

FCC Test Report

Test Report

On Behalf of

Shenzhen Ruidian Technology Co.,Ltd.

For

AI Recording Stylus Pen

Model No.: QZ402, QZ401, QZ403, QZ405, QZ406, QZ408, QZ409, QZ410, QZ411,
QZ412

FCC ID: 2A44B-QZ402

Prepared For:

Shenzhen Ruidian Technology Co.,Ltd.

301, 3rd Floor, Building 11, Longbi Industrial, Zone, No. 27 Dafa Road, Dafa Pu Community,
Bantian Street, Longgang District, Shenzhen City, China

Prepared By:

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Date of Test:

September 21, 2026 ~ September 29, 2026

Date of Report:

September 29, 2026

Report Number:

HK26091700986-2E

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Test Result Certification

Applicant's Name.....: Shenzhen Ruidian Technology Co.,Ltd.

Address.....: 301, 3rd Floor, Building 11, Longbi Industrial, Zone, No. 27 Dafa Road, Dafa Pu Community, Bantian Street, Longgang District, Shenzhen City, China

Manufacturer's Name.....: Shenzhen Ruidian Technology Co.,Ltd.

Address.....: 301, 3rd Floor, Building 11, Longbi Industrial, Zone, No. 27 Dafa Road, Dafa Pu Community, Bantian Street, Longgang District, Shenzhen City, China

Product Description

Trade Mark.....: N/A

Product Name.....: AI Recording Stylus Pen

Model(s) Name.....: QZ402, QZ401, QZ403, QZ405, QZ406, QZ408, QZ409, QZ410, QZ411, QZ412

Standards.....: 47 CFR FCC Part 15 Subpart C 15.247

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Date of Test.....:

Date (s) of Performance of Tests.....: September 21, 2026 ~ September 29, 2026

Date of Issue.....: September 29, 2026

Test Result.....: Pass

Testing Engineer



Len Liao

Technical Manager



Sliver Wan

Authorized Signatory



Jason Zhou



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Table of Contents

Page

1. Summary	5
1.1 Test Standards	5
1.2 Test Procedures and Results	5
1.3 Information of the Test Laboratory	6
1.4 Statement of the Measurement Uncertainty	6
2. General Information	7
2.1 Environmental Conditions	7
2.2 General Description of EUT	7
2.3 Description of Test Modes and Test Frequency	8
2.4 Equipments Used during the Test	9
2.5 Related Submittal(s) / Grant (s)	10
2.6 Modifications	10
2.7 Description of Test Setup	10
2.8 Description of Support Units	11
2.9 The Worse Case Power Setting Parameter	11
3. Test Conditions and Results	12
3.1 AC Conducted Emissions Test	12
3.2 Radiated Spurious Emission Measurement	13
3.3 Maximum Peak Conducted Output Power	16
3.4 20dB Bandwidth	17
3.5 Frequency Separation	18
3.6 Number of Hopping Frequency	19
3.7 Time of Occupancy (Dwell Time)	20
3.8 Out-of-Band Emissions	21
3.9 Pseudorandom Frequency Hopping Sequence	22
3.10 Antenna Requirement	23
4. Test Setup Photos of the EUT	24
5. Photos of the EUT	26
6. Appendix Test Data	27
6.1 AC Power Conducted Emission	27
6.2 Radiated Spurious Emission	29
6.3 RF Test Data	35

**** Issued History ****

Revision	Description	Issued Date	Remark
Revision 1.0	Initial Test Report Release	September 29, 2026	Jason Zhou

1. Summary

1.1 Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

ANSI C63.10: 2020: American National Standard for Testing Unlicensed Wireless Devices

1.2 Test Procedures and Results

Standard Section	Test Item	Result
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.215	20dB Bandwidth & 99% Bandwidth	PASS
FCC Part 15.247(d)	Spurious RF Conducted Emission	PASS
FCC Part 15.247(b)	Maximum Peak Output Power	PASS
FCC Part 15.247 (a) (1)	Pseudorandom Frequency Hopping Sequence	PASS
FCC Part 15.247(a)(1)(iii)	Number of Hopping Frequency& Time of Occupancy	PASS
FCC Part 15.247(a)(1)	Frequency Separation	PASS
FCC Part 15.205/15.209	Radiated Emissions	PASS
FCC Part 15.247(d)	Band Edge Compliance of RF Emission	PASS

Note:

1. *PASS: Test item meets the requirement.*
2. *Fail: Test item does not meet the requirement.*
3. *N/A: Test case does not apply to the test object.*
4. *The test result judgment is decided by the limit of test standard.*

1.3 Information of the Test Laboratory

Shenzhen HUAKE Testing Technology Co., Ltd.

Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

1.4 Statement of the Measurement Uncertainty

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

No.	Item	MU
1	Conducted Emission 0.15~30MHz	$\pm 2.22\text{dB}$
2	All Emissions, Radiated(<1G)	$\pm 3.60\text{dB}$
3	All Emissions, Radiated(1-18G)	$\pm 3.86\text{dB}$
4	All Emissions, Radiated(18-40G)	$\pm 4.76\text{dB}$
5	Transmitter Power Conducted	$\pm 0.37\text{dB}$
6	Conducted Spurious Emission	$\pm 2.20\text{dB}$
7	Occupied Bandwidth	$\pm 3.68\%$
8	Temperature	$\pm 0.1^{\circ}\text{C}$
9	Humidity	$\pm 1.0\%$

2. General Information

2.1 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2 General Description of EUT

Product Name:	AI Recording Stylus Pen
Model Name:	QZ402
Series Model(s):	QZ401, QZ403, QZ405, QZ406, QZ408, QZ409, QZ410, QZ411, QZ412
Model Difference:	All model's the function, software and electric circuit are the same, only product model named different. Test sample model: QZ402.
Power Supply:	DC5V from Type-C or DC3.85V from Battery
Version:	Supported EDR
Modulation:	GFSK, $\pi/4$ DQPSK
Operation Frequency:	2402MHz~2480MHz
Channel Number:	79
Channel Separation:	1MHz
Antenna Type:	PCB Antenna
Antenna Gain:	0dBi
Hardware Version:	V3.0
Firmware Version:	V3.0
Note: 1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual. 2. Antenna gain Refer to the antenna specifications. 3. The cable loss data is obtained from the supplier. 4. The test results in the report only apply to the tested sample.	

2.3 Description of Test Modes and Test Frequency

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.

There are 79 channels provided to the EUT and Channel 00/39/78 was selected for testing.

Operation Frequency:

Channel	Frequency (MHz)
00	2402
01	2403
⋮	⋮
38	2440
39	2441
40	2442
⋮	⋮
77	2479
78	2480

Note: The line display in grey were the channel selected for testing

Preliminary tests were performed in each mode and packet length of BT, and found worst case as bellow, finally test were conducted at those mode and recorded in this report.

Test Items	Worst case
AC Conducted Emissions	Charging mode
Radiated Emissions and Band Edge	DH5 Low channel
Maximum Conducted Output Power	DH5/2DH5
20dB Bandwidth&99% Bandwidth	DH5/2DH5
Frequency Separation	DH5/2DH5 Middle channel
Number of hopping frequency	DH5/2DH5
Time of Occupancy (Dwell Time)	DH1/DH3/DH5 Middle channel 2DH1/2DH3/2DH5 Middle channel
Out-of-band Emissions	DH5/2DH5



2.4 Equipments Used during the Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	L.I.S.N.	R&S	ENV216	HKE-002	2026/02/11	1 Year
2	L.I.S.N.	R&S	ENV216	HKE-059	2026/02/04	1 Year
3	EMI Test Receiver	R&S	ESR-7	HKE-005	2026/02/06	1 Year
4	Spectrum analyzer	Agilent	N9020A	HKE-025	2026/02/06	1 Year
5	Spectrum analyzer	KEYSIGHT	N9020A	HKE-117	2026/02/06	1 Year
6	Spectrum analyzer	R&S	FSV3044	HKE-126	2026/02/06	1 Year
7	Preamplifier	Schwarzbeck	EMC051845SE	HKE-006	2026/02/04	1 Year
8	Preamplifier	Agilent	83051A	HKE-016	2026/02/04	1 Year
9	Preamplifier	QJD	QJD18-40-50	HKE-030	2026/02/05	1 Year
10	6dB Attenuator	Pasternack	6dB	HKE-152	2026/02/06	1 Year
11	EMI Test Receiver	R&S	ESR-7	HKE-010	2026/02/06	1 Year
12	Broadband Antenna	Schwarzbeck	VULB9168	HKE-167	2026/02/06	2 Year
13	Loop Antenna	COM-POWER	AL-130R	HKE-014	2026/02/06	2 Year
14	Horn Antenna	Schwarzbeck	9120D	HKE-013	2026/02/06	2 Year
15	Broadband Horn Antenna	A-INFO	LB-180400-KF	HKE-031	2026/02/06	2 Year
16	EMI Test Software	Tonscend	JS32-CE 2.5.0.6	HKE-081	/	/
17	EMI Test Software	Tonscend	JS32-RE 5.0.0	HKE-082	/	/
18	RF Automatic control unit	Tonscend	JS0806-2	HKE-060	2026/02/06	1 Year
19	High pass filter unit	Tonscend	JS0806-F	HKE-055	2026/02/06	1 Year
20	Wireless Communication Test Set	R&S	CMW500	HKE-027	2026/02/06	1 Year
21	High-low temperature chamber	Guangke	HT-80L	HKE-118	2026/02/06	1 Year
22	Temperature and humidity meter	Boyang	HTC-1	HKE-075	2026/03/06	1 Year
23	RF Test Software	Tonscend	JS1120-3 Version 3.6.21	HKE-083	/	/
24	10dB Attenuator	Schwarzbeck	VTSD9561F	HKE-153	2026/02/04	1 Year
25	RSE Test Software	Tonscend	JS36-RSE 5.0.0	HKE-184	/	/

2.5 Related Submittal(s) / Grant (s)

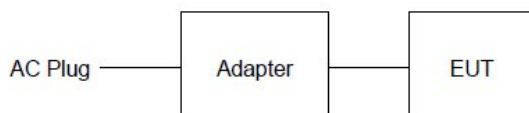
This submittal(s) (test report) is intended to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.6 Modifications

No modifications were implemented to meet testing criteria.

2.7 Description of Test Setup

Operation of EUT during AC Conducted and Radiation below 1GHz testing:



Operation of EUT during Radiation above 1GHz testing:



Operation of EUT during RF Conducted testing:



The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. 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, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The report only reflects the worst emission test results. The worst case is X position.

2.8 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.

Item	Product Name	Trade Mark	Model Name	Specification	Remark
1	AI Recording Stylus Pen	N/A	QZ402	N/A	EUT
2	Adapter	N/A	N/A	Input: AC100-240V, 50/60Hz, 0.75A Output: DC5V/2A, 9V/2A, 10V/2.25A MAX	
3	Adapter	N/A	N/A	Input: AC100-240V, 50/60Hz, 0.7A Output: DC5V/3A, 9V/3A, 12V/2.25A, 20V/1.35A	

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. For conducted measurements (Output Power, 20dB Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

2.9 The Worse Case Power Setting Parameter

During testing, channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the end product.

Test Software Version	FCC_assist1.0.4
Transmit Antenna Number	1
Test Software setting value	5



3. Test Conditions and Results

3.1 AC Conducted Emissions Test

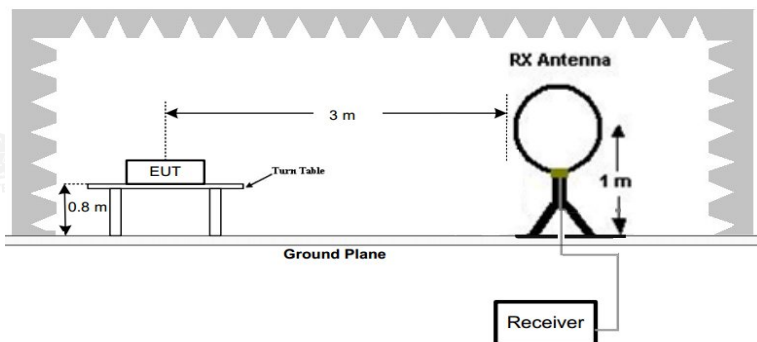
Test Requirement:	FCC Part15 C Section 15.207														
Test Method:	ANSI C63.10: 2020														
Frequency Range:	150 kHz to 30 MHz														
Receiver Setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto														
Limits:	<table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table>	Frequency range (MHz)	Limit (dBuV)		Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)														
	Quasi-peak	Average													
0.15-0.5	66 to 56*	56 to 46*													
0.5-5	56	46													
5-30	60	50													
Test Setup:	Reference Plane 40cm E.U.T AC power 80cm LISN Filter AC power EMI Receiver Test table/Insulation plane Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m														
Test Mode:	Transmitting with modulation														
Test Procedure:	1. The E.U.T is connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. 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: 2020 on conducted measurement.														
Test Result:	PASS														
Test Data:	Reference Appendix Test Data														

3.2 Radiated Spurious Emission Measurement

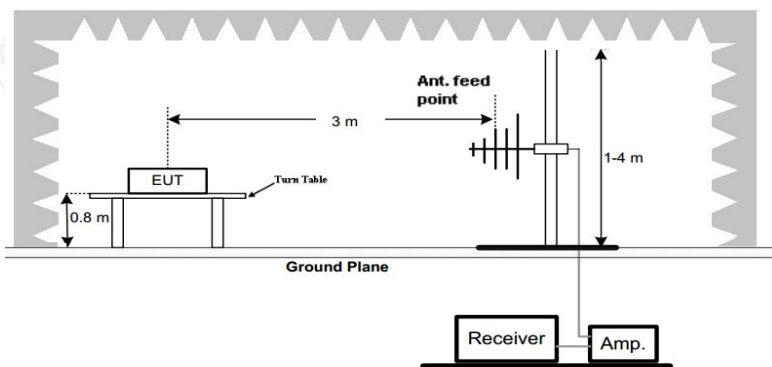
Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10: 2020				
Frequency Range:	9 kHz to 26 GHz				
Measurement Distance:	3 m				
Antenna Polarization:	Horizontal & Vertical				
Operation mode:	Transmitting with modulation				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value
	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
		Peak	1MHz	10Hz	Average Value
Limit:	Frequency		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		30		30
	30-88		100		3
	88-216		150		3
	216-960		200		3
	Above 960		500		3
	Frequency		Field Strength (microvolts/meter)	Measurement Distance (meters)	Detector
	Above 1GHz		500	3	Average
			5000	3	Peak

Test Setup:

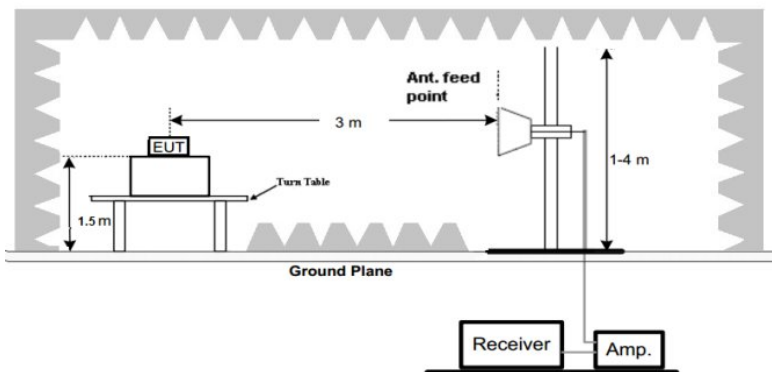
For Radiated Emissions below 30MHz



30MHz to 1GHz



Above 1GHz





Test Procedure:	1. The EUT was placed on turn table which is 0.8m above ground plane for below 1GHz test, and on a low permittivity and low loss tangent turn table which is 1.5m above ground plane for above 1GHz test. 2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0 degrees to 360 degrees to acquire the highest emissions from EUT. 3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. 4. Repeat above procedures until all frequency measurements have been completed.
Remark:	1. Radiated Emission measured at GFSK and $\pi/4$ DQPSK mode from 9 KHz to 10th harmonic of fundamental and recorded worst case at GFSK DH5 mode. 2. There is no emission found except system noise floor in 9 KHz to 30MHz and not recorded in this report. 3. For below 1GHz testing recorded worst at GFSK DH5 low channel.
Test Results:	PASS
Test Data:	Reference Appendix Test Data

3.3 Maximum Peak Conducted Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)
Test Method:	ANSI C63.10: 2020
Limit:	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125mW. 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.
Test Setup:	 RF automatic control unit EUT
Test Mode:	Transmitting with modulation
Test Procedure:	1. The RF output of EUT was connected to the RF automatic control unit by RF cable. The path loss was compensated to the results for each measurement. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Measure the Peak output power and record the results in the test report.
Test Result:	PASS
Test Data:	Reference Appendix Test Data

3.4 20dB Bandwidth

Test Requirement:	FCC Part15 C Section 15.215
Test Method:	ANSI C63.10: 2020
Limit:	For frequency hopping systems operating in the 2400MHz - 2483.5MHz no limit for 20dB bandwidth.
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30 KHz RBW and 100 KHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB. The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth: RBW=1% to 5% of the OBW VBW=approximately 3 X RBW Detector=Peak Trace Mode: Max Hold Use the 99% power bandwidth function of the instrument to measure the Occupied Bandwidth and recorded.
Test Result:	PASS
Test Data:	Reference Appendix Test Data

3.5 Frequency Separation

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.10: 2020
Limit:	Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25 KHz or the $\frac{2}{3} \times 20\text{dB}$ bandwidth of the hopping channel, whichever is greater.
Test Setup:	 The diagram illustrates the test setup. On the left is a green box labeled 'Spectrum Analyzer'. A horizontal line connects it to a yellow box on the right labeled 'EUT'. Below the Spectrum Analyzer box is the text 'Spectrum Analyzer', and below the EUT box is the text 'EUT'.
Test Mode:	Transmitting mode with modulation
Test Procedure:	The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300 KHz RBW and 1000 KHz VBW.
Test Result:	PASS
Test Data:	Reference Appendix Test Data

3.6 Number of Hopping Frequency

Test Requirement:	FCC Part15 C Section 15.247 (a) (1) (iii)
Test Method:	ANSI C63.10: 2020
Limit:	Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels.
Test Setup:	 The diagram illustrates the test setup. On the left is a green rectangular box labeled 'Spectrum Analyzer' with a blue screen and two small circles representing ports. A horizontal line connects this box to a yellow rectangular box on the right labeled 'EUT' (Equipment Under Test), which also has two small circles representing ports.
Test Mode:	Transmitting mode with modulation
Test Procedure:	The transmitter output was connected to the spectrum analyzer through an attenuator. Set spectrum analyzer start 2400MHz to 2483.5MHz.
Test Result:	PASS
Test Data:	Reference Appendix Test Data

3.7 Time of Occupancy (Dwell Time)

Test Requirement:	FCC Part15 C Section 15.247 (a) (1) (iii)
Test Method:	ANSI C63.10: 2020
Limit:	The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	The transmitter output was connected to the spectrum analyzer through an attenuator. Set center frequency of spectrum analyzer=operating frequency with 1MHz RBW and 3MHz VBW, Span 0Hz.
Remark:	1. We have tested all mode at high,middle and low channel, and recorded worst case at middle channel. 2. Dwell time = [BurstWidth (ms) /1000] x Total Hops
Test Result:	PASS
Test Data:	Reference Appendix Test Data

3.8 Out-of-Band Emissions

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10: 2020
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Test Setup:	 Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	Connect the transmitter output to spectrum analyzer using a low loss RF cable, and set the spectrum analyzer to RBW=100 kHz, VBW= 300 kHz, peak detector , and max hold. Measurements utilizing these setting are made of the in-band reference level, band edge and out-of-band emissions.
Remark:	The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandage measurement data. We measured all conditions (DH1, DH3, DH5) and recorded worst case at DH5 and 2DH5
Test Result:	PASS
Test Data:	Reference Appendix Test Data

3.9 Pseudorandom Frequency Hopping Sequence

Test Applicable

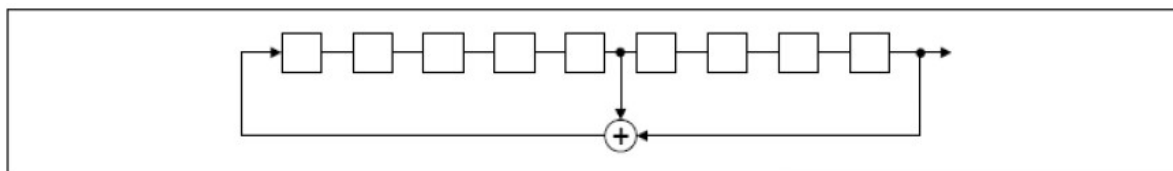
For 47 CFR Part 15C section 15.247 (a) (1):

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hop-ping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125mW. 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 hop-ping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

EUT Pseudorandom Frequency Hopping Sequence Requirement

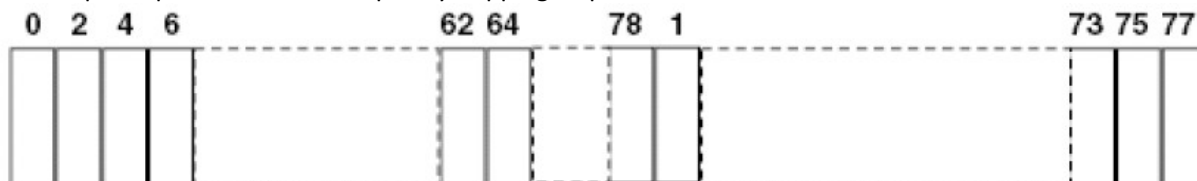
The pseudorandom frequency hopping sequence may be generated in a nice-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first one of 9 consecutive ones, for example: the shift register is initialized with nine ones.

- Number of shift register stages:9
- Length of pseudo-random sequence: $2^9-1=511$ bits
- Longest sequence of zeros:8(non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of pseudorandom frequency hopping sequence as follows:



Each frequency used equally one the average by each transmitter.

The system receiver have input bandwidths that match the hopping channel bandwidths of their corresponding transmitter and shift frequencies in synchronization with the transmitted signals.

3.10 Antenna Requirement

Standard Applicable

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, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Refer to Statement Below for Compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

The antenna used in this product is a PCB Antenna, is a permanently attached antenna on the PCB. It conforms to the standard requirements. The gain of antenna used for transmitting is 0dBi.

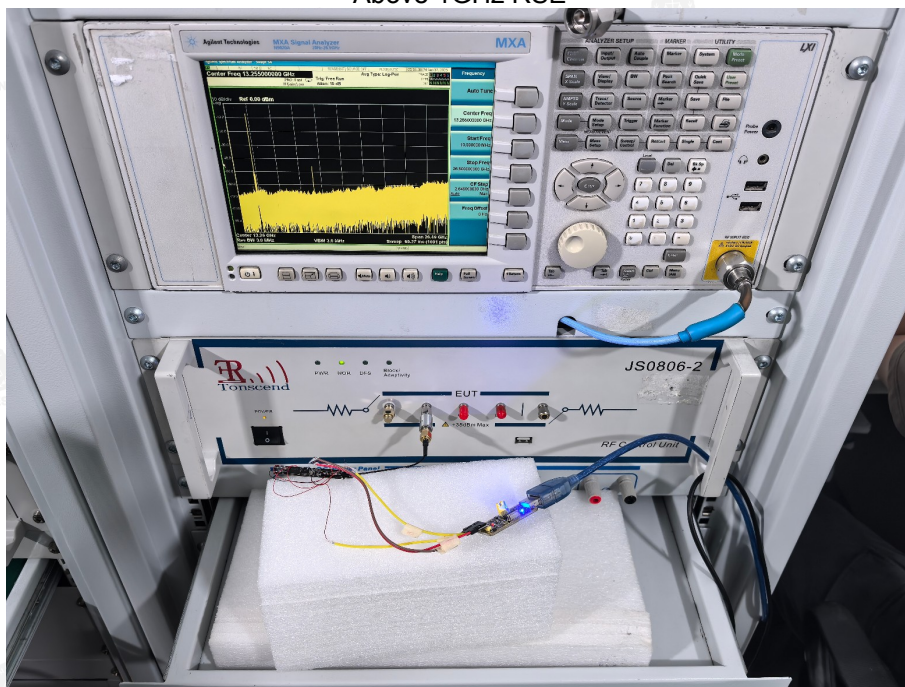
Antenna

For antenna location, please refer to ANNEX B of internal photos.

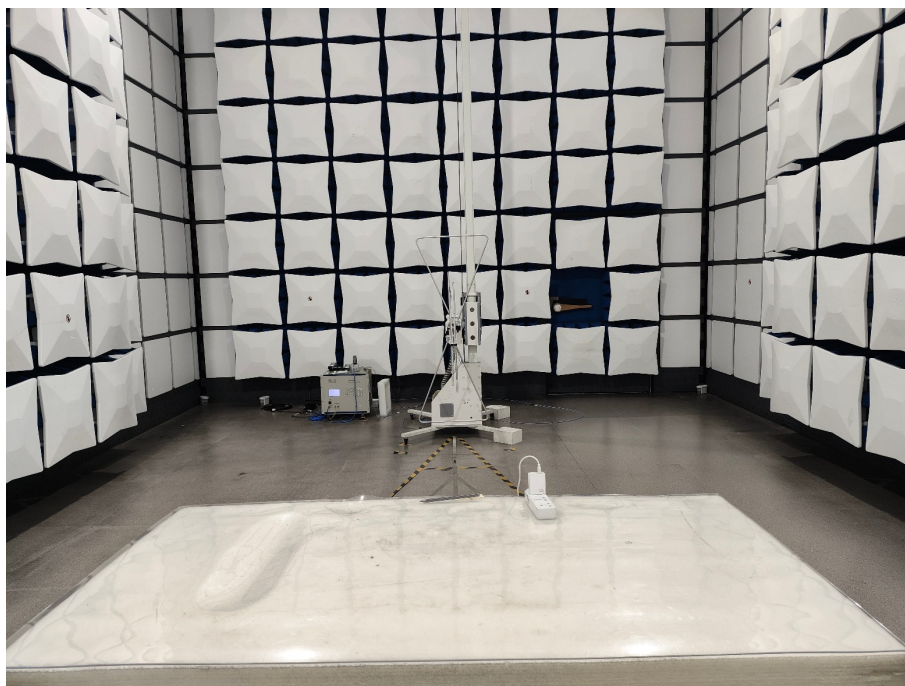
4. Test Setup Photos of the EUT



Above 1GHz RSE



EDR RF Conducted Emission



Radiated Emission



Conducted Emission (AC port)

5. Photos of the EUT

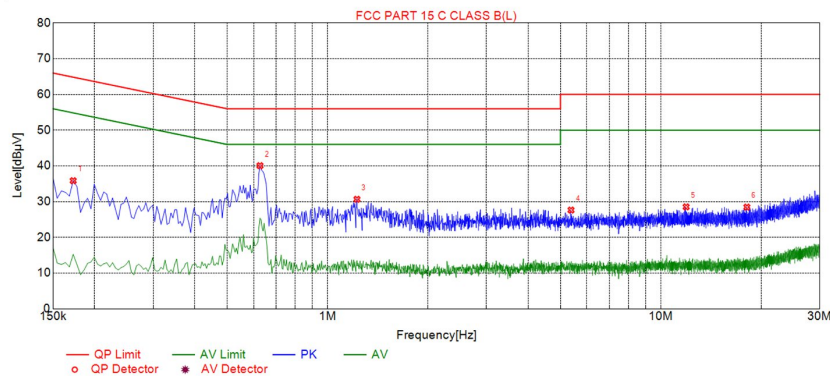
Reference to the report: ANNEX A of External photos and ANNEX B of Internal photos

6. Appendix Test Data

6.1 AC Power Conducted Emission

All the test modes completed for test. Only the worst result was reported as below

Test Graph



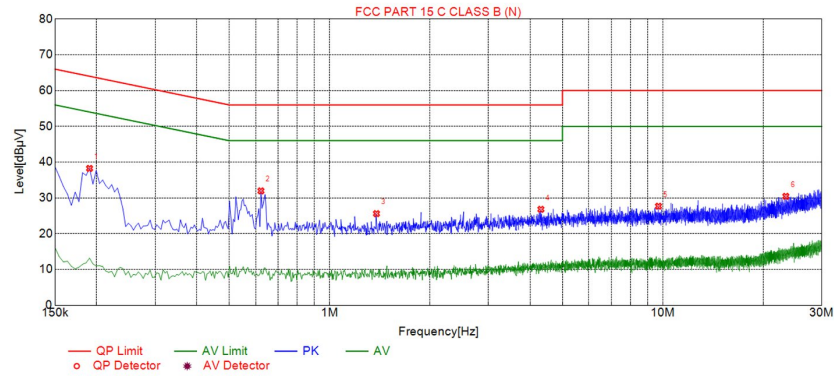
Suspected List								
NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1725	35.86	19.81	64.84	28.98	16.05	PK	L
2	0.6270	40.06	19.91	56.00	15.94	20.15	PK	L
3	1.2255	30.66	19.92	56.00	25.34	10.74	PK	L
4	5.3790	27.64	20.25	60.00	32.36	7.39	PK	L
5	11.9130	28.53	21.54	60.00	31.47	6.99	PK	L
6	18.1275	28.46	22.68	60.00	31.54	5.78	PK	L

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

Level=Test receiver reading + correction factor

Test Graph



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Reading [dBμV]	Detector	Type
1	0.1905	38.25	19.79	64.01	25.76	18.46	PK	N
2	0.6225	31.97	19.95	56.00	24.03	12.02	PK	N
3	1.3830	25.61	20.05	56.00	30.39	5.56	PK	N
4	4.3080	26.82	20.24	56.00	29.18	6.58	PK	N
5	9.7080	27.69	21.00	60.00	32.31	6.69	PK	N
6	23.4060	30.45	23.82	60.00	29.55	6.63	PK	N

Remark: Margin = Limit – Level

Correction factor = Cable lose + LISN insertion loss

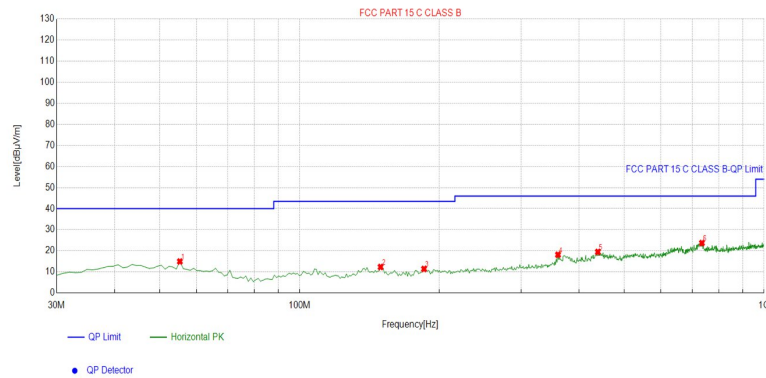
Level=Test receiver reading + correction factor

6.2 Radiated Spurious Emission

Below 1GHz Test Results

All modes have been tested, only the worst mode of GFSK DH5 low channel TX is reflected.

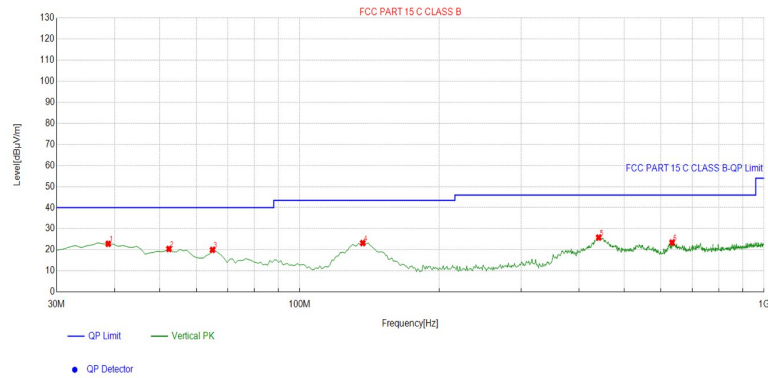
Test Graph



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	55.245	-12.25	27.22	14.97	40.00	25.03	100	194	Horizontal
2	149.429	-18.17	30.52	12.35	43.50	31.15	100	1	Horizontal
3	185.355	-15.93	27.36	11.43	43.50	32.07	100	254	Horizontal
4	360.130	-10.57	28.73	18.16	46.00	27.84	100	76	Horizontal
5	438.779	-9.09	28.59	19.50	46.00	26.50	100	350	Horizontal
6	734.925	-4.17	27.87	23.70	46.00	22.30	100	336	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Pre-amplifier; Level = Reading + Factor;
Margin = Limit – Level;

Test Graph



Suspected List									
NO.	Freq. [MHz]	Factor [dB]	Reading [dBμV/m]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	38.739	-12.60	35.48	22.88	40.00	17.12	100	199	Vertical
2	52.332	-11.68	32.11	20.43	40.00	19.57	100	295	Vertical
3	64.955	-14.18	34.17	19.99	40.00	20.01	100	291	Vertical
4	136.807	-18.24	41.46	23.22	43.50	20.28	100	230	Vertical
5	440.721	-9.06	34.90	25.84	46.00	20.16	100	259	Vertical
6	633.944	-5.41	28.86	23.45	46.00	22.55	100	358	Vertical

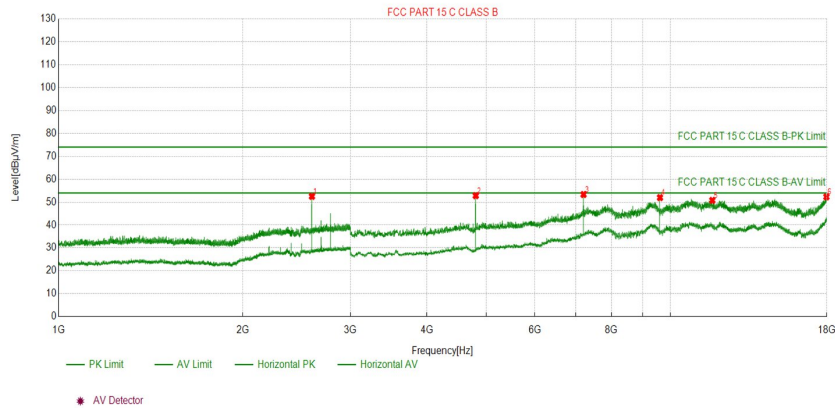
Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit – Level;

Above 1GHz Test Results

All modes have been tested, only the worst mode of GFSK DH5 low channel TX is reflected.

For 1GHz to 18GHz

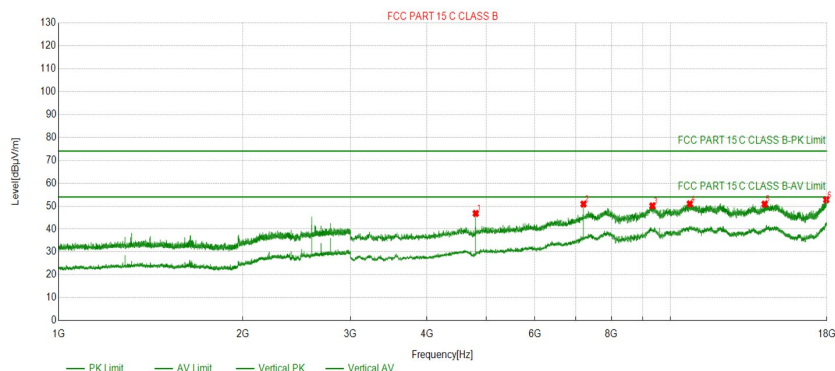
Test Graph



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	2594.559	66.57	52.50	-14.07	74.00	21.50	150	287	Horizontal
2	4804.680	63.56	52.81	-10.75	74.00	21.19	150	306	Horizontal
3	7206.421	57.35	53.33	-4.02	74.00	20.67	150	358	Horizontal
4	9608.161	52.33	51.98	-0.35	74.00	22.02	150	200	Horizontal
5	11697.870	48.19	50.76	2.57	74.00	23.24	150	211	Horizontal
6	17968.497	45.29	52.30	7.01	74.00	21.70	150	28	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit – Level;

Test Graph



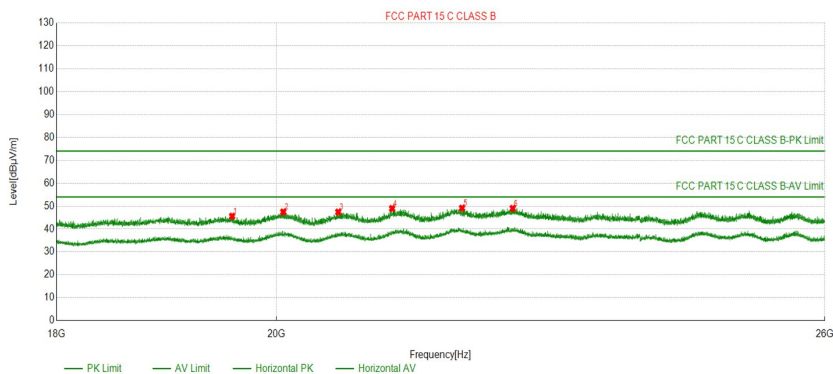
Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4804.680	57.56	46.81	-10.75	74.00	27.19	150	64	Vertical
2	7206.421	54.90	50.88	-4.02	74.00	23.12	150	226	Vertical
3	9336.634	50.97	50.11	-0.86	74.00	23.89	150	209	Vertical
4	10748.275	50.10	50.98	0.88	74.00	23.02	150	186	Vertical
5	14243.624	47.89	50.87	2.98	74.00	23.13	150	10	Vertical
6	17954.996	45.92	52.76	6.84	74.00	21.24	150	291	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit – Level;

For 18GHz to 26GHz

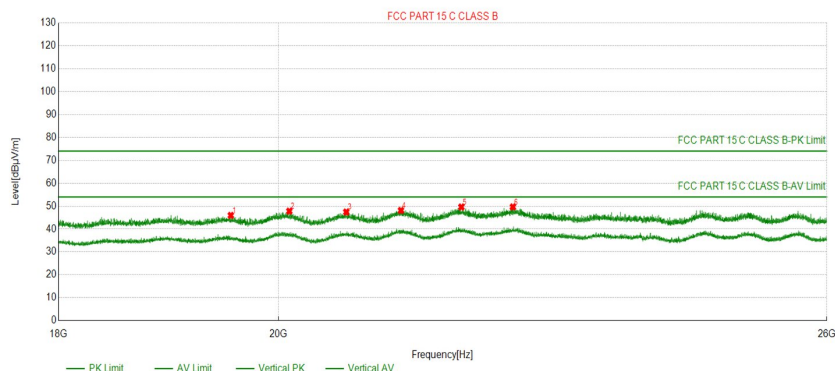
Test Graph



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19578.558	39.72	45.61	5.89	74.00	28.39	150	310	Horizontal
2	20063.406	41.00	47.44	6.44	74.00	26.56	150	350	Horizontal
3	20598.660	41.39	47.40	6.01	74.00	26.60	150	340	Horizontal
4	21136.314	43.22	48.98	5.76	74.00	25.02	150	120	Horizontal
5	21855.586	43.43	49.11	5.68	74.00	24.89	150	360	Horizontal
6	22392.439	43.54	49.02	5.48	74.00	24.98	150	180	Horizontal

Remark: Factor = Cable loss + Antenna factor + Attenuator – Preamplifier; Level = Reading + Factor;
Margin = Limit – Level;

Test Graph



Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	PK Level [dBμV/m]	Factor [dB]	PK Limit [dBμV/m]	PK Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19547.355	40.09	45.94	5.85	74.00	28.06	150	90	Vertical
2	20102.610	41.40	47.80	6.40	74.00	26.20	150	70	Vertical
3	20657.866	41.42	47.40	5.98	74.00	26.60	150	300	Vertical
4	21205.921	42.33	48.10	5.77	74.00	25.90	150	180	Vertical
5	21827.583	43.91	49.60	5.69	74.00	24.40	150	90	Vertical
6	22372.437	44.15	49.64	5.49	74.00	24.36	150	260	Vertical

Remark: Factor = Cable loss + Antenna factor + Attenuator – Pre-amplifier; Level = Reading + Factor;
Margin = Limit – Level;