

Test Report

Verified code: 753852

Report No.: E202303101204-2

Customer: Anhui Ronds Science & Technology Incorporated Company

Address: #59, branch road of biomedical park, high-tech district, Hefei, Anhui, China

Sample Name: Wireless Data Collector

Sample Model: RH570

Receive Sample Date: Mar.24,2023

Test Date: Mar.31,2023 ~ Apr.12,2023

Reference Document: CFR 47 FCC Part 15 Subpart C
RADIO FREQUENCY DEVICES:Subpart C—Intentional Radiators

Test Result: Pass

Prepared by: Wen Wenwen

Wen Wenwen

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Wu Haoting

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Xiao Liang

GRG METROLOGY & TEST GROUP CO., LTD.

Issued Date: 2023-06-25

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TABLE OF CONTENTS

1. TEST RESULT SUMMARY	6
2. GENERAL DESCRIPTION OF EUT	7
2.1 APPLICANT	7
2.2 MANUFACTURER	7
2.3 FACTORY	7
2.4 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST	7
2.5 CHANNEL LIST	8
2.6 TEST OPERATION MODE	8
2.7 LOCAL SUPPORTIVE	8
2.8 CONFIGURATION OF SYSTEM UNDER TEST	8
2.9 DUTY CYCLE	9
3. LABORATORY	12
4. ACCREDITATIONS	12
5. MEASUREMENT UNCERTAINTY	13
6. LIST OF USED TEST EQUIPMENT AT GRGT	14
7. CONDUCTED EMISSION MEASUREMENT	16
7.1 LIMITS	16
7.2 TEST PROCEDURES	16
7.3 TEST SETUP	17
7.4 DATA SAMPLE	17
7.5 TEST RESULTS	18
8. RADIATED SPURIOUS EMISSIONS	24
8.1 LIMITS	24
8.2 TEST PROCEDURES	24
8.3 TEST SETUP	27
8.4 DATA SAMPLE	28
8.5 TEST RESULTS	30
9. 6DB BANDWIDTH	48
9.1 LIMITS	48
9.2 TEST PROCEDURES	48
9.3 TEST SETUP	48
9.4 TEST RESULTS	49
10. MAXIMUM PEAK OUTPUT POWER	55
10.1 LIMITS	55
10.2 TEST PROCEDURES	55
10.3 TEST SETUP	55
10.4 TEST RESULTS	55
11. POWER SPECTRAL DENSITY	56
11.1 LIMITS	56
11.2 TEST PROCEDURES	56
11.3 TEST SETUP	56
11.4 TEST RESULTS	56
12. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS	62
12.1 LIMITS	62
12.2 TEST PROCEDURES	62
12.3 TEST SETUP	62
12.4 TEST RESULTS	63
13. RESTRICTED BANDS OF OPERATION	82
13.1 LIMITS	82

13.2 TEST PROCEDURES.....83

13.3 TEST SETUP83

13.4 TEST RESULTS84

APPENDIX A. PHOTOGRAPH OF THE TEST CONNECTION DIAGRAM.....97

APPENDIX B. PHOTOGRAPH OF THE EUT.....97

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REPORT ISSUED HISTORY

Report Version	Report No.	Description	Compile Date
1.0	E202303101204-2	Original Issue	2023-04-22

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1. TEST RESULT SUMMARY

Technical Requirements		
CFR 47 FCC Part 15 Subpart C (§15.247), KDB 558074 D01 v05r02, ANSI C63.10:2013		
Limit / Severity / Requirement	Item	Result
§15.247(b)(3)	Maximum peak output power	Pass
§15.207 (a)	Conducted Emissions	Pass
§15.247(e)	Power spectral density	Pass
§15.247(a)(2)	6dB bandwidth	Pass
§15.205 & §15.209 & §15.247(d)	Restricted bands of operation	Pass
§15.247(d)	Conducted band edges and spurious emissions	Pass
§15.247(d) & §15.209 & §15.205	Radiated spurious emissions	Pass
§15.203	Antenna requirement	Pass

Note: The EUT have three ZigBee modules and three ZigBee antennas. The antennas are External fixed antenna. The three antenna are all the same, the max gain of antenna is 5dBi.which accordance 15.203.is considered sufficient to comply with the provisions of this section.

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2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT

Name: Anhui Ronds Science & Technology Incorporated Company
Address: #59, branch road of biomedical park, high-tech district, Hefei, Anhui, China

2.2 MANUFACTURER

Name: Anhui Ronds Science & Technology Incorporated Company
Address: #59, branch road of biomedical park, high-tech district, Hefei, Anhui, China

2.3 FACTORY

Factory : Anhui Ronds Science & Technology Incorporated Company
Address: #59, branch road of biomedical park, high-tech district, Hefei, Anhui, China

2.4 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Product Name: Wireless Data Collector
Product Model: RH570
Adding Model: /
Trade Name: Ronds
FCC ID: 2AKW5-RH570
Power Supply: 100~240VAC (50/60Hz)
Frequency Range: 2405MHz-2475MHz
Transmit Power: For module MG22-1: 2.24dBm
For module MG22-2: 2.31dBm
For module MG13: 1.85dBm
Modulation type: O-QPSK
Antenna Specification: For module MG22-1: External fixed antenna with 5dBi gain (Max.),
For module MG22-2: External fixed antenna with 5dBi gain (Max.),
For module MG13: External fixed antenna with 5dBi gain (Max.)
Temperature Range: -40℃~+70℃
Hardware Version: RH570_FCC_HW_V1_01
Software Version: RH570_FCC_SW_V1_01
Sample No: E202303101204-0001, E202303101204-0003
Note: This EUT consists of three Zigbee modules, MG22-1, MG22-2 and MG13, each of which was tested.

2.5 CHANNEL LIST

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
11	2405	12	2410	13	2415	14	2420
15	2425	16	2430	17	2435	18	2440
19	2445	20	2450	21	2455	22	2460
23	2465	24	2470	25	2475	/	/

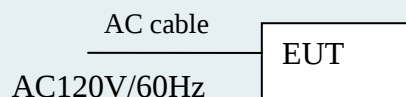
2.6 TEST OPERATION MODE

Mode No.	Description of the modes
1	Zigbee TX mode

2.7 LOCAL SUPPORTIVE

Name of Equipment	Manufacturer	Model	Serial Number	Note
Cable				
AC cable	/	/	/	UnShielded, 1.6m

2.8 CONFIGURATION OF SYSTEM UNDER TEST



Test software:

Software version	Test level
Serial tool	Default

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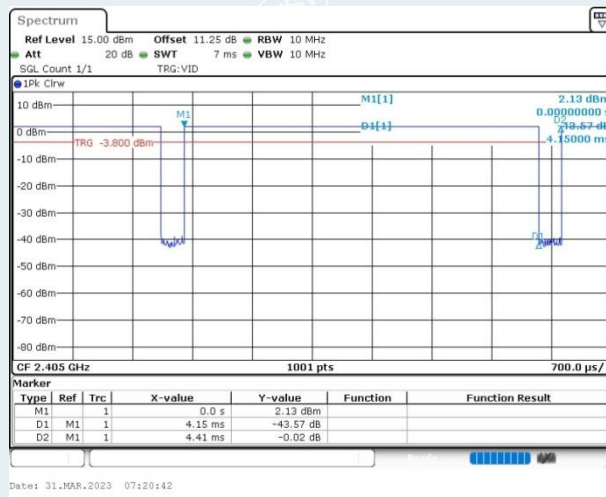
2.9 DUTY CYCLE

EUT Name	Wireless Data Collector	Model	RH570
Environmental Conditions	20.6°C/62%RH/101.0kPa	Test Voltage	AC 120V/60Hz
Tested By	Qin Tingting	Tested Date	2023-03-31

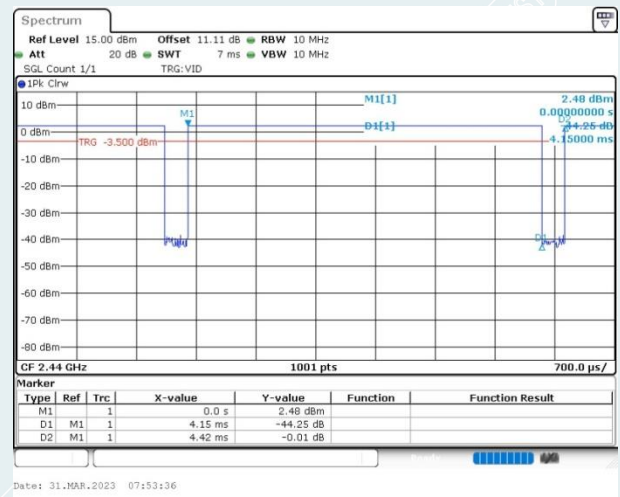
MG22-1:

Test Mode	Antenna	Frequency (MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
Zigbee	Ant1	2405	4.15	4.41	94.10
		2440	4.15	4.42	93.89
		2475	4.15	4.42	93.89

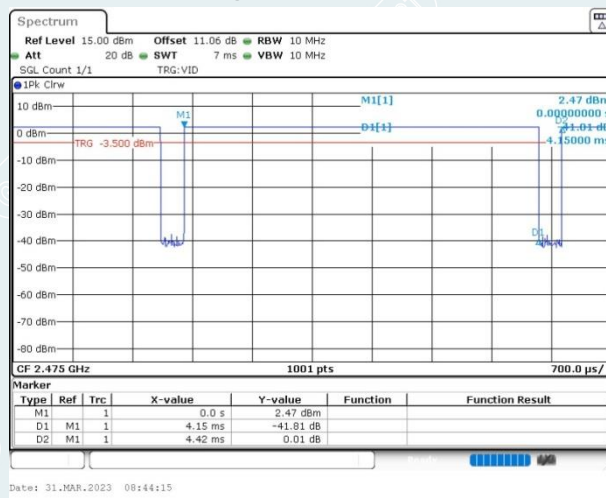
Zigbee_2405MHz



Zigbee_2440MHz



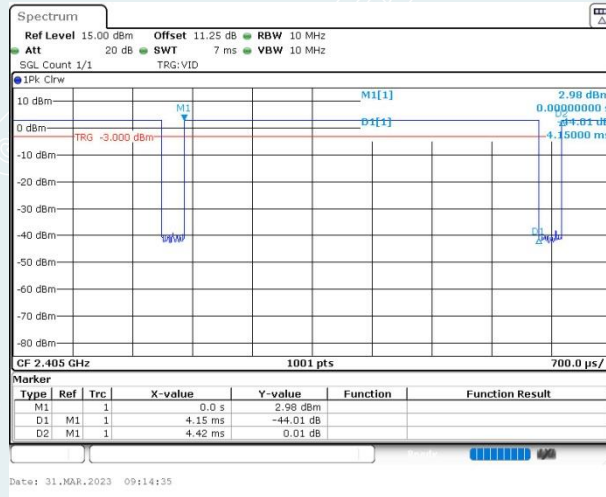
Zigbee_2475MHz



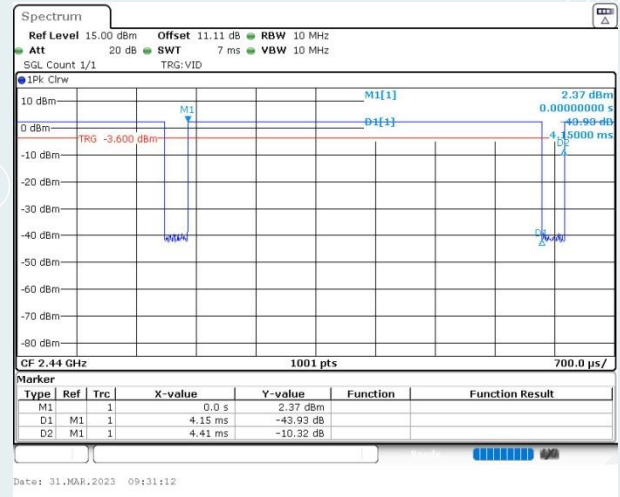
MG22-2:

Test Mode	Antenna	Frequency (MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
Zigbee	Ant1	2405	4.15	4.42	93.89
		2440	4.15	4.41	94.10
		2475	4.15	4.41	94.10

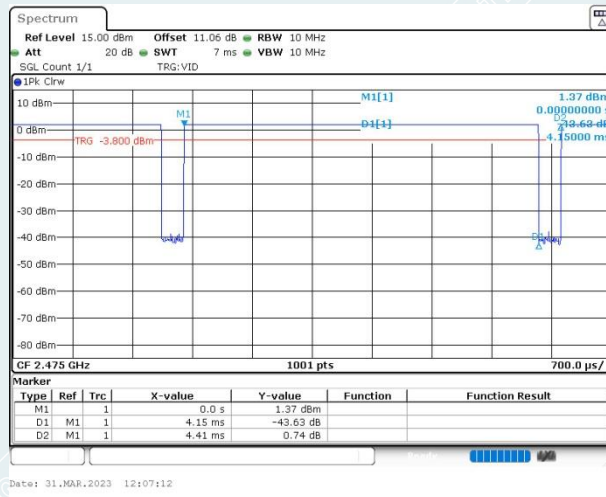
Zigbee_2405MHz



Zigbee_2440MHz



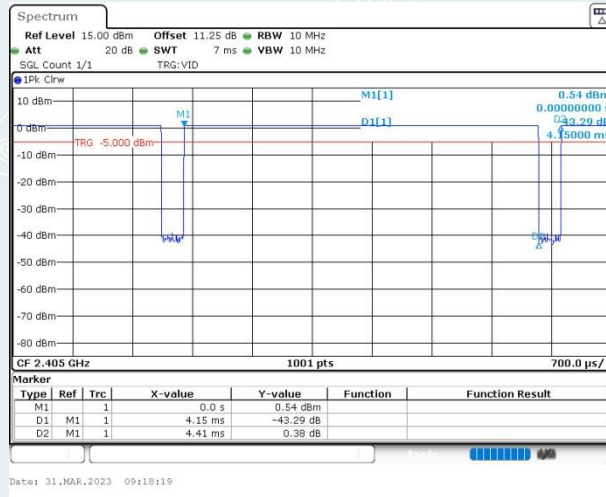
Zigbee_2475MHz



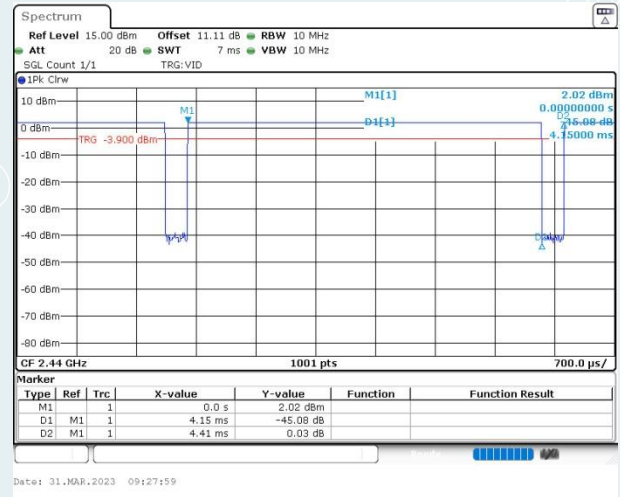
MG13:

Test Mode	Antenna	Frequency (MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
Zigbee	Ant1	2405	4.15	4.41	94.10
		2440	4.15	4.41	94.10
		2475	4.15	4.41	94.10

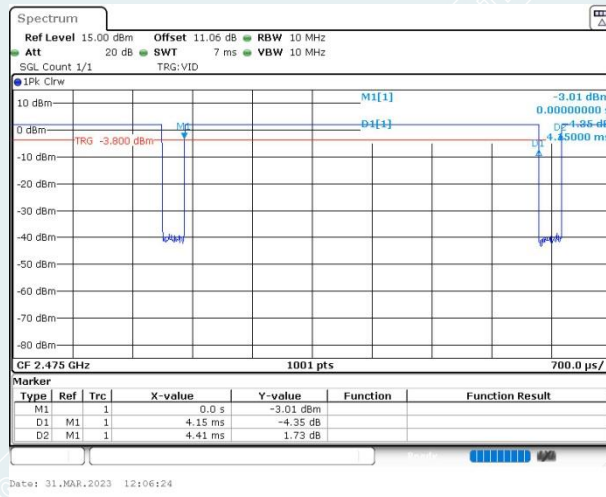
Zigbee_2405MHz



Zigbee_2440MHz



Zigbee_2475MHz



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3. LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of GRG Metrology & Test group Co., Ltd.

Add : Address: No.1301 Guangang Road Xinlan Community, Guanlan Street, Longhua
District Shenzhen, 518110, People's Republic of China

P.C. : 518110

Tel : 0755-61180008

Fax : 0755-61180008

4. ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:2017.

USA A2LA(Certificate #2861.01)

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

Canada ISED (Company Number: 24897, CAB identifier:CN0069)

USA FCC (Registration Number: 759402, Designation Number:CN1198)

Copies of granted accreditation certificates are available for downloading from our web site,
<http://www.grgtest.com>

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5. 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:

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	9kHz~30MHz	4.46dB
		30MHz~200MHz	4.5dB
		200MHz~1000MHz	4.4dB
		1GHz~18GHz	5.6dB
		18GHz~26.5GHz	3.65dB
	Vertical	9kHz~30MHz	4.46dB
		30MHz~200MHz	4.5dB
		200MHz~1000MHz	4.4dB
		1GHz~18GHz	5.6dB
		18GHz~26.5GHz	3.65dB
Conduction Emission		150kHz~30MHz	3.40dB

Measurement	Uncertainty
RF frequency	6.0×10^{-6}
RF power conducted	0.78 dB
Occupied channel bandwidth	0.4 dB
Unwanted emission, conducted	0.68 dB
Humidity	6 %
Temperature	2°C

This uncertainty represents an expanded uncertainty expressed at approximately the 95%. This uncertainty represents an expanded uncertainty factor of $k=2$.

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6. LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Conducted Emissions				
EZ-EMC	EZ	CCS-3A1-CE	/	/
EMI Receiver	R&S	ESCI	100783	2023-08-28
LISN	R&S	ENV216	101543	2023-09-13
Radiated Spurious Emission&Restricted bands of operation				
Test S/W	EZ	CCS-03A1		
Loop Antenna	TESEQ	HLA6121	52599	2024-02-03
Test Receiver	R&S	ESR7	102444	2023-09-02
Preamplifier	EMEC	EM330	/	2024-02-06
Bi-log Antenna	Schwarzbeck	CBL6143A	26039	2024-10-23
Spectrum Analyzer	Agilent	N9010A	MY52221469	2023-06-29
Horn Antenna	Schwarzbeck	BBHA9120D	02143	2023-10-15
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170-497	2023-10-14
Amplifier	Tonscend	TAP037030	AP20E8060081	2023-05-08
Amplifier	Tonscend	TAP01018048	AP20E8060075	2023-05-05
Amplifier	Tonscend	TAP184050	AP20E806071	2023-05-05
Test S/W	Tonscend	JS32-RE/2.5.1.5		
6 dB Bandwidth				
Spectrum Analyzer	R&S	FSV30	1321.3008K30-10 4381-rH	2023-11-17
Output Power				
Pulse power sensor	Agilent	MA2411B	1126150	2024-02-12
Power meter	Anritsu	ML2495A	1204003	2024-02-12
Conducted band edges and Spurious Emission				
Spectrum Analyzer	R&S	FSV30	1321.3008K30-10 4381-rH	2023-11-17

Power Spectral Density				
Spectrum Analyzer	R&S	FSV30	1321.3008K30-10 4381-rH	2023-11-17

Note: The calibration cycle of the above instruments is 12 months except for the Bi-log Antenna which is 24 months.

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7. CONDUCTED EMISSION MEASUREMENT

7.1 LIMITS

Frequency range	Limits (dB μ V)	
	Quasi-peak	Average
150kHz~0.5MHz	66~56	56~46
0.5MHz~5MHz	56	46
5MHz~30MHz	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 150 kHz to 0.5MHz.

7.2 TEST PROCEDURES

Procedure of Preliminary Test

For measurement of the disturbance voltage the equipment under test (EUT) is connected to the power supply mains and any other extended network via one or more artificial network(s). An EUT, whether intended to be grounded or not, and which is to be used on a table is configured as follows:

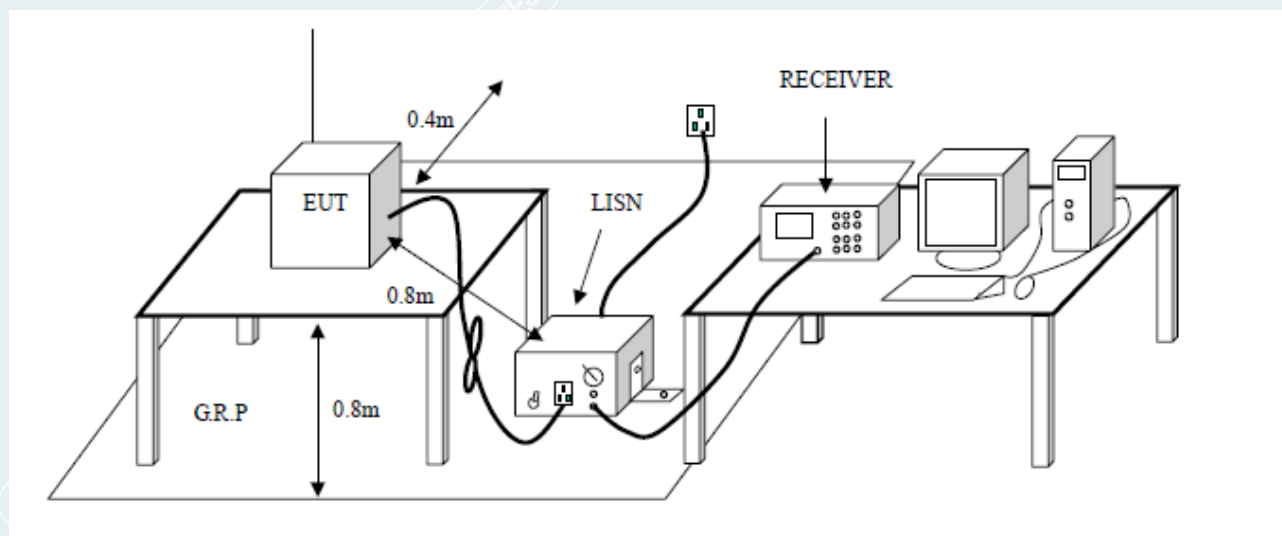
- Either the bottom or the rear of the EUT shall be at a controlled distance of 40 cm from a reference ground plane. This ground plane is normally the wall or floor of a shielded room. It may also be a grounded metal plane of at least 2 m by 2 m. This is physically accomplished as follows:
 - 1) place the EUT on a table of non-conducting material which is at least 80 cm high. Place the EUT so that it is 40 cm from the wall of the shielded room, or
 - 2) place the EUT on a table of non-conducting material which is 40 cm high so that the bottom of the EUT is 40 cm above the ground plane;
- All other conductive surfaces of the EUT shall be at least 80 cm from the reference ground plane;
- The EUT are placed on the floor that one side of the housings is 40 cm from the vertical reference ground plane and other metallic parts;
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 cm to 40 cm long, hanging approximately in the middle between the ground plane and the table.
- I/O cables that are connected to a peripheral shall be bundled in the centre. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.
- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

The test mode(s) described in Item 2.6 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.6 producing the highest emission level. The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

Procedure of Final Test

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

7.3 TEST SETUP



7.4 DATA SAMPLE

Frequency (MHz)	Quasi Peak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	Quasi Peak Limit (dBuV)	Average Limit (dBuV)	Quasi Peak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62	Pass

Factor = Insertion loss of LISN + Cable Loss
 Result = Quasi-peak Reading/ Average Reading + Correction Factor
 Limit = Limit stated in standard
 Margin = Result (dBuV) – Limit (dBuV)

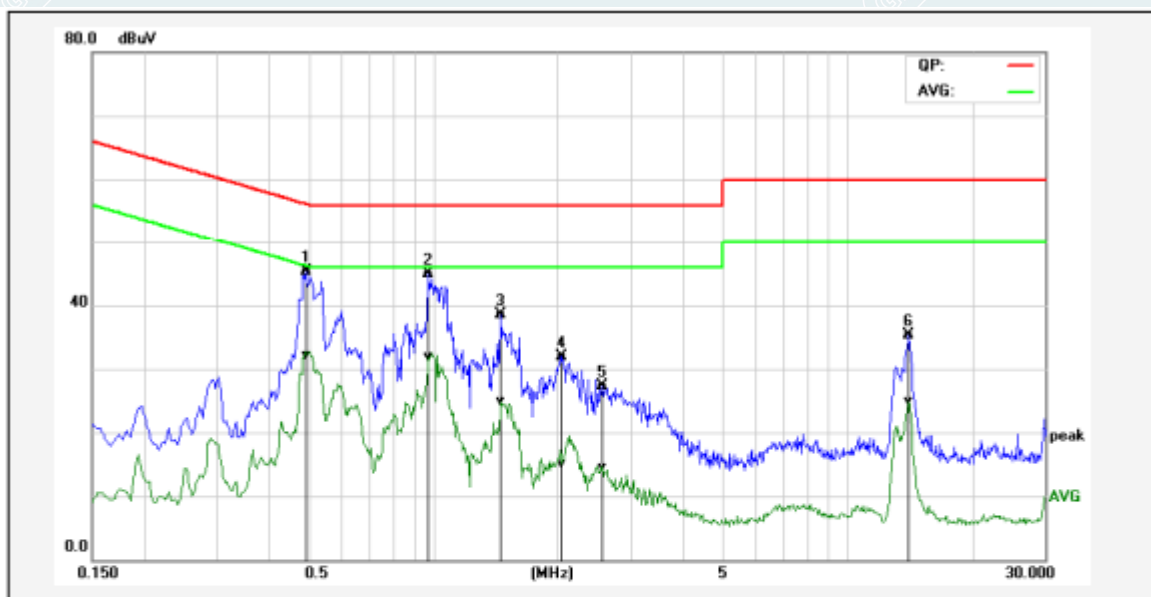
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7.5 TEST RESULTS

All models were pretested and only the worst modes and channels were recorded in this report.
(Zigbee 2475MHz)

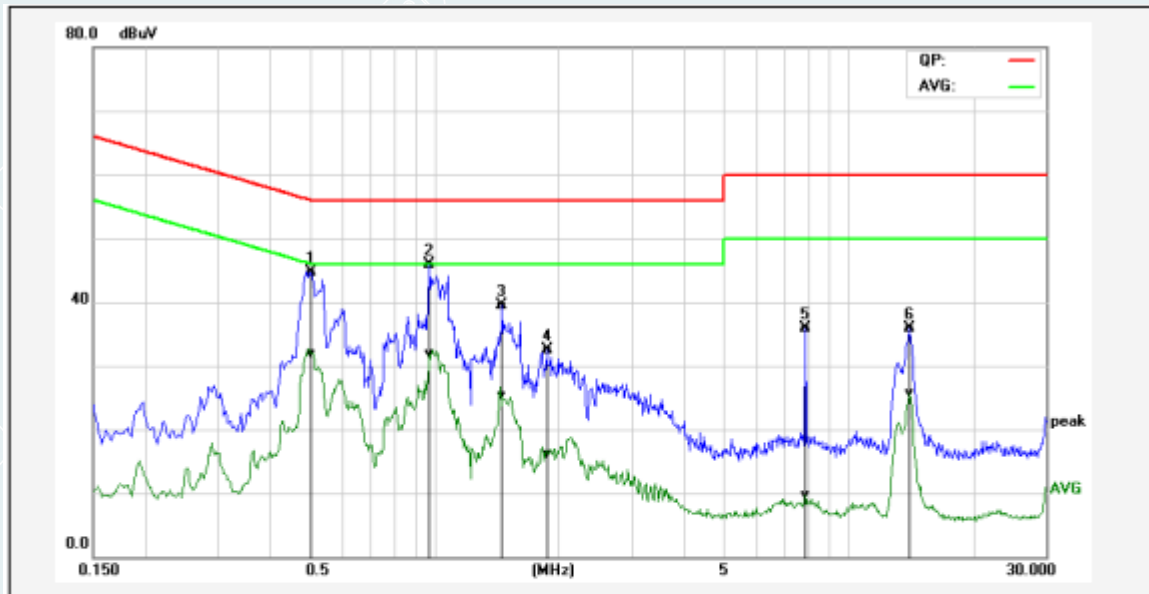
MG22-1:

EUT Name	Wireless Data Collector	Model	RH570
Environmental Conditions	22.1 °C/55%RH/101.0kPa	Test Mode	Mode 1
Tested By	Huang xinlong	Line	L1
Tested Date	2023-04-12	Test Voltage	AC 120V/60Hz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.4940	35.70	22.48	9.61	45.31	32.09	56.10	46.10	-10.79	-14.01	Pass
2	0.9740	35.36	22.29	9.63	44.99	31.92	56.00	46.00	-11.01	-14.08	Pass
3	1.4620	28.96	15.26	9.63	38.59	24.89	56.00	46.00	-17.41	-21.11	Pass
4	2.0500	22.30	5.47	9.65	31.95	15.12	56.00	46.00	-24.05	-30.88	Pass
5	2.5620	17.69	4.93	9.67	27.36	14.60	56.00	46.00	-28.64	-31.40	Pass
6	14.1300	25.52	15.19	9.80	35.32	24.99	60.00	50.00	-24.68	-25.01	Pass

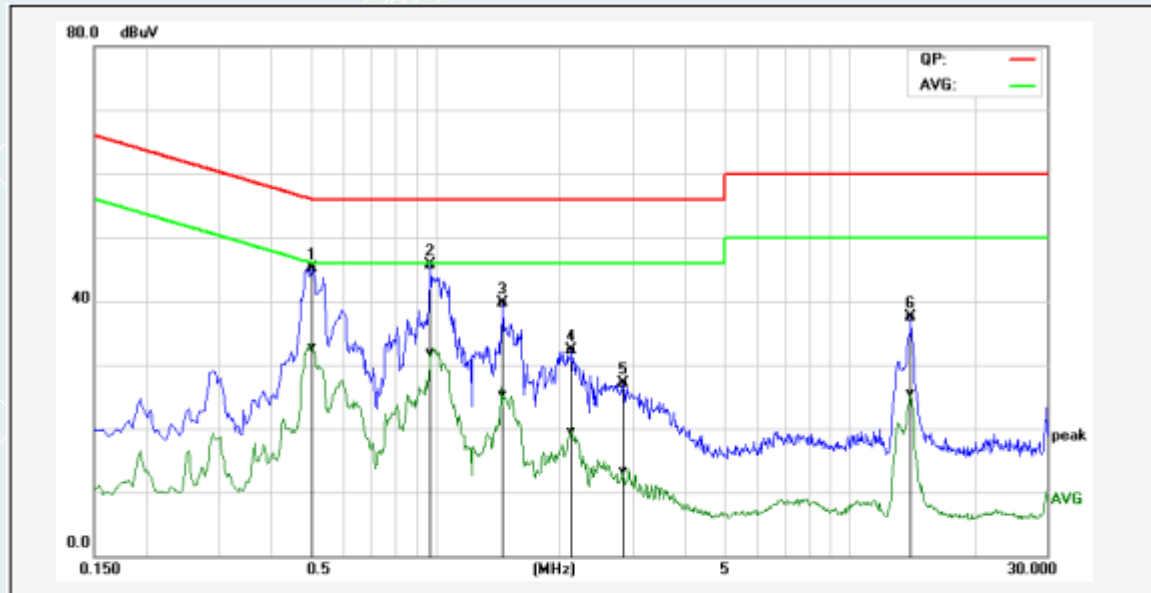
EUT Name	Wireless Data Collector	Model	RH570
Environmental Conditions	22.1°C/55%RH/101.0kPa	Test Mode	Mode 1
Tested By	Huang xinlong	Line	N
Tested Date	2023-04-12	Test Voltage	AC 120V/60Hz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.5020	35.19	22.35	9.60	44.79	31.95	56.00	46.00	-11.21	-14.05	Pass
2*	0.9740	36.20	22.18	9.63	45.83	31.81	56.00	46.00	-10.17	-14.19	Pass
3	1.4620	29.94	15.74	9.63	39.57	25.37	56.00	46.00	-16.43	-20.63	Pass
4	1.8740	22.84	6.51	9.64	32.48	16.15	56.00	46.00	-23.52	-29.85	Pass
5	7.8620	26.20	0.01	9.76	35.96	9.77	60.00	50.00	-24.04	-40.23	Pass
6	14.0060	25.97	15.88	9.86	35.83	25.74	60.00	50.00	-24.17	-24.26	Pass

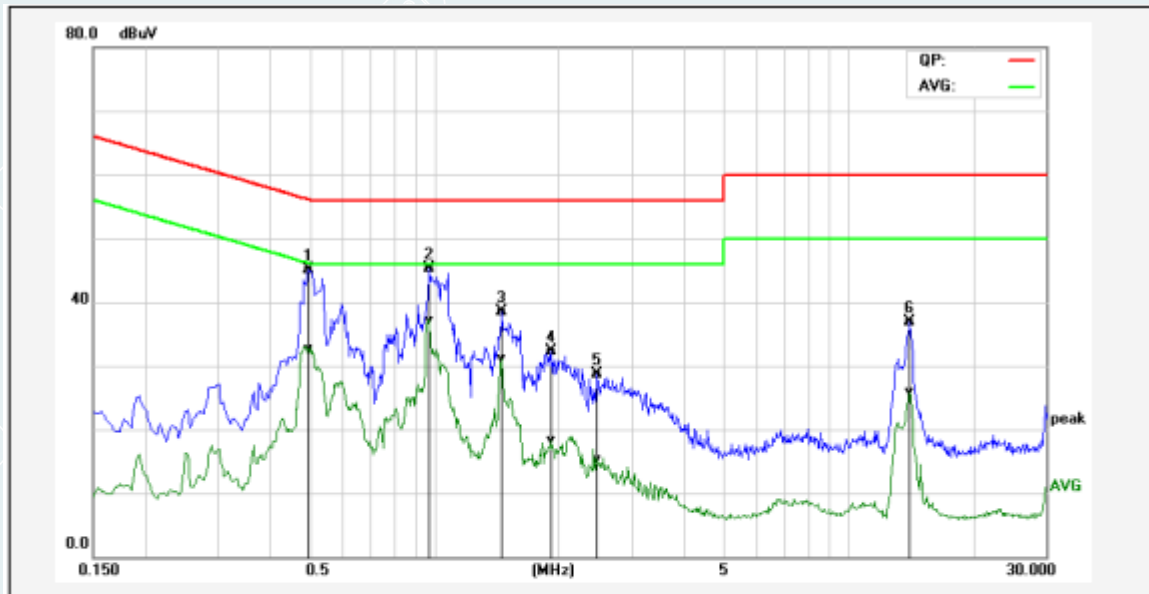
MG22-2:

EUT Name	Wireless Data Collector	Model	RH570
Environmental Conditions	22.1 °C/55%RH/101.0kPa	Test Mode	Mode 1
Tested By	Huang xinlong	Line	L1
Tested Date	2023-04-12	Test Voltage	AC 120V/60Hz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.5060	35.56	23.00	9.61	45.17	32.61	56.00	46.00	-10.83	-13.39	Pass
2*	0.9740	36.07	22.37	9.63	45.70	32.00	56.00	46.00	-10.30	-14.00	Pass
3	1.4620	30.13	15.63	9.63	39.76	25.26	56.00	46.00	-16.24	-20.74	Pass
4	2.1340	22.59	9.95	9.65	32.24	19.60	56.00	46.00	-23.76	-26.40	Pass
5	2.8460	17.50	3.58	9.67	27.17	13.25	56.00	46.00	-28.83	-32.75	Pass
6	14.1060	27.66	15.77	9.80	37.46	25.57	60.00	50.00	-22.54	-24.43	Pass

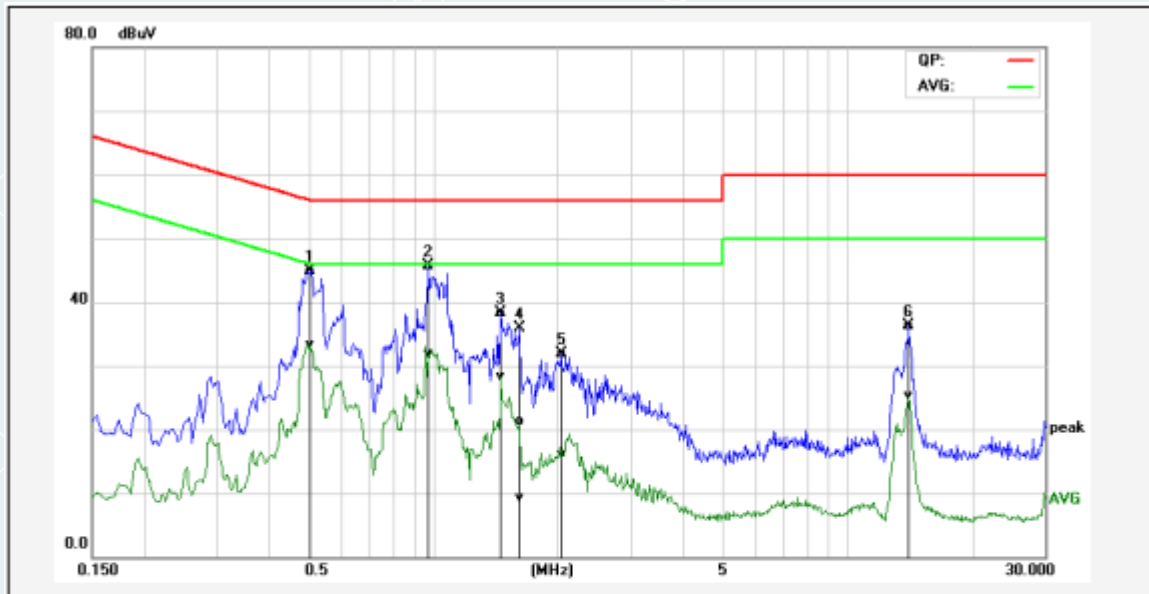
EUT Name	Wireless Data Collector	Model	RH570
Environmental Conditions	22.1°C/55%RH/101.0kPa	Test Mode	Mode 1
Tested By	Huang xinlong	Line	N
Tested Date	2023-04-12	Test Voltage	AC 120V/60Hz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.4980	35.42	23.09	9.60	45.02	32.69	56.03	46.03	-11.01	-13.34	Pass
2*	0.9740	35.75	27.53	9.63	45.38	37.16	56.00	46.00	-10.62	-8.84	Pass
3	1.4580	28.82	21.51	9.63	38.45	31.14	56.00	46.00	-17.55	-14.86	Pass
4	1.9260	22.76	8.59	9.64	32.40	18.23	56.00	46.00	-23.60	-27.77	Pass
5	2.4860	19.12	5.57	9.64	28.76	15.21	56.00	46.00	-27.24	-30.79	Pass
6	14.1020	27.09	16.07	9.86	36.95	25.93	60.00	50.00	-23.05	-24.07	Pass

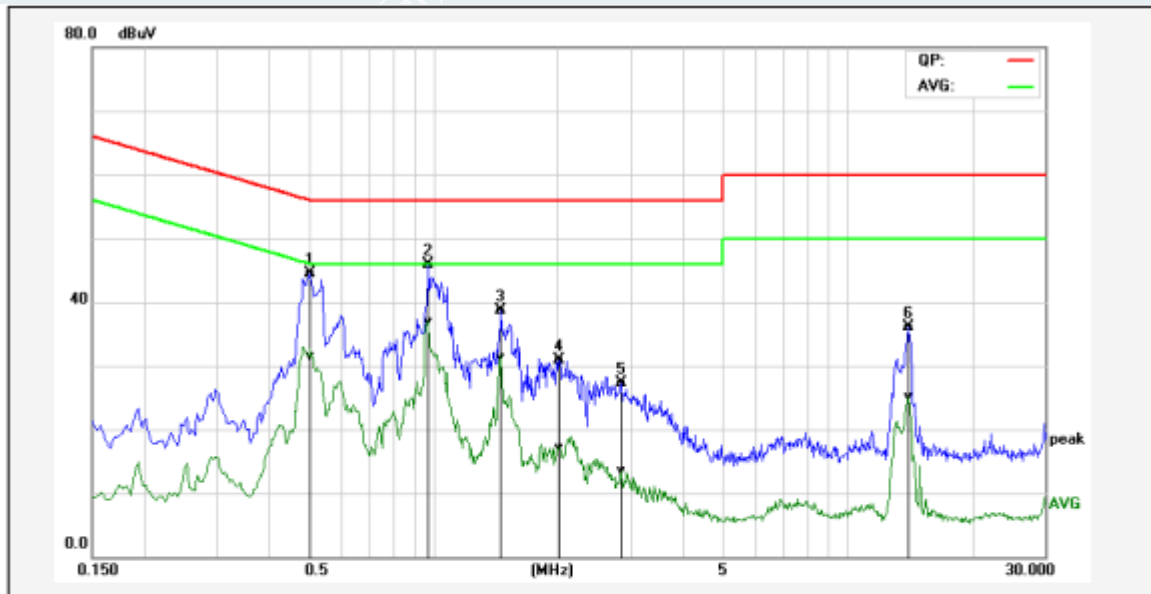
MG13:

EUT Name	Wireless Data Collector	Model	RH570
Environmental Conditions	22.1°C/55%RH/101.0kPa	Test Mode	Mode 1
Tested By	Huang xinlong	Line	L1
Tested Date	2023-04-12	Test Voltage	AC 120V/60Hz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.5060	35.36	23.61	9.61	44.97	33.22	56.00	46.00	-11.03	-12.78	Pass
2*	0.9740	36.08	22.30	9.63	45.71	31.93	56.00	46.00	-10.29	-14.07	Pass
3	1.4580	28.77	18.67	9.63	38.40	28.30	56.00	46.00	-17.60	-17.70	Pass
4	1.6220	11.65	-0.29	9.65	21.30	9.36	56.00	46.00	-34.70	-36.64	Pass
5	2.0340	22.21	6.46	9.65	31.86	16.11	56.00	46.00	-24.14	-29.89	Pass
6	14.1020	26.50	15.47	9.80	36.30	25.27	60.00	50.00	-23.70	-24.73	Pass

EUT Name	Wireless Data Collector	Model	RH570
Environmental Conditions	22.1℃/55%RH/101.0kPa	Test Mode	Mode 1
Tested By	Huang xinlong	Line	N
Tested Date	2023-04-12	Test Voltage	AC 120V/60Hz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.5020	34.81	21.92	9.60	44.41	31.52	56.00	46.00	-11.59	-14.48	Pass
2*	0.9740	36.24	27.27	9.63	45.87	36.90	56.00	46.00	-10.13	-9.10	Pass
3	1.4580	29.03	21.70	9.63	38.66	31.33	56.00	46.00	-17.34	-14.67	Pass
4	2.0180	21.22	7.43	9.64	30.86	17.07	56.00	46.00	-25.14	-28.93	Pass
5	2.8460	17.55	3.82	9.66	27.21	13.48	56.00	46.00	-28.79	-32.52	Pass
6	14.0220	26.16	15.33	9.86	36.02	25.19	60.00	50.00	-23.98	-24.81	Pass

8. RADIATED SPURIOUS EMISSIONS

8.1 LIMITS

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.

Frequency (MHz)	Quasi-peak($\mu\text{V/m}$)	Measurement distance(m)	Quasi-peak(dB $\mu\text{V/m}$)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30~88	100	3	40
88~216	150	3	43.5
216~960	200	3	46
Above 960	500	3	54

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) Above 18GHz test distance is 1m, so the Peak Limit=74+20*log(3/1)=83.54 (dB $\mu\text{V/m}$).

The Avg Limit=54+20*log(3/1)=63.54 (dB $\mu\text{V/m}$).

8.2 TEST PROCEDURES

1) Sequence of testing 9kHz to 30MHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

--- The EUT is placed on a desktop position in the center of the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 °to 360 °.

--- The antenna height is 1.0 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

--- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0 °to 360 °) and by rotating the elevation axes (0 °to 360 °).

--- The final measurement will be done in the position (turntable and elevation) causing the highest

emissions with QP detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

2) Sequence of testing 30MHz to 1GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

--- The EUT is placed on a desktop position in the center of the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

--- The turntable rotates from 0 °to 360 °.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 4 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable rotates from 0 °to 360 °and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing 1GHz to 18GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.

--- The EUT is placed on a desktop position in the center of the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Pre measurement:

- The turntable rotates from 0 °to 360 °.
- The antenna is polarized vertical and horizontal.
- The antenna height scan range is 1 meter to 4 meter.
- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable rotates from 0 °to 360 °and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.
- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18GHz**Setup:**

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Use serial board or connecting line to make EUT and notebook to communicate, according to the actual need to make EUT send constant frequency signal continuously.
- The EUT is placed on a desktop position in the center of the turntable.
- The measurement distance is 1 meter.
- The EUT was set into operation.

Pre measurement:

- The antenna is moved spherical over the EUT in different polarisations of the antenna.

Final measurement:

- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

NOTE:

- (a).The frequency from 9kHz to 150kHz, Set RBW=300Hz(for Peak&AVG), RBW=300Hz(for Peak&AVG). the frequency from 150kHz to 30MHz, Set RBW=9kHz, RBW=9kHz, (for QP Detector).
- (b).The frequency from 30MHz to 1GHz, Set RBW=120kHz, RBW=300kHz, (for QP Detector).
- (c).The frequency above 1GHz, for Peak detector: Set RBW=1MHz, RBW=3MHz.
- (d).The frequency above 1GHz, for Avg detector: Set RBW=1MHz, the EUT is configured to transmit with duty cycle $\geq$ 98%, set VBW $\leq$ RBW/100 (i.e.,10kHz) but not less than 10 Hz. if the EUT duty cycle is $<$ 98%, set VBW $\geq$ 1/T, Where T is defined in section 2.9.

8.3 TEST SETUP

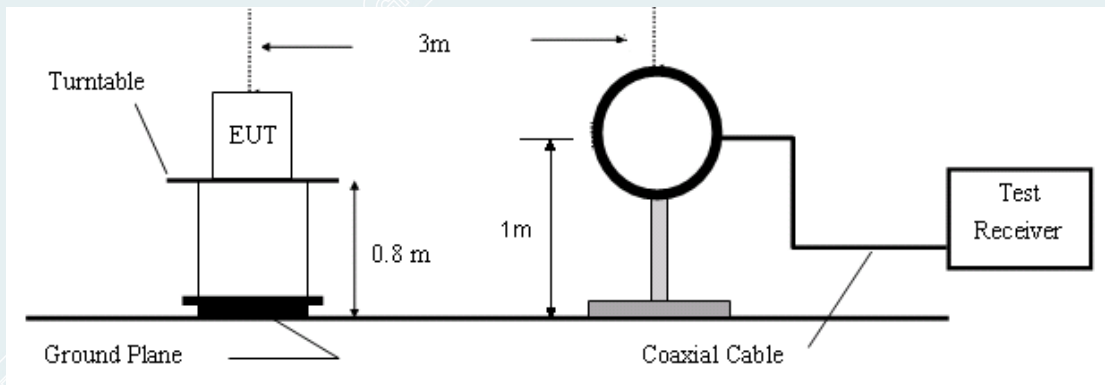


Figure 1. 9kHz to 30MHz radiated emissions test configuration

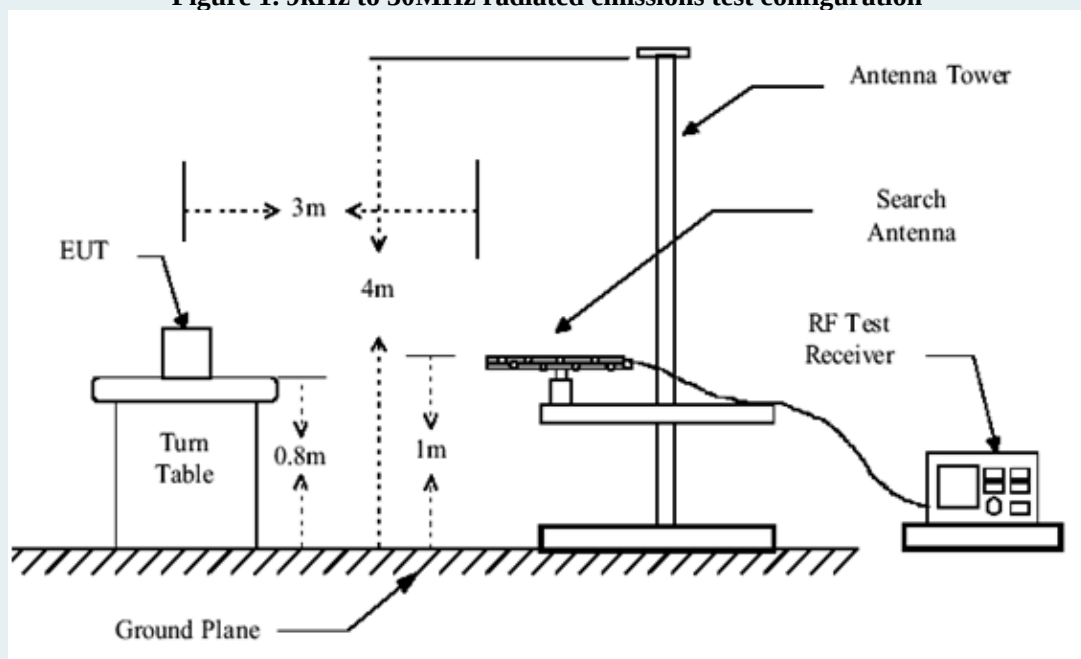


Figure 2. 30MHz to 1GHz radiated emissions test configuration

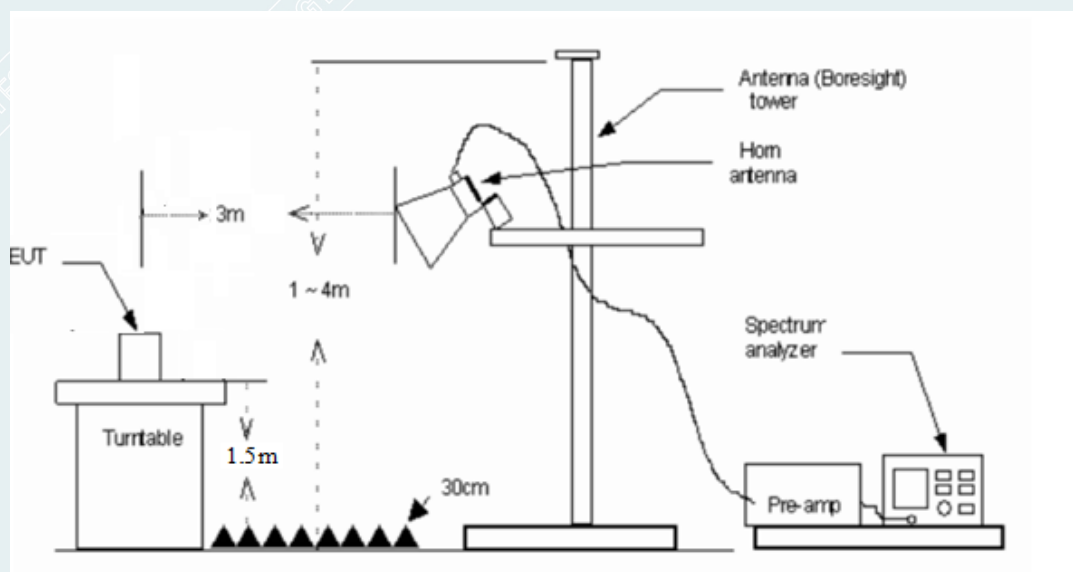


Figure 3. 1GHz-18GHz radiated emissions test configuration

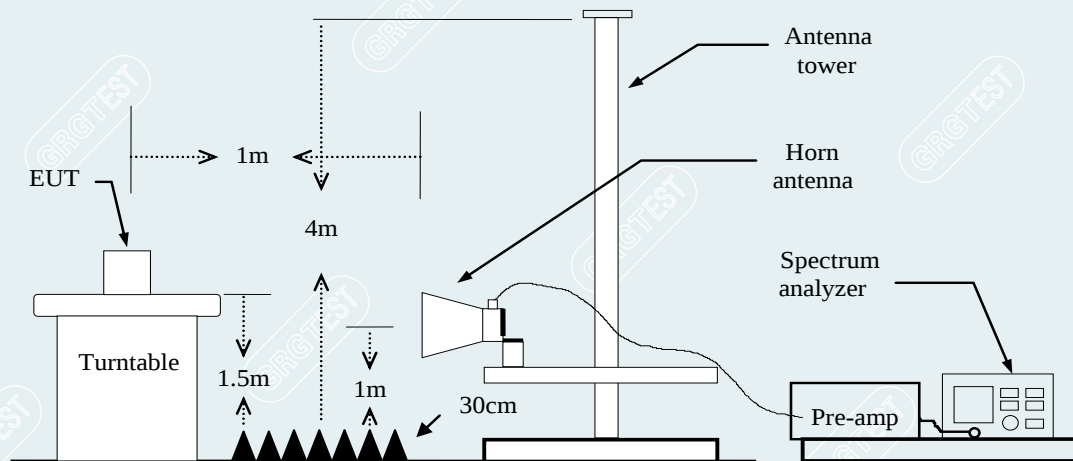


Figure 4. 18GHz-26.5GHz radiated emissions test configuration

8.4 DATA SAMPLE

30MHz to 1GHz

No.	Frequency	Reading	Correct Factor	Result	Limit	Margin	Remark	Pole
	(MHz)	(dBuV/m)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)		
xxx	xxx	37.06	-15.48	21.58	40.00	-18.42	QP	Vertical

Frequency (MHz) = Emission frequency in MHz

Ant.Pol. (H/V) = Antenna polarization

Reading (dBuV/m) = Uncorrected Analyzer / Receiver reading

Result (dBuV/m) = Reading (dBuV/m) + Correction Factor (dB/m)

Limit (dBuV/m) = Limit stated in standard

Margin (dB) = Remark Result (dBuV/m) – Limit (dBuV/m)

QP = Quasi-peak Reading

1GHz to 18GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	65.45	-11.12	54.33	74.00	-19.67	Peak	Vertical
xxx	xxx	63.00	-11.12	51.88	54.00	-2.12	AVG	Vertical

Above 18GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	68.86	57.66	-11.20	83.54	25.88	peak	Vertical
xxx	xxx	68.89	-11.20	57.69	63.54	5.85	AVG	Vertical

Frequency (MHz)

= Emission frequency in MHz

Ant. Pol. (H/V)

= Antenna polarization

Reading (dBuV/m)

= Uncorrected Analyzer / Receiver reading

Result (dBuV/m)

= Reading (dBuV/m) + Factor (dB)

Limit (dBuV/m)

= Limit stated in standard

Margin (dB)

= Remark Result (dBuV/m) – Limit (dBuV/m)

Peak

= Peak Reading

AVG

= Average Reading

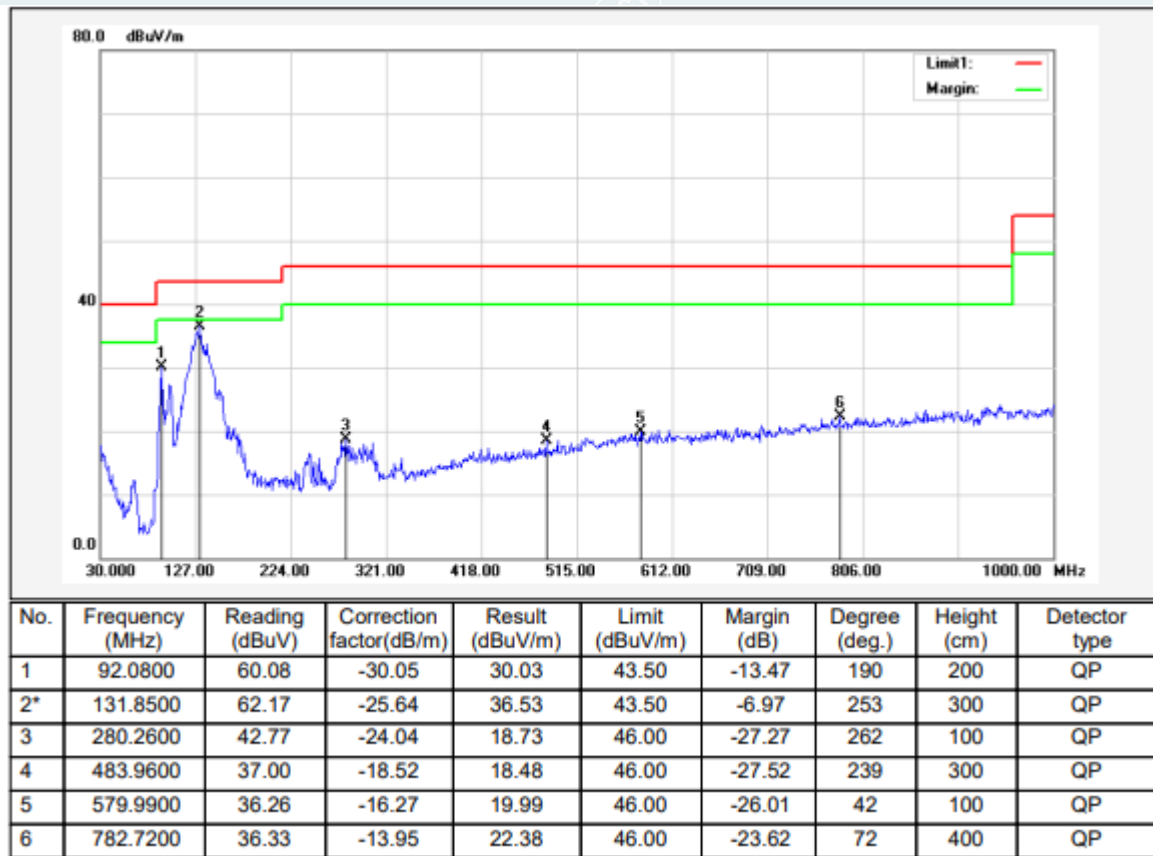
8.5 TEST RESULTS

Below 1GHz

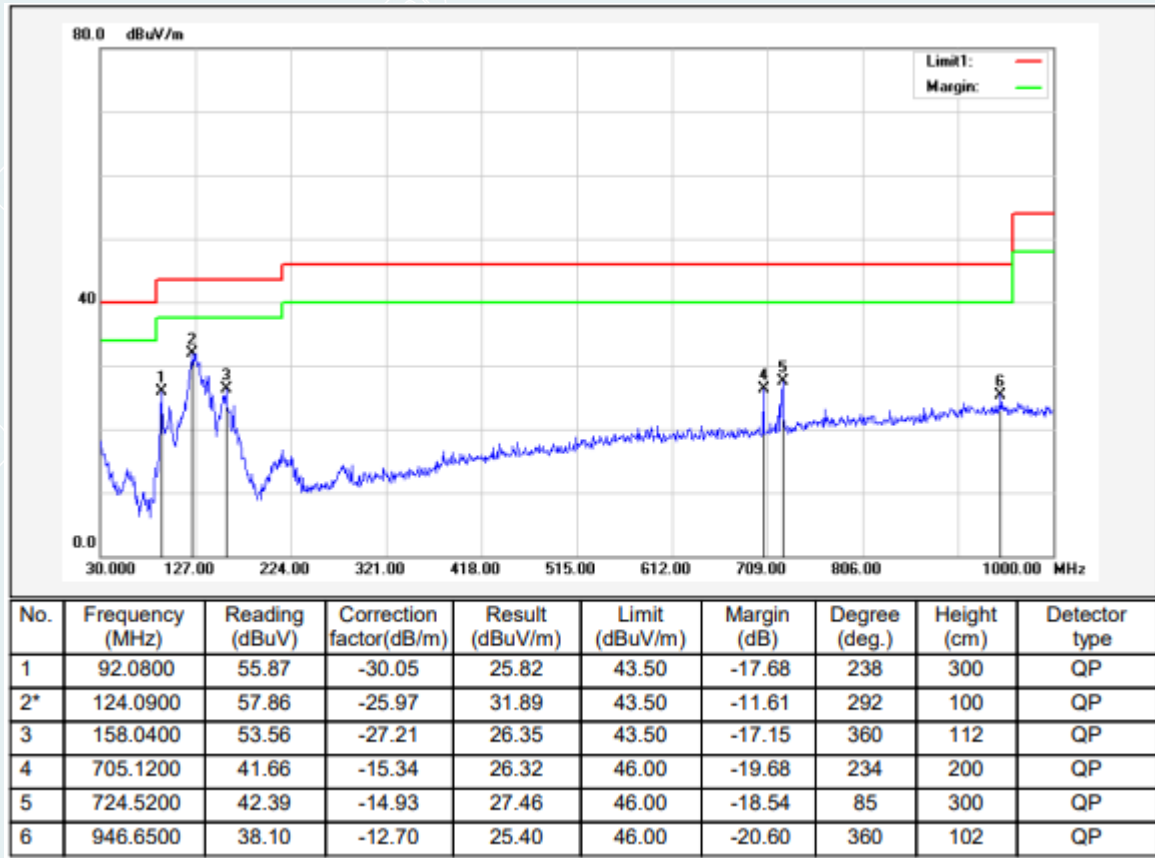
Only the worst mode and channel (Zigbee 2475MHz) were recorded in this report.

MG22-1:

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	21.3°C/49%RH/101.0kPa
Test Engineer:	Wang xinyuan	Test Date:	2023-04-04
Channel	Highest channel (2475MHz)	Polarity:	Horizontal

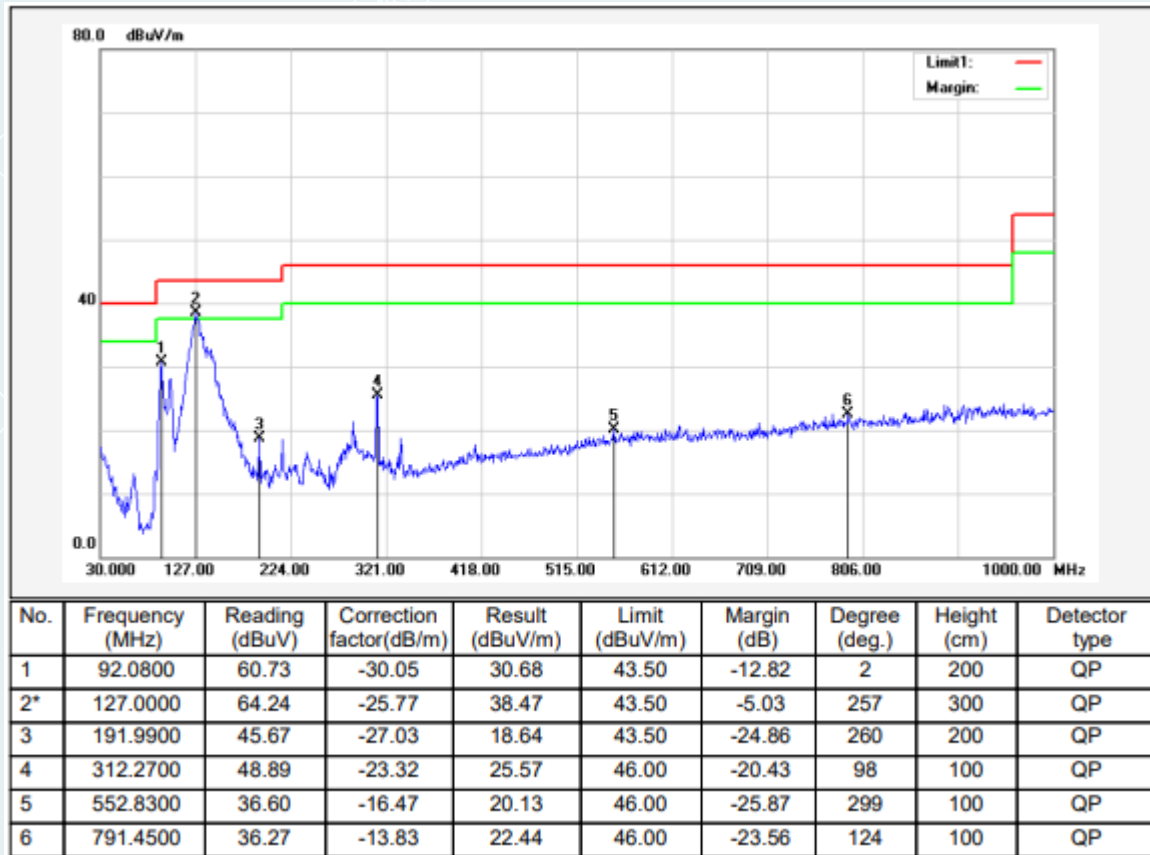


EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	21.3°C/49%RH/101.0kPa
Test Engineer:	Wang xinyuan	Test Date:	2023-04-04
Channel	Highest channel (2475MHz)	Polarity:	Vertical

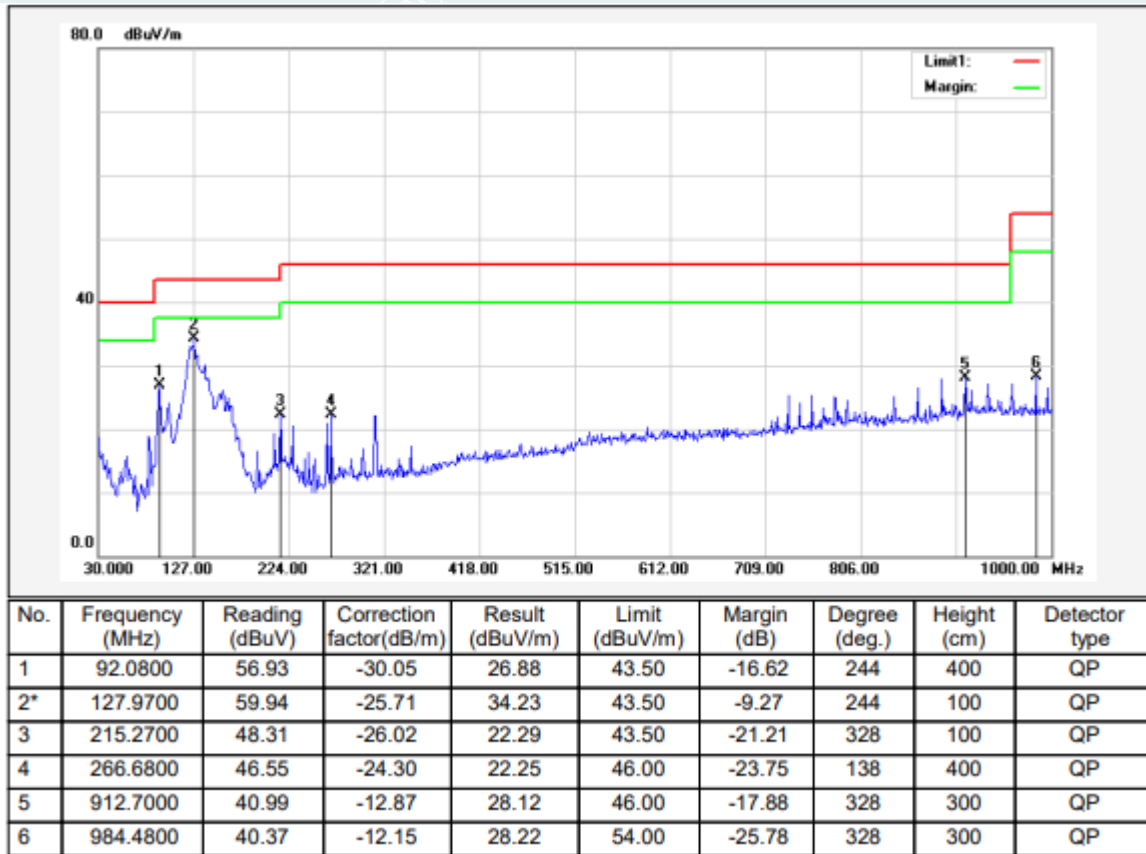


MG22-2:

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	21.3°C/49%RH/101.0kPa
Test Engineer:	Wang xinyuan	Test Date:	2023-04-04
Channel	Highest channel (2475MHz)	Polarity:	Horizontal

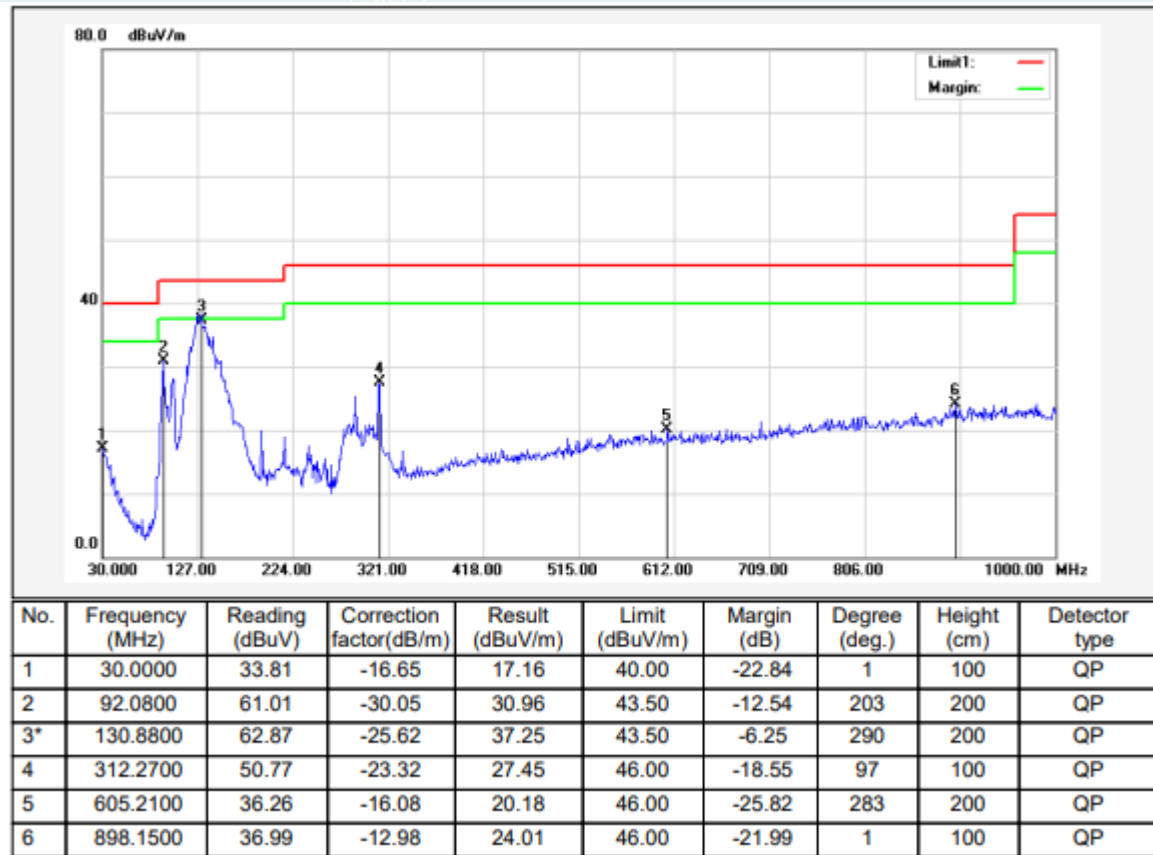


EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	21.3°C/49%RH/101.0kPa
Test Engineer:	Wang xinyuan	Test Date:	2023-04-04
Channel	Highest channel (2475MHz)	Polarity:	Vertical

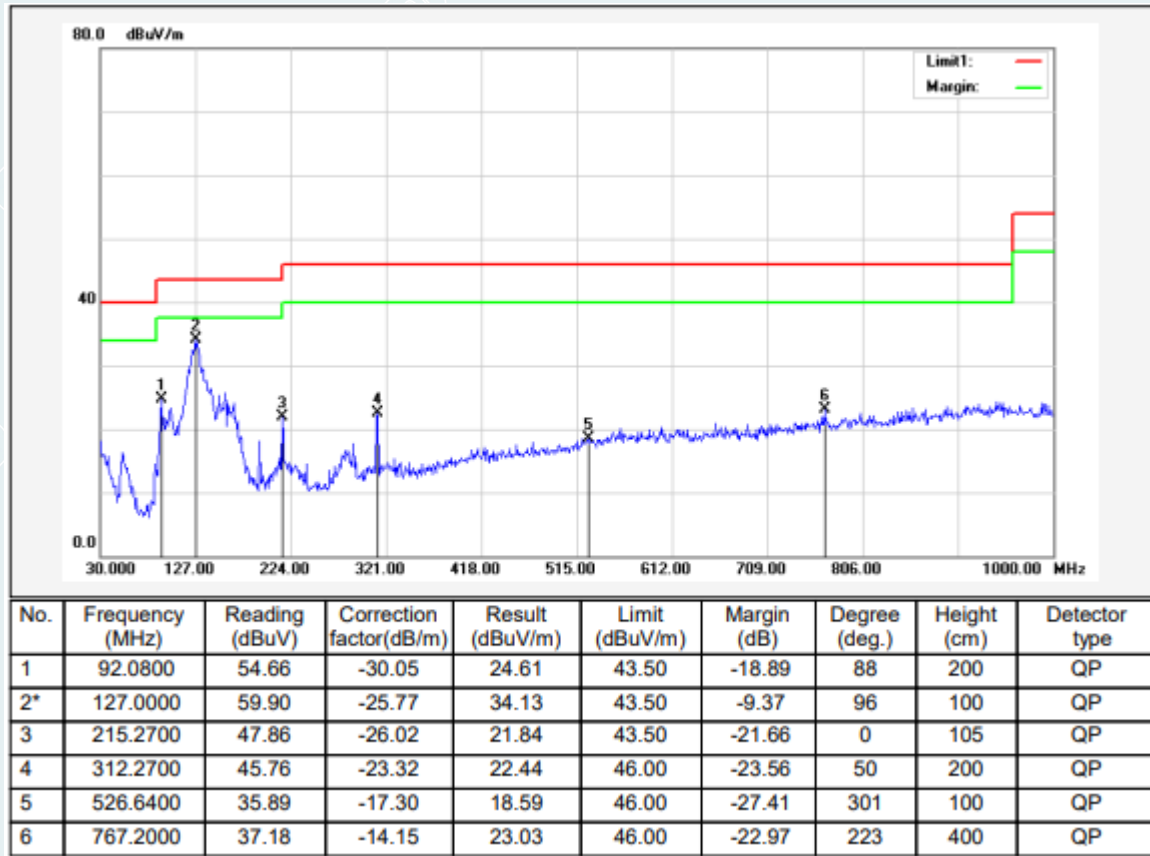


MG13:

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	21.3°C/49%RH/101.0kPa
Test Engineer:	Wang xinyuan	Test Date:	2023-04-04
Channel	Highest channel (2475MHz)	Polarity:	Horizontal



EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	21.3°C/49%RH/101.0kPa
Test Engineer:	Wang xinyuan	Test Date:	2023-04-04
Channel	Highest channel (2475MHz)	Polarity:	Vertical

**Remark:**

- 1 No emission found between lowest internal used/generated frequency to 30MHz.
- 2 Radiated emissions measured in frequency range from 9 kHz to 1GHz were made with an instrument using Quasi-peak detector mode.
- 3 Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.

1GHz-18GHz:

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

MG22-1:

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	24.2℃/53%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-04-11
Channel	Lowest channel (2405MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1137.7672	73.32	47.13	-26.19	74.00	26.87	100	167	Horizontal
2	1663.5829	65.33	40.86	-24.47	74.00	33.14	100	351	Horizontal
3	2659.7075	63.78	43.57	-20.21	74.00	30.43	100	68	Horizontal
4	3294.4118	69.01	51.87	-17.14	74.00	22.13	100	177	Horizontal
5	3999.4999	56.86	41.46	-15.40	74.00	32.54	100	266	Horizontal
6	17538.6923	45.25	53.94	8.69	74.00	20.06	100	158	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3280.1567	-17.14	44.97	27.83	54.00	26.17	166	205.7	Horizontal
2	17538.6923	8.69	35.15	43.84	54.00	10.16	100	158	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1328.7911	72.79	48.93	-23.86	74.00	25.07	100	151	Vertical
2	1666.3333	71.18	47.47	-23.71	74.00	26.53	200	218	Vertical
3	2845.9807	72.41	53.26	-19.15	74.00	20.74	100	162	Vertical
4	2995.9995	74.96	56.82	-18.14	74.00	17.18	100	185	Vertical
5	3988.2485	63.75	48.69	-15.06	74.00	25.31	100	175	Vertical
6	17838.7298	44.53	55.38	10.85	74.00	18.62	200	187	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1327.7721	-23.86	53.80	29.94	54.00	24.06	100	154.7	Vertical
2	2852.1998	-19.15	45.51	26.36	54.00	27.64	134	135.1	Vertical
3	3005.4085	-18.14	46.80	28.66	54.00	25.34	100	179.8	Vertical
4	3995.1173	-15.06	46.15	31.09	54.00	22.91	100	202.7	Vertical
5	17889.8462	10.85	32.67	43.52	54.00	10.48	129	215.7	Vertical

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	24.2℃/53%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-04-11
Channel	Middle channel (2440MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1135.0169	71.46	46.34	-25.12	74.00	27.66	100	340	Horizontal
2	1330.0413	70.27	47.20	-23.07	74.00	26.80	200	170	Horizontal
3	1662.3328	70.10	46.97	-23.13	74.00	27.03	200	224	Horizontal
4	1998.6248	64.91	43.73	-21.18	74.00	30.27	200	113	Horizontal
5	2654.2068	62.70	44.25	-18.45	74.00	29.75	100	287	Horizontal
6	17551.819	45.66	54.43	8.77	74.00	19.57	200	346	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17551.819	8.77	32.39	41.16	54.00	12.84	200	346	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1129.5162	74.72	51.48	-23.24	74.00	22.52	100	124	Vertical
2	1328.041	69.35	46.68	-22.67	74.00	27.32	100	186	Vertical
3	1660.0825	66.50	43.95	-22.55	74.00	30.05	200	246	Vertical
4	2001.8752	64.57	44.13	-20.44	74.00	29.87	200	170	Vertical
5	2656.9571	64.62	46.85	-17.77	74.00	27.15	100	292	Vertical
6	17833.1041	44.93	55.80	10.87	74.00	18.20	100	176	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1129.5162	-23.24	55.39	32.15	54.00	21.85	100	124	Vertical
2	17833.1041	10.87	32.67	43.54	54.00	10.46	100	176	Vertical

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	24.2℃/53%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-04-11
Channel	Highest channel (2475MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1136.267	72.02	46.92	-25.10	74.00	27.08	100	334	Horizontal
2	1329.5412	69.73	46.67	-23.06	74.00	27.33	200	176	Horizontal
3	1662.5828	70.75	47.63	-23.12	74.00	26.37	200	230	Horizontal
4	2666.4583	65.45	47.03	-18.42	74.00	26.97	100	115	Horizontal
5	3991.999	60.03	44.65	-15.38	74.00	29.35	100	127	Horizontal
6	17821.8527	45.06	54.10	9.04	74.00	19.90	100	60	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17821.8527	9.04	31.64	40.68	54.00	13.32	100	60	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1122.0153	73.70	50.71	-22.99	74.00	23.29	100	121	Vertical
2	1331.5414	67.08	44.51	-22.57	74.00	29.49	100	199	Vertical
3	1659.3324	64.72	42.15	-22.57	74.00	31.85	100	288	Vertical
4	2001.3752	64.79	44.35	-20.44	74.00	29.65	100	320	Vertical
5	2657.7072	61.08	43.32	-17.76	74.00	30.68	100	166	Vertical
6	17936.242	44.64	55.31	10.67	74.00	18.69	200	345	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1122.0153	-22.99	55.36	32.37	54.00	21.63	100	121	Vertical
2	17936.242	10.67	31.65	42.32	54.00	11.68	200	345	Vertical

MG22-2:

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	24.2℃/53%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-04-11
Channel	Lowest channel (2405MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1129.2662	74.75	48.44	-26.31	74.00	25.56	100	164	Horizontal
2	1329.2912	65.46	41.18	-24.28	74.00	32.82	200	197	Horizontal
3	1665.5832	67.54	43.10	-24.44	74.00	30.90	100	142	Horizontal
4	2665.7082	63.53	43.38	-20.15	74.00	30.62	100	17	Horizontal
5	4809.6012	56.42	43.82	-12.60	74.00	30.18	100	47	Horizontal
6	17548.0685	45.46	54.25	8.79	74.00	19.75	100	339	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1129.2662	-26.31	60.52	34.21	54.00	19.79	100	164	Horizontal
2	17548.0685	8.79	35.36	44.15	54.00	9.85	100	339	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1162.0203	76.35	51.10	-25.25	74.00	22.90	100	154	Vertical
2	1665.8332	70.83	47.10	-23.73	74.00	26.90	100	207	Vertical
3	2654.4568	67.56	47.95	-19.61	74.00	26.05	100	185	Vertical
4	4809.6012	59.65	46.77	-12.88	74.00	27.23	100	250	Vertical
5	7215.5269	56.09	53.74	-2.35	74.00	20.26	200	186	Vertical
6	17906.2383	45.41	55.93	10.52	74.00	18.07	100	165	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1162.0203	-25.25	60.38	35.13	54.00	18.87	100	154	Vertical
2	7216.5693	-2.35	47.46	45.11	54.00	8.89	200	189.5	Vertical
3	17906.2383	10.52	34.36	44.88	54.00	9.12	100	165	Vertical

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	24.2℃/53%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-04-11
Channel	Middle channel (2440MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1162.5203	72.56	47.88	-24.68	74.00	26.12	200	79	Horizontal
2	1332.5416	68.50	45.40	-23.10	74.00	28.60	100	157	Horizontal
3	1662.0828	70.12	46.99	-23.13	74.00	27.01	200	231	Horizontal
4	2848.7311	60.49	44.17	-16.32	74.00	29.83	100	38	Horizontal
5	4667.0834	59.95	46.75	-13.20	74.00	27.25	100	3	Horizontal
6	17551.819	44.77	53.54	8.77	74.00	20.46	200	107	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17551.819	8.77	31.27	40.04	54.00	13.96	200	107	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1132.5166	74.50	51.16	-23.34	74.00	22.84	100	129	Vertical
2	1330.5413	71.35	48.76	-22.59	74.00	25.24	100	196	Vertical
3	1660.0825	68.72	46.17	-22.55	74.00	27.83	100	251	Vertical
4	2658.4573	62.22	44.47	-17.75	74.00	29.53	100	174	Vertical
5	3405.0506	65.80	48.79	-17.01	74.00	25.21	100	116	Vertical
6	17881.8602	45.47	56.08	10.61	74.00	17.92	200	6	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1132.5166	-23.34	54.36	31.02	54.00	22.98	100	129	Vertical
2	1330.5413	-22.59	55.76	33.17	54.00	20.83	100	196	Vertical
3	3405.0506	-17.01	50.36	33.35	54.00	20.65	100	116	Vertical
4	17881.8602	10.61	30.31	40.92	54.00	13.08	200	6	Vertical

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	24.2℃/53%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-04-11
Channel	Highest channel (2475MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1135.767	71.33	46.22	-25.11	74.00	27.78	100	347	Horizontal
2	1332.5416	70.07	46.97	-23.10	74.00	27.03	100	179	Horizontal
3	1658.8324	70.79	47.63	-23.16	74.00	26.37	200	224	Horizontal
4	1996.3745	67.81	46.64	-21.17	74.00	27.36	200	214	Horizontal
5	4648.331	57.88	44.42	-13.46	74.00	29.58	100	287	Horizontal
6	17559.3199	45.55	54.17	8.62	74.00	19.83	200	115	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17559.3199	8.62	34.36	42.98	54.00	11.02	200	115	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1135.0169	73.59	50.16	-23.43	74.00	23.84	100	123	Vertical
2	1333.0416	68.58	46.07	-22.51	74.00	27.93	100	229	Vertical
3	1663.833	67.47	45.04	-22.43	74.00	28.96	100	134	Vertical
4	2655.957	63.60	45.82	-17.78	74.00	28.18	100	284	Vertical
5	5047.756	54.82	43.69	-11.13	74.00	30.31	100	38	Vertical
6	17864.9831	44.74	55.47	10.73	74.00	18.53	200	138	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1136.4128	-23.43	49.78	26.35	54.00	27.65	100	143.2	Vertical
2	17885.4082	10.73	32.95	43.68	54.00	10.32	118	164.2	Vertical

MG13:

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	24.2℃/53%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-04-11
Channel	Lowest channel (2405MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1131.7665	78.24	51.96	-26.28	74.00	22.04	100	126	Horizontal
2	1331.7915	72.93	48.62	-24.31	74.00	25.38	100	156	Horizontal
3	2510.4388	67.05	47.31	-19.74	74.00	26.69	100	166	Horizontal
4	2657.2072	65.91	45.68	-20.23	74.00	28.32	100	115	Horizontal
5	2995.2494	61.92	43.02	-18.90	74.00	30.98	100	137	Horizontal
6	17548.0685	45.18	53.97	8.79	74.00	20.03	100	15	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1131.7665	-26.28	60.67	34.39	54.00	19.61	100	126	Horizontal
2	1331.7915	-24.31	60.39	36.08	54.00	17.92	100	156	Horizontal
3	17548.0685	8.79	34.27	43.06	54.00	10.94	100	15	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1137.2672	77.26	52.65	-24.61	74.00	21.35	100	127	Vertical
2	1329.5412	69.75	45.91	-23.84	74.00	28.09	200	164	Vertical
3	1663.833	69.48	45.70	-23.78	74.00	28.30	100	106	Vertical
4	2655.4569	63.42	43.82	-19.60	74.00	30.18	100	160	Vertical
5	3993.8742	56.94	41.86	-15.08	74.00	32.14	100	241	Vertical
6	17891.2364	44.78	55.34	10.56	74.00	18.66	100	135	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1137.2672	-24.61	60.36	35.75	54.00	18.25	100	127	Vertical
2	17891.2364	10.56	33.67	44.23	54.00	9.77	100	135	Vertical

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	24.2℃/53%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-04-11
Channel	Middle channel (2440MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1137.5172	71.60	46.52	-25.08	74.00	27.48	100	341	Horizontal
2	1330.5413	69.40	46.32	-23.08	74.00	27.68	100	181	Horizontal
3	1666.5833	66.80	43.72	-23.08	74.00	30.28	200	251	Horizontal
4	1999.625	65.86	44.69	-21.17	74.00	29.31	200	218	Horizontal
5	2524.1905	62.37	43.80	-18.57	74.00	30.20	100	107	Horizontal
6	17896.8621	45.04	53.56	8.52	74.00	20.44	100	302	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17896.8621	8.52	31.34	39.86	54.00	14.14	100	302	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1136.017	75.34	51.88	-23.46	74.00	22.12	100	131	Vertical
2	1327.0409	66.73	44.03	-22.70	74.00	29.97	100	197	Vertical
3	1662.0828	67.79	45.30	-22.49	74.00	28.70	100	142	Vertical
4	1993.1241	63.86	43.17	-20.69	74.00	30.83	100	173	Vertical
5	2659.7075	61.13	43.40	-17.73	74.00	30.60	100	185	Vertical
6	17889.3612	44.77	55.33	10.56	74.00	18.67	200	215	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1136.017	-23.46	57.31	33.85	54.00	20.15	100	131	Vertical
2	17889.3612	10.56	31.36	41.92	54.00	12.08	200	215	Vertical

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	24.2℃/53%RH/101.0kPa
Test Engineer:	Zhang Zishan	Test Date:	2023-04-11
Channel	Highest channel (2475MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1136.267	70.27	45.17	-25.10	74.00	28.83	100	15	Horizontal
2	1333.0416	65.15	42.05	-23.10	74.00	31.95	100	15	Horizontal
3	1678.0848	62.27	39.31	-22.96	74.00	34.69	100	15	Horizontal
4	2187.3984	57.51	38.98	-18.53	74.00	35.02	100	15	Horizontal
5	3213.7767	60.55	44.78	-15.77	74.00	29.22	200	181	Horizontal
6	17549.9437	45.61	54.42	8.81	74.00	19.58	200	0	Horizontal

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17549.9437	8.81	32.36	41.17	54.00	12.83	200	0	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1137.0171	74.35	50.85	-23.50	74.00	23.15	100	126	Vertical
2	1663.5829	67.65	45.20	-22.45	74.00	28.80	100	258	Vertical
3	2527.691	66.02	46.55	-19.47	74.00	27.45	100	197	Vertical
4	2996.4996	68.22	51.82	-16.40	74.00	22.18	100	209	Vertical
5	4948.3685	59.79	48.56	-11.23	74.00	25.44	200	293	Vertical
6	17951.2439	45.43	56.16	10.73	74.00	17.84	200	50	Vertical

AV Final Data List

NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	1135.043	-23.50	49.44	25.94	54.00	28.06	100	146.3	Vertical
2	2996.4996	-16.40	43.64	27.24	54.00	26.76	100	209	Vertical
3	4950.9467	-11.23	52.82	41.59	54.00	12.41	160	287	Vertical
4	17888.4176	10.73	32.92	43.65	54.00	10.35	112	76.7	Vertical

18GHz-26.5GHz:

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

Only the worst mode and channel (Zigbee 2475MHz) were recorded in this report.

MG22-1:

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	20.2℃/47%RH/101.0kPa
Test Engineer:	Zhang zishan	Test Date:	2023-04-11
Channel	Highest channel (2475MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18587.775	52.07	39.95	-12.12	83.54	43.59	100	329	Horizontal
2	20207.875	51.56	40.70	-10.86	83.54	42.84	100	152	Horizontal
3	21156.9	50.90	40.83	-10.07	83.54	42.71	100	231	Horizontal
4	21741.275	49.79	40.03	-9.76	83.54	43.51	100	231	Horizontal
5	22663.525	48.75	39.84	-8.91	83.54	43.70	100	185	Horizontal
6	25132.35	47.12	39.96	-7.16	83.54	43.58	100	8	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	19475.6	52.23	40.79	-11.44	83.54	42.75	100	253	Vertical
2	20524.075	51.53	41.17	-10.36	83.54	42.37	100	286	Vertical
3	21536.425	50.05	40.33	-9.72	83.54	43.21	100	65	Vertical
4	22167.125	49.72	40.22	-9.50	83.54	43.32	100	15	Vertical
5	22768.925	48.79	40.04	-8.75	83.54	43.50	100	128	Vertical
6	25128.1	47.57	40.51	-7.06	83.54	43.03	100	96	Vertical

MG22-2:

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	20.2℃/47%RH/101.0kPa
Test Engineer:	Zhang zishan	Test Date:	2023-04-11
Channel	Highest channel (2475MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18183.175	52.35	39.94	-12.41	83.54	43.60	100	135	Horizontal
2	20207.875	52.06	41.20	-10.86	83.54	42.34	100	152	Horizontal
3	21570.425	50.49	40.70	-9.79	83.54	42.84	100	346	Horizontal
4	24098.325	48.63	40.28	-8.35	83.54	43.26	100	231	Horizontal
5	25132.35	47.62	40.46	-7.16	83.54	43.08	100	8	Horizontal
6	26361.45	48.01	40.78	-7.23	83.54	42.76	100	185	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18958.375	51.33	39.51	-11.82	83.54	44.03	100	316	Vertical
2	20524.075	51.03	40.67	-10.36	83.54	42.87	100	286	Vertical
3	21536.425	49.55	39.83	-9.72	83.54	43.71	100	65	Vertical
4	22768.925	48.29	39.54	-8.75	83.54	44.00	100	128	Vertical
5	25128.1	47.07	40.01	-7.06	83.54	43.53	100	96	Vertical
6	26396.725	46.59	39.59	-7.00	83.54	43.95	100	253	Vertical

MG13:

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0001
Power supply:	AC 120V/60Hz	Environmental Conditions:	20.2 °C /47%RH/101.0kPa
Test Engineer:	Zhang zishan	Test Date:	2023-04-11
Channel	Highest channel (2475MHz)	/	/

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18587.775	51.07	38.95	-12.12	83.54	44.59	100	329	Horizontal
2	19415.675	50.90	39.41	-11.49	83.54	44.13	100	0	Horizontal
3	20207.875	50.56	39.70	-10.86	83.54	43.84	100	152	Horizontal
4	21570.425	48.99	39.20	-9.79	83.54	44.34	100	346	Horizontal
5	24098.325	47.13	38.78	-8.35	83.54	44.76	100	231	Horizontal
6	25634.7	46.48	38.91	-7.57	83.54	44.63	100	329	Horizontal

Suspected Data List

NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18419.05	50.13	37.93	-12.20	83.54	45.61	100	15	Vertical
2	20524.075	50.03	39.67	-10.36	83.54	43.87	100	286	Vertical
3	22167.125	48.22	38.72	-9.50	83.54	44.82	100	15	Vertical
4	22768.925	47.29	38.54	-8.75	83.54	45.00	100	128	Vertical
5	25128.1	46.07	39.01	-7.06	83.54	44.53	100	96	Vertical
6	26396.725	45.59	38.59	-7.00	83.54	44.95	100	253	Vertical

Remark:

- 1 Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2 Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3 Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4 Above 18G test distance is 1m, so the Peak Limit=74+20*log(3/1)=83.54 (dBμV/m), The limits are relaxed.

9. 6dB BANDWIDTH

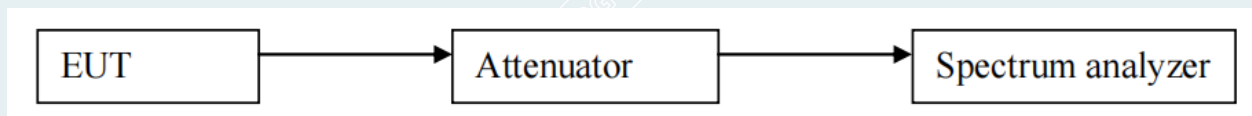
9.1 LIMITS

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

9.2 TEST PROCEDURES

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Set resolution bandwidth (RBW) = 100kHz. Set the video bandwidth (VBW) $\geq 3 \times$ RBW. Detector = Peak. Trace mode = max hold. Sweep = auto couple. Allow the trace to stabilize, record 6dB bandwidth value.
- 3) Repeat above procedures until all frequencies measured were complete.

9.3 TEST SETUP



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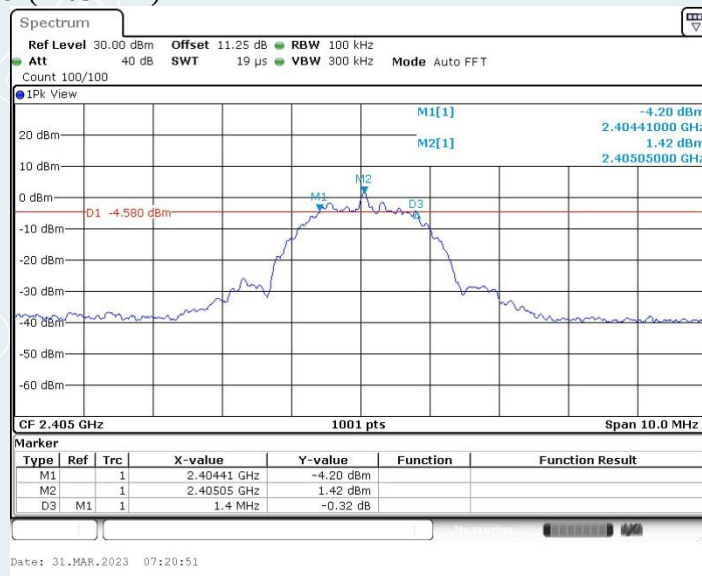
9.4 TEST RESULTS

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0003
Test Engineer:	Qin Tingting	Test Date:	2023-03-31
Environmental Conditions:	20.6°C/62%RH/101.0kPa	/	/

MG22-1:

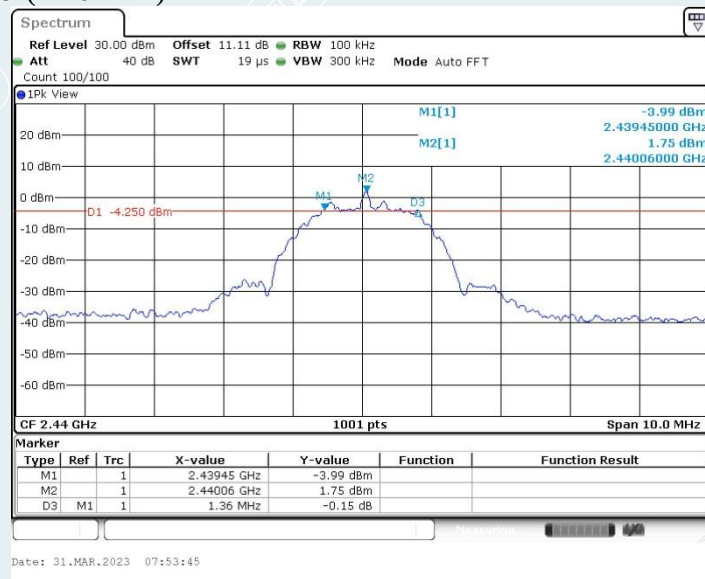
ChName	Frequency (MHz)	Bandwidth [kHz]	Limit[kHz]	Verdict
Lowest	2405	1400	≥500	PASS
Middle	2440	1360		PASS
Highest	2475	1330		PASS

Lowest channel (2405MHz)

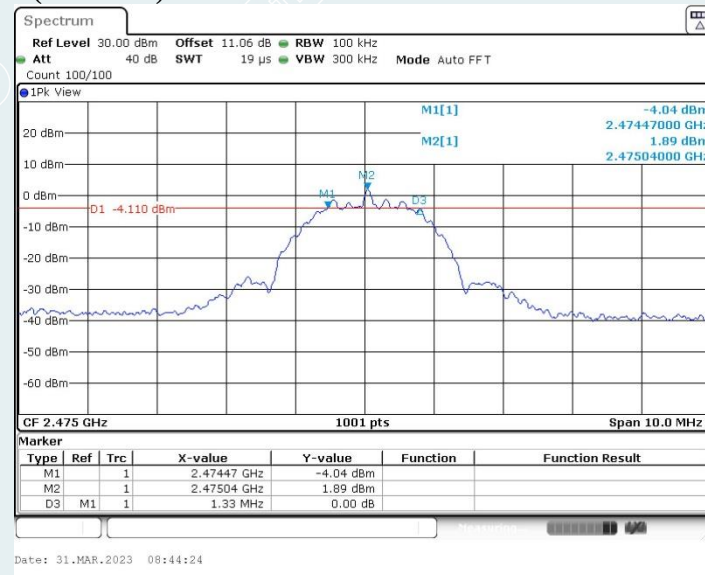


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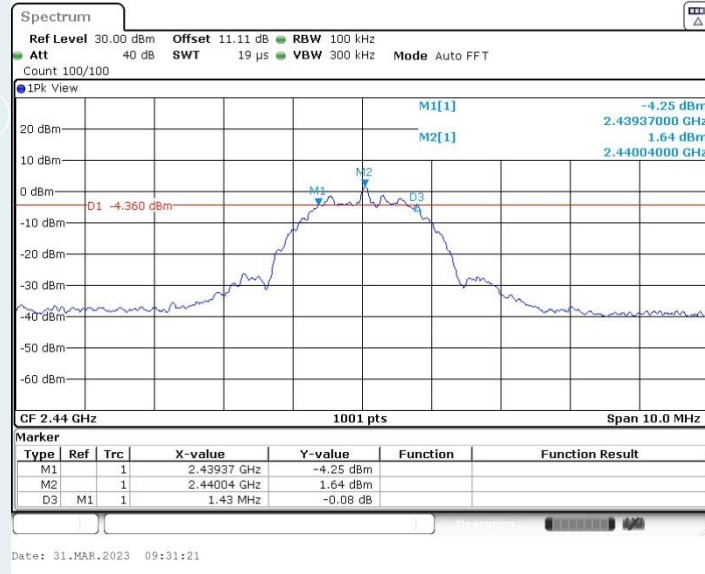
Middle channel (2440 MHz)



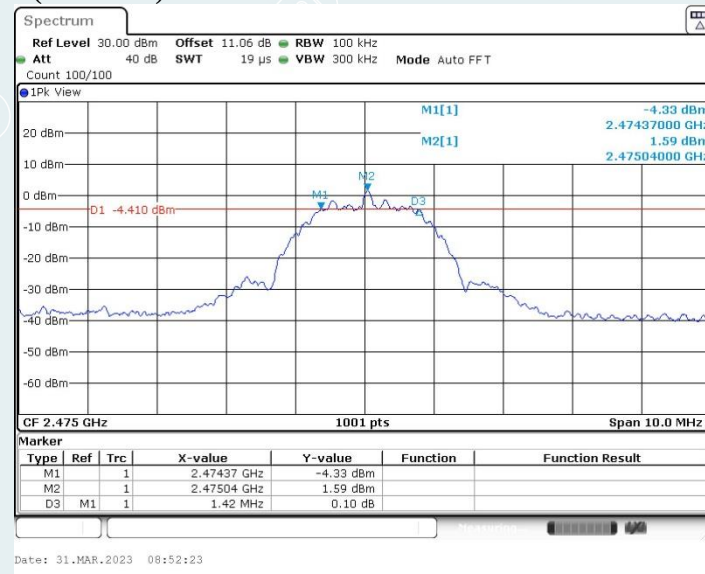
Highest channel (2475MHz)



Middle channel (2440 MHz)



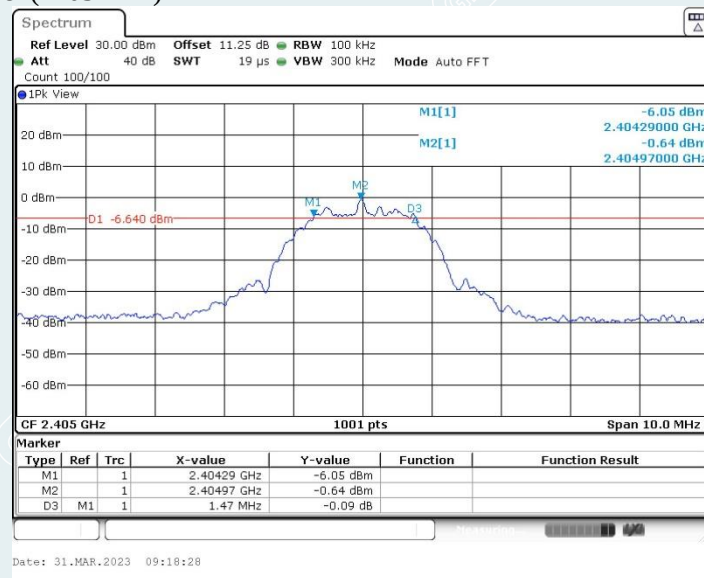
Highest channel (2475MHz)



MG13:

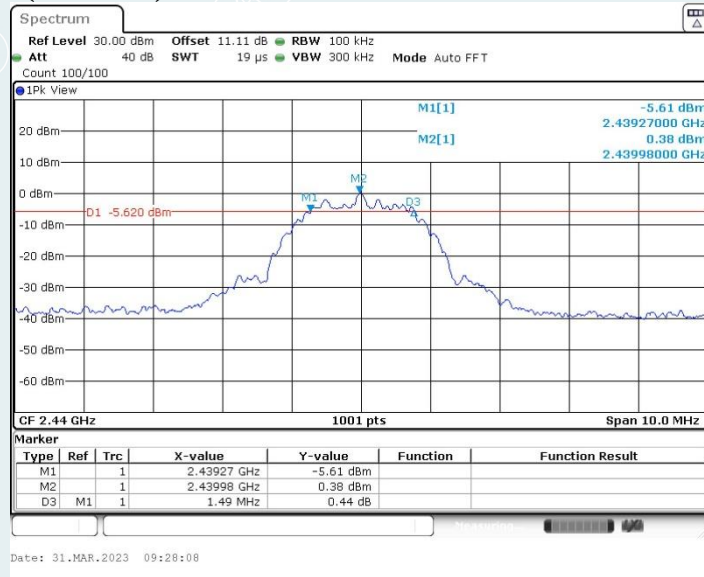
ChName	Frequency (MHz)	Bandwidth [kHz]	Limit[kHz]	Verdict
Lowest	2405	1470	≥500	PASS
Middle	2440	1490		PASS
Highest	2475	1380		PASS

Lowest channel (2405MHz)

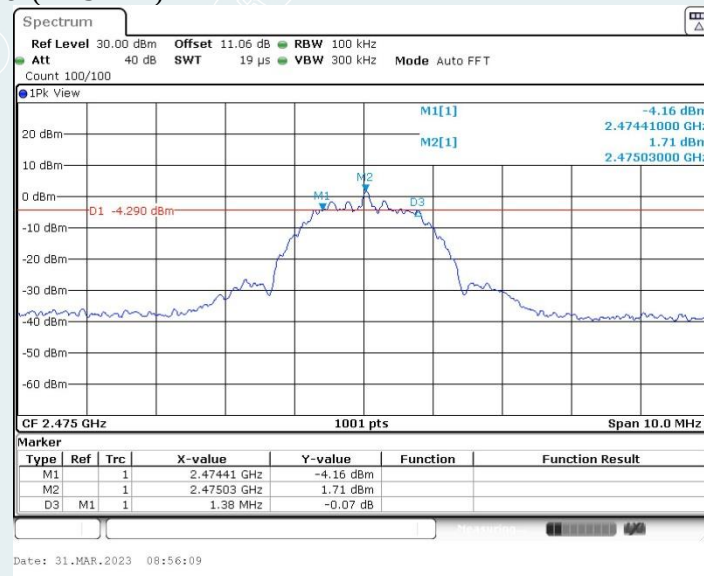


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Middle channel (2440 MHz)



Highest channel (2475MHz)



10. MAXIMUM PEAK OUTPUT POWER

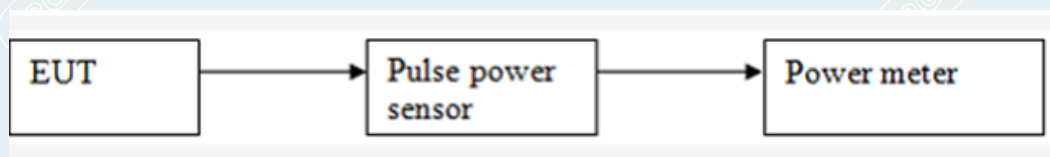
10.1 LIMITS

The maximum Peak output power measurement is 1W

10.2 TEST PROCEDURES

- 1) According to the test mode, the channel requirements set EUT to continuous transmission mode.
- 2) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.

10.3 TEST SETUP



10.4 TEST RESULTS

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0003
Test Engineer:	Qin Tingting	Test Date:	2023-03-31
Environmental Conditions:	20.6°C/62%RH/101.0kPa	/	/

MG22-1:

ChName	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/Average	Result
Lowest	2405	1.91	1W (30dBm)	Peak	Pass
Middle	2440	2.13			Pass
Highest	2475	2.24			Pass

MG22-2:

ChName	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/Average	Result
Lowest	2405	2.31	1W (30dBm)	Peak	Pass
Middle	2440	2.30			Pass
Highest	2475	2.19			Pass

MG13:

ChName	Frequency (MHz)	Measured Channel Power (dBm)	Limit	Peak/Average	Result
Lowest	2405	1.50	1W (30dBm)	Peak	Pass
Middle	2440	1.50			Pass
Highest	2475	1.85			Pass

11. POWER SPECTRAL DENSITY

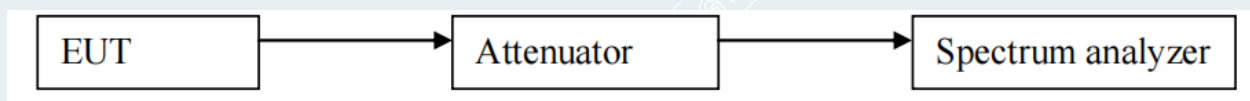
11.1 LIMITS

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

11.2 TEST PROCEDURES

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 3) The following procedure shall be used if maximum peak conducted output power was used to determine compliance, and it is optional if the maximum conducted (average) output power was used to determine compliance:
 - a) Set analyzer center frequency to DTS channel center frequency.
 - b) Set the span to 1.5 times the DTS bandwidth.
 - c) Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
 - d) Set the VBW $\geq [3 \times \text{RBW}]$.
 - e) Detector = peak
 - f) Sweep time = auto couple.
 - g) Trace mode = max hold.
 - h) Allow trace to fully stabilize.
 - i) Use the peak marker function to determine the maximum amplitude level within the RBW.
 - j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.
- 4) Repeat above procedures until all frequencies measured were complete.

11.3 TEST SETUP



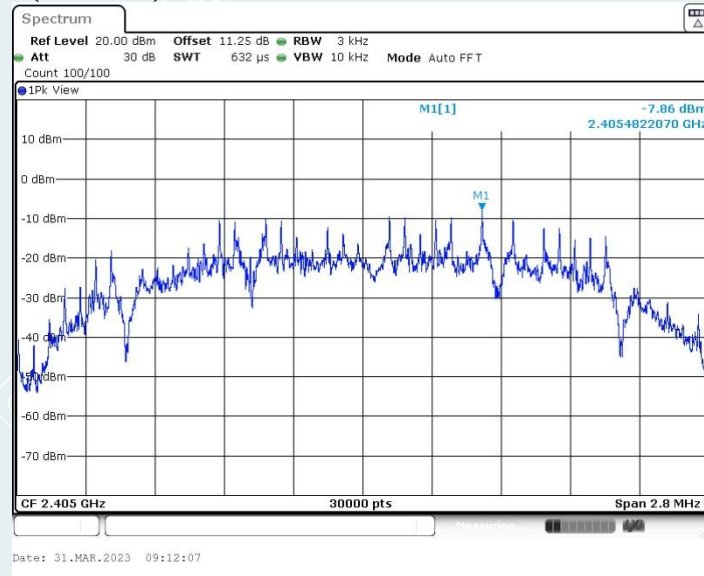
11.4 TEST RESULTS

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0003
Test Engineer:	Qin Tingting	Test Date:	2023-03-31
Environmental Conditions:	20.6°C/62%RH/101.0kPa	/	/

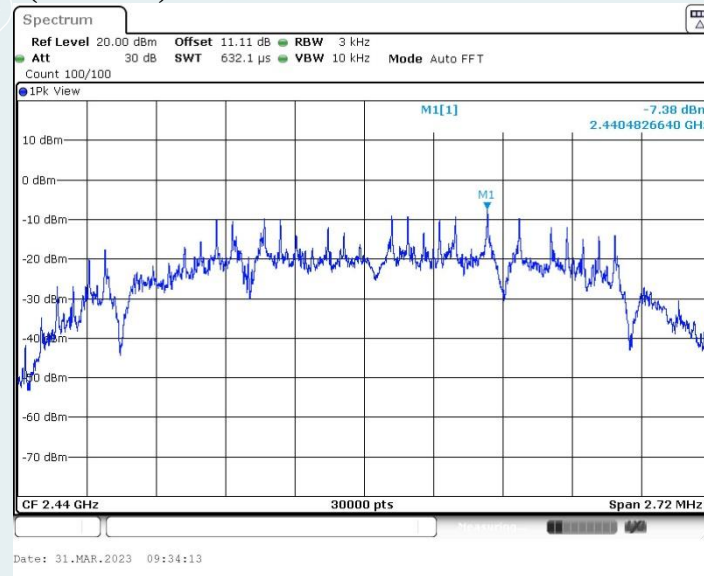
MG22-1:

ChName	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	2405	-7.86	8.00	Pass
Middle	2440	-7.38	8.00	Pass
Highest	2475	-7.30	8.00	Pass

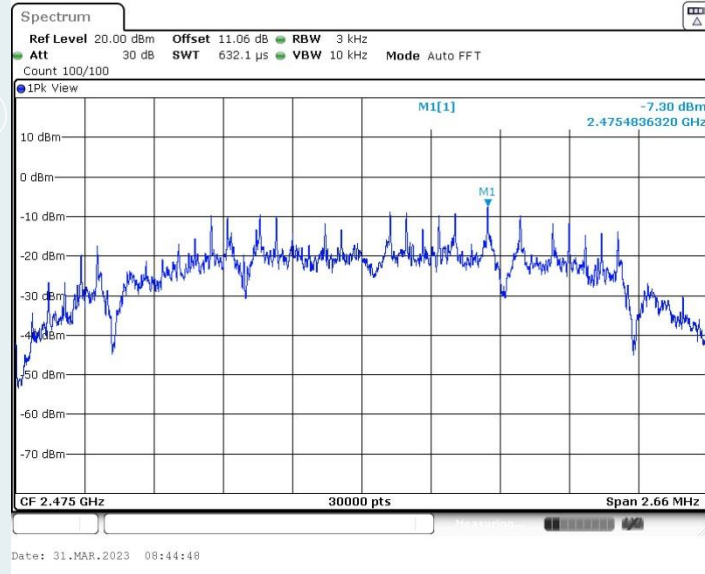
Lowest channel (2405MHz)



Middle channel (2440 MHz)



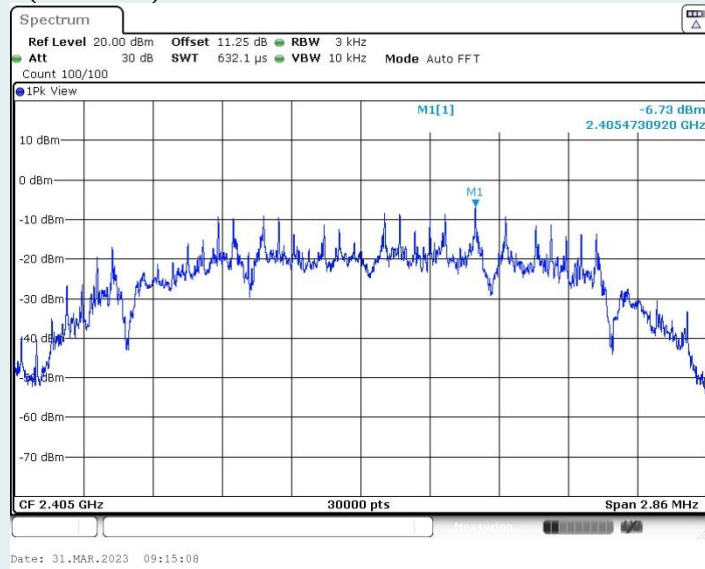
Highest channel (2475MHz)



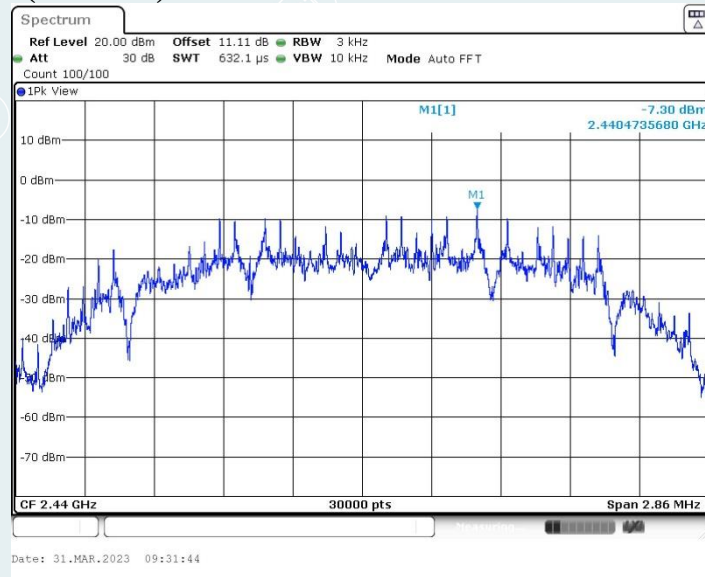
MG22-2:

ChName	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	2405	-6.73	8.00	Pass
Middle	2440	-7.30	8.00	Pass
Highest	2475	-7.47	8.00	Pass

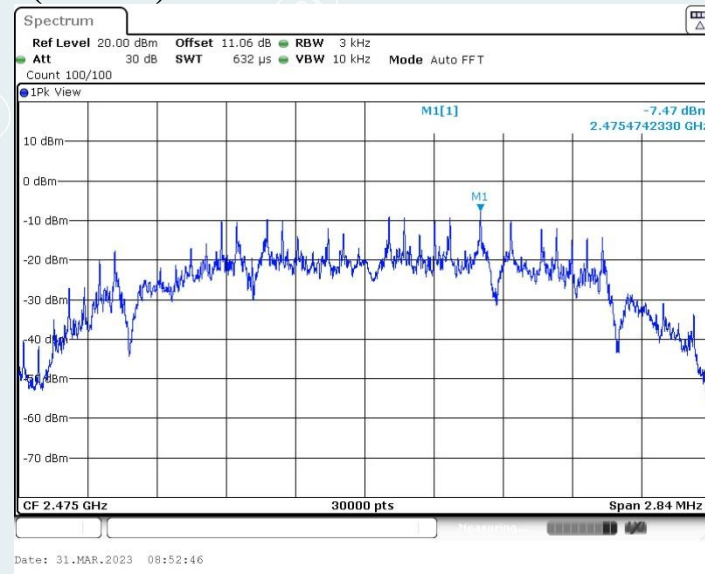
Lowest channel (2405MHz)



Middle channel (2440 MHz)



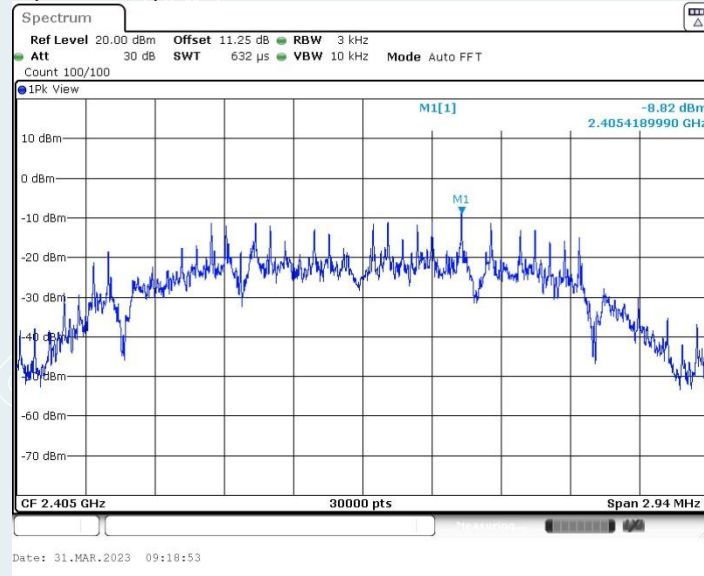
Highest channel (2475MHz)



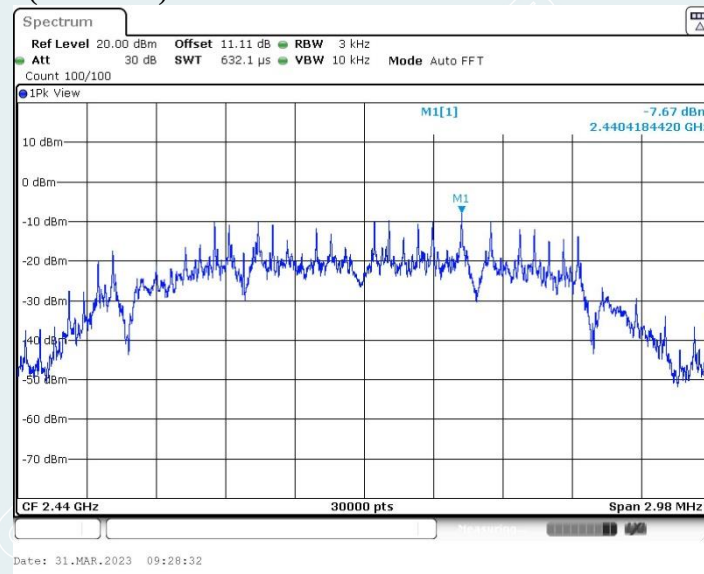
MG13:

ChName	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Lowest	2405	-8.82	8.00	Pass
Middle	2440	-7.67	8.00	Pass
Highest	2475	-7.48	8.00	Pass

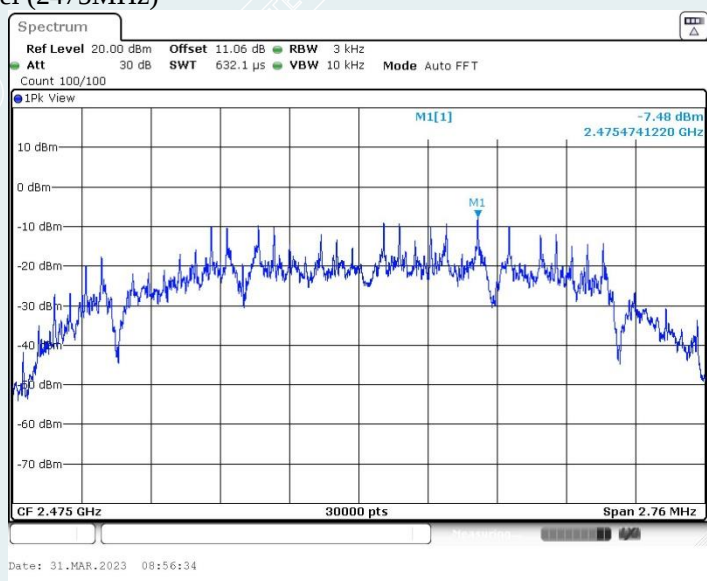
Lowest channel (2405MHz)



Middle channel (2440 MHz)



Highest channel (2475MHz)



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12. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

12.1 LIMITS

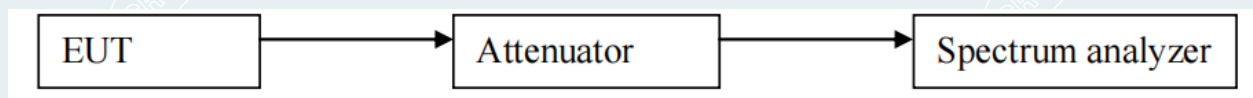
(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains 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.

12.2 TEST PROCEDURES

Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.

- 1) Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.
- 2) Set the spectrum analyzer: RBW=100kHz, VBW=300kHz, Span=10MHz to 26.5GHz, Sweep=auto, Detector Function=Peak, Trace=Max hold.
- 3) Measure and record the results in the test report.
- 4) The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 5) Measurements are made from 30MHz to 26.5GHz with the transmitter set to the lowest, middle, and highest channels.

12.3 TEST SETUP



----- The following blanks -----

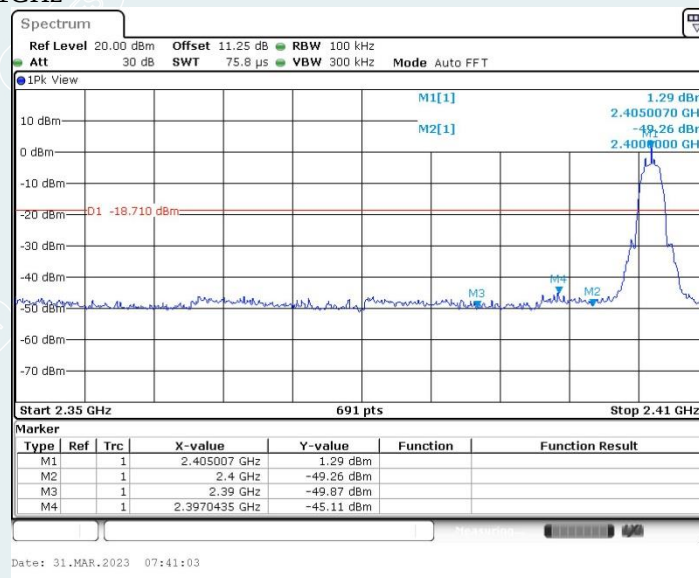
12.4 TEST RESULTS

EUT Name:	Wireless Data Collector	Test Mode:	Mode 1
Model:	RH570	Sample No:	E202303101204-0003
Test Engineer:	Qin Tingting	Test Date:	2023-03-31
Environmental Conditions:	20.6°C/62%RH/101.0kPa	/	/

MG22-1:
Band edge

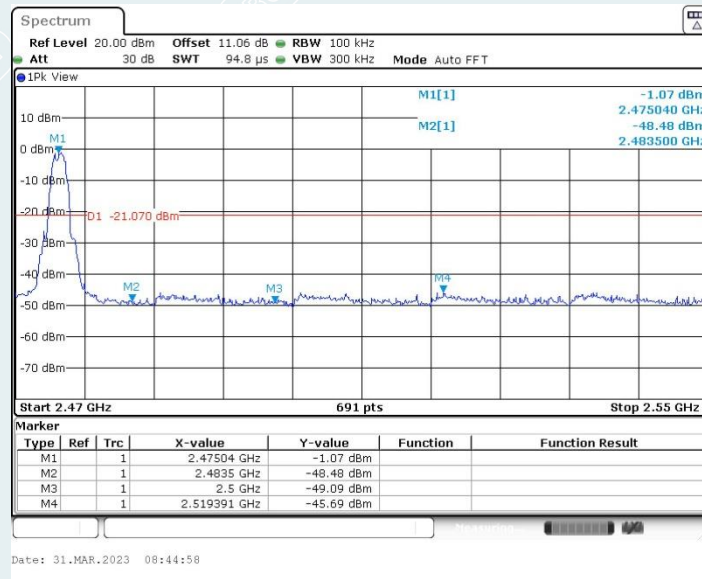
Test Mode	Antenna	ChName	Frequency [MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
Zigbee	Ant1	Lowest	2405	1.29	-45.11	≤-18.71	PASS
		Highest	2475	-1.07	-45.69	≤-21.07	PASS

Lowest channel (2405MHz)
2.35GHz-2.41GHz



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Highest channel (2475MHz)
2.47GHz-2.55GHz



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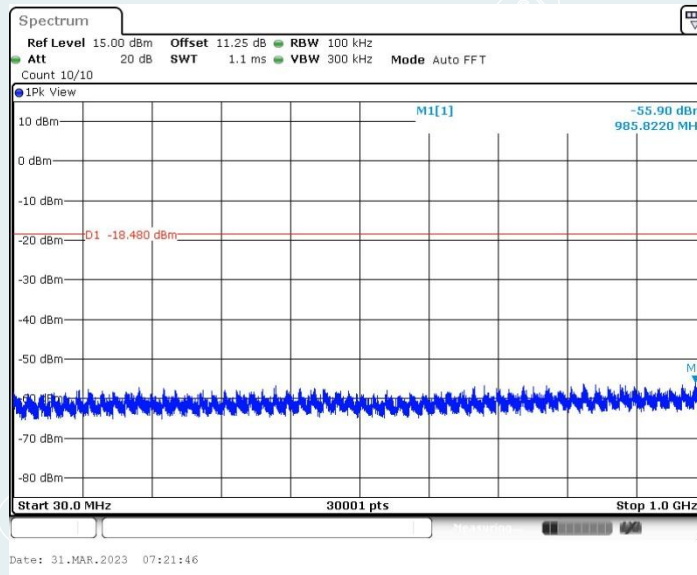
Conducted Spurious Emission

Test Mode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
Zigbee	Ant1	2405	Reference	1.52	1.52	---	PASS
			30~1000	1.52	-55.90	≤-18.48	PASS
			1000~26500	1.52	-40.75	≤-18.48	PASS
		2440	Reference	1.77	1.77	---	PASS
			30~1000	1.77	-56.12	≤-18.23	PASS
			1000~26500	1.77	-41.64	≤-18.23	PASS
		2475	Reference	1.92	1.92	---	PASS
			30~1000	1.92	-56.06	≤-18.08	PASS
			1000~26500	1.92	-43.67	≤-18.08	PASS

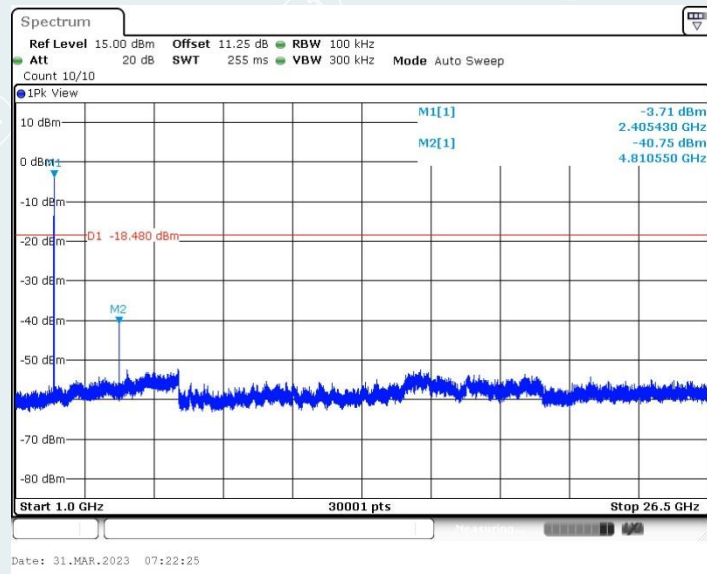
Lowest channel (2405MHz)



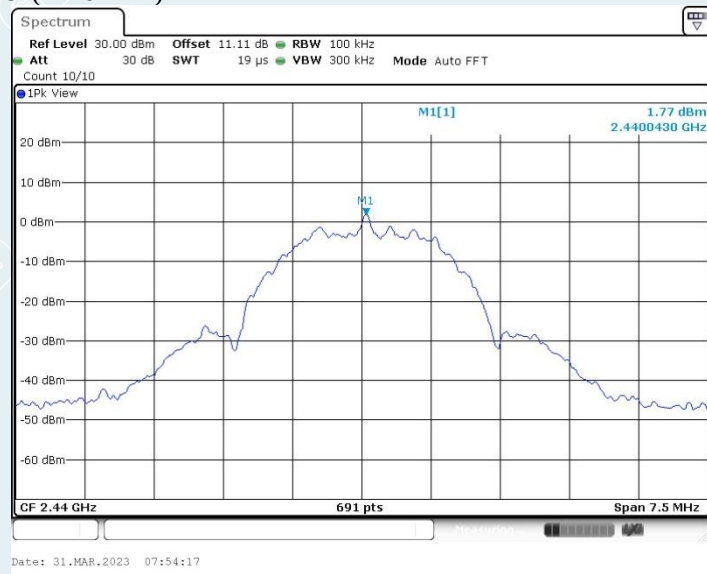
0.03GHz-1GHz



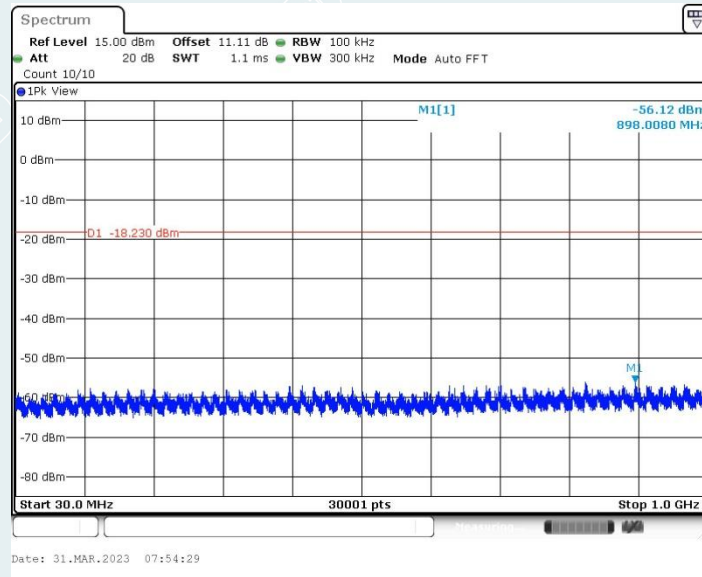
1GHz-26.5GHz



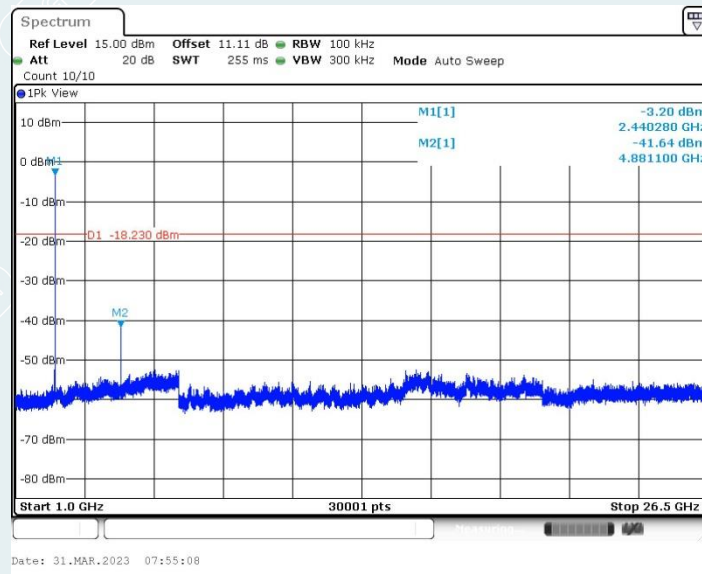
Middle channel (2440MHz)



0.03GHz-1GHz



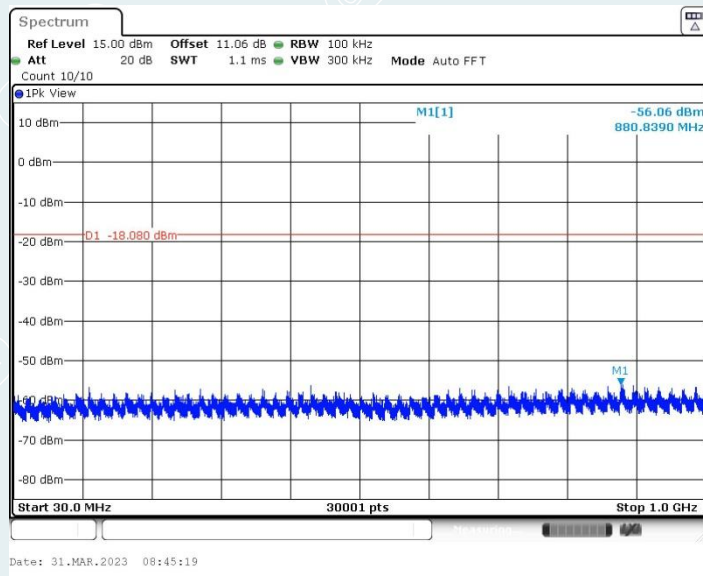
1GHz-26.5GHz



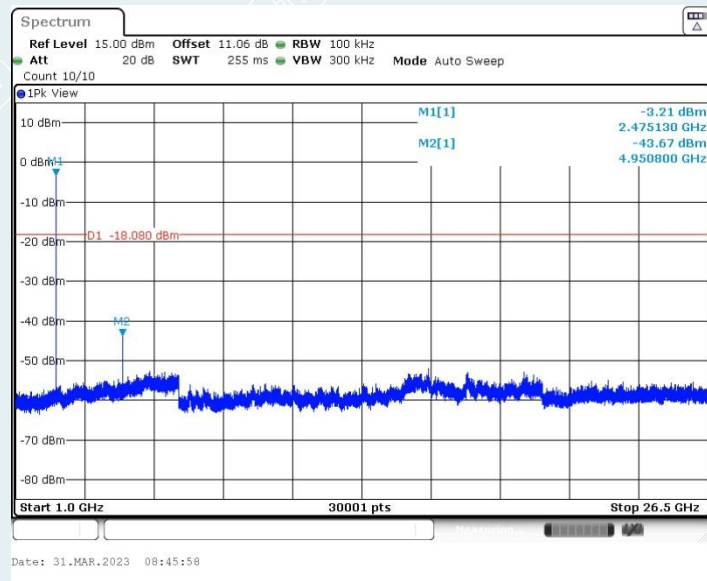
Highest channel (2475MHz)



0.03GHz-1GHz



1GHz-26.5GHz

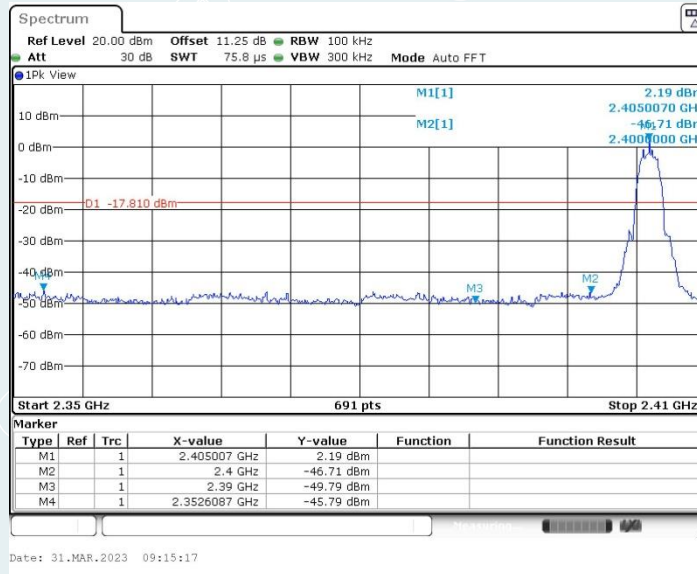


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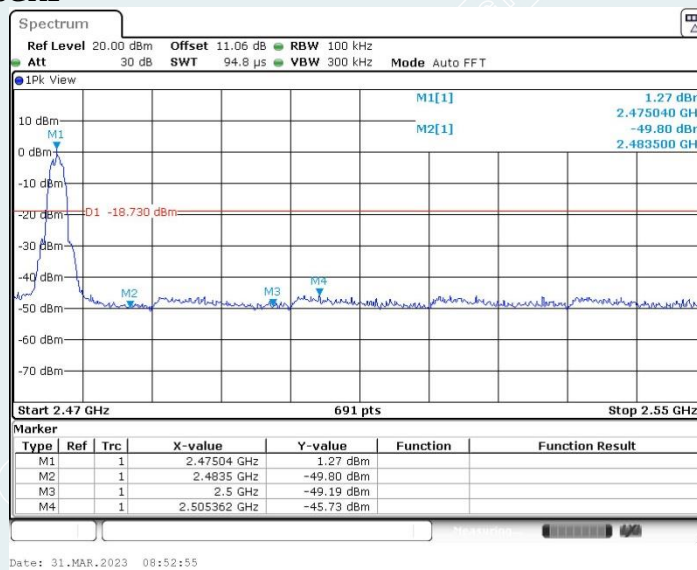
MG22-2:
Band edge

Test Mode	Antenna	ChName	Frequency [MHz]	RefLevel[dBm]	Result[dBm]	Limit[dBm]	Verdict
Zigbee	Ant1	Lowest	2405	2.19	-45.79	≤-17.81	PASS
		Highest	2475	1.27	-45.73	≤-18.73	PASS

Lowest channel (2405MHz)
2.35GHz-2.41GHz



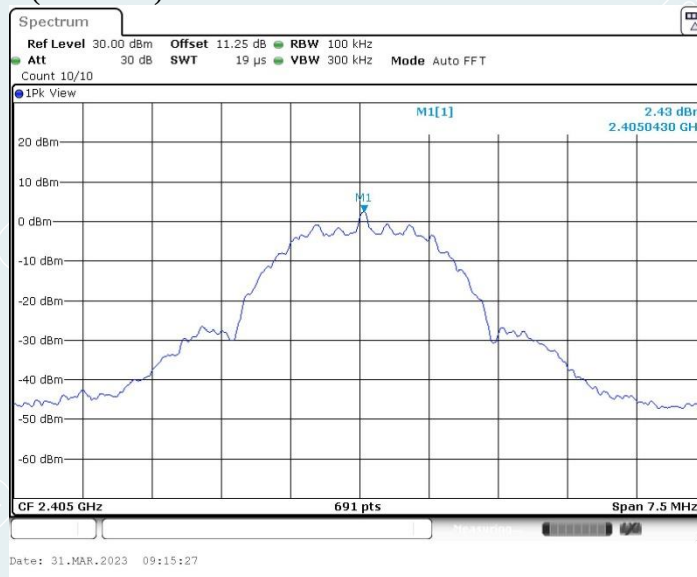
Highest channel (2475MHz)
2.47GHz-2.55GHz



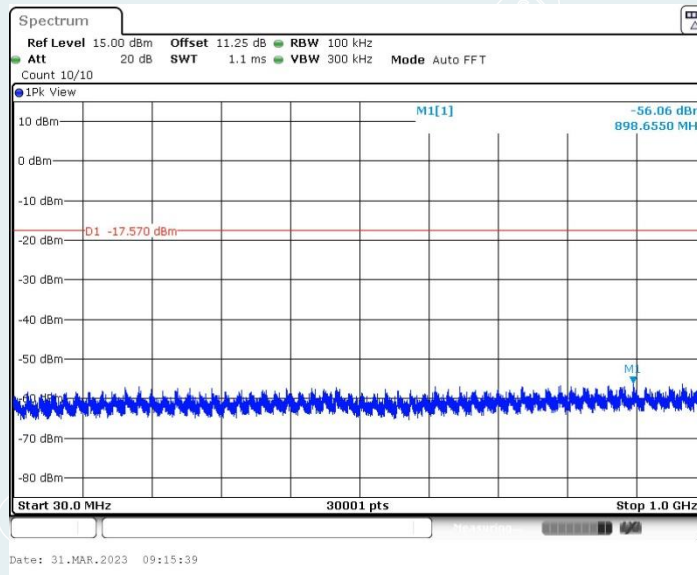
Conducted Spurious Emission

Test Mode	Antenna	Frequency [MHz]	FreqRange [MHz]	RefLevel [dBm]	Result[dBm]	Limit[dBm]	Verdict
Zigbee	Ant1	2405	Reference	2.43	2.43	---	PASS
			30~1000	2.43	-56.06	≤ -17.57	PASS
			1000~26500	2.43	-45.39	≤ -17.57	PASS
		2440	Reference	1.22	1.22	---	PASS
			30~1000	1.22	-56.36	≤ -18.78	PASS
			1000~26500	1.22	-43.06	≤ -18.78	PASS
		2475	Reference	1.70	1.70	---	PASS
			30~1000	1.70	-56.29	≤ -18.3	PASS
			1000~26500	1.70	-45.63	≤ -18.3	PASS

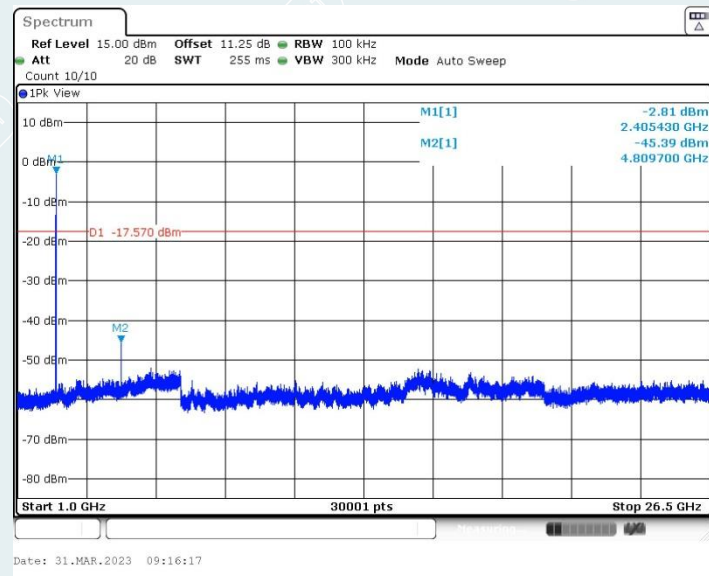
Lowest channel (2405MHz)



0.03GHz-1GHz



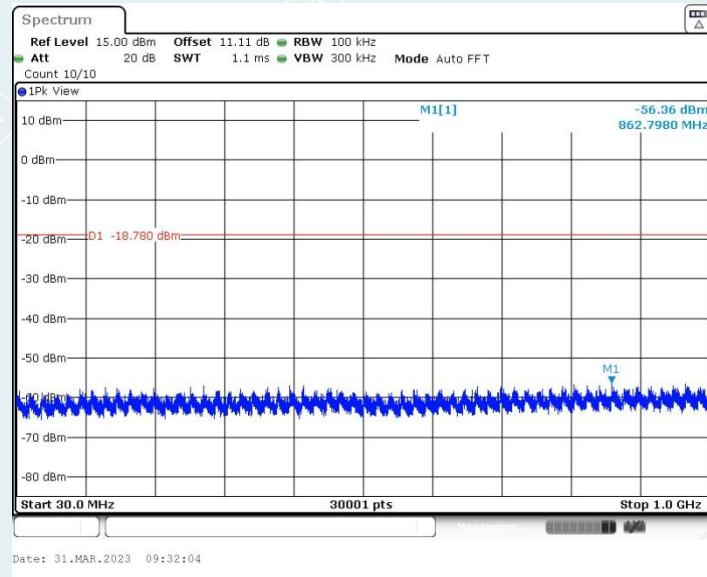
1GHz-26.5GHz



Middle channel (2440MHz)



0.03GHz-1GHz



1GHz-26.5GHz

