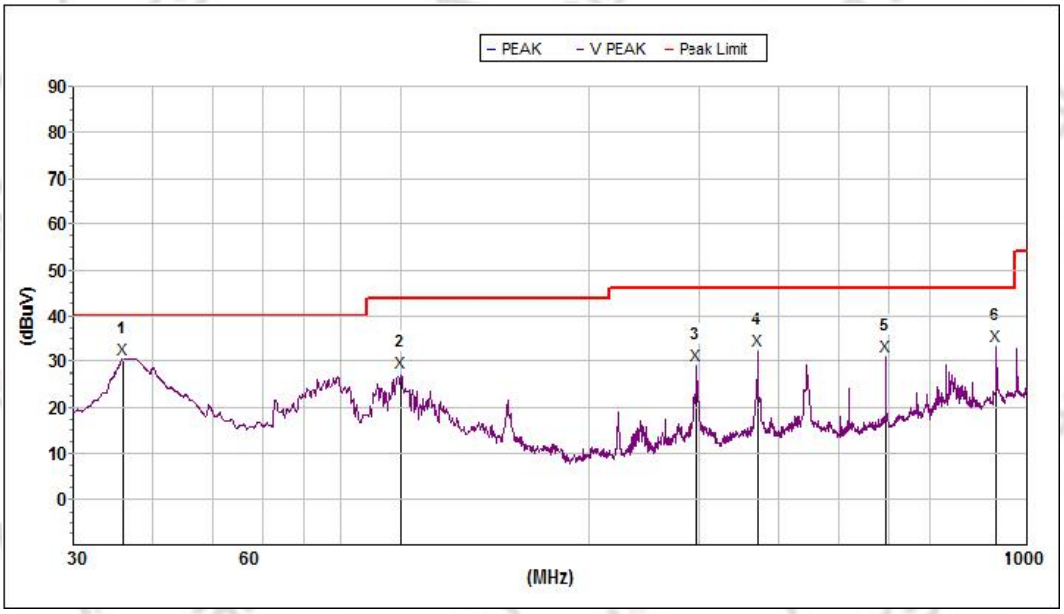
(30MHz-1000MHz)

Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	Mode 1		

Remark:

3. Margin = Result (Result =Reading + Factor)–Limit
4. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2402 Vertical



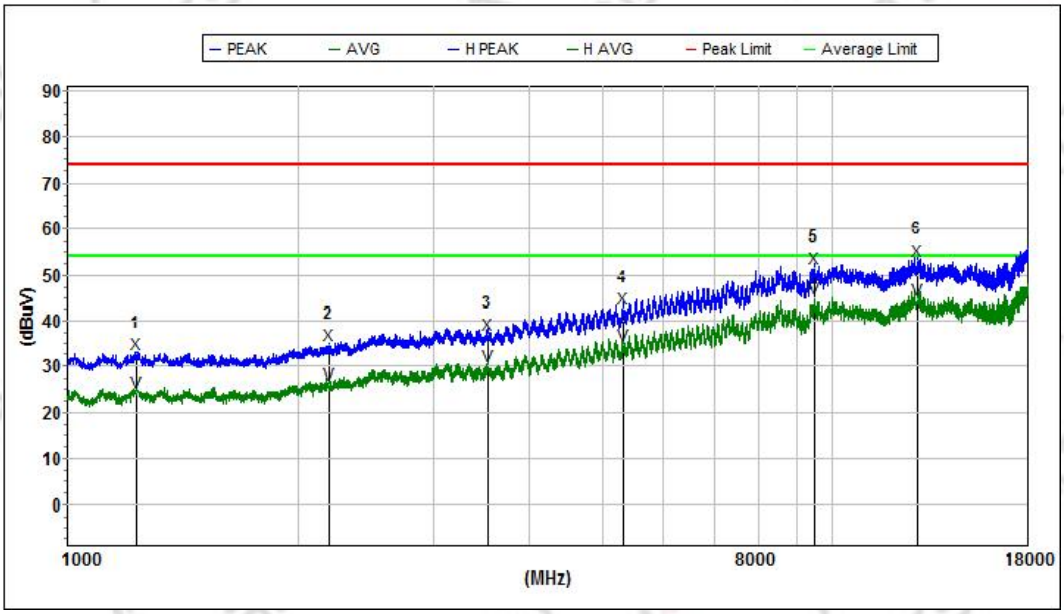
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	36.000700	30.6	40.0	9.4	13.5	32.3	0.8	V
2	100.228572	27.4	43.5	16.1	10.2	32.9	1.4	V
3	297.224054	29.0	46.0	17.0	12.7	32.7	2.7	V
4	371.352844	32.3	46.0	13.7	14.2	32.4	2.7	V
5	593.049668	31.1	46.0	14.9	18.2	32.4	3.3	V
6	890.727788	33.3	46.0	12.7	21.5	31.7	3.6	V

1000MHz-18000MHz

Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 1		

Remark:
5. Margin = Result (Result =Reading + Factor)–Limit
6. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2402 Horizontal



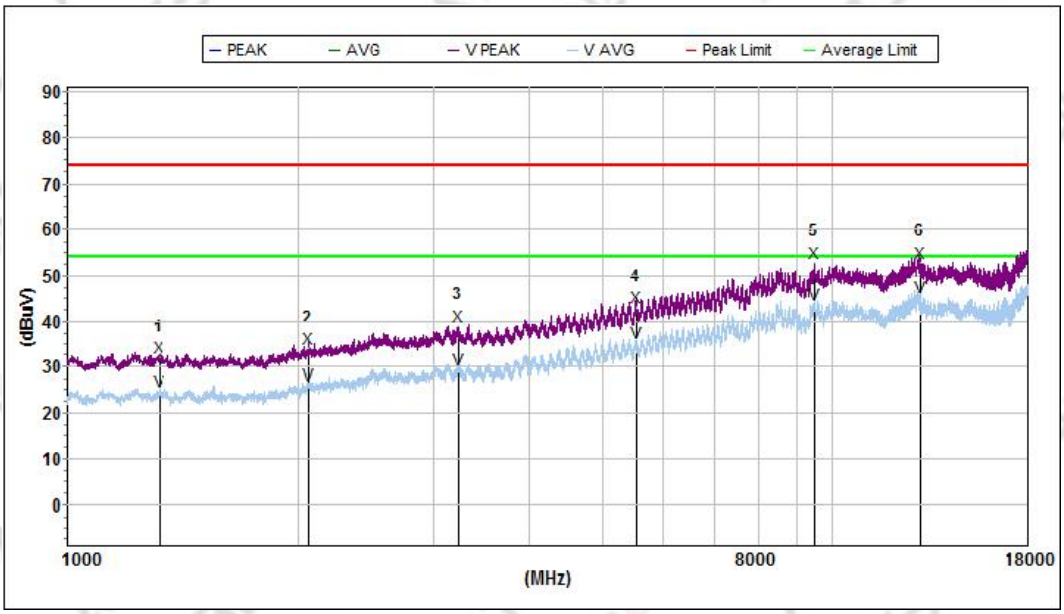
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	1226.726554	32.7	74.0	41.3	25.8	60.9	2.3	H
2	2195.632490	34.7	74.0	39.3	27.2	60.5	2.7	H
3	3545.039400	37.2	74.0	36.8	29.5	59.0	3.2	H
4	5312.900000	42.8	74.0	31.2	32.8	57.8	3.9	H
5	9471.100000	51.4	74.0	22.6	38.6	59.7	5.4	H
6	12909.350000	53.2	74.0	20.8	39.7	57.8	6.1	H
Avg								
1	1226.726554	24.5	54.0	29.5	25.8	60.9	2.3	H
2	2195.632490	26.3	54.0	27.7	27.2	60.5	2.7	H
3	3545.039400	30.3	54.0	23.7	29.5	59.0	3.2	H
4	5312.900000	34.7	54.0	19.3	32.8	57.8	3.9	H
5	9471.100000	44.8	54.0	9.2	38.6	59.7	5.4	H
6	12909.350000	44.7	54.0	9.3	39.7	57.8	6.1	H

(1000MHz-18000MHz)

Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	Mode 1		

Remark:
7. Margin = Result (Result =Reading + Factor)–Limit
8. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2402 Vertical



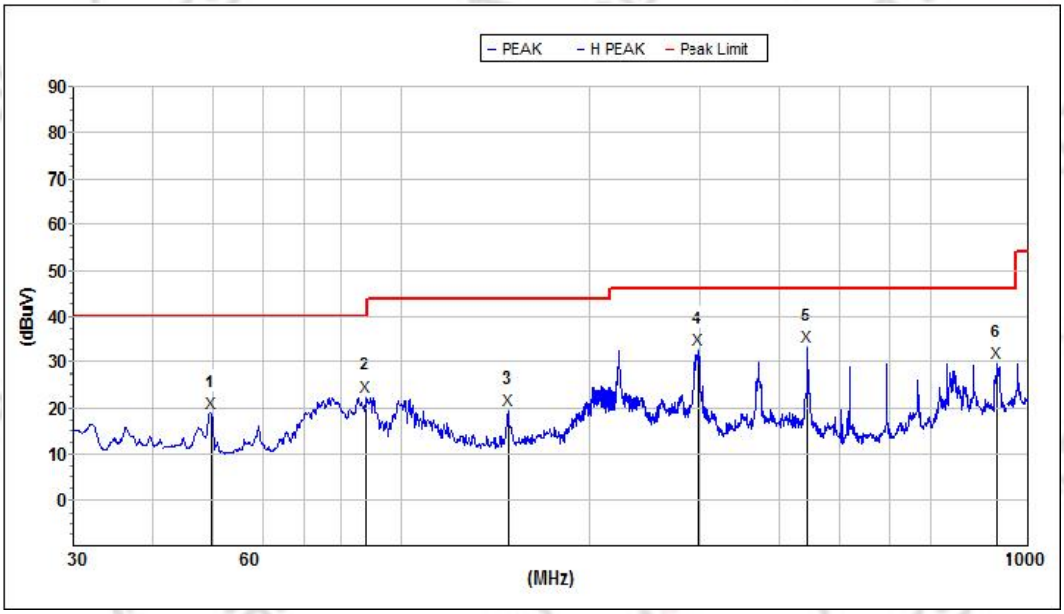
Mk.	Freq.(MHz)	Level (dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	1315.794675	32.2	74.0	41.8	25.8	61.1	2.3	V
2	2063.640552	34.2	74.0	39.8	26.9	60.9	2.7	V
3	3237.200000	38.9	74.0	35.1	29.7	58.4	3.0	V
4	5525.400000	43.1	74.0	30.9	32.8	58.1	4.0	V
5	9470.250000	52.7	74.0	21.3	38.6	59.7	5.4	V
6	13016.450000	52.7	74.0	21.3	39.8	57.8	6.2	V
Avg								
1	1315.794675	25.0	54.0	29.0	25.8	61.1	2.3	V
2	2063.640552	26.1	54.0	27.9	26.9	60.9	2.7	V
3	3237.200000	29.5	54.0	24.5	29.7	58.4	3.0	V
4	5525.400000	35.5	54.0	18.5	32.8	58.1	4.0	V
5	9470.250000	43.5	54.0	10.5	38.6	59.7	5.4	V
6	13016.450000	45.4	54.0	8.6	39.8	57.8	6.2	V

(30MHz-1000MHz)

Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 2		

Remark:
9. Margin = Result (Result =Reading + Factor)–Limit
10. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2441 Horizontal



Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	49.794025	18.9	40.0	21.1	13.5	32.6	0.8	H
2	87.571081	22.5	40.0	17.5	9.4	32.9	1.1	H
3	148.181001	19.7	43.5	23.8	14.1	32.9	1.3	H
4	298.268117	32.9	46.0	13.1	12.8	32.7	2.7	H
5	445.632082	33.4	46.0	12.6	14.3	32.4	2.8	H
6	890.727788	29.8	46.0	16.2	19.6	31.6	3.6	H

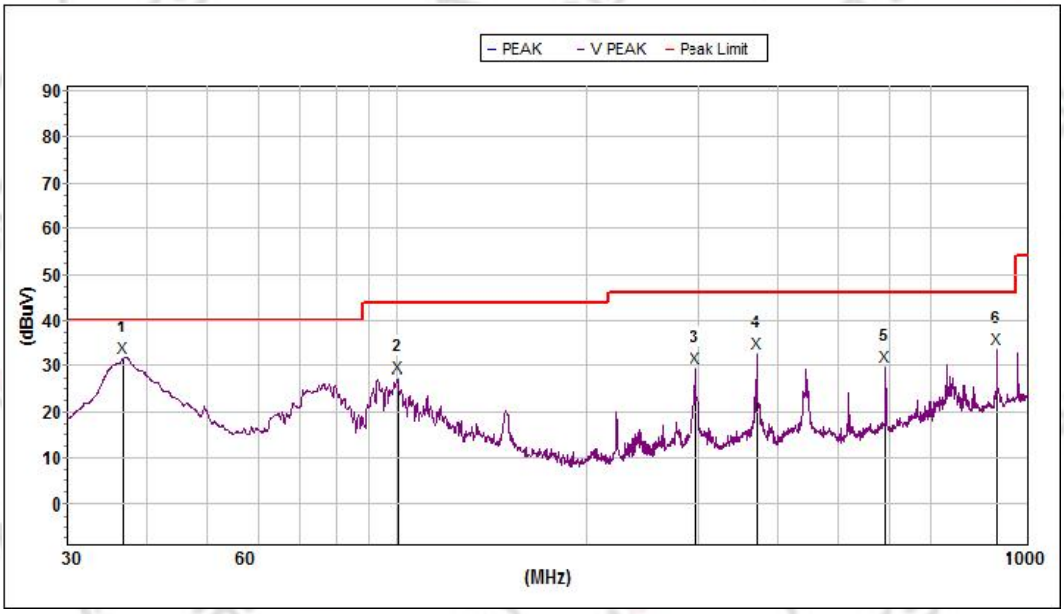
(30MHz-1000MHz)

Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	Mode 2		

Remark:

11. Margin = Result (Result =Reading + Factor)–Limit
12. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2441 Vertical



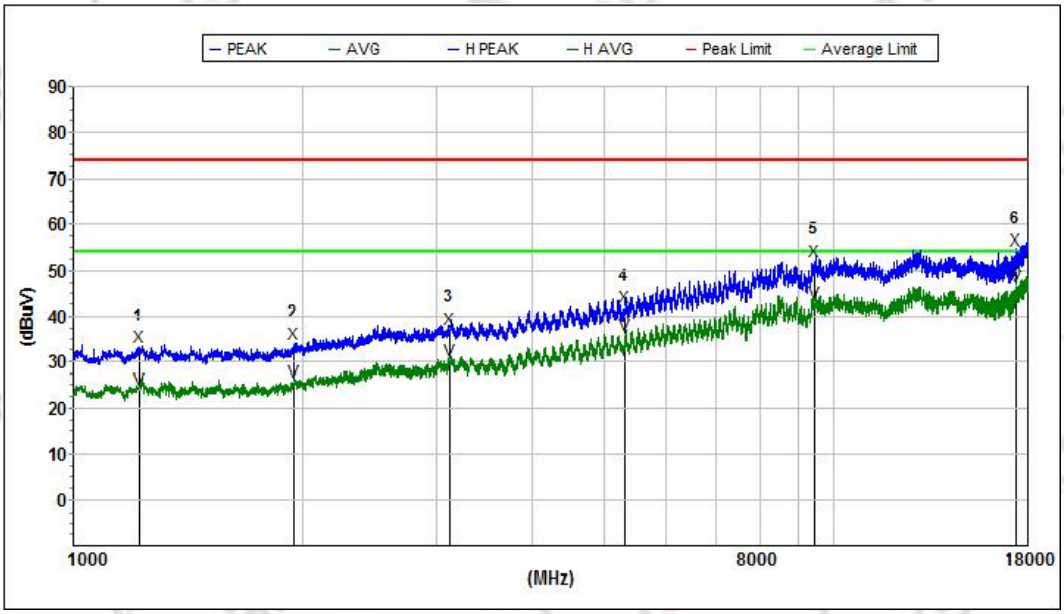
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin (dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	36.766156	31.9	40.0	8.1	13.6	32.3	0.8	V
2	100.228572	27.6	43.5	15.9	10.2	32.9	1.4	V
3	297.224054	29.6	46.0	16.4	12.7	32.7	2.7	V
4	371.352844	32.8	46.0	13.2	14.2	32.4	2.7	V
5	593.049668	29.7	46.0	16.3	18.2	32.4	3.3	V
6	890.727788	33.9	46.0	12.1	21.5	31.7	3.6	V

(1000MHz-18000MHz)

Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 2		

Remark:
13. Margin = Result (Result =Reading + Factor)–Limit
14. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2441 Horizontal



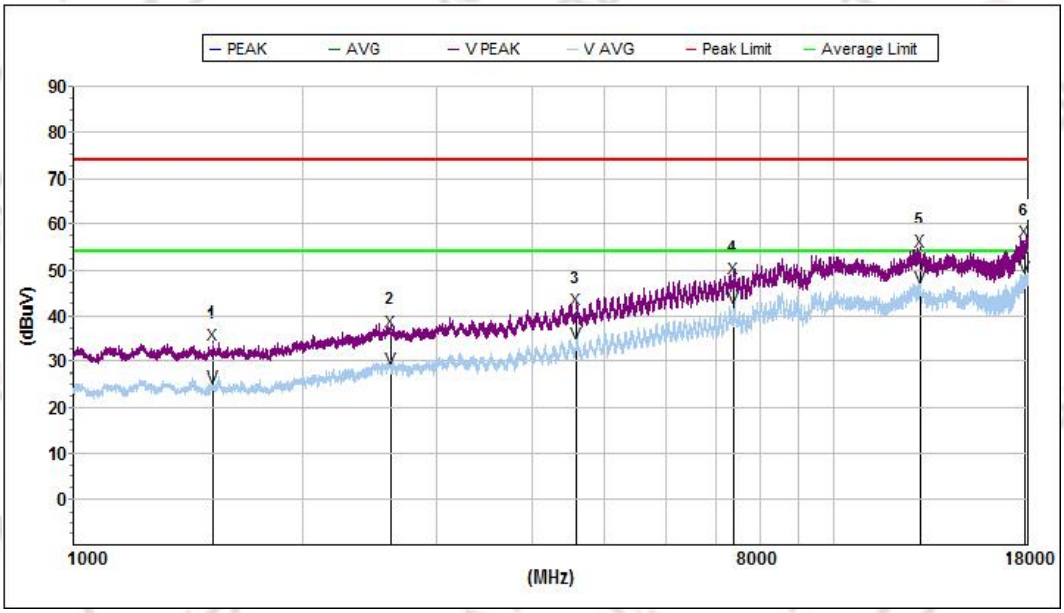
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	1220.150000	33.5	74.0	40.5	25.7	60.9	2.3	H
2	1952.000000	34.0	74.0	40.0	26.1	60.9	2.7	H
3	3125.296209	37.4	74.0	36.6	29.7	58.6	3.0	H
4	5312.900000	42.1	74.0	31.9	32.8	57.8	3.9	H
5	9451.550000	52.3	74.0	21.7	38.6	59.6	5.4	H
6	17378.650000	54.6	74.0	19.4	39.0	58.8	6.9	H
Avg								
1	1220.150000	24.3	54.0	29.7	25.7	60.9	2.3	H
2	1952.000000	25.7	54.0	28.3	26.1	60.9	2.7	H
3	3125.296209	30.6	54.0	23.4	29.7	58.6	3.0	H
4	5312.900000	36.1	54.0	17.9	32.8	57.8	3.9	H
5	9451.550000	43.0	54.0	11.0	38.6	59.6	5.4	H
6	17378.650000	46.5	54.0	7.5	39.0	58.8	6.9	H

(1000MHz-18000MHz)

Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	Mode 2		

Remark:
15. Margin = Result (Result =Reading + Factor)–Limit
16. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2441 Vertical



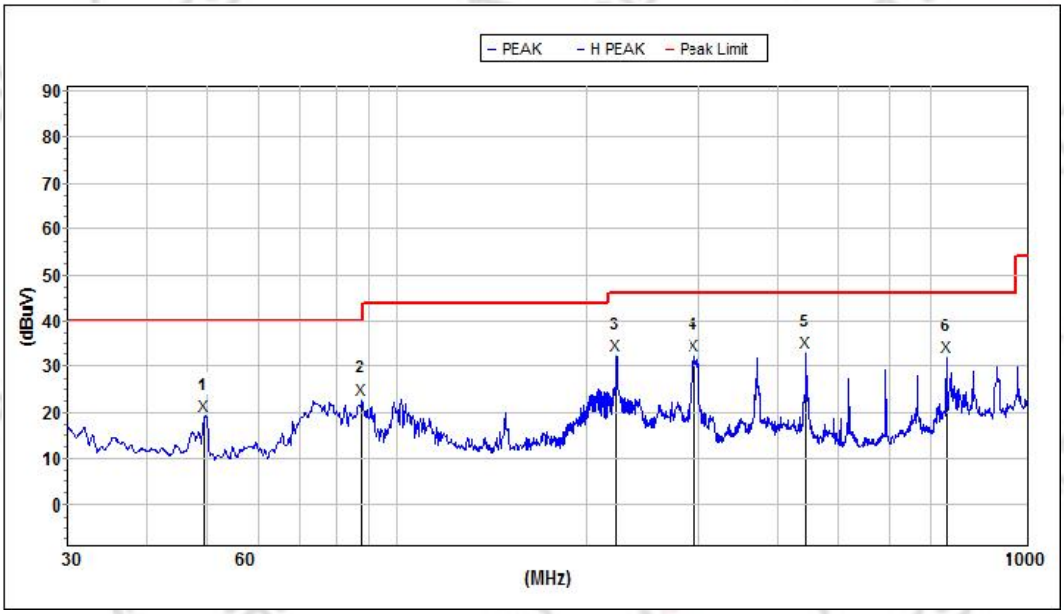
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	1523.678025	33.8	74.0	40.2	25.4	61.3	2.5	V
2	2611.600000	36.6	74.0	37.4	28.0	59.0	2.9	V
3	4579.350000	41.3	74.0	32.7	31.6	57.9	3.6	V
4	7392.850000	48.3	74.0	25.7	36.5	57.5	4.6	V
5	13015.600000	54.0	74.0	20.0	39.8	57.8	6.2	V
6	17812.150000	56.1	74.0	17.9	41.2	57.8	7.0	V
Avg								
1	1523.678025	24.4	54.0	29.6	25.4	61.3	2.5	V
2	2611.600000	28.6	54.0	25.4	28.0	59.0	2.9	V
3	4579.350000	34.0	54.0	20.0	31.6	57.9	3.6	V
4	7392.850000	41.8	54.0	12.2	36.5	57.5	4.6	V
5	13015.600000	46.4	54.0	7.6	39.8	57.8	6.2	V
6	17812.150000	48.5	54.0	5.5	41.2	57.8	7.0	V

(30MHz-1000MHz)

Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 3		

Remark:
17. Margin = Result (Result =Reading + Factor)–Limit
18. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2480 Horizontal



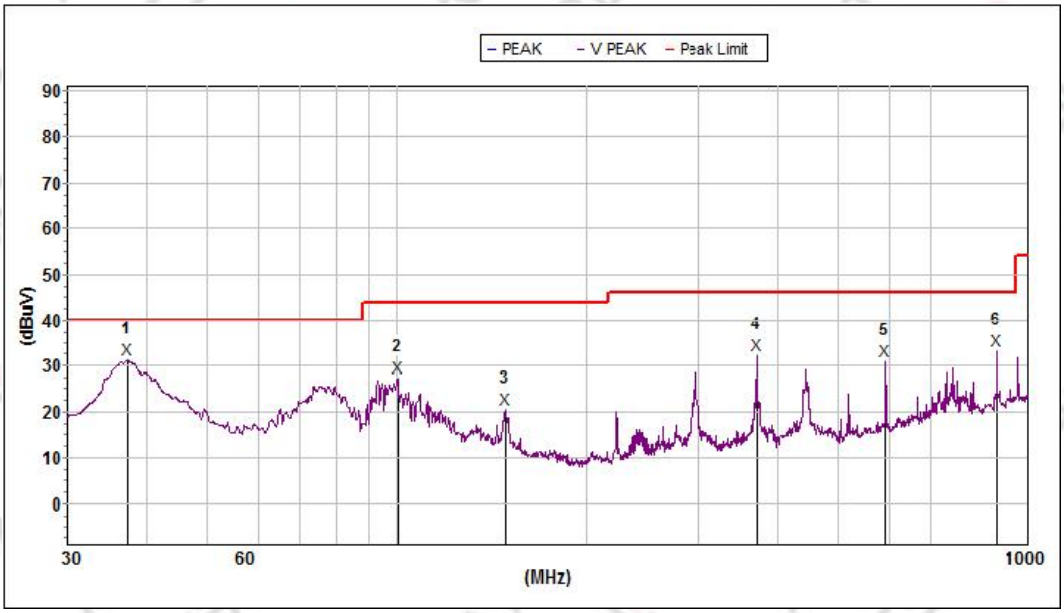
Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	49.359419	19.4	40.0	20.6	13.6	32.6	0.8	H
2	87.571081	23.0	40.0	17.0	9.4	32.9	1.1	H
3	222.169797	32.4	46.0	13.6	10.7	32.8	2.4	H
4	295.664809	32.6	46.0	13.4	12.7	32.7	2.7	H
5	445.632082	33.2	46.0	12.8	14.3	32.4	2.7	H
6	742.258717	32.0	46.0	14.0	17.3	32.2	3.6	H

(30MHz-1000MHz)

Temperature:	25℃	Relative Humidity:	50%RH
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	Mode 3		

Remark:
19. Margin = Result (Result =Reading + Factor)–Limit
20. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain

DH5 2480 Vertical



Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
Peak								
1	37.220165	31.3	40.0	8.7	13.7	32.3	0.8	V
2	100.228572	27.6	43.5	15.9	10.2	32.9	1.4	V
3	148.181001	20.7	43.5	22.8	14.0	32.9	1.3	V
4	371.352844	32.6	46.0	13.4	14.2	32.4	2.7	V
5	593.049668	31.2	46.0	14.8	18.2	32.4	3.3	V
6	890.727788	33.3	46.0	12.7	21.5	31.7	3.6	V