

TEST REPORT

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Report Number: 2504Y08471E-RF-00A
FCC ID: Q92-BH-20E1

Test Standard (s)

FCC PART 15.231

Sample Description

Product Name: Remote Control Transmitter
Model No.: BH-20E
Trade Mark: N/A
Date Received: 2025-10-17
Report Date: 2025-12-11

Test Result:	The EUT complied with the standards above.
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Prepared and Checked By:

Amanda Wei

Amanda Wei
EMC Engineer

Approved By:

Bob. Liao

Bob.Liao
EMC Engineer

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
Rev.00	2504Y08471E-RF-00A	Original Report	2025-12-11

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product Name	Remote Control Transmitter
Tested Model	BH-20E
Voltage Range [#]	DC 12.0V from battery

Frequency Range	433.92MHz
Maximum E-field Strength	88.24dBuV/m@3m
Modulation Technique	OOK
Antenna Specification [#]	Internal Antenna (It is provided by the applicant.)
Sample Serial Number	3BDW-1, 3BDW-2 (Assigned by ATC, Shenzhen)
Sample/EUT Status	Good condition

Objective

All the test measurements were performed according to the measurement procedure described in ANSI C63.10-2020.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, section 15.203, 15.205, 15.209, 15.35(c) and 15.231 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2020, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

Unless otherwise stated there are no any additions to, deviations, or exclusions from the method.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the Floor 1, KuMaKe Building, Dongzhou Community, Guangming Street, Guangming District, Shenzhen, Guangdong, China.

Accredited by American Association for Laboratory Accreditation (A2LA).The Certificate Number is 4297.01.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5 %
RF Frequency		0.064*10 ⁻⁷
Radiated Emissions	9kHz - 30MHz	2.1 dB
	30MHz - 1GHz	4.3 dB
	1GHz - 18GHz	4.9 dB
Temperature		1 °C
Humidity		7 %
Supply voltages		0.4 %

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in engineering mode.

Operating frequency: 433.92 MHz

EUT Exercise Software and Power Level[#]

Exercise Software:	Engineering mode
Power Level:	default

Note 1: The information in the above table is provided by the applicant.
Note 2[#]: According to applicant, all the keys with same power setting, after pre-scan only the worst case (ON button) power was recorded in report. the EUT was configured to an engineering mode that with continue transmitting when power on for the testing.

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

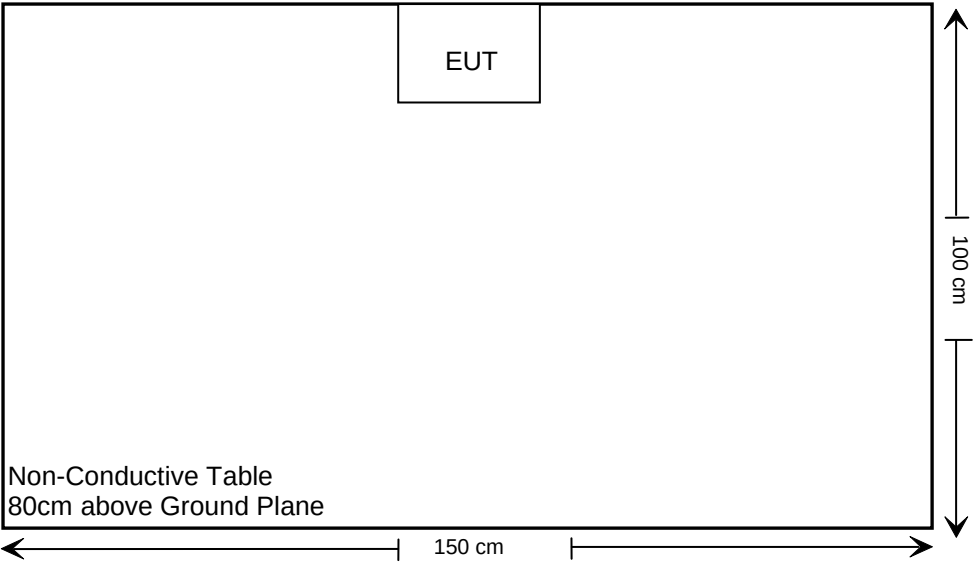
Manufacturer	Description	Model	Serial Number
/	/	/	/

External I/O Cable

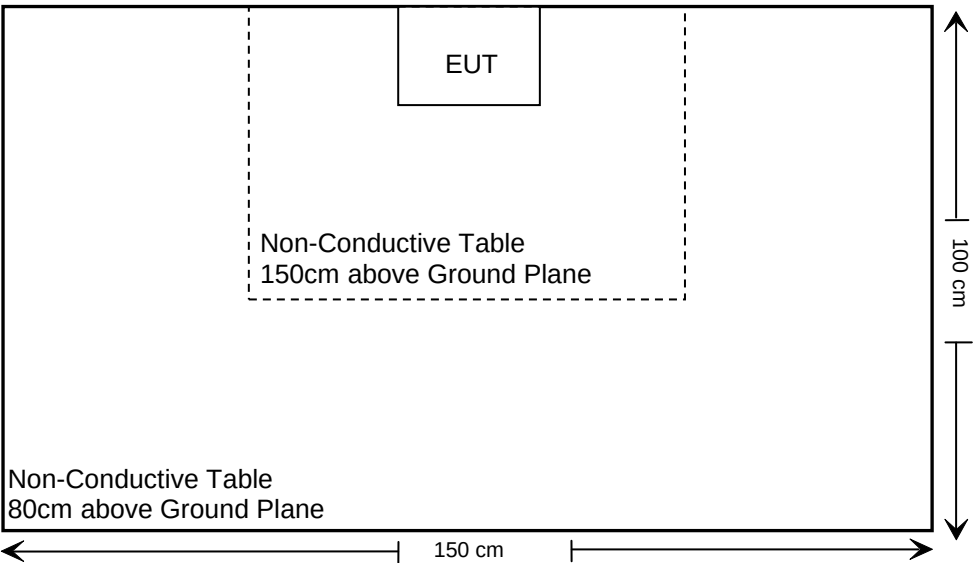
Cable Description	Shielding Type	Length (m)	From Port	To
/	/	/	/	/

Block Diagram of Test Setup

For Radiated Emission(Below 1GHz):



For Radiated Emission(Above 1GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207(a)	AC Line Conducted Emission	Not Applicable
§15.205, §15.209, §15.231(b)	Radiated Emissions	Compliance
§15.231(a)(1)	Deactivation	Compliance
§15.231(c)	20dB Emission Bandwidth	Compliance

Note: Not Applicable: The device only powered by battery.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Test Receiver	ESR	102725	2025/09/18	2026/09/17
SONOMA INSTRUMENT	Amplifier	310N	186131	2025/03/26	2026/03/25
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2024/08/08	2027/08/07
Unknown	RF Coaxial Cable	No.12	N040	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.13	N300	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.14	N800	2025/05/30	2026/05/29
BACL	LOOP ANTENNA	1313-1A	3110711	2024/01/16	2027/01/15
Rohde & Schwarz	Spectrum Analyzer	FSV40	101949	2025/09/17	2026/09/16
Decentest	Filter Switch Unit	DT7220FSU	DQ77927	2025/09/18	2026/09/17
Decentest	Multiplex Switch Test Control Set	DT7220CSU	DQ77924	2025/09/18	2026/09/17
A.H. Systems, inc.	Preamplifier	PAM-0118	226	2025/03/20	2026/03/19
Schwarzbeck	Horn Antenna	BBHA9120D	837	2023/02/22	2026/02/21
Unknown	RF Coaxial Cable	No.10	N050	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.11	N1000	2025/05/30	2026/05/29
Unknown	RF Coaxial Cable	No.19	N500	2025/05/30	2026/05/29
Test Software: e3 191218 (V9)					

* **Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

ANTENNA REQUIREMENT

Applicable Standard

According to FCC §15.203,

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. 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.

Antenna Connector Construction

The EUT has one internal antenna arrangement which was permanently attached, fulfill the requirement of this section. Please refer to EUT photos.

Result: Compliance.

RADIATED EMISSIONS

Applicable Standard

FCC §15.205, §15.209, §15.231 (b)

According to FCC §15.231(b), the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

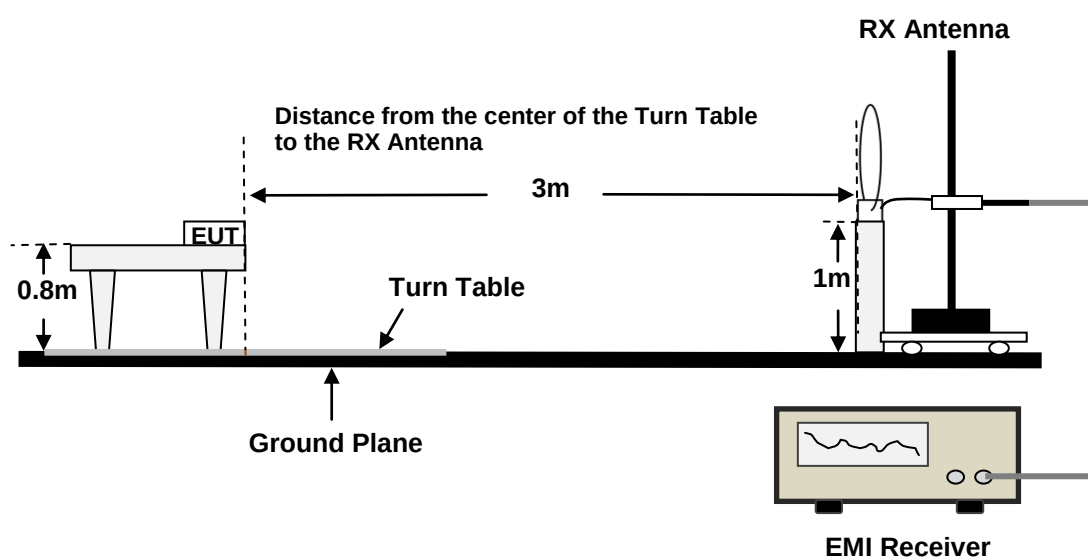
Fundamental frequency (MHz)	Field Strength of Fundamental (Microvolts /meter)	Field Strength of spurious emissions (Microvolts /meter)
40.66-40.70	2250	225
70-130	1250	125
130-174	1250 to 3750**	125 to 375**
174-260	3750	375
260-470	3750 to 12500**	375 to 1250**
Above 470	12500	1250

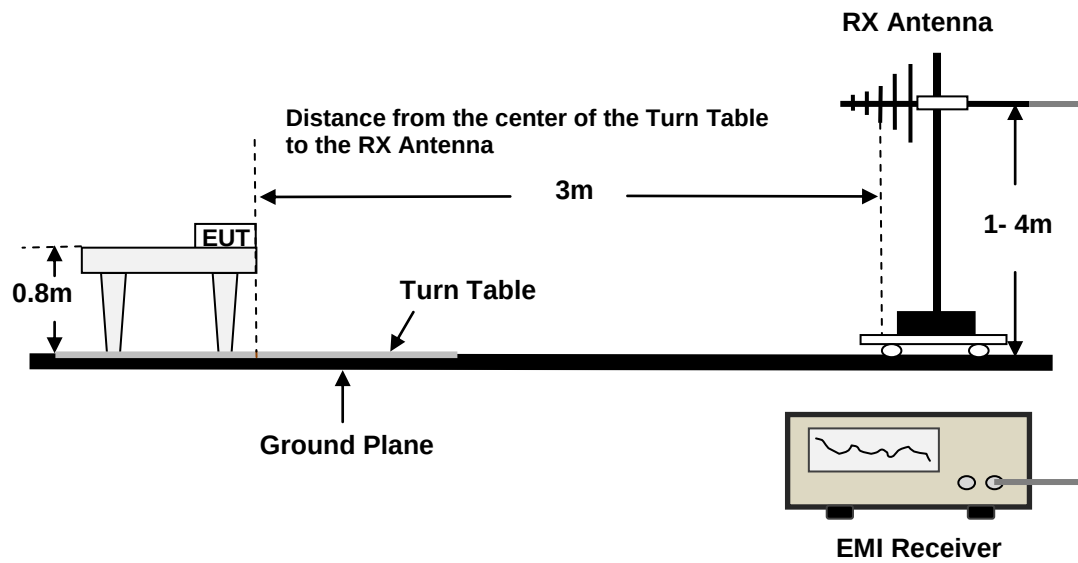
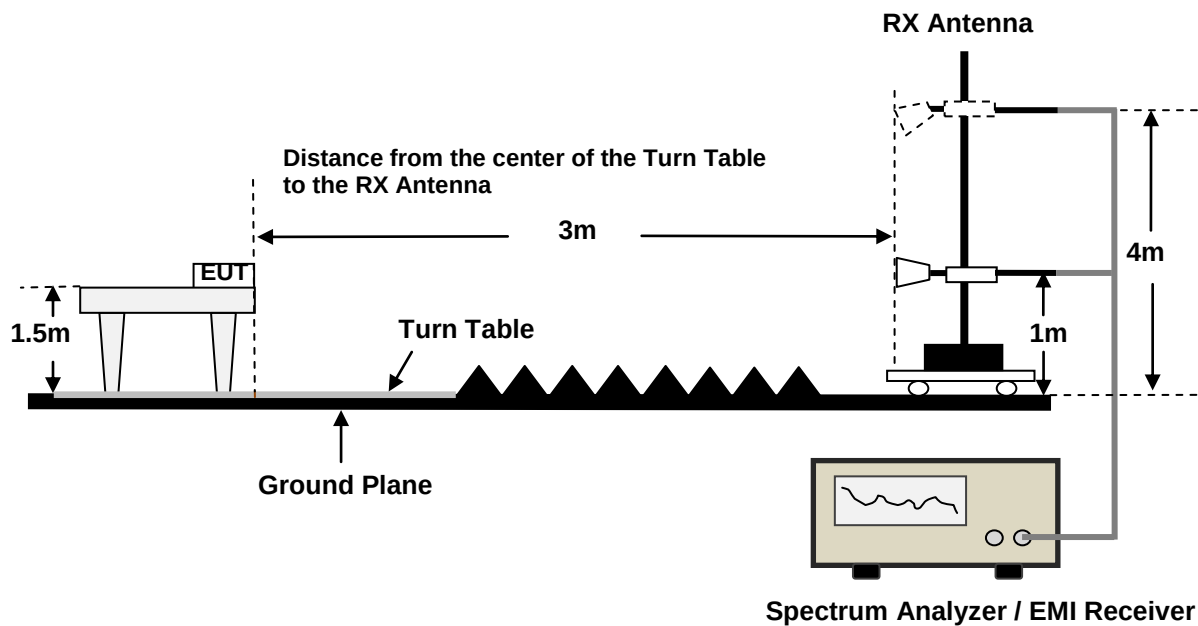
**linear interpolations

The above field strength limits are specified at a distance of 3-meters the tighter limits apply at the band edges.

EUT Setup

9kHz - 30MHz:



30MHz - 1GHz:**Above 1GHz:**

The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10-2020. The specification used was the FCC 15 § 15.209, 15.205 and 15.231.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9kHz to 4.5GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

9kHz - 1000MHz:

Frequency Range	Measurement	RBW	Video B/W	IF B/W	Detector
9kHz - 150kHz	PK	0.3kHz	1kHz	/	PK
	QP/AV	/	/	200Hz	QP/AV
150kHz - 30MHz	PK	10kHz	30kHz	/	PK
	QP/AV	/	/	9kHz	QP/AV
30MHz - 1000MHz	PK	100kHz	300kHz	/	PK
	QP	/	/	120kHz	QP

1GHz - 4.5GHz:

Pre-scan:

Measurement	Detector	RBW	Video B/W
PK	Peak	1MHz	3MHz

Note 1: The other spurious emission which is in the noise floor level was not recorded.

Note 2: Above 30MHz-1GHz, when the test result of Peak was more than 6dB below the limit of QP, just the Peak value was recorded.

Note 3: For above 1GHz, the test result of peak was 20dB below to the limit of peak, which can be compliant to the average limit, so just peak value was recorded.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All final data was recorded in the Quasi-peak detection mode from 30MHz to 1GHz, Peak and average detection mode above 1 GHz.

If the maximized peak measured value complies with the limit, then it is unnecessary to perform QP/Average measurement.

Calculation

The **Factor** is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The "**Over Limit/Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

$$\begin{aligned}\text{Over Limit/Margin} &= \text{Level} / \text{Corrected Amplitude} - \text{Limit} \\ \text{Level} / \text{Corrected Amplitude} &= \text{Read Level} + \text{Factor}\end{aligned}$$

Test Data

Environmental Conditions

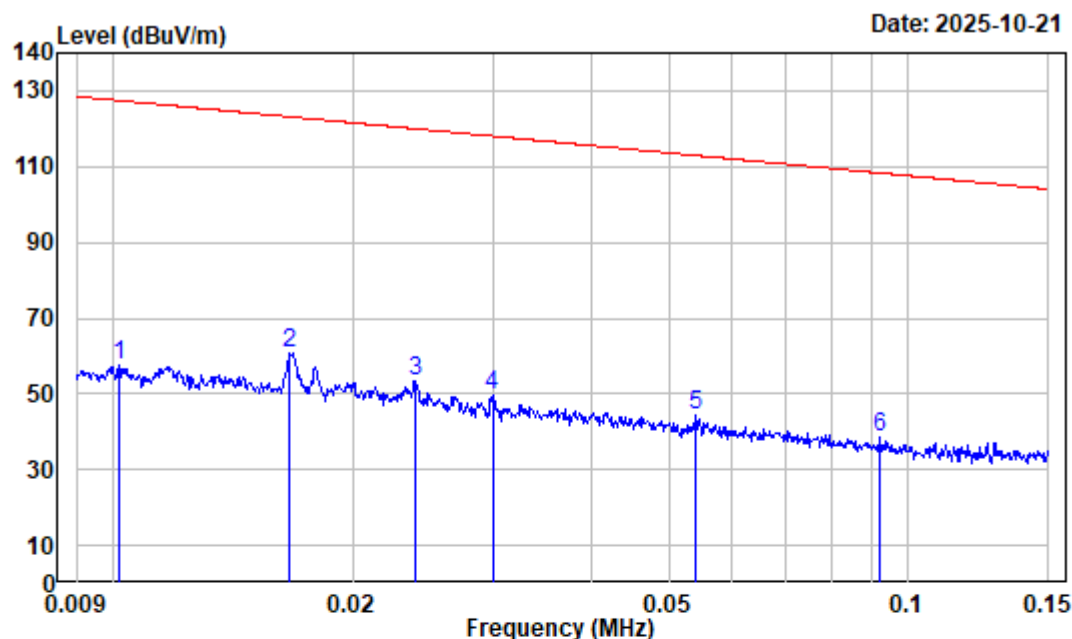
Test Item:	RE 9kHz-1GHz	RE 1GHz-4.5GHz	Duty Cycle
Temperature:	24.4 °C	25.2 °C	24 °C
Relative Humidity:	59 %	56 %	50 %
ATM Pressure:	100.7 kPa	100.7 kPa	100.7 kPa
Test Engineer:	Colin Lin	Roger Ling	Cayde Hou
Test Date:	2025-10-21	2025-10-31	2025-10-21~2025-12-11
EUT Operation Mode:	Transmitting	Transmitting	Transmitting

Test Result: Compliance, please refer to the below data.

Note 1: For Radiated Spurious Emissions, after pre-scan in the X, Y and Z axes of orientation, the worst case as setup photos was recorded.

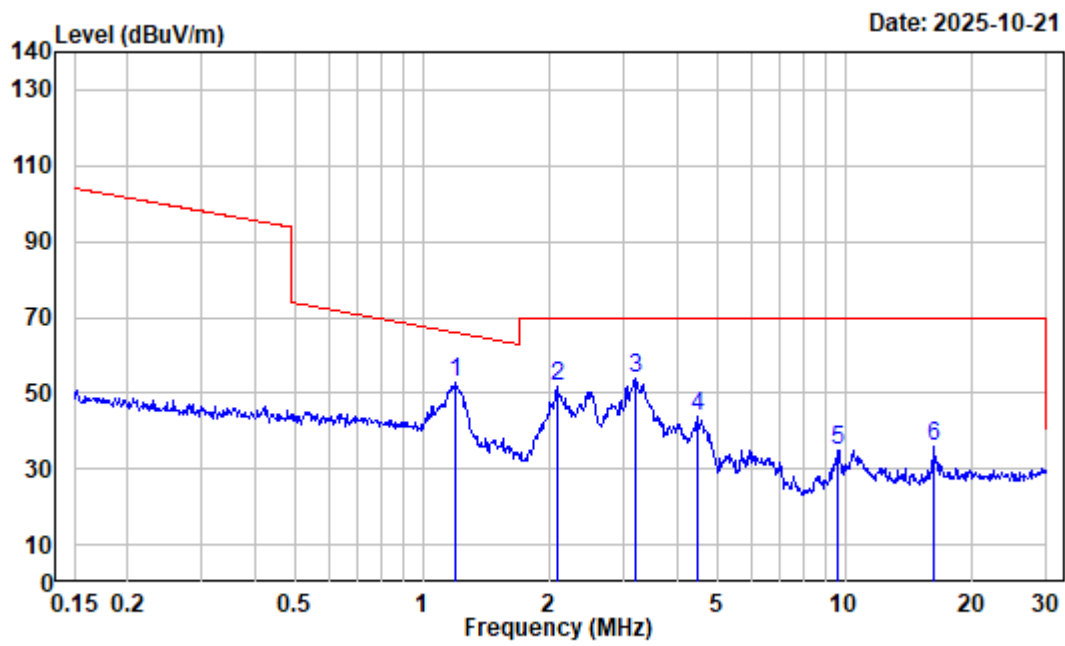
Note 2: For 9kHz-1GHz, the Loop Antenna were tested in parallel, perpendicular, and ground-parallel. The worst orientation was parallel and the data was recorded in report.

9kHz~30MHz:



Site : Chamber
Condition : 3m
Job No. : 2504Y08471E-RF
Polarization : Parallel Tester: Colin Lin
Test Mode : Transmitting
Receiver Setting: RBW:300Hz VBW:1kHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.010	35.75	21.59	57.34	127.44	-70.10	Peak
2	0.017	32.87	28.03	60.90	123.17	-62.27	Peak
3	0.024	29.63	23.78	53.41	120.02	-66.61	Peak
4	0.030	26.95	22.74	49.69	118.06	-68.37	Peak
5	0.054	22.23	22.03	44.26	112.95	-68.69	Peak
6	0.092	17.29	21.04	38.33	108.33	-70.00	Peak



Site : Chamber

Condition : 3m

Job No. : 2504Y08471E-RF

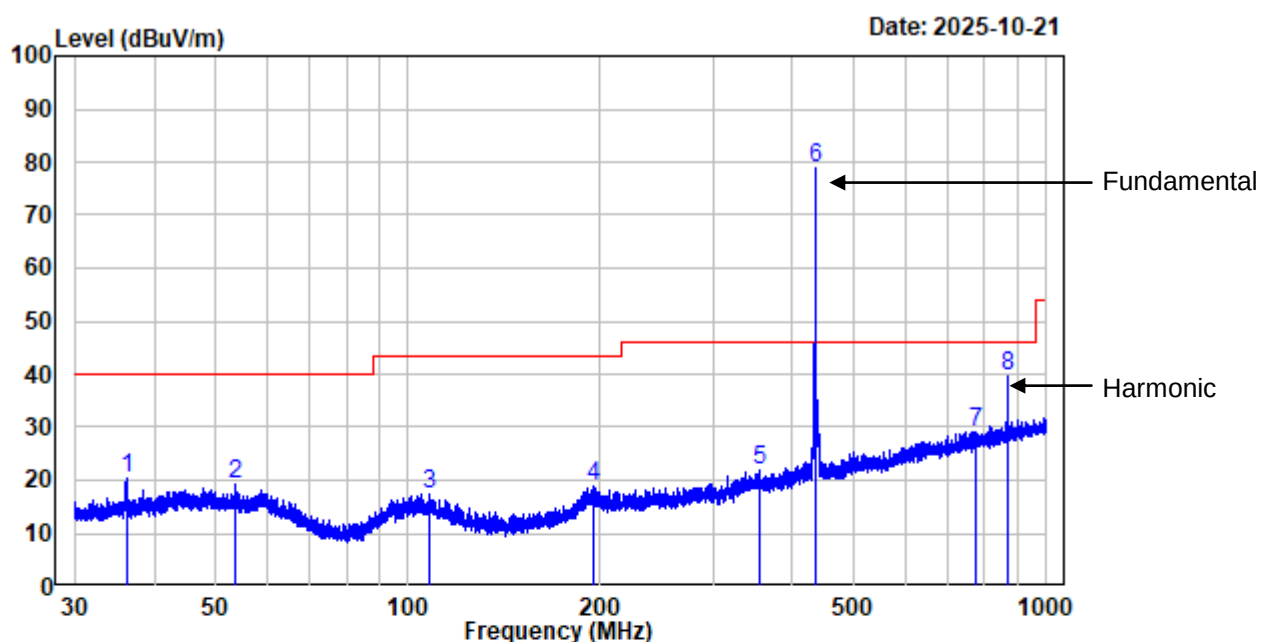
Polarization : Parallel Tester: Colin Lin

Test Mode : Transmitting

Receiver Setting: RBW:10kHz VBW:30kHz

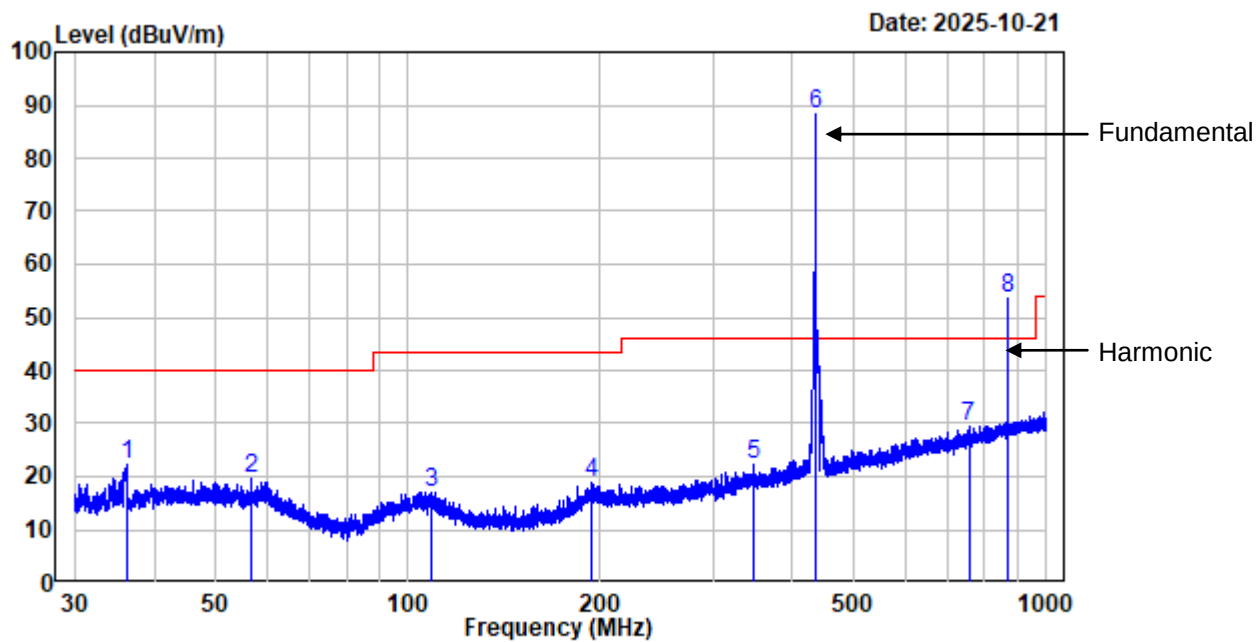
	Freq		Read		Limit	Over	Remark
	Factor		Level	Level	Line	Limit	
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1.197	-2.53	55.33	52.80	65.88	-13.08	Peak
2	2.077	-5.42	57.12	51.70	69.54	-17.84	Peak
3	3.207	-5.93	59.68	53.75	69.54	-15.79	Peak
4	4.478	-6.30	50.16	43.86	69.54	-25.68	Peak
5	9.654	-5.40	40.45	35.05	69.54	-34.49	Peak
6	16.226	-3.86	40.04	36.18	69.54	-33.36	Peak

30MHz~1GHz:



Site : Chamber
 Condition : 3m HORIZONTAL
 Job No. : 2504Y08471E-RF Tester: Colin Lin
 Test Mode : Transmitting
 Receiver Setting: RBW:100kHz VBW:300kHz

	Freq	Factor	Read Level	Limit Level	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB
1	36.286	-11.40	31.84	20.44	40.00	-19.56 Peak
2	53.599	-10.41	29.48	19.07	40.00	-20.93 Peak
3	107.699	-11.27	28.74	17.47	43.50	-26.03 Peak
4	195.479	-9.86	28.88	19.02	43.50	-24.48 Peak
5	356.207	-7.06	28.89	21.83	46.00	-24.17 Peak
6	434.065	-4.88	83.64	78.76	100.83	-22.07 Peak
7	773.141	0.29	28.89	29.18	46.00	-16.82 Peak
8	868.369	1.28	38.22	39.50	80.83	-41.33 Peak



Site : Chamber

Condition : 3m VERTICAL

Job No. : 2504Y08471E-RF Tester: Colin Lin

Test Mode : Transmitting

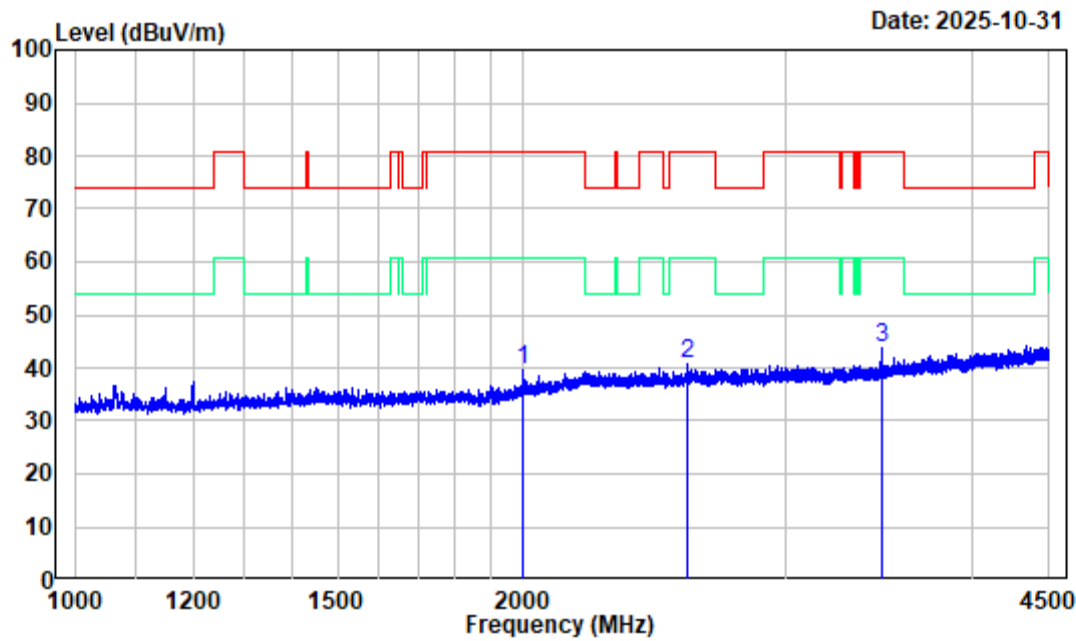
Receiver Setting: RBW:100kHz VBW:300kHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	36.206	-11.42	33.60	22.18	40.00	-17.82	Peak
2	56.792	-10.33	29.91	19.58	40.00	-20.42	Peak
3	109.076	-11.44	28.48	17.04	43.50	-26.46	Peak
4	193.518	-9.92	28.67	18.75	43.50	-24.75	Peak
5	347.723	-6.79	28.92	22.13	46.00	-23.87	Peak
6	434.065	-4.88	93.12	88.24	100.83	-12.59	Peak
7	755.719	-0.02	29.55	29.53	46.00	-16.47	Peak
8	868.369	1.28	52.21	53.49	80.83	-27.34	Peak

Field Strength of Average							
Frequency (MHz)	Peak Measurement @3m (dBµV/m)	Polar (H/V)	Duty Cycle Correction Factor (dB)	Corrected Amplitude (dBµV/m)	Part 15.231		
					Limit (dBµV/m)	Margin (dB)	Comment
433.92MHz							
434.065	78.76	H	-9.62	69.14	80.83	-11.69	Fundamental
434.065	88.24	V	-9.62	78.62	80.83	-2.21	Fundamental
868.369	39.50	H	-9.62	29.88	60.83	-30.95	Harmonic
868.369	53.49	V	-9.62	43.87	60.83	-16.96	Harmonic

Note:
Average Amplitude= Peak Measurement + Duty Cycle Factor
Margin= Average Corrected Amplitude-Limit

433.92MHz 1GHz-4.5GHz_HORIZONTAL



Site : chamber

Condition : 3m HORIZONTAL

Project No.: 2504Y08471E-RF

Test Mode : Transmitting

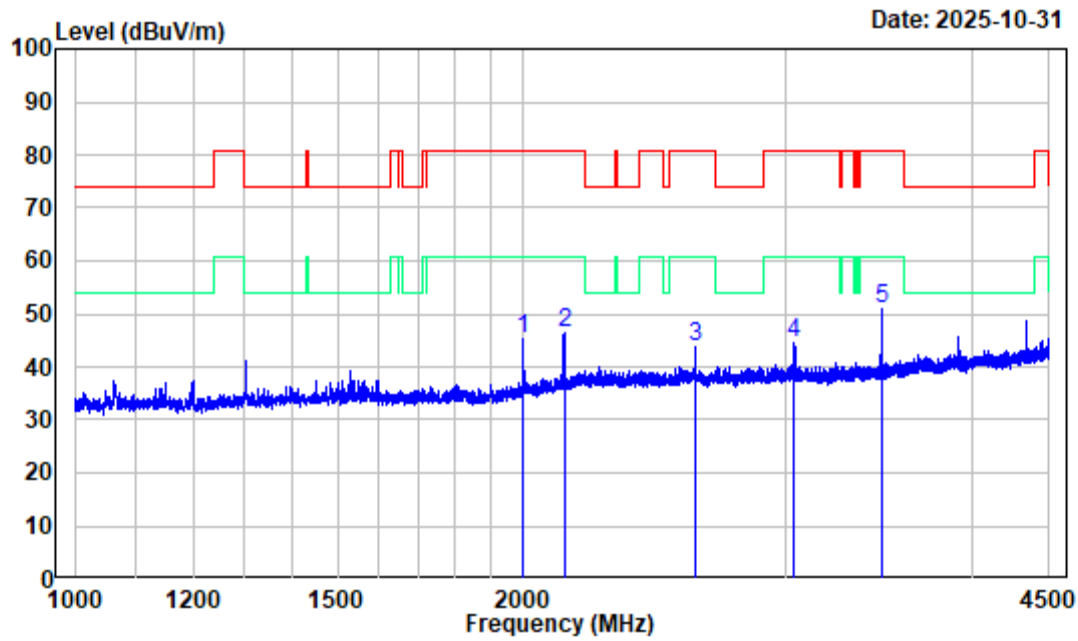
Note : 433.92MHz 1GHz-4.5GHz

SA setting : Peak:RBW:1MHz,VBW:3MHz

Tester:Roger.Ling

Freq Factor		Read Level		Limit	Over	Remark
MHz	dB/m	dBuV	dBuV/m	Line	Limit	
1	1994.875	-11.93	51.63	39.70	80.83	-41.13 Peak
2	2575.438	-9.87	50.54	40.67	80.83	-40.16 Peak
3	3472.750	-9.69	53.63	43.94	80.83	-36.89 Peak

433.92MHz 1GHz-4.5GHz_VERTICAL



Site : chamber

Condition : 3m VERTICAL

Project No.: 2504Y08471E-RF

Test Mode : Transmitting

Tester:Roger.Ling

Note : 433.92MHz 1GHz-4.5GHz

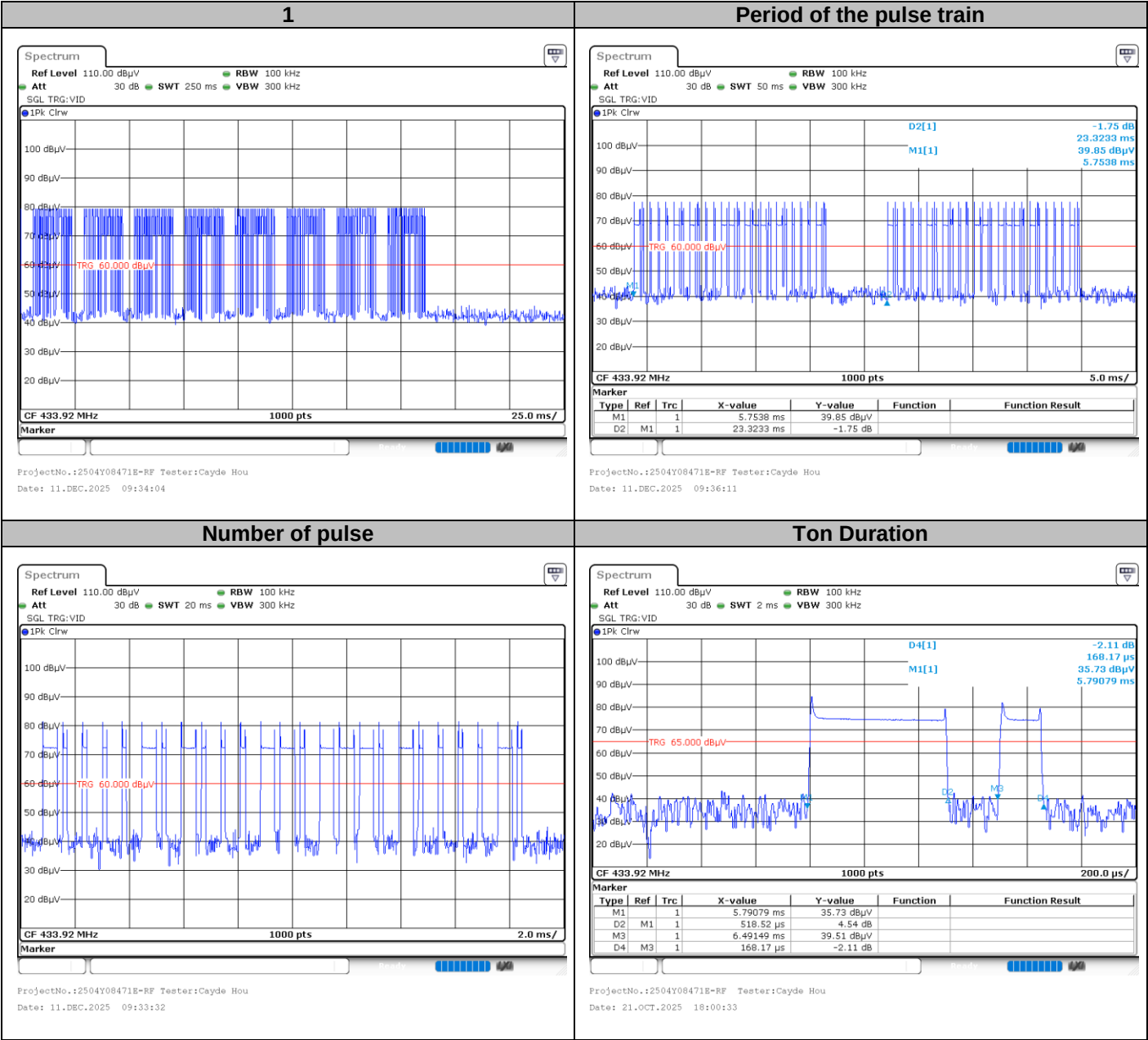
SA setting : Peak:RBW:1MHz,VBW:3MHz

	Freq	Factor	Read		Limit	Over	Remark
			Level	Level	Line	Limit	
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	1996.188	-11.93	57.24	45.31	80.83	-35.52	Peak
2	2132.250	-10.67	57.04	46.37	80.83	-34.46	Peak
3	2604.313	-9.73	53.65	43.92	80.83	-36.91	Peak
4	3038.313	-9.59	54.19	44.60	80.83	-36.23	Peak
5	3472.750	-9.69	60.57	50.88	80.83	-29.95	Peak

Duty Cycle

Sub-pulse	Ton Duration (ms)	Number of pulse (n)	Total on time (ms)	Period of the pulse train (ms)	Duty Cycle (%)
1	0.51852	10	7.70775	23.3233	33.04742
2	0.16817	15			
Duty cycle Factor(dB)		-9.62			

Note 1: Total on time=Ton1*N1+Ton2*N2=0.51852*10+0.16817*15=7.70775ms
Note 2: Duty Cycle=(Total on time)/Tp=7.70775/23.3233=0.3304742=33.04742%
Note 3: Duty cycle Factor=20*log(Duty Cycle)=20*log(0.3304742)= -9.62



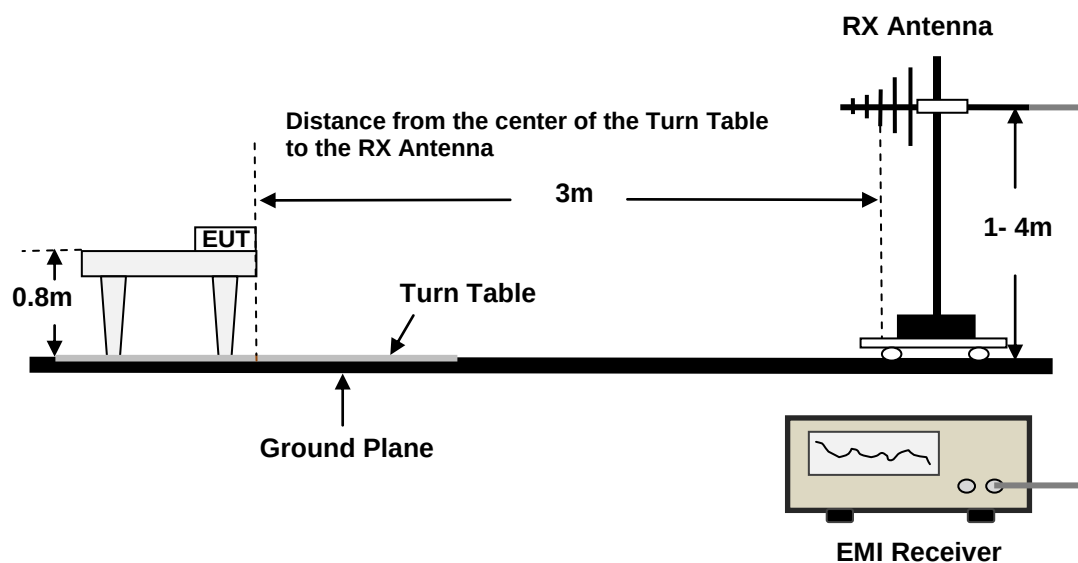
DEACTIVATION TESTING

Applicable Standard

According to FCC §15.231(a) (1), A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

Test Procedure

1. Set center frequency of spectrum analyzer=operating frequency.
2. Set the spectrum analyzer as RBW=100kHz/ VBW=300kHz/ Span=0Hz.
3. Repeat above procedures until all frequency measured was complete.



Test Data

Environmental Conditions

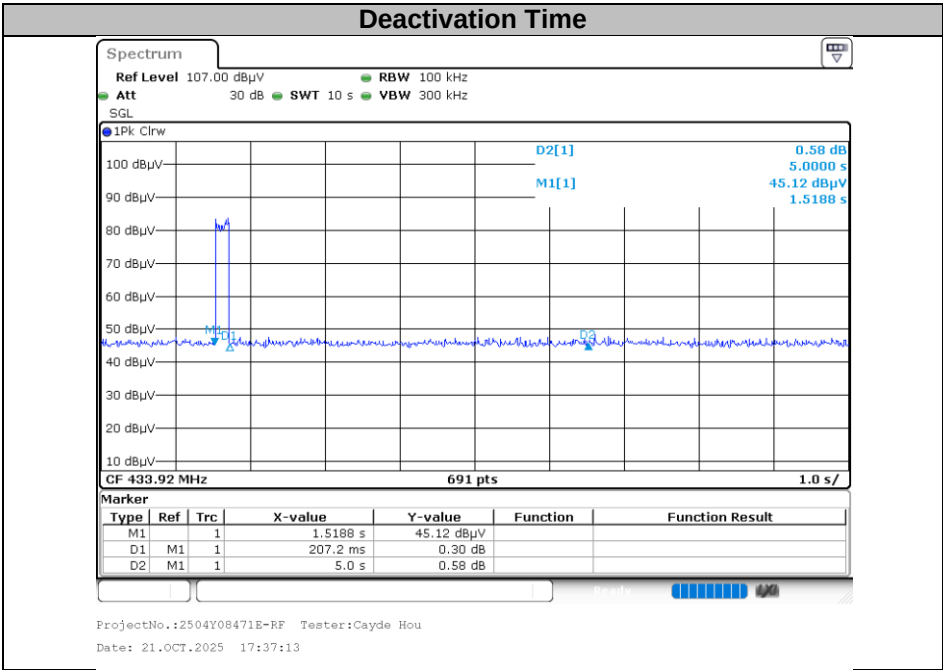
Temperature:	24°C
Relative Humidity:	50 %
ATM Pressure:	100.7kPa

The testing was performed by Cayde Hou on 2025-10-21.

EUT operation mode: Transmitting

Test Result: Compliance. This product will cease transmission within 5 seconds after activation.

Channel Frequency (MHz)	Deactivation Time (s)	Limit (s)
433.92	0.2072	≤5



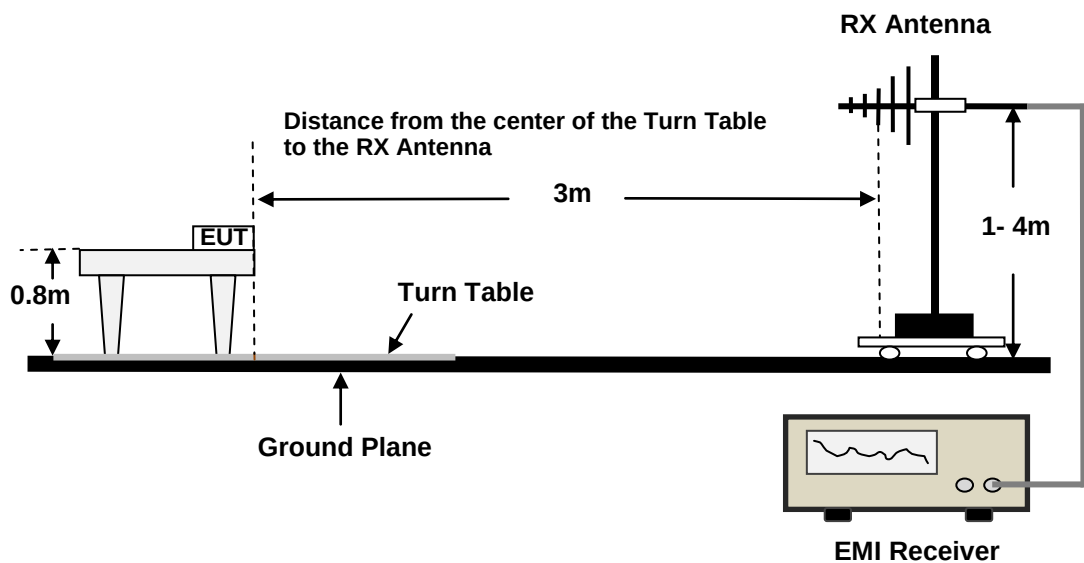
20 dB EMISSION BANDWIDTH

Applicable Standard

According to 15.231(c), The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Test Procedure

The EUT is setting to the transmit mode, the waveform was received by the test antenna which was connected to the spectrum analyzer, plot the 20 dB bandwidth.



Test Data

Environmental Conditions

Temperature:	24℃
Relative Humidity:	50 %
ATM Pressure:	100.7kPa

The testing was performed by Cayde Hou on 2025-10-21.

EUT operation mode: Transmitting

Test Result: Compliance. Please refer to the data.

Test Result: Compliance. Please refer to the data.

Channel Frequency (MHz)	20dB BW (kHz)	Limit (kHz)
433.92	16.64	1084.8

Note: Limit=Channel Frequency*0.25%

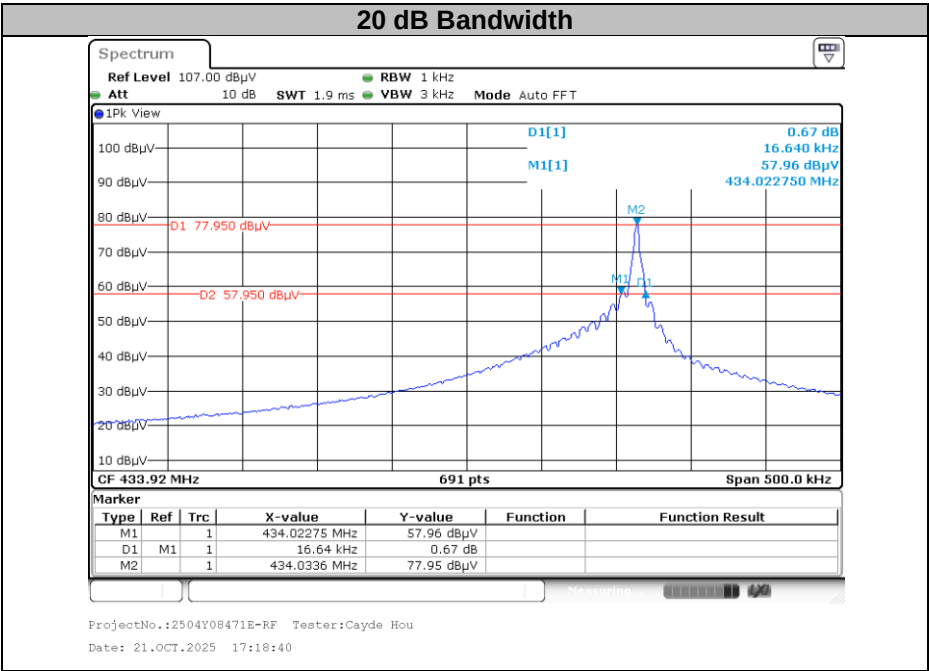


EXHIBIT A-EUT PHOTOGRAPHS

Please refer to the Attachment No.1 2504Y08471E-RF EUT External Photos and Attachment No.2 2504Y08471E-RF EUT Internal Photos.

EXHIBIT B-TEST SETUP PHOTOGRAPHS

Please refer to the Attachment No.3 2504Y08471E-RF-00A Test Photos.

******* END OF REPORT *******