



SGS-CSTC Standards Technical Services Co., Ltd.
Guangzhou Branch

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Report No.: GZEM181000094602

Page: 1 of 27

FCC ID: 2ARDB-WPA1FC

TEST REPORT

Application No.: GZEM1810000946CR
Applicant: Beijing Kingsmith Technology Co., Ltd
Address of Applicant: Floor 4, Building 25, Area 18, ABP Park, Fengtai, Beijing, China.
Manufacturer: Beijing Kingsmith Technology Co., Ltd
Address of Manufacturer: Floor 4, Building 25, Area 18, ABP Park, Fengtai, Beijing, China.
Factory: Sunlink (Xiamen) Sports Equipments Industrial Co., Ltd
Address of Factory: 32-1 Bannan Road, Dongfu, Haicang, Xiamen, Fujian, China
Equipment Under Test (EUT):
FCC ID: 2ARDB-WPA1FC
EUT Name: WalkingPad Walking Device
Model No.: 04ARM003
Trade Mark: Walking Pad
Standard(s) : 47 CFR Part 15, Subpart C 15.249
Date of Receipt: 2018-10-11
Date of Test: 2018-11-06 to 2018-11-27
Date of Issue: 2018-12-28

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



Kobe Jian
Lab Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



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Guangzhou Branch Testing Center EEC Laboratory

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2018-12-28		Original

Authorized for issue by:			
Tested By			
		Curry_Wu /Project Engineer	2018-11-06 to 2018-11-27 Date
Checked By			
		Ricky_Liu /Reviewer	2018-12-28 Date



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2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.249	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
20dB Bandwidth	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass
Field Strength of the Fundamental Signal (15.249(a))	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.5&6.6	47 CFR Part 15, Subpart C 15.249(a)	Pass
Restricted Band Around Fundamental Frequency	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209	Pass
Radiated Emissions	47 CFR Part 15, Subpart C 15.249	ANSI C63.10 (2013) Section 6.4&6.5&6.6	47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)	Pass ^①
① The EUT passed Radiated Emissions test after modification.				



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4 General Information

4.1 Details of E.U.T.

Power Supply:	DC 3V 'CR2032' battery for remote controller
Test Voltage:	DC 3V
Cable:	about 0.8m x 3 wires unscreened AC mains cable
Frequency range	2404MHz,2419MHz,2454MHz,2479MHz
Antenna type	PCB antenna
Antenna gain	0dBi
Channel Number	4

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

RF

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 5.5 \times 10^{-8}$
2	Duty cycle	$\pm 0.57\%$
3	Occupied Bandwidth	$\pm 3\%$
4	RF Conducted power	$\pm 0.68\text{dB}$
5	RF Power Density	$\pm 1.50\text{dB}$
6	Conducted Spurious Emissions	$\pm 1.04\text{dB}$
7	RF Radiated Power	$\pm 4.5\text{dB}$ (below 1GHz)
		$\pm 4.8\text{dB}$ (above 1GHz)
8	Radiated Spurious Emission Test	$\pm 4.5\text{dB}$ (30MHz-1GHz)
		$\pm 4.8\text{dB}$ (1GHz-18GHz)
9	Temperature	$\pm 0.4^\circ\text{C}$
10	Humidity	$\pm 1.3\%$
11	Supply Voltages	$\pm 1.5\%$
12	Time	$\pm 3\%$



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4.4 Test Location

All tests were performed at:

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Guangzhou, China 510663

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No tests were sub-contracted.



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4.5 Test Facility

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

● **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

● **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

● **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

● **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to

ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

● **FCC Recognized 2.948 Listed Test Firm(Registration No.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002.

● **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818, Jul 13, 2017.

● **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

● **VCCI (Registration No.: R-2460, C-2584, G-449 and T-1179)**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460, C-2584, G-449 and T-1179 respectively.

● **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.



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4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

The EUT passed Radiated Emissions test after modification.



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5 Equipment List

20dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EXA Signal Analyzer	AgilentTechnologies	N9010A	EMC2138	2018-11-19	2019-11-18
6dB Attenuator	HP	8491A	EMC2062	2018-04-04	2020-04-03
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A

Restricted Band Around Fundamental Frequency					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2018-01-19	2019-01-18
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2018-01-19	2019-01-18
Chamber cable	HangTianXing	N/A	EMC0542	2017-06-30	2019-06-30
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9160	EMC2025	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6112B	EMC0524	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2016-09-09	2019-09-08
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2018-01-08	2019-01-07
Amplifier	HP	8447F	EMC2065	2018-06-01	2019-05-31
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2018-11-19	2019-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2018-02-24	2019-02-23
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2018-01-19	2019-01-18
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2018-01-08	2019-01-07
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2017-06-18	2019-06-18
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-11-29	2018-11-28
MXE EMI Receiver	Keysight	N9038A	EMC2139	2018-11-19	2019-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2018-11-19	2019-11-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2016-06-29	2019-06-28
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A



Radiated Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB26	EMC0522	2018-01-19	2019-01-18
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC0056	2018-01-19	2019-01-18
Chamber cable	HangTianXing	N/A	EMC0542	2017-06-30	2019-06-30
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9160	EMC2025	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6112B	EMC0524	2016-09-08	2019-09-07
Bi-log Type Antenna	Schaffner -Chase	CBL6143	EMC0519	2017-05-04	2020-05-03
Horn Antenna 1GHz-18GHz	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2016-09-09	2019-09-08
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2018-01-08	2019-01-07
Amplifier	HP	8447F	EMC2065	2018-06-01	2019-05-31
Pre-Amplifier MH648A	ANRITSU CORP	MH648A	EMC2086	2018-11-19	2019-11-18
Active Loop Antenna	EMCO	6502	EMC0523	2018-02-24	2019-02-23
High Pass Filter(915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2018-01-19	2019-01-18
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2018-01-08	2019-01-07
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2017-06-18	2019-06-18
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2017-11-29	2018-11-28
MXE EMI Receiver	Keysight	N9038A	EMC2139	2018-11-19	2019-11-18
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2018-11-19	2019-11-18
Trilog Broadband Antenna 30MHz-1GHz	SCHWARZBECKME SS-ELEKTRONIK	VULB 9168	SEM003-18	2016-06-29	2019-06-28
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2018-07-20	2019-07-19
DMM	Fluke	73	EMC0007	2018-07-19	2019-07-18



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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

Limit:

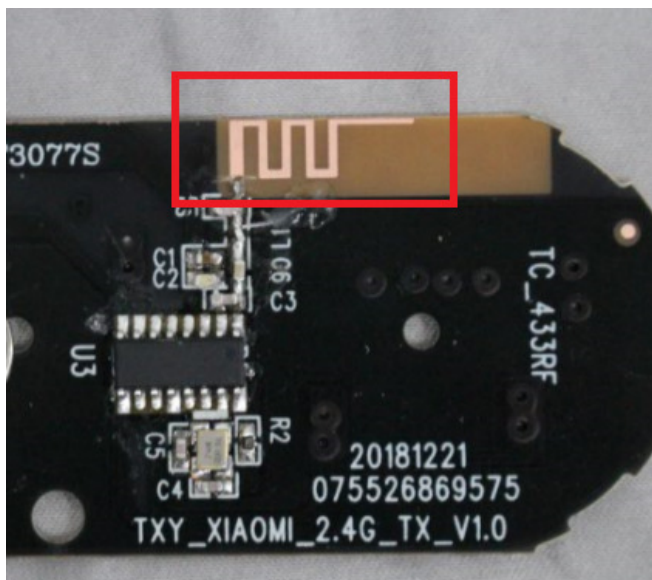
15.203 requirement:

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

6.1.2 Conclusion

Standard Requirement:

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



EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.

7 Radio Spectrum Matter Test Results

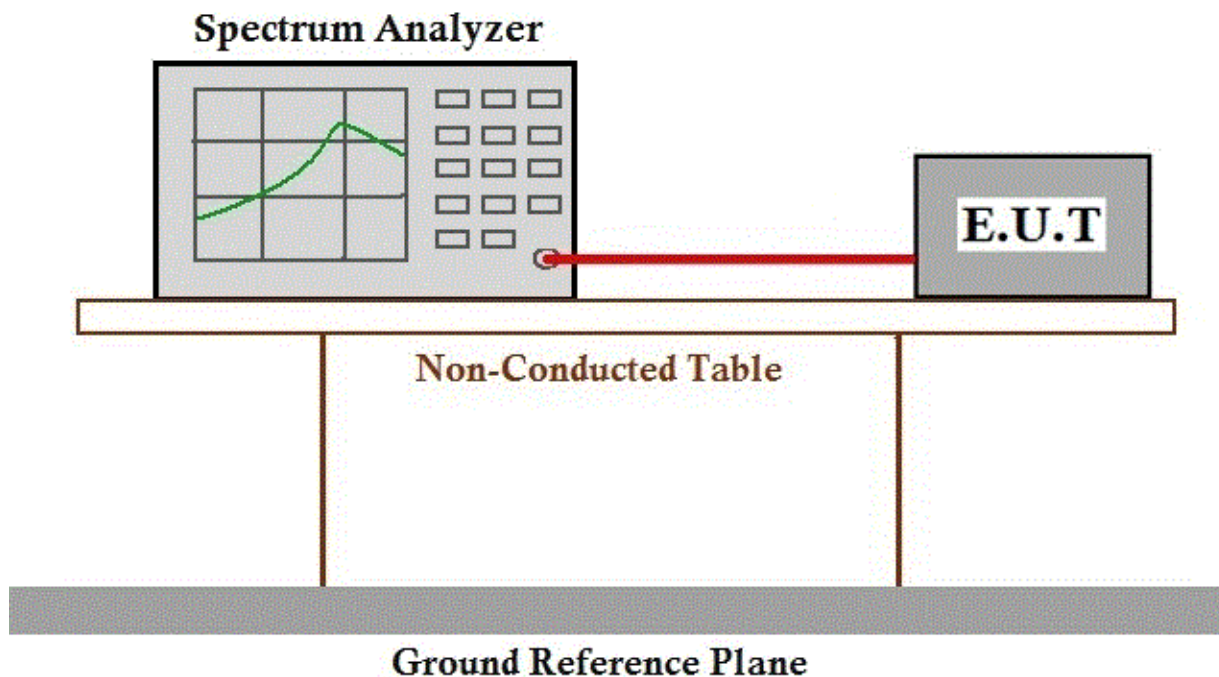
7.1 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215
Test Method: ANSI C63.10 (2013) Section 6.9
Limit: N/A

7.1.1 E.U.T. Operation

Operating Environment:
Temperature: 23.9 °C Humidity: 54.3 % RH Atmospheric Pressure: 1020 mbar
Test mode b: 2.4GHz TX mode_Keep the EUT in transmitting with modulation mode.

7.1.2 Test Setup Diagram



7.1.3 Measurement Procedure and Data

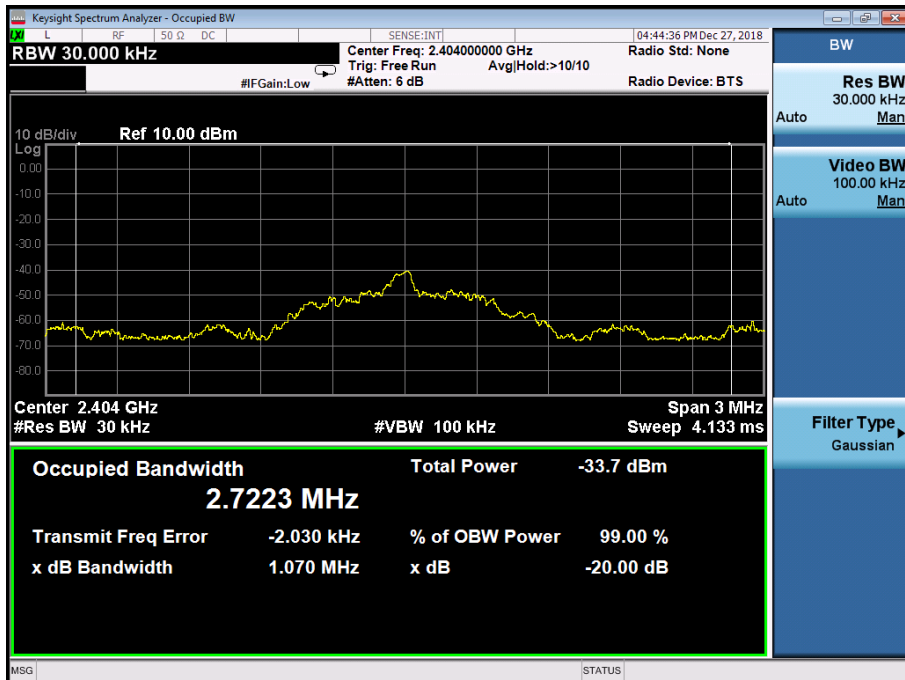


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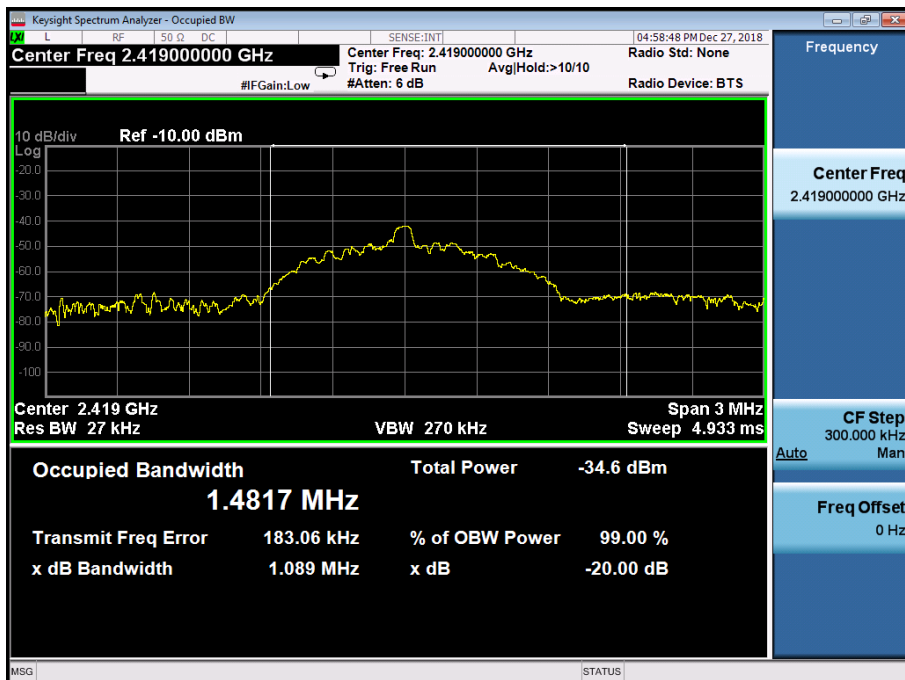
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Mode:b; ; ; Channel:Low



Mode:b; ; ; Channel:middle

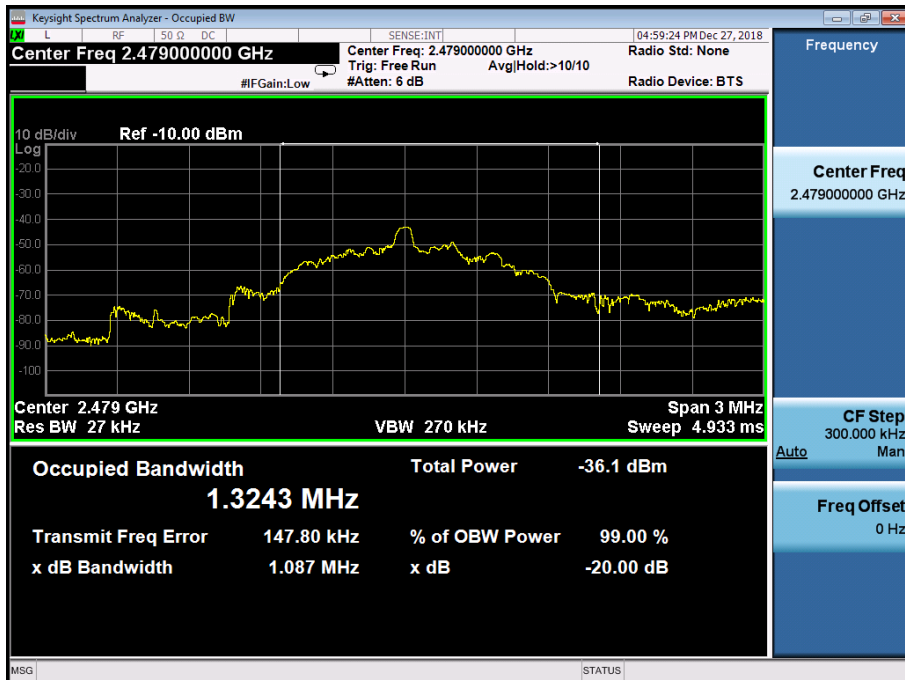


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Mode:b; ; ; Channel:High



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7.2 Field Strength of the Fundamental Signal (15.249(a))

Test Requirement 47 CFR Part 15, Subpart C 15.249(a)
Test Method: ANSI C63.10 (2013) Section 6.5&6.6
Limit:

Fundamental frequency(MHz)	Field strength of fundamental (microvolts/meter)	Field strength of harmonics (microvolts/meter)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

Remark: The frequencies above 1000MHz are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.



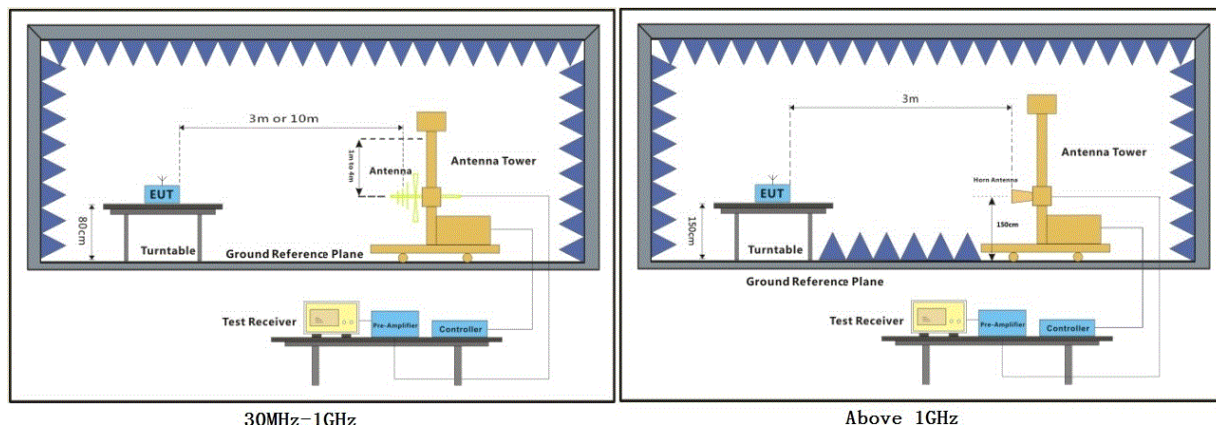
7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 44.6 % RH Atmospheric Pressure: 102 mbar

Test mode b: 2.4GHz TX mode_Keep the EUT in transmitting with modulation mode.

7.2.2 Test Setup Diagram



7.2.3 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

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



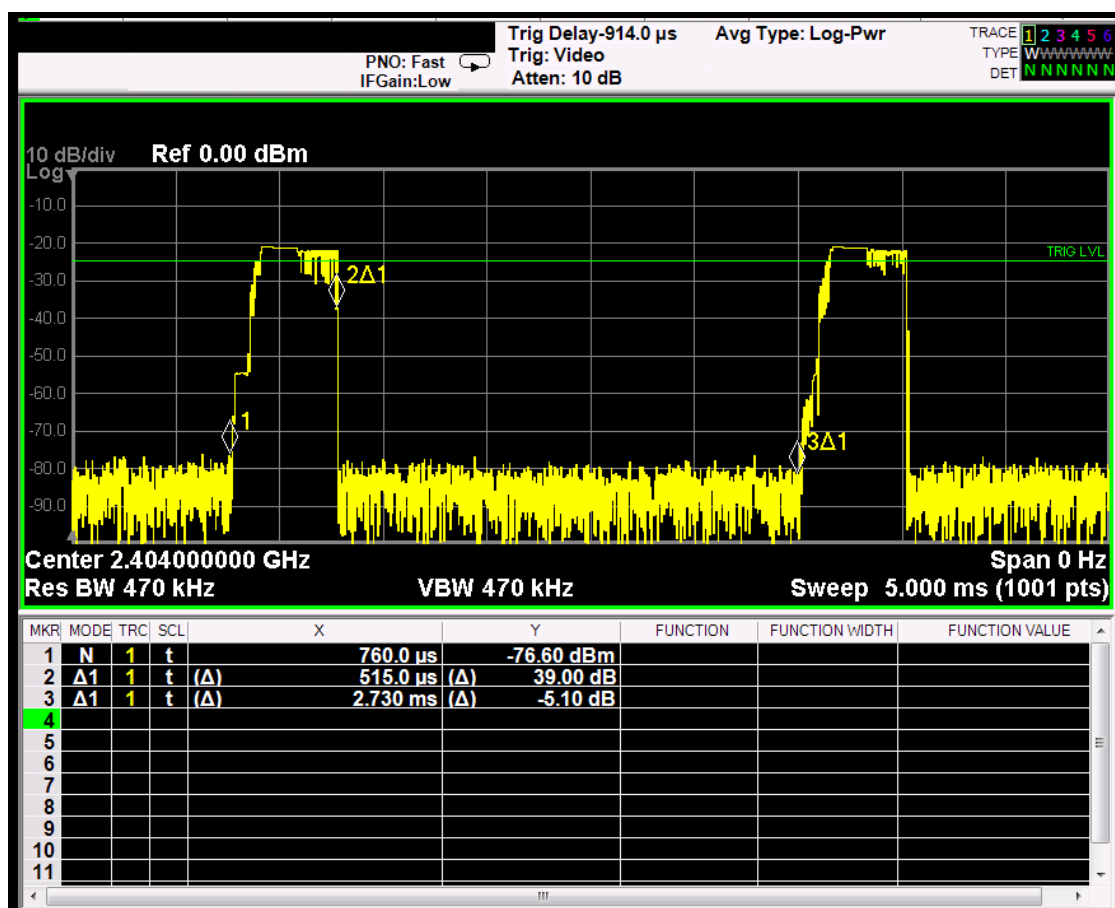
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Measured Data	Low Frequency	Middle Frequency	High Frequency	Limit
	2404MHz	2419MHz	2479MHz	
Peak (dBuV/m)	55.50	56.66	57.34	114
Average (dBuV/m)	41.08	42.24	42.92	94

Value(average)= Value(Peak) - 20log(19%)

Duty Cycle=0.515ms/2.73ms x 100% ≈19%



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7.3 Restricted Band Around Fundamental Frequency

Test Requirement: 47 CFR Part 15, Subpart C 15.205 & 15.249(d) & 15.209
Test Method: ANSI C63.10 (2013) Section 6.4&6.5&6.6
Measurement Distance: 3m
Limit:

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
Above 1GHz	74.0	Peak Value

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

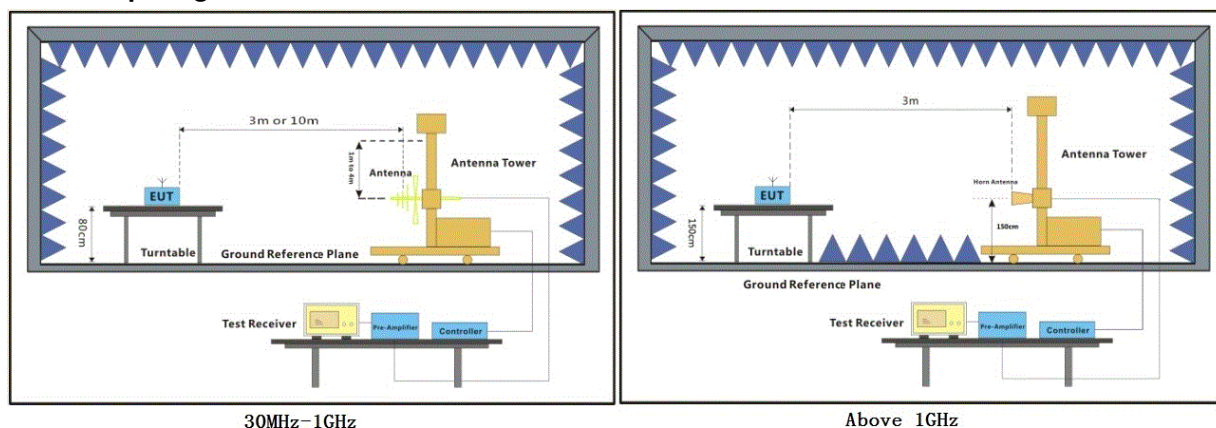


7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 55 % RH Atmospheric Pressure: 1020 mbar
Test mode b: 2.4GHz TX mode_Keep the EUT in transmitting with modulation mode.

7.3.2 Test Setup Diagram



7.3.3 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

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



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Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:Low

	Freq	ReadAntenna Level Factor	Cable Preamp Loss Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1	2310.000	35.38	26.25	5.03	37.44	29.22	54.00	-24.78 HORIZONTAL Average
2	2310.000	46.78	26.25	5.03	37.44	40.62	74.00	-33.38 HORIZONTAL Peak
3	2390.000	35.21	26.43	4.88	37.42	29.10	54.00	-24.90 HORIZONTAL Average
4	2390.000	46.55	26.43	4.88	37.42	40.44	74.00	-33.56 HORIZONTAL Peak
5	2483.500	34.96	26.58	5.23	37.40	29.37	54.00	-24.63 HORIZONTAL Average
6	2483.500	46.43	26.58	5.23	37.40	40.84	74.00	-33.16 HORIZONTAL Peak
7	2500.000	34.55	26.60	4.95	37.39	28.71	54.00	-25.29 HORIZONTAL Average
8	2500.000	47.04	26.60	4.95	37.39	41.20	74.00	-32.80 HORIZONTAL Peak

Mode:b; Polarization:Vertical; Modulation:GFSK; ; Channel:Low

	Freq	ReadAntenna Level Factor	Cable Preamp Loss Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1	2310.000	33.18	26.25	5.03	37.44	27.02	54.00	-26.98 VERTICAL Average
2	2310.000	45.84	26.25	5.03	37.44	39.68	74.00	-34.32 VERTICAL Peak
3	2390.000	33.95	26.43	4.88	37.42	27.84	54.00	-26.16 VERTICAL Average
4	2390.000	47.18	26.43	4.88	37.42	41.07	74.00	-32.93 VERTICAL Peak
5	2483.500	33.00	26.58	5.23	37.40	27.41	54.00	-26.59 VERTICAL Average
6	2483.500	45.67	26.58	5.23	37.40	40.08	74.00	-33.92 VERTICAL Peak
7	2500.000	32.45	26.60	4.95	37.39	26.61	54.00	-27.39 VERTICAL Average
8	2500.000	46.20	26.60	4.95	37.39	40.36	74.00	-33.64 VERTICAL Peak



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Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:High

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	34.88	26.25	5.03	37.44	28.72	54.00	-25.28	HORIZONTAL	Average
2	2310.000	47.87	26.25	5.03	37.44	41.71	74.00	-32.29	HORIZONTAL	Peak
3	2390.000	34.45	26.43	4.88	37.42	28.34	54.00	-25.66	HORIZONTAL	Average
4	2390.000	47.54	26.43	4.88	37.42	41.43	74.00	-32.57	HORIZONTAL	Peak
5	2483.500	34.14	26.58	5.23	37.40	28.55	54.00	-25.45	HORIZONTAL	Average
6	2483.500	46.87	26.58	5.23	37.40	41.28	74.00	-32.72	HORIZONTAL	Peak
7	2500.000	32.99	26.60	4.95	37.39	27.15	54.00	-26.85	HORIZONTAL	Average
8	2500.000	47.36	26.60	4.95	37.39	41.52	74.00	-32.48	HORIZONTAL	Peak

Mode:b; Polarization:Vertical; Modulation:GFSK; ; Channel:High

	Freq	ReadAntenna Level Factor	Cable Preamp Loss Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark		
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2310.000	34.50	26.25	5.03	37.44	28.34	54.00	-25.66	VERTICAL	Average
2	2310.000	47.06	26.25	5.03	37.44	40.90	74.00	-33.10	VERTICAL	Peak
3	2390.000	32.33	26.43	4.88	37.42	26.22	54.00	-27.78	VERTICAL	Average
4	2390.000	46.53	26.43	4.88	37.42	40.42	74.00	-33.58	VERTICAL	Peak
5	2483.500	32.41	26.58	5.23	37.40	26.82	54.00	-27.18	VERTICAL	Average
6	2483.500	46.91	26.58	5.23	37.40	41.32	74.00	-32.68	VERTICAL	Peak
7	2500.000	33.92	26.60	4.95	37.39	28.08	54.00	-25.92	VERTICAL	Average
8	2500.000	46.64	26.60	4.95	37.39	40.80	74.00	-33.20	VERTICAL	Peak



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7.4 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)
Test Method: ANSI C63.10 (2013) Section 6.4&6.5&6.6
Measurement Distance: 3m
Limit:

Frequency(MHz)	Field strength (microvolts/meter)	Limit (dBuV/m)	Detector	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	40.0	QP	3
88-216	150	43.5	QP	3
216-960	200	46.0	QP	3
960-1000	500	54.0	QP	3
Above 1000	500	54.0	AV	3



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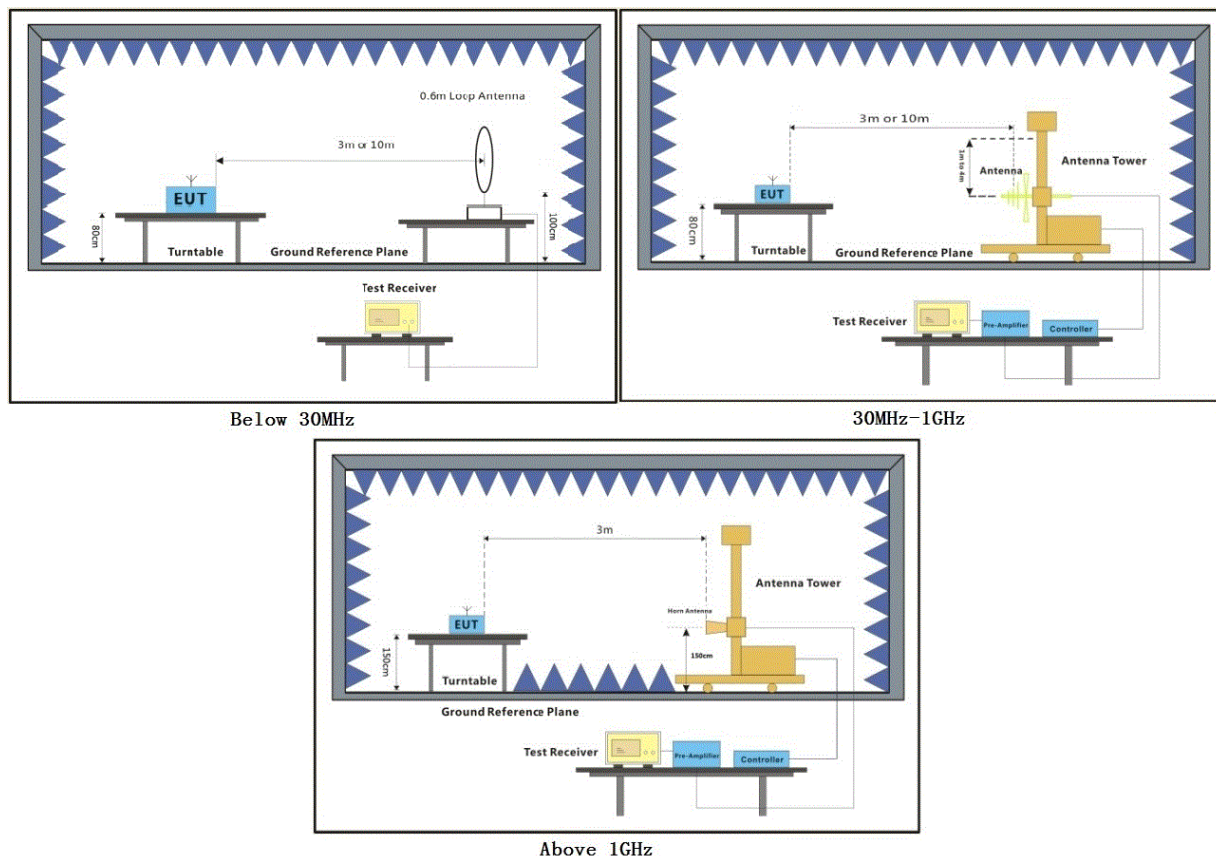
7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 55 % RH Atmospheric Pressure: 1020 mbar

Test mode b: 2.4GHz TX mode_Keep the EUT in transmitting with modulation mode.

7.4.2 Test Setup Diagram



7.4.3 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

Measured Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	31.955	21.76	12.25	0.11	21.90	12.22	40.00	-27.78	HORIZONTAL	QP
2	39.715	23.76	12.60	0.60	23.65	13.31	40.00	-26.69	HORIZONTAL	QP
3	55.221	24.64	12.54	0.59	25.08	12.69	40.00	-27.31	HORIZONTAL	QP
4	139.851	27.56	13.10	1.03	28.16	13.53	43.50	-29.97	HORIZONTAL	QP
5	654.232	29.80	21.09	2.11	28.84	24.16	46.00	-21.84	HORIZONTAL	QP
6	872.183	31.75	23.73	2.93	28.29	30.12	46.00	-15.88	HORIZONTAL	QP

Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2766.024	55.04	27.40	4.74	37.26	49.92	54.00	-4.08	HORIZONTAL	Average
2	2766.024	57.30	27.40	4.74	37.26	52.18	74.00	-21.82	HORIZONTAL	Peak
3	4808.110	41.53	30.79	5.87	36.94	41.25	54.00	-12.75	HORIZONTAL	Average
4	4808.110	48.87	30.79	5.87	36.94	48.59	74.00	-25.41	HORIZONTAL	Peak
5	6874.906	31.86	34.95	7.23	36.96	37.08	54.00	-16.92	HORIZONTAL	Average
6	6874.906	44.12	34.95	7.23	36.96	49.34	74.00	-24.66	HORIZONTAL	Peak
7	7212.062	29.28	35.50	7.35	36.93	35.20	54.00	-18.80	HORIZONTAL	Average
8	7212.062	42.67	35.50	7.35	36.93	48.59	74.00	-25.41	HORIZONTAL	Peak
9	9616.717	30.44	37.51	8.15	37.08	39.02	54.00	-14.98	HORIZONTAL	Average
10	9616.717	43.77	37.51	8.15	37.08	52.35	74.00	-21.65	HORIZONTAL	Peak
11	12020.760	29.49	39.50	10.67	37.20	42.46	54.00	-11.54	HORIZONTAL	Average
12	12020.760	40.93	39.50	10.67	37.20	53.90	74.00	-20.10	HORIZONTAL	Peak



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Mode:b; Polarization:Vertical; Modulation:GFSK; ; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	36.637	20.98	12.52	0.33	22.98	10.85	40.00	-29.15	VERTICAL	QP
2	52.391	24.13	12.86	0.60	24.93	12.66	40.00	-27.34	VERTICAL	QP
3	160.909	28.83	13.37	1.27	28.10	15.37	43.50	-28.13	VERTICAL	QP
4	584.790	28.40	20.40	1.93	29.24	21.49	46.00	-24.51	VERTICAL	QP
5	782.345	27.92	22.56	2.81	28.82	24.47	46.00	-21.53	VERTICAL	QP
6	900.147	31.35	24.00	2.84	27.89	30.30	46.00	-15.70	VERTICAL	QP

Mode:b; Polarization:Vertical; Modulation:GFSK; ; Channel:Low

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	3141.145	34.69	27.90	5.65	37.02	31.22	54.00	-22.78	VERTICAL	Average
2	3141.145	46.24	27.90	5.65	37.02	42.77	74.00	-31.23	VERTICAL	Peak
3	4808.721	31.58	30.79	5.87	36.94	31.30	54.00	-22.70	VERTICAL	Average
4	4808.721	43.44	30.79	5.87	36.94	43.16	74.00	-30.84	VERTICAL	Peak
5	7212.982	29.74	35.50	7.35	36.93	35.66	54.00	-18.34	VERTICAL	Average
6	7212.982	43.15	35.50	7.35	36.93	49.07	74.00	-24.93	VERTICAL	Peak
7	8539.102	29.79	36.13	8.00	36.94	36.98	54.00	-17.02	VERTICAL	Average
8	8539.102	43.58	36.13	8.00	36.94	50.77	74.00	-23.23	VERTICAL	Peak
9	9616.312	30.71	37.51	8.15	37.08	39.29	54.00	-14.71	VERTICAL	Average
10	9616.312	42.65	37.51	8.15	37.08	51.23	74.00	-22.77	VERTICAL	Peak
11	12020.130	27.86	39.50	10.67	37.20	40.83	54.00	-13.17	VERTICAL	Average
12	12020.130	41.37	39.50	10.67	37.20	54.34	74.00	-19.66	VERTICAL	Peak



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Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:middle

	Freq	ReadAntenna Level Factor	Cable Preamp Loss Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1	2806.920	54.99	27.54	4.70	37.22	50.01	54.00	-3.99 HORIZONTAL Average
2	2806.920	58.03	27.54	4.70	37.22	53.05	74.00	-20.95 HORIZONTAL Peak
3	4890.490	46.42	30.95	6.86	36.95	47.28	54.00	-6.72 HORIZONTAL Average
4	4890.490	51.61	30.95	6.86	36.95	52.47	74.00	-21.53 HORIZONTAL Peak
5	7335.267	31.22	35.74	7.39	36.92	37.43	54.00	-16.57 HORIZONTAL Average
6	7335.267	44.18	35.74	7.39	36.92	50.39	74.00	-23.61 HORIZONTAL Peak
7	8440.945	29.59	36.13	8.06	36.93	36.85	54.00	-17.15 HORIZONTAL Average
8	8440.945	43.99	36.13	8.06	36.93	51.25	74.00	-22.75 HORIZONTAL Peak
9	9780.164	29.91	37.74	8.37	37.09	38.93	54.00	-15.07 HORIZONTAL Average
10	9780.164	43.04	37.74	8.37	37.09	52.06	74.00	-21.94 HORIZONTAL Peak
11	12225.580	28.50	39.21	10.98	37.06	41.63	54.00	-12.37 HORIZONTAL Average
12	12225.580	41.28	39.21	10.98	37.06	54.41	74.00	-19.59 HORIZONTAL Peak

Mode:b; Polarization:Vertical; Modulation:GFSK; ; Channel:middle

	Freq	ReadAntenna Level Factor	Cable Preamp Loss Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1	3214.623	35.35	27.90	5.91	37.01	32.15	54.00	-21.85 VERTICAL Average
2	3214.623	45.97	27.90	5.91	37.01	42.77	74.00	-31.23 VERTICAL Peak
3	4890.721	33.19	30.95	6.86	36.95	34.05	54.00	-19.95 VERTICAL Average
4	4890.721	46.17	30.95	6.86	36.95	47.03	74.00	-26.97 VERTICAL Peak
5	7335.070	29.68	35.74	7.39	36.92	35.89	54.00	-18.11 VERTICAL Average
6	7335.070	44.20	35.74	7.39	36.92	50.41	74.00	-23.59 VERTICAL Peak
7	8638.399	30.02	36.20	7.96	36.95	37.23	54.00	-16.77 VERTICAL Average
8	8638.399	44.15	36.20	7.96	36.95	51.36	74.00	-22.64 VERTICAL Peak
9	9780.430	29.83	37.74	8.37	37.09	38.85	54.00	-15.15 VERTICAL Average
10	9780.430	43.06	37.74	8.37	37.09	52.08	74.00	-21.92 VERTICAL Peak
11	12225.390	26.55	39.21	10.98	37.06	39.68	54.00	-14.32 VERTICAL Average
12	12225.390	40.89	39.21	10.98	37.06	54.02	74.00	-19.98 VERTICAL Peak



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Mode:b; Polarization:Horizontal; Modulation:GFSK; ; Channel:High

	Freq	ReadAntenna Level Factor	Cable Preamp Loss Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1	2835.450	55.00	27.63	4.76	37.19	50.20	54.00	-3.80 HORIZONTAL Average
2	2835.450	58.00	27.63	4.76	37.19	53.20	74.00	-20.80 HORIZONTAL Peak
3	4957.980	45.73	31.05	7.84	36.96	47.66	54.00	-6.34 HORIZONTAL Average
4	4957.980	52.13	31.05	7.84	36.96	54.06	74.00	-19.94 HORIZONTAL Peak
5	7437.015	30.82	35.92	7.43	36.92	37.25	54.00	-16.75 HORIZONTAL Average
6	7437.015	44.85	35.92	7.43	36.92	51.28	74.00	-22.72 HORIZONTAL Peak
7	8440.945	27.27	36.13	8.06	36.93	34.53	54.00	-19.47 HORIZONTAL Average
8	8440.945	43.86	36.13	8.06	36.93	51.12	74.00	-22.88 HORIZONTAL Peak
9	9916.916	32.64	37.92	8.63	37.10	42.09	54.00	-11.91 HORIZONTAL Average
10	9916.916	44.99	37.92	8.63	37.10	54.44	74.00	-19.56 HORIZONTAL Peak
11	12395.760	26.01	38.93	11.17	36.90	39.21	54.00	-14.79 HORIZONTAL Average
12	12395.760	39.57	38.93	11.17	36.90	52.77	74.00	-21.23 HORIZONTAL Peak

Mode:b; Polarization:Vertical; Modulation:GFSK; ; Channel:High

	Freq	ReadAntenna Level Factor	Cable Preamp Loss Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1	3007.868	33.50	27.90	4.65	37.07	28.98	54.00	-25.02 VERTICAL Average
2	3007.868	46.84	27.90	4.65	37.07	42.32	74.00	-31.68 VERTICAL Peak
3	4958.062	35.92	31.05	7.84	36.96	37.85	54.00	-16.15 VERTICAL Average
4	4958.062	44.96	31.05	7.84	36.96	46.89	74.00	-27.11 VERTICAL Peak
5	7437.267	31.81	35.92	7.43	36.92	38.24	54.00	-15.76 VERTICAL Average
6	7437.267	43.88	35.92	7.43	36.92	50.31	74.00	-23.69 VERTICAL Peak
7	8663.404	30.45	36.22	7.95	36.96	37.66	54.00	-16.34 VERTICAL Average
8	8663.404	44.25	36.22	7.95	36.96	51.46	74.00	-22.54 VERTICAL Peak
9	9916.257	30.05	37.92	8.63	37.10	39.50	54.00	-14.50 VERTICAL Average
10	9916.257	42.00	37.92	8.63	37.10	51.45	74.00	-22.55 VERTICAL Peak
11	12395.240	27.45	38.93	11.17	36.90	40.65	54.00	-13.35 VERTICAL Average
12	12395.240	40.82	38.93	11.17	36.90	54.02	74.00	-19.98 VERTICAL Peak

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