RF MEASUREMENT REPORT

FCC ID:	BRWSPMSR6300PM
Applicant:	Horizon Hobby, LLC
Product:	SR6300PM Receiver
Model No.:	SPMSR6300PM
Brand Name:	Spektrum™
FCC Classification:	Part 15 Low Power Communication Device Transmitter (DXX)
FCC Rule Part(s):	Part 15.249
Test Procedure(s):	ANSI C63.10 - 2013
Test Date:	2022-05-13 ~ 2022-06-07

Reviewed By: Sunny Sun

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date	Note
2203RSU077-U1	Rev. 01	Initial Report	2022-06-29	Valid

CONTENTS

1. General Information

1.1. Applicant

Horizon Hobby, LLC

2904 Research Rd., Champaign, IL, 61822

1.2. Manufacturer

Horizon Hobby, LLC

2904 Research Rd., Champaign, IL, 61822

1.3. Testing Facility

☒	**Test Site – MRT Suzhou Laboratory**				
	Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China **Laboratory Location (Suzhou - SIP)** 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China				
	Laboratory Accreditations				
	A2LA: 3628.01		CNAS: L10551		
	FCC: CN1166		ISED: CN0001		
	VCCI:	☐R-20025	☐G-20034	☐C-20020	☐T-20020
		☐R-20141	☐G-20134	☐C-20103	☐T-20104
☐	**Test Site – MRT Shenzhen Laboratory**				
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China				
	Laboratory Accreditations				
	A2LA: 3628.02		CNAS: L10551		
	FCC: CN1284		ISED: CN0105		
☐	**Test Site – MRT Taiwan Laboratory**				
	Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)				
	Laboratory Accreditations				
	TAF: L3261-190725				
	FCC: 291082, TW3261		ISED: TW3261		

1.4. Product Information

Product Name	SR6300PM Receiver
Model No.	SPMSR6300PM
Brand Name	Spektrum™
Test Device Label No.	20220329Sample#04
Frequency Range	2405 ~ 2478MHz
Type of Modulation	GFSK
Channel Number	23
Operating Temperature	-10 ~ 40°C
Power Type	By Battery (DC 3.5V ~ 9.6V)
Antenna Type	Monopole Antenna
Antenna Gain	-1.93 dBi
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Working Frequencies

Channel	Frequency	Channel	Frequency
01	2405 MHz	02	2408 MHz
03	2412 MHz	04	2415 MHz
05	2418 MHz	06	2421 MHz
07	2425 MHz	08	2428 MHz
09	2431 MHz	10	2434 MHz
11	2438 MHz	12	2440 MHz
13	2444 MHz	14	2447 MHz
15	2451 MHz	16	2454 MHz
17	2457 MHz	18	2460 MHz
19	2464 MHz	20	2467 MHz
21	2470 MHz	22	2474 MHz
23	2478 MHz	--	--

2. Test Configuration

2.1. Test Mode

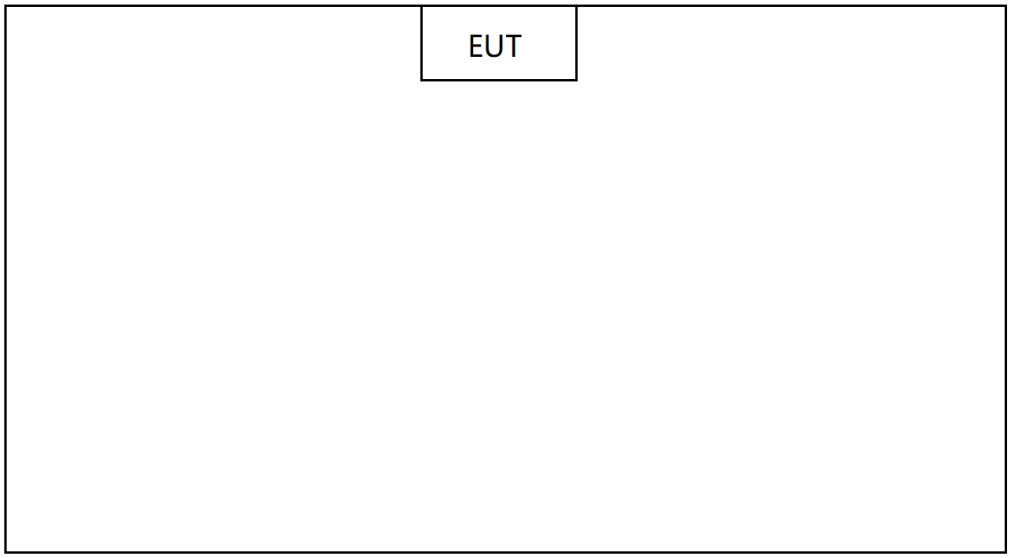
Mode 1: Transmit by GFSK

Note: The test utility software used during testing was “RF Compliance Mode Setup”, and the version was 4.1.

2.2. Test Configuration

This device was tested per the guidance ANSI C63.10:2013 was used to reference the appropriate EUT setup for radiated emissions testing.

Connection Diagram



2.3. Test Environment Condition

Ambient Temperature	15°C ~ 35°C
Relative Humidity	20%RH ~ 75%RH

2.4. Duty Cycle

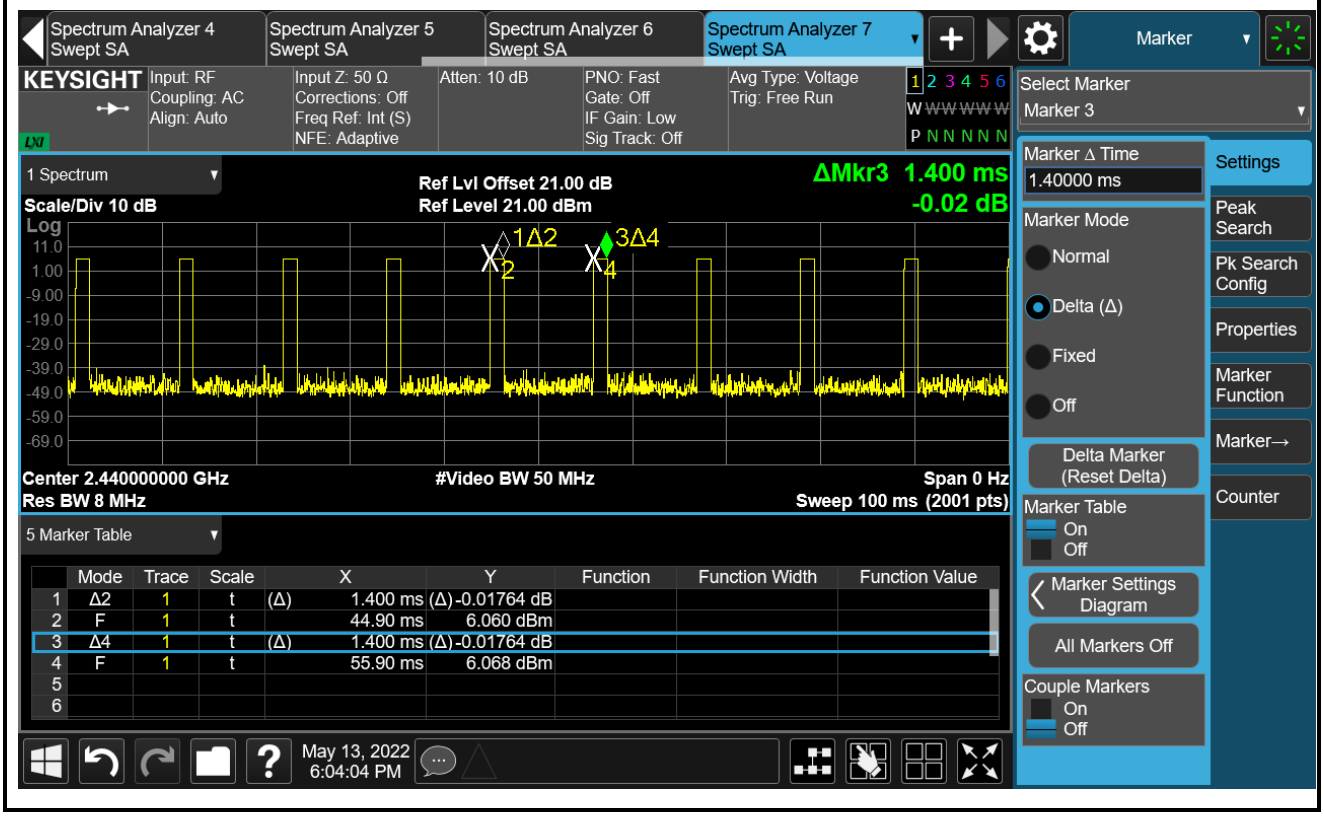
The maximum achievable duty cycles were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, Sweep time = 100ms. The duty cycles are as follows:

One Period (ms)	Time On (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)
1.4	12.6	12.6	-18.0

Note:

1. Time On (ms) = 1.40 * 9 (ms) = 12.6 (ms)
2. Duty Cycle Factor = 20*Log (Duty Cycle)

Duty Cycle
2440 MHz



3. Antenna Requirements

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 shall be considered sufficient to comply with the provisions of this section."

- The antenna of the device is **permanently attached.**
- There are no provisions for connection to an external antenna.

Conclusion:

This unit complies with the requirement of §15.203.

4. Test Equipment Calibration Date

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022-12-29	WZ-AC1
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2022-09-16	WZ-AC1
Preamplifier	Agilent	83017A	MRTSUE06076	1 year	2022-11-12	WZ-AC1
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2022-08-05	WZ-AC1
Anechoic Chamber	TDK	WZ-AC1	MRTSUE06212	1 year	2023-04-21	WZ-AC1
Thermohygrometer	testo	608-H1	MRTSUE06403	1 year	2022-06-28	WZ-AC1
Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2022-12-29	WZ-AC1
Thermohygrometer	testo	Testo 608-H1	MRTSUE11039	1 year	2022-11-11	WZ-AC1
Horn Antenna	ETS	3117	MRTSUE06257	1 year	2022-09-25	WZ-AC1/WZ-AC2
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2022-12-01	WZ-AC1/WZ-AC2
Preamplifier	EMCI	EMC184045SE	MRTSUE06640	1 year	2023-01-13	WZ-AC1/WZ-AC2
Preamplifier	EMCI	EMC051845SE	MRTSUE06987	1 year	2022-09-09	WZ-AC1/WZ-AC2
TRILOG Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2023-05-20	WZ-AC2
EMI Test Receiver	Agilent	N9038A	MRTSUE06125	1 year	2022-06-24	WZ-AC2
Thermohygrometer	Mingle	ETH529	MRTSUE06170	1 year	2022-12-01	WZ-AC2
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2022-10-21	WZ-AC2
Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2022-11-12	WZ-AC2
Anechoic Chamber	RIKEN	WZ-AC2	MRTSUE06213	1 year	2023-04-21	WZ-AC2
Thermohygrometer	testo	Testo 608-H1	MRTSUE11038	1 year	2022-11-11	WZ-AC2
Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2023-04-06	WZ-SR5
Thermohygrometer	testo	608-H1	MRTSUE06402	1 year	2022-06-28	WZ-SR5
Shielding Room	HUAMING	WZ-SR5	MRTSUE06442	N/A	N/A	WZ-SR5
Signal Analyzer	Keysight	N9010B	MRTSUE06457	1 year	2022-06-24	WZ-SR5

Software	Version	Function
EMI V3	V 3.0.0	EMI Test Software
Controller_MF 7802BS	1.02	RE Antenna & turntable

5. Decision Rules and Measurement Uncertainty

5.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Emission Measurement
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Spurious Emissions, Conducted
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.78dB
Occupied Bandwidth
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.28%

6. Test Result

6.1. Summary

FCC Part Section(s)	Test Description	Test Condition	Verdict
15.207	AC Conducted Emissions 150kHz - 30MHz	Line Conducted	N/A
15.209 15.249	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Radiated	Pass
15.215(c)	20dB Spectrum Bandwidth	Conducted	Pass

Notes:

1. The radiation measurements are performed in X, Y, Z axis positioning. The test results shown in the following sections represent the worst-case emissions.
2. The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
3. “N/A” means that this item is not applicable, and the detail information refer to relevant section.

6.2. AC Conducted Emissions Measurement

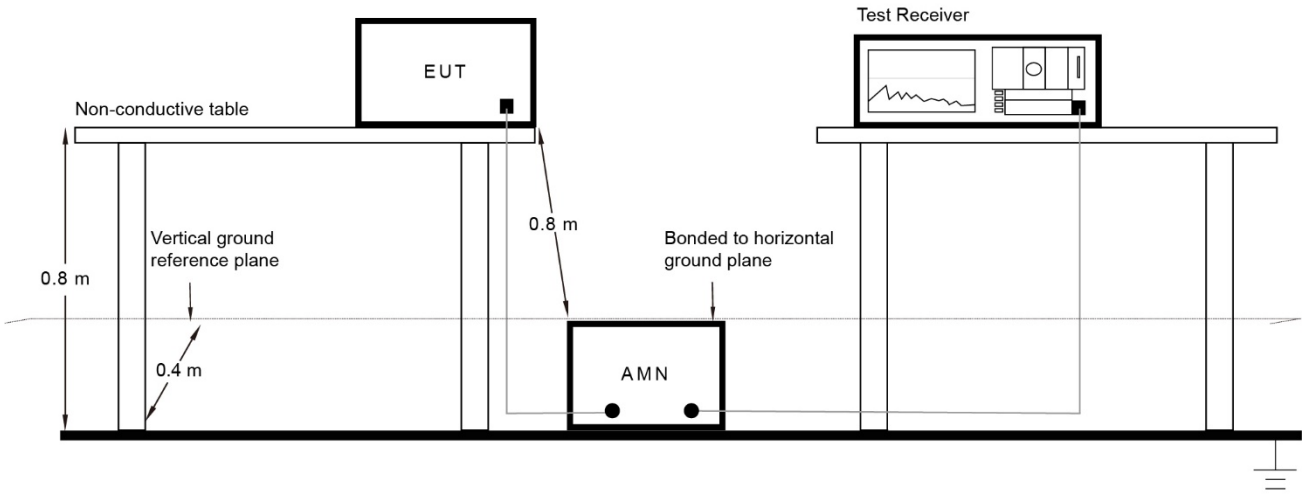
6.2.1.Test Limit

FCC Part 15 Subpart C Paragraph 15.207		
Frequency (MHz)	QP (dBμV)	Average (dBμV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.2.2.Test Setup



6.2.3.Test Result

The EUT is powered by a DC power source, so this test item is not applicable.

6.3. Radiated Emission

6.3.1.Test Limit

FCC Part 15 Subpart C Paragraph 15.249		
Fundamental Frequency (MHz)	Field Strength of Fundamental (mV/m)	Field Strength of Harmonics (μV/m)
902 ~ 928	50	500
2400 ~ 2483.5	50	500
5725 ~ 5875	50	500
24000 ~ 24250	250	2500
Note: FCC Part 15.249 (d), Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.		

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3
Note 1: The lower limit shall apply at the transition frequency. Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. Note 3: E field strength (dBμV/m) = 20 log E field strength (μV/m).		

6.3.2.Test Procedure Used

ANSI C63.10-2013 Section 6.3

ANSI C63.10-2013 Section 6.4

ANSI C63.10-2013 Section 6.5

ANSI C63.10-2013 Section 6.6

ANSI C63.10-2013 Section 7.5

6.3.3.Test Setting

Table 1 - RBW as a function of frequency

Frequency	RBW
9 ~ 150 kHz	200 Hz
0.15 ~ 30 MHz	9 kHz
30 ~ 1000 MHz	120 kHz
> 1000 MHz	1 MHz

Measurements below 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

3. RBW = as specified in Table 1

4. Detector = CISPR quasi-peak (a linear average detector for 9-90 kHz and 110-490 kHz)

5. Sweep time = auto couple

6. Trace was allowed to stabilize

Peak Measurements above 1GHz

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest

2. RBW = 1MHz

3. VBW = 3MHz

4. Detector = peak

5. Sweep time = auto couple

6. Trace mode = max hold

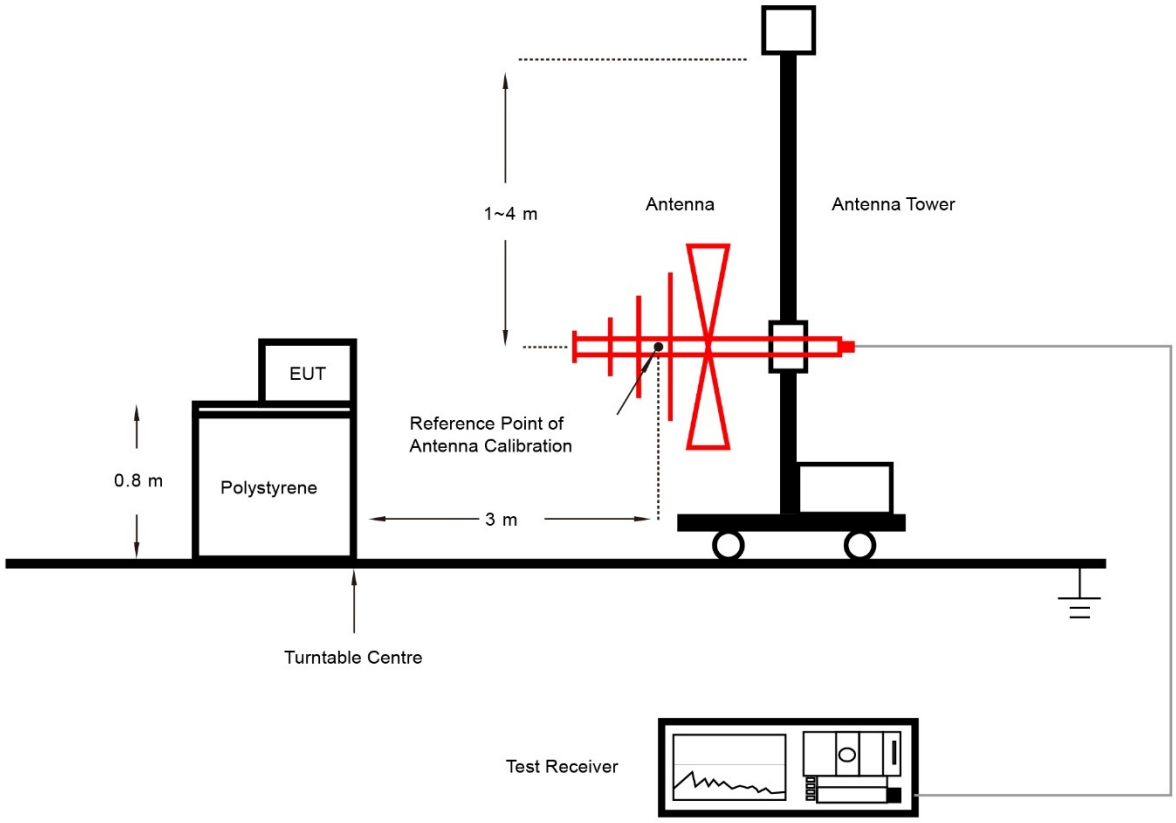
7. Trace was allowed to stabilize

Average Measurement of pulsed emissions

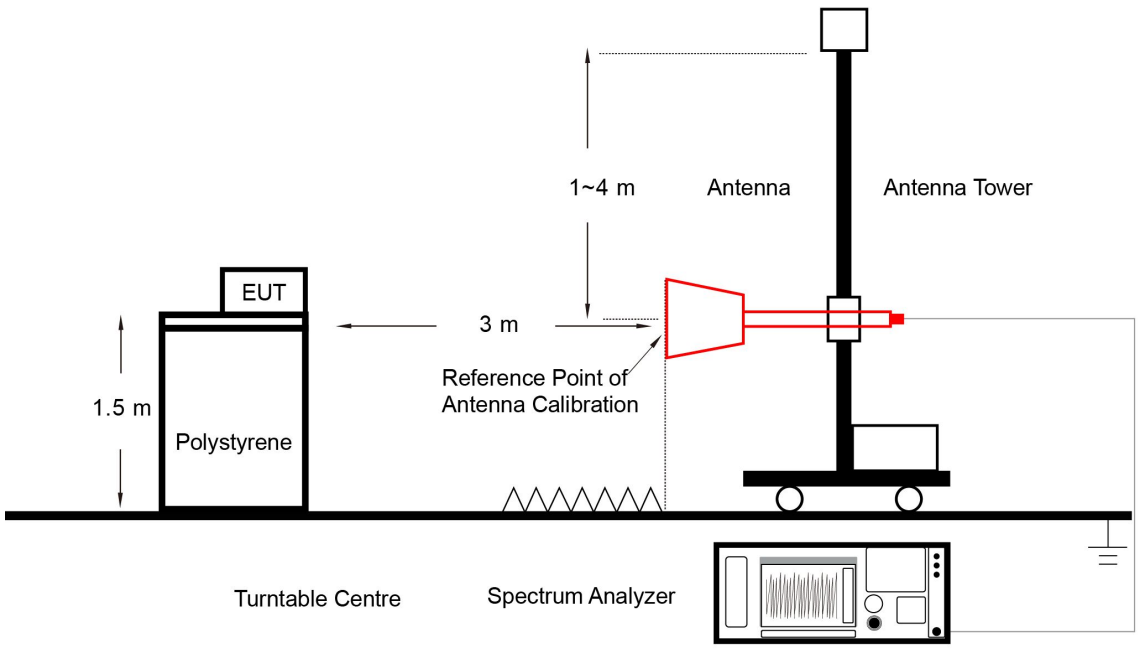
1. Make EUT is transmitting to obtain the “worst-case” pulse ON time.
2. Couple the final radio frequency output signal to the input of a spectrum analyzer.
3. Adjust the center frequency of the spectrum analyzer to the center of the RF signal.
4. Set the spectrum analyzer for ZERO SPAN.
5. Sweep time = 100ms
6. Set the TRIGGER on the spectrum analyzer to capture at least one period of the pulse train, including any blanking intervals.
7. Determine the total maximum pulse “ON time” (t_{ON}) over one period of the pulse train.
8. The duty cycle is then determined by dividing the total maximum “ON time” by the period of the pulse train (t_{ON}/100ms).
9. Determine the duty cycle correction factor. Duty Cycle Factor = 20*Log (Duty Cycle)
10. This correction factor may then be subtracted from the peak pulse amplitude (in dB) to find the average emission.

6.3.4.Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



6.3.5.Test Result

Product	SR6300PM Receiver	Temperature	24.6°C
Test Engineer	Kin Xia	Relative Humidity	56.9%
Test Site	WZ-AC1	Test Date	2022-05-13
Remark	Fundamental Radiated Emission		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Duty Cycle Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
2405	106.7	-3.8	N/A	102.9	114.0	-11.1	PK	Horizontal
	106.7	-3.8	-18.0	84.9	94.0	-9.1	AV	Horizontal
	100.9	-3.8	N/A	97.1	114.0	-16.9	PK	Vertical
	100.9	-3.8	-18.0	79.1	94.0	-14.9	AV	Vertical
2440	106.9	-3.7	N/A	103.2	114.0	-10.8	PK	Horizontal
	106.9	-3.7	-18.0	85.2	94.0	-8.8	AV	Horizontal
	100.5	-3.7	N/A	96.8	114.0	-17.2	PK	Vertical
	100.5	-3.7	-18.0	78.8	94.0	-15.2	AV	Vertical
2478	106.5	-3.6	N/A	102.9	114.0	-11.1	PK	Horizontal
	106.5	-3.6	-18.0	84.9	94.0	-9.1	AV	Horizontal
	100.5	-3.6	N/A	96.9	114.0	-17.1	PK	Vertical
	100.5	-3.6	-18.0	78.9	94.0	-15.1	AV	Vertical

Note: Peak Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)

Average Measure Level = Peak Measure Level + Duty Cycle Factor

Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)

Product	SR6300PM Receiver	Temperature	24.6°C
Test Engineer	Bob Zhang	Relative Humidity	44.3%
Test Site	WZ-AC2	Test Date	2022-05-23
Remark:	Radiated Spurious Emission - Below 1GHz (Transmit by GFSK at channel 2405MHz)		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
46.0	-1.1	20.6	19.5	40.0	-20.5	Peak	Horizontal
54.7	0.4	20.3	20.7	40.0	-19.3	Peak	Horizontal
155.6	5.9	15.6	21.5	43.5	-22.0	Peak	Horizontal
228.9	10.3	19.3	29.6	46.0	-16.4	Peak	Horizontal
349.6	3.4	22.9	26.3	46.0	-19.7	Peak	Horizontal
696.9	1.9	28.6	30.5	46.0	-15.5	Peak	Horizontal
59.8	9.1	19.5	28.6	40.0	-11.4	QP	Vertical
155.1	20.0	15.6	35.6	43.5	-7.9	Peak	Vertical
228.9	15.1	19.3	34.4	46.0	-11.6	Peak	Vertical
310.8	12.7	21.2	33.9	46.0	-12.1	Peak	Vertical
468.0	5.1	24.6	29.7	46.0	-16.3	Peak	Vertical
766.2	1.2	29.4	30.6	46.0	-15.4	Peak	Vertical

Note:

1. Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)
   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m)
2. The test trace is same as the ambient noise (the test frequency range: 9kHz ~ 30MHz), therefore no data appear in the report.
3. QP measurement was not performed when the peak level lower than QP limit.

Product	SR6300PM Receiver	Temperature	24.4°C
Test Engineer	Charles Zhang	Relative Humidity	52.1%
Test Site	WZ-AC1	Test Date	2022-05-20
Remark:	Radiated Spurious Emission - Above 1GHz		

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Duty Cycle Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
2405MHz								
4808.0	49.1	3.1	N/A	52.2	74.0	-21.8	Peak	Horizontal
4808.0	48.2	3.1	-18.0	34.2	54.0	-19.8	Average	Horizontal
8276.0	36.5	8.5	N/A	45.0	74.0	-29.0	Peak	Horizontal
10741.0	37.1	13.1	N/A	50.2	74.0	-23.8	Peak	Horizontal
4808.0	40.0	3.1	N/A	43.1	74.0	-30.9	Peak	Vertical
7417.5	36.4	8.0	N/A	44.4	74.0	-29.6	Peak	Vertical
10902.5	36.8	12.7	N/A	49.5	74.0	-24.5	Peak	Vertical
2440MHz								
4876.0	44.1	3.2	N/A	47.3	74.0	-26.7	Peak	Horizontal
7315.0	40.1	8.1	-18.0	34.2	54.0	-19.8	Average	Horizontal
7315.5	44.1	8.1	N/A	52.2	74.0	-21.8	Peak	Horizontal
11591.0	37.7	12.3	N/A	50.0	74.0	-24.0	Peak	Horizontal
7477.0	37.0	8.1	N/A	45.1	74.0	-28.9	Peak	Vertical
8412.0	37.4	8.9	N/A	46.3	74.0	-27.7	Peak	Vertical
11055.5	36.0	12.9	N/A	48.9	74.0	-25.1	Peak	Vertical
2478MHz								
4952.5	44.6	3.5	N/A	48.1	74.0	-25.9	Peak	Horizontal
7434.5	39.9	8.0	N/A	47.9	74.0	-26.1	Peak	Horizontal
11191.5	36.7	12.5	N/A	49.2	74.0	-24.8	Peak	Horizontal
7681.0	37.3	7.8	N/A	45.1	74.0	-28.9	Peak	Vertical
8344.0	35.1	8.7	N/A	43.8	74.0	-30.2	Peak	Vertical
10800.5	36.8	12.9	N/A	49.7	74.0	-24.3	Peak	Vertical
4952.5	44.6	3.5	N/A	48.1	74.0	-25.9	Peak	Vertical

Note:

1. Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m)
   Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre Amplifier Gain (dB)
   Average Measure Level = Peak Measure Level + Duty Cycle Factor
2. Average measurement was not performed when the peak level lower than average limit.

3. The amplitude of radiated emissions (frequency range from and 18GHz to 25GHz) is that proximity to ambient noise, which also are attenuated more than 20 dB below the permissible value. Therefore, the data is not presented in the report.

6.4. Radiated Restricted Band Edge Measurement

6.4.1.Test Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1] 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 – 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41	--	--	--

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [μV/m]	Measured Distance [Meter]
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

6.4.2.Test Procedure Used

ANSI C63.10-2013 Section 6.3

ANSI C63.10-2013 Section 6.6

ANSI C63.10-2013 Section 6.10.5

ANSI C63.10-2013 Section 7.5

6.4.3.Test Setting

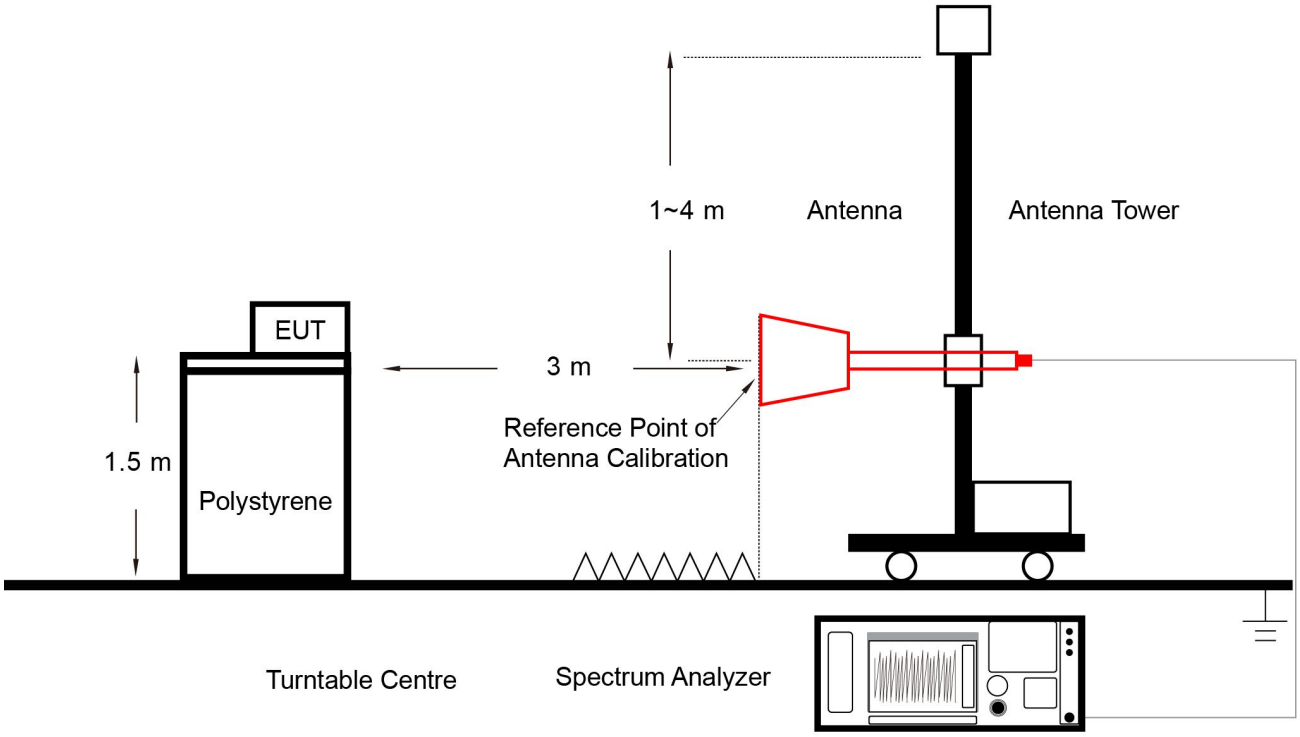
Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Average Measurement of pulsed emissions

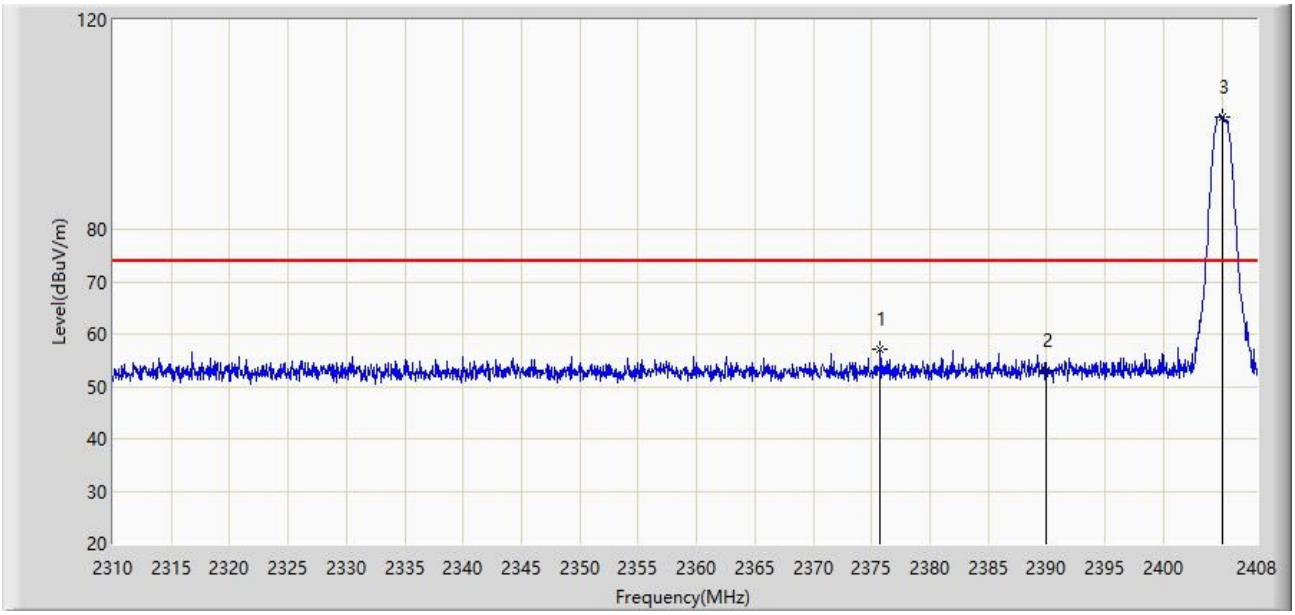
1. Make EUT is transmitting to obtain the “worst-case” pulse ON time.
2. Couple the final radio frequency output signal to the input of a spectrum analyzer.
3. Adjust the center frequency of the spectrum analyzer to the center of the RF signal.
4. Set the spectrum analyzer for ZERO SPAN.
5. Sweep time = 100ms
6. Set the TRIGGER on the spectrum analyzer to capture at least one period of the pulse train, including any blanking intervals.
7. Determine the total maximum pulse “ON time” (tON) over one period of the pulse train.
8. The duty cycle is then determined by dividing the total maximum “ON time” by the period of the pulse train (tON/100ms).
9. Determine the duty cycle correction factor. Duty Cycle Factor = 20*Log (Duty Cycle)
10. This correction factor may then be subtracted from the peak pulse amplitude (in dB) to find the average emission.

6.4.4.Test Setup



6.4.5.Test Result

Site: WZ-AC1	Test Date: 2022-05-20
Limit: FCC_Part15.209_RE(3m)	Engineer: Charles Zhang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: SR6300PM Receiver	Power: By Battery
Test Mode: Transmit at channel 01 (2405MHz).	



No	Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Duty Cycle Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Type
1		2375.758	26.583	30.533	N/A	57.116	74.000	-16.884	PK
	*	2375.758	26.583	30.533	-18.000	39.116	54.000	-14.884	AV
2		2390.000	22.550	30.526	N/A	53.076	74.000	-20.924	PK
		2390.000	22.550	30.526	-18.000	35.076	54.000	-18.924	AV
3		2405.109	70.982	30.559	N/A	101.541	N/A	N/A	PK

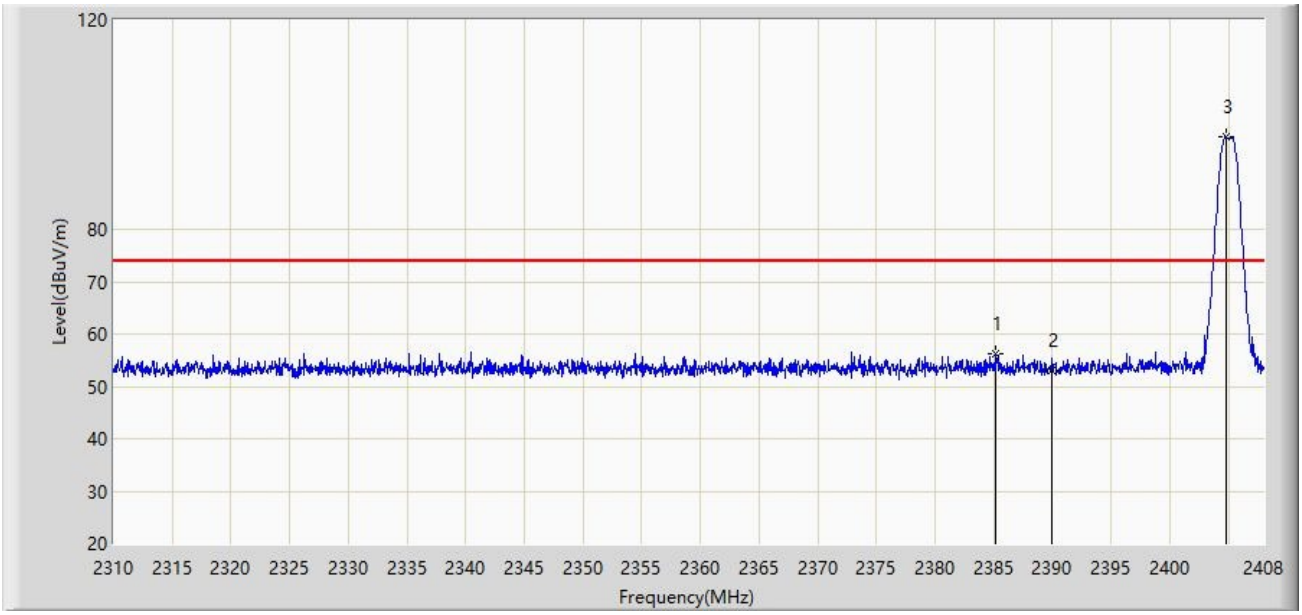
Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Average Measure Level = Peak Measure Level + Duty Cycle Factor

Note 4: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-05-20
Limit: FCC_Part15.209_RE(3m)	Engineer: Charles Zhang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: SR6300PM Receiver	Power: By Battery
Test Mode: Transmit at channel 01 (2405MHz).	



No	Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Duty Cycle Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Type
1		2385.215	25.643	30.518	N/A	56.161	74.000	-17.839	PK
	*	2385.215	25.643	30.518	-18.000	38.161	54.000	-15.839	AV
2		2390.000	22.650	30.526	N/A	53.176	74.000	-20.824	PK
		2390.000	22.650	30.526	-18.000	35.176	54.000	-18.824	AV
3		2404.766	67.033	30.559	N/A	97.592	N/A	N/A	PK

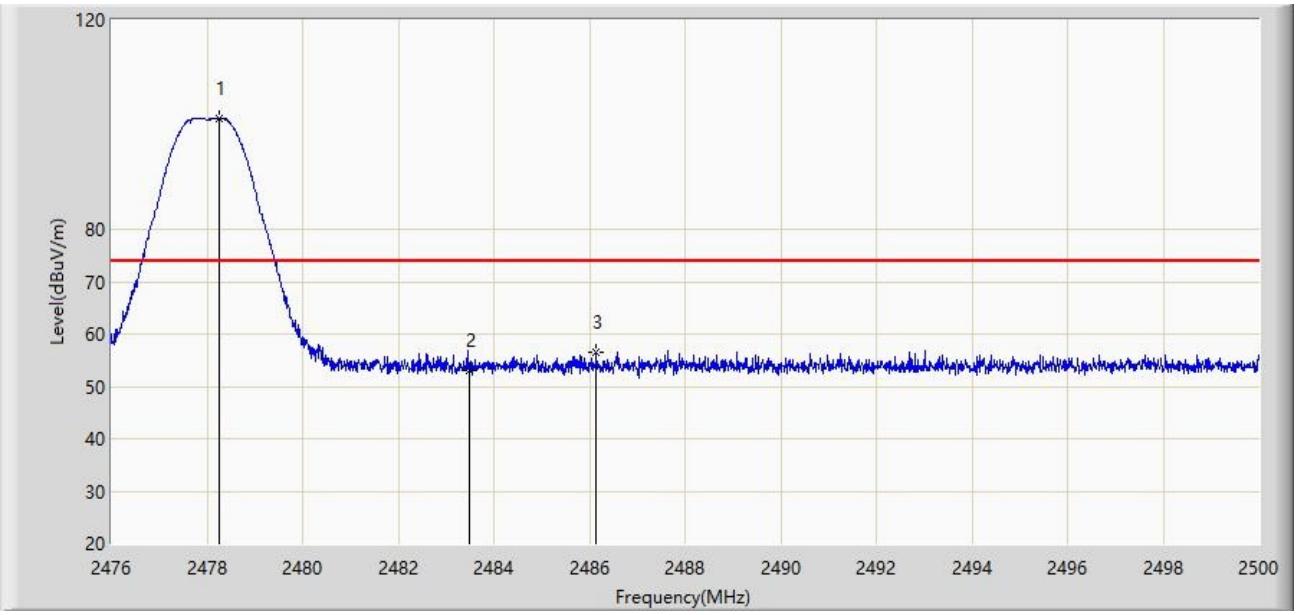
Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Average Measure Level = Peak Measure Level + Duty Cycle Factor

Note 4: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-05-20
Limit: FCC_Part15.209_RE(3m)	Engineer: Charles Zhang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Horizontal
EUT: SR6300PM Receiver	Power: By Battery
Test Mode: Transmit at channel 23 (2478MHz).	



No	Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Duty Cycle Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Type
1		2478.256	70.527	30.700	N/A	101.227	N/A	N/A	PK
2		2483.500	22.390	30.704	N/A	53.093	74.000	-20.907	PK
		2483.500	22.390	30.704	-18.000	35.093	54.000	-18.907	AV
3		2486.140	25.907	30.705	N/A	56.612	74.000	-17.388	PK
	*	2486.140	25.907	30.705	-18.000	38.612	54.000	-15.388	AV

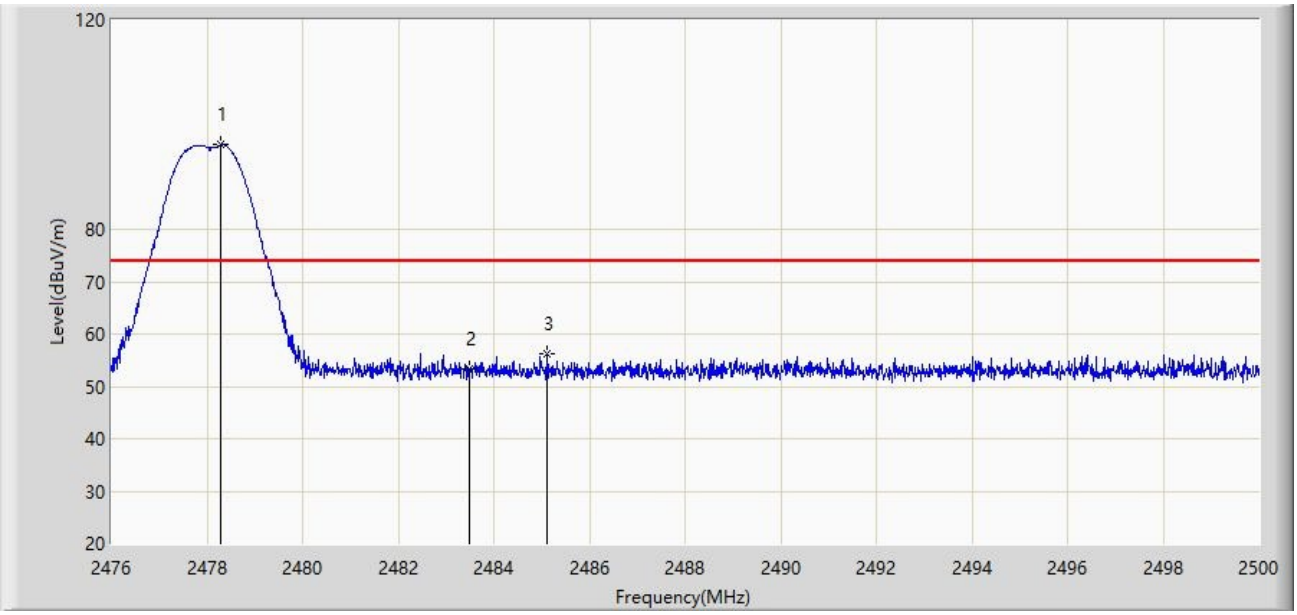
Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Average Measure Level = Peak Measure Level + Duty Cycle Factor

Note 4: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

Site: WZ-AC1	Test Date: 2022-05-20
Limit: FCC_Part15.209_RE(3m)	Engineer: Charles Zhang
Probe: BBHA9120D_1167_1-18GHz	Polarity: Vertical
EUT: SR6300PM Receiver	Power: By Battery
Test Mode: Transmit at channel 23 (2478MHz).	



No	Mark	Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Duty Cycle Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Type
1		2478.292	65.517	30.700	N/A	96.217	N/A	N/A	PK
2		2483.500	22.545	30.704	N/A	53.248	74.000	-20.752	PK
		2483.500	22.545	30.704	-18.000	35.248	54.000	-18.752	AV
3		2485.120	25.416	30.704	N/A	56.120	74.000	-17.880	PK
	*	2485.120	25.416	30.704	-18.000	38.120	54.000	-15.880	AV

Note 1: " * ", means this data is the worst emission level.

Note 2: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).

Note 3: Average Measure Level = Peak Measure Level + Duty Cycle Factor

Note 4: Factor (dB/m) = Cable Loss (dB) + Antenna Factor (dB/m).

6.5. 20dB Spectrum Bandwidth Measurement

6.5.1.Test Limit

Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emission in the specific band.

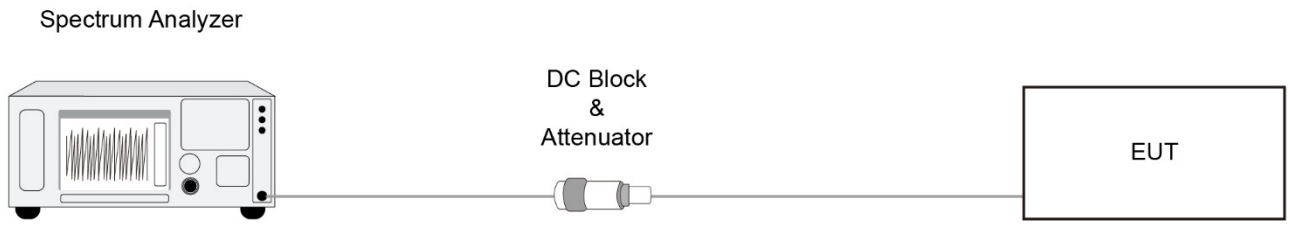
6.5.2.Test Procedure used

ANSI C63.10-2013 Clause 6.9.2

6.5.3.Test Setting

1. Set the spectrum span range to overlap the nominal center frequency
2. Set RBW = 1% ~ 5% of the OBW
3. VBW ≥ 3 × RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace to stabilize and marker the highest level
8. Use Occupied BW function to determine two frequencies, one at the lowest frequency and the other at the highest frequency

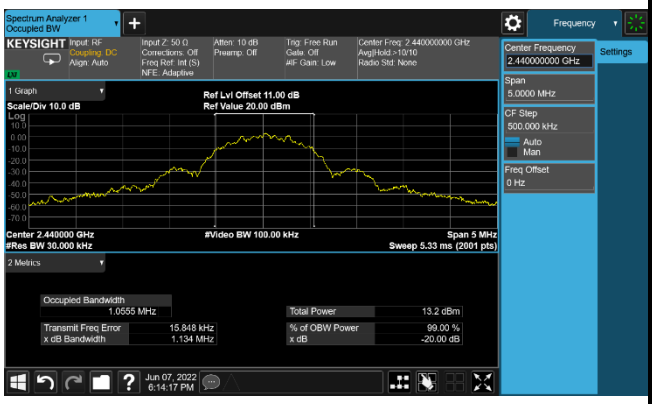
6.5.4.Test Setup



6.5.5.Test Result

Test Site	WZ-SR5	Test Date	2022-06-07
Test Engineer	Liz Yuan		

Frequency (MHz)	20dB Bandwidth (MHz)	F_L (MHz)	F_H (MHz)	Result
2405	1.160	2404.420	2405.580	Pass
2440	1.134	2439.433	2440.567	Pass
2478	1.153	2477.424	2478.577	Pass

20dB Spectrum Bandwidth Measurement	
2405 MHz	2440 MHz
	
2478 MHz	
	

Appendix A - Test Setup Photograph

Refer to “2203RSU077-UT” file.

Appendix B - EUT Photograph

Refer to “2203RSU077-UE” file.

The End