



TEST REPORT

Report No. SST240429004EF06

Applicant: Shenzhen Jiuzhou Yunhai Technology Co., Ltd

Address of Applicant: 701, 602, Building 3, Shanglilang park, No. 61 Pingji Avenue, Shanglilang Community, Longgang, Shenzhen(518100), China.

Product Name: Laptop

Trade Mark: /

Standard(s): FCC CFR Title 47 Part 15 Subpart E Section 15.407

FCC ID: 2BFMN-TU156

Test Report Form No: SST-RD-7.5-02-E01(A/0)

Date of sample receipt: 2024/10/17

Date of Test: 2024/10/17 - 2024/12/27

Date of report issued: 2024/12/30

*The equipment complies with the requirements according to the standard(s) or Specification above, it is applicable only to the tested sample identified in the report.

Prepared by:



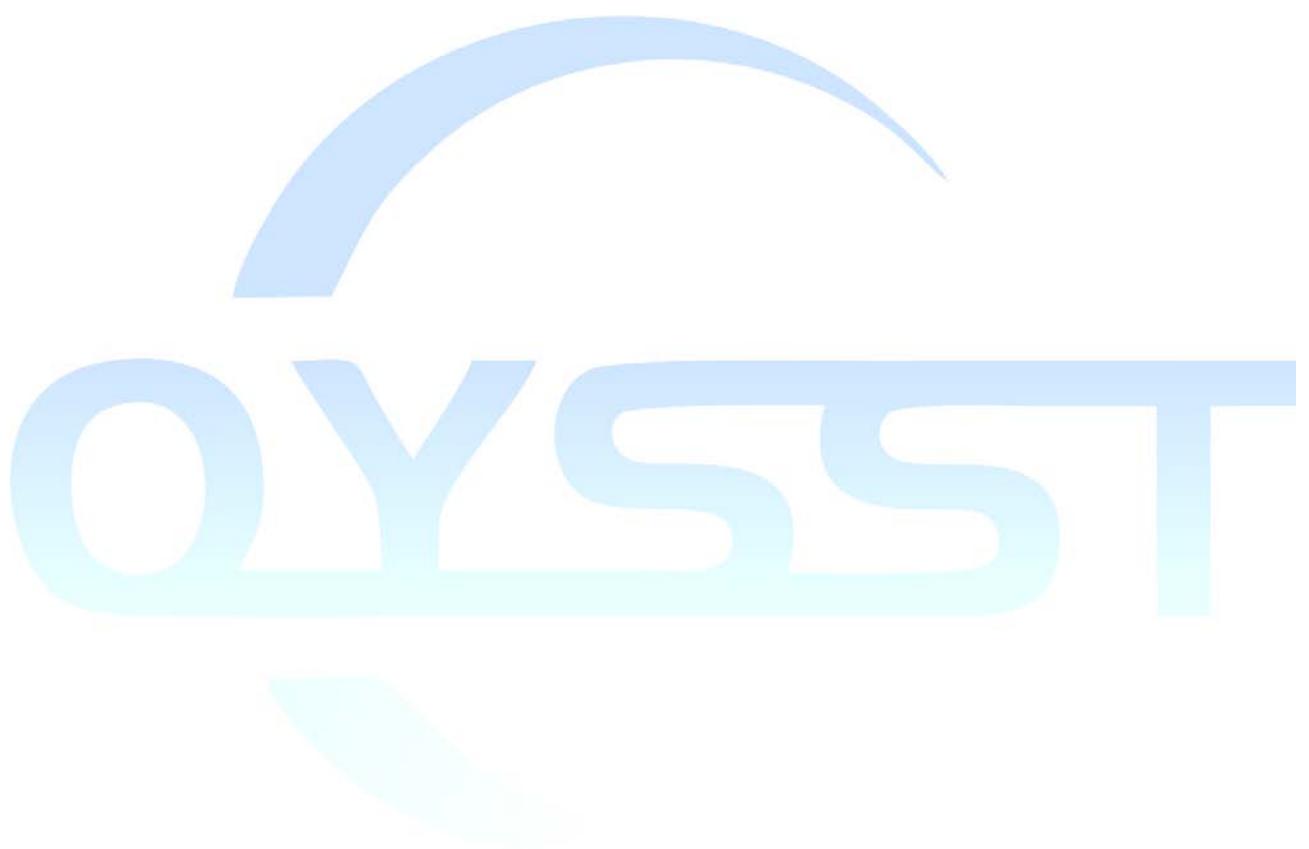
Reviewed by:

Approved by:

*The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Version	Description	Date of Issue
V1.0	Original	2024/12/30



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3 Test Summary

Test items	Basics standards	Operational Mode	
		Master Device or Client with Radar Detection	Client Without Radar Detection
DFS Detection Threshold	47 CFR Part 15.407(h) KDB 905462	Y	N
Channel Closing Transmission Time		Y	Y
Channel Move Time		Y	Y
U-NII Detection Bandwidth		Y	N



4 General Information

4.1 Client Information

Applicant: Shenzhen Jiuzhou Yunhai Technology Co., Ltd
Address of applicant: 701, 602, Building 3, Shanglilang park, No. 61 Pingji Avenue, Shanglilang Community, Longgang, Shenzhen(518100), China.
Manufacturer: Same as applicant
Address of Manufacturer: Same as applicant
Factory: Same as applicant
Address of Factory: Same as applicant

4.2 General Description of EUT

Product Name:	Laptop	
Model No.:	TU156 i7-1195G7, TU***** , DH***** , A1("*" stands for 0-9, a-z, A-Z,"-", space or blank, indicating different sales channels or different colors, without affecting product safety and Electromagnetic compatibility)	
Test Model:	TU156 i7-1195G7	
Sample(s) Status:	Normal firmware	
S/N:	/	
Hardware version:	/	
Software version:	/	
Operation Frequency:	5260MHz ~ 5320MHz 5500MHz ~ 5700MHz	
Technical specific:	802.11a, 802.11n, 802.11ac	
Channel Bandwidth	20/40/80MHz operating channel bandwidth	
Modulation technology:	OFDM	
Operating Mode	<input type="checkbox"/> Master	
	<input type="checkbox"/> Client with radar detection	
	<input checked="" type="checkbox"/> Client without radar detection	
TPC Function	<input type="checkbox"/> With TPC	<input checked="" type="checkbox"/> Without TPC
Antenna gain:	Refer to section 4.7 for details	
Power supply:	AC/DC ADAPTOR Model: QL065GaN-1903420C Input: AC 100~240V, 50/60Hz, 1.5A Output: DC 19V, 3.42A Or DC 7.7V 5000mAh/38.5Wh Rechargeable li-ion battery	

Channel list for 802.11 @20m

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz
52	5260MHz	56	5280MHz	60	5300MHz	64	5320MHz
100	5500MHz	104	5520MHz	108	5540MHz	112	5560MHz
116	5580MHz	120	5600MHz	124	5620MHz	128	5640MHz
132	5660MHz	136	5680MHz	140	5700MHz		

Channel list for 802.11 @40m

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz	54	5270MHz	62	5310MHz
102	5510MHz	110	5550MHz	118	5590MHz	126	5630MHz
134	5670MHz						

Channel list for 802.11 @80m

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210MHz	58	5290MHz	106	5530MHz	122	5610MHz

4.3 Test mode(s)

Mode 1:	Normal operation
Mode 2:	
Mode 3:	

4.4 Test Facility

The test facility is recognized, certified, or accredited by these organizations:	FCC Accredited Lab Test Firm Registration Number: 638130 Designation Number: CN1359
	IC Registration Lab CAB Identifier No. CN0154
	A2LA Accreditation Lab Certificate No.:7057.01

Test Performed at:	Name GuangDong Set Sail Testing Co., Ltd.
	Address 101, No.19, Tianxin Hudie 1st Road, Huangjiang Town, Dongguan, Guangdong, China

4.5 Description of Support Units

Device Type	Brand	Model	Series No.	Note
Notebook PC	HP	ZHAN 66P	---	---
Router	ASUS	RT-AC88U	---	FCC ID: MSQ-RTGW00

4.6 Additional Instructions

Test Software	Normal SW
Power level setup	Default

4.7 Antenna Information

Ant	Manufacturer	Model	Antenna Type	Antenna Gain (dBi)
1	/	/	PIFA	3.83 @5.3G; 3.84 @5.5G;

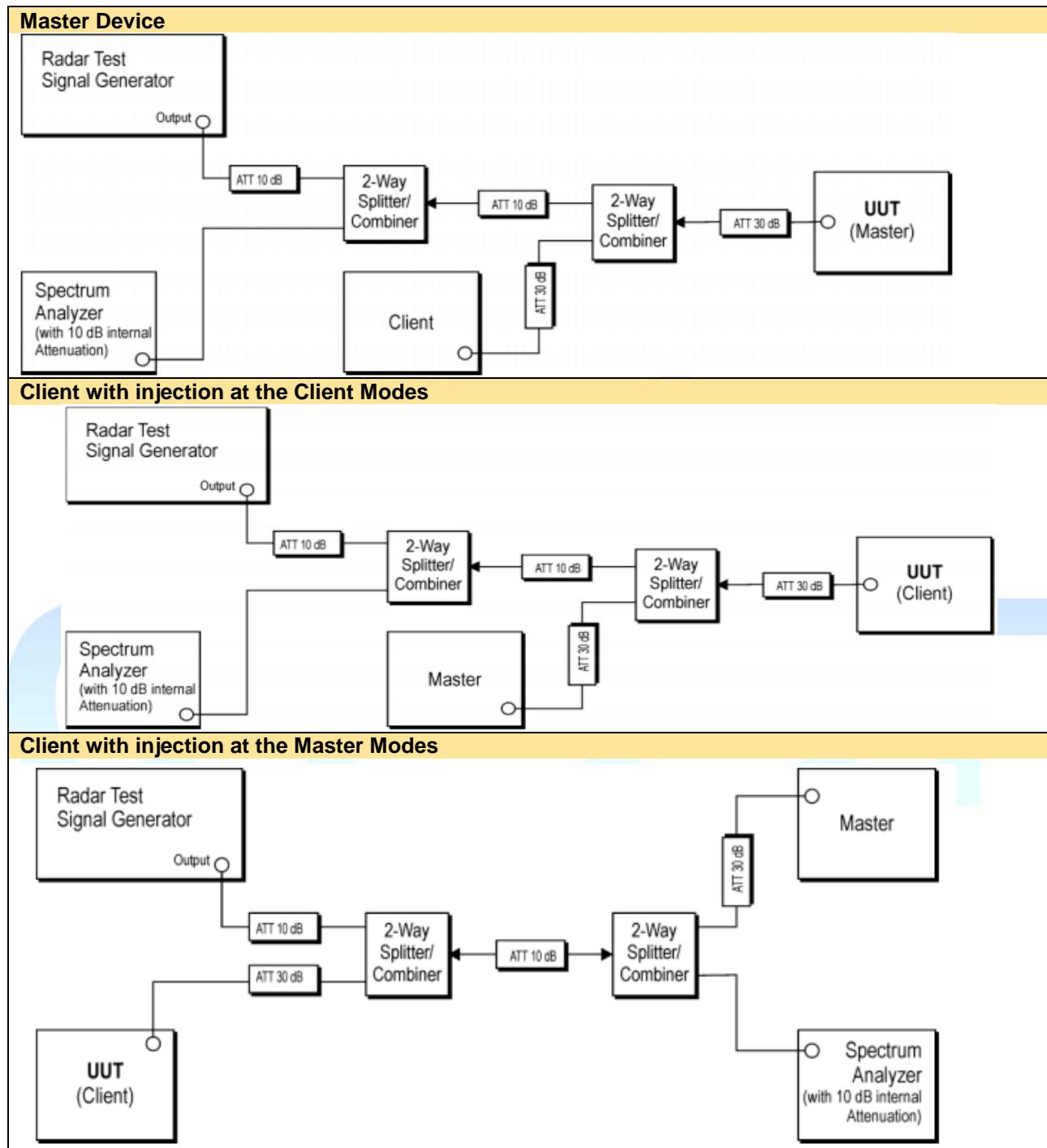
All above information provided by the applicant which is fully responsible for those information.

4.8 Others

<p>The laboratory responsible for all the information provided in the report, except those information provided by the applicant.</p> <p>The applicant shall fully responsible for the information they provided.</p> <p>The report would be invalid without a stamp of test laboratory and the signatures of compiler and approver.</p> <p>The laboratory has not been responsible for the sampling stage; the test report merely corresponds to the test sample received.</p> <p>Any objection to the test report shall submitted to the test laboratory within 15 days from the date of receipt of the report.</p> <p>It is not permitted to copy extracts of these test result without the written permission of the test laboratory.</p>

5 Technical Requirement

5.1 Test configuration diagram



5.2 DFS Detection Thresholds

DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection	
Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP \geq 200 milliwatt	-64 dBm
EIRP $<$ 200 milliwatt and power spectral density $<$ 10 dBm/MHz	-62 dBm
EIRP $<$ 200 milliwatt that do not meet the power spectral density requirement	-64 dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.

Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

Note 3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

5.3 Response Requirements

DFS Response Requirement Values	
Parameter	Value
<i>Non-occupancy period</i>	Minimum 30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds See Note 1.
<i>Channel Closing Transmission Time</i>	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.

Note 1: *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the *U-NII Detection Bandwidth* detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

5.4 RADAR TEST WAVEFORMS

Short Pulse Radar Test Waveforms					
Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	18 Roundup $\left\lceil \left(\frac{1}{360} \cdot \frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \right\rceil$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.					

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B.

Long Pulse Radar Test Waveform							
Radar Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Number of Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

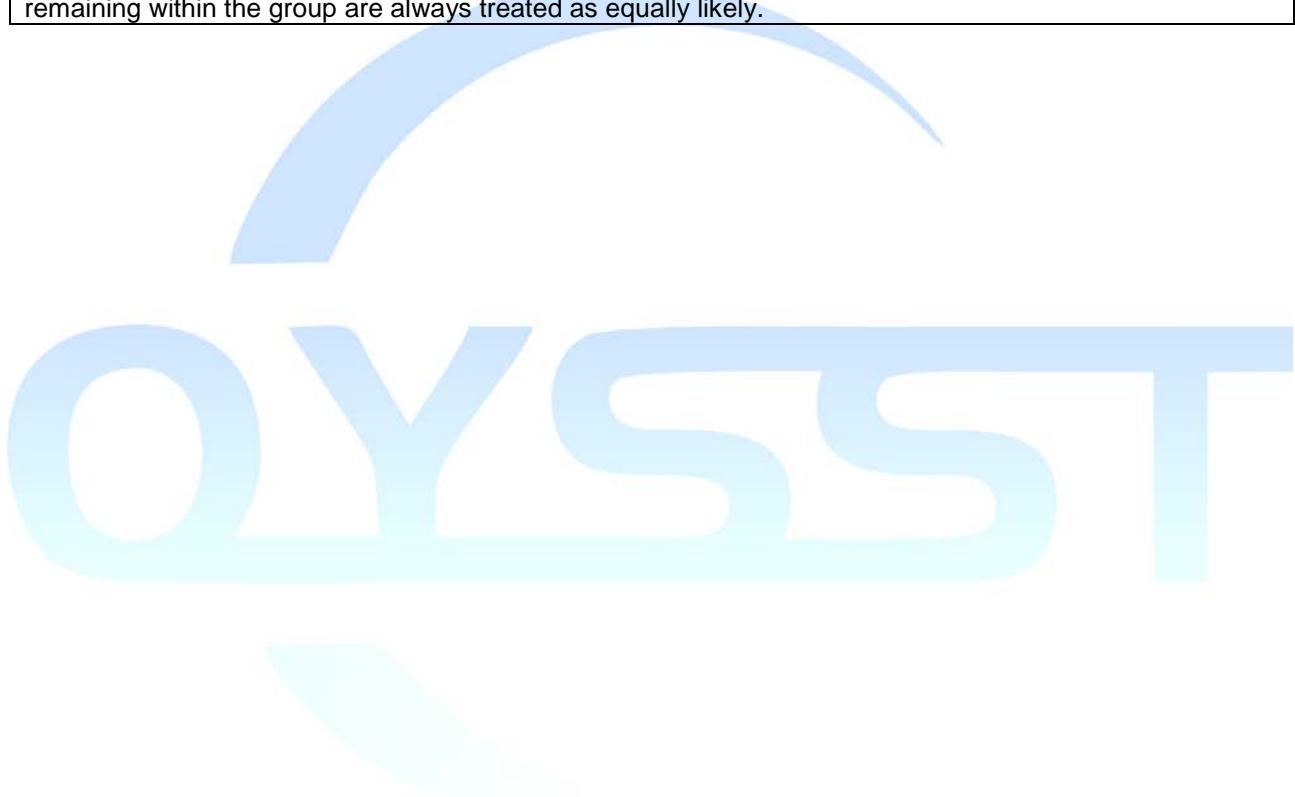
The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse Radar Type waveforms. If more than 30 waveforms are used for the Long Pulse Radar Type waveforms, then each additional waveform must also be unique and not repeated from the previous waveforms.

Frequency Hopping Radar Test Waveform

Radar Type	Pulse Width (μsec)	PRI (μsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

For the Frequency Hopping Radar Type, the same Burst parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:

The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues until all 475 frequencies are chosen for the set. For selection of a random frequency, the frequencies remaining within the group are always treated as equally likely.

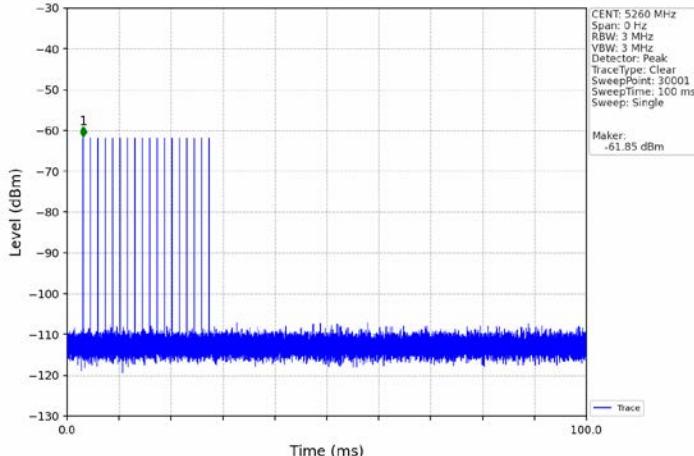


6 Test Procedures

6.1 Radar Calibration

DFS Threshold Level							
Test Result							
Mode	Bandwidth (MHz)	Frequency (MHz)	Radar Signal		Signal Calibration		Verdict
			Type	Trial Id	Result	Limit	
			5260	0	Refer To Test Graph		Pass
802.11a	20	5500	0	0	Refer To Test Graph		Pass

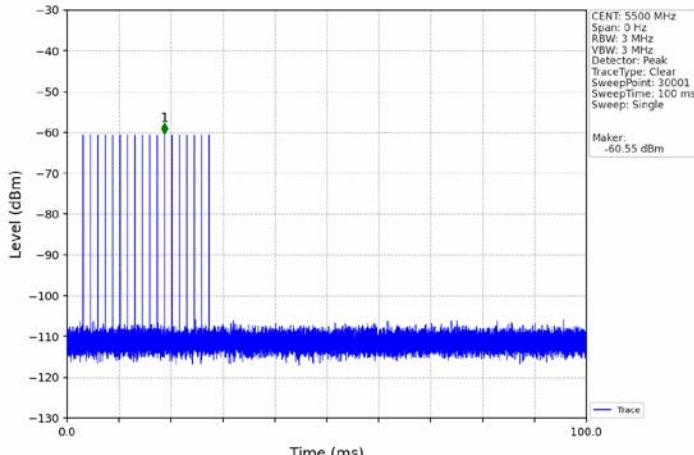
Test Graphs



Band: 2A

Marker: -61.85 dBm

Plot details: CENT: 5260 MHz, Span: 0 Hz, RBW: 3 MHz, VBW: 3 MHz, Detector: Peak, TraceType: Clear, SweepPoint: 30001, SweepTime: 100 ms, Sweep: Single

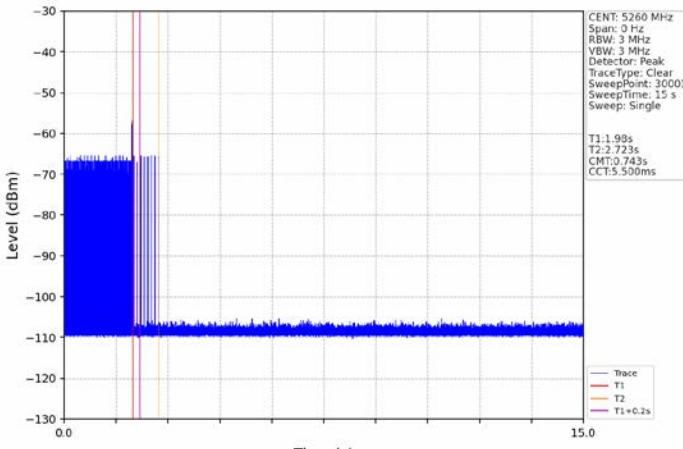
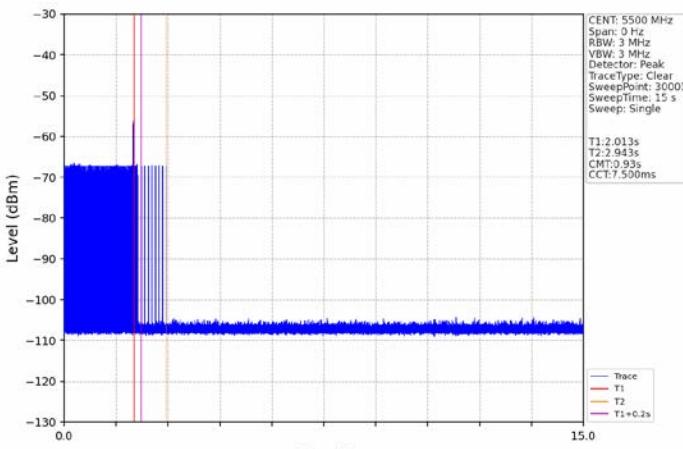


Marker: -60.55 dBm

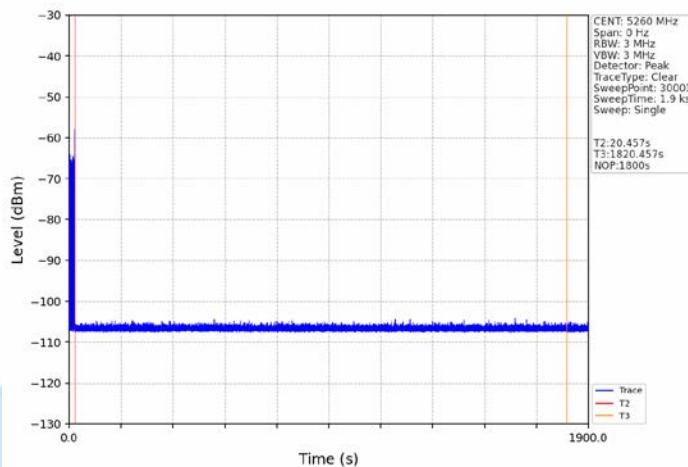
Plot details: CENT: 5500 MHz, Span: 0 Hz, RBW: 3 MHz, VBW: 3 MHz, Detector: Peak, TraceType: Clear, SweepPoint: 30001, SweepTime: 100 ms, Sweep: Single

11A-5260	11A-5500
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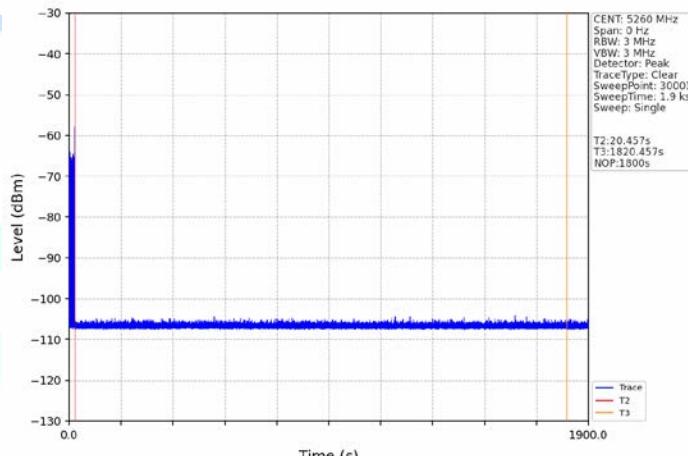
6.2 Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period

Limit							
Channel Move Time		<10s					
Channel Closing Transmission Time		<260ms					
Non-Occupancy Period		>30min					
Test Result							
Test Mode	Frequency[MHz]	CCTT[ms]	Limit[ms]	CMT[ms]	Limit[ms]	Verdict	
11A	5260	5.5	200+60	743	10000	PASS	
11A	5500	7.5	200+60	93	10000	PASS	
Test Graphs							
 <p>11A-5260</p> <p>Graph showing Level (dBm) vs Time (s) for 11A-5260. The plot displays a blue trace representing the signal level over time. Vertical lines indicate measurement points: T1 (red), T2 (orange), and T1 + 0.2s (purple). The graph includes a legend and a text box with the following parameters:</p> <p>CENT: 5260 MHz Span: 0 Hz RBW: 3 MHz VBW: 3 MHz Detector: Peak TraceType: Clear SweepPoint: 30001 SweepTime: 15 s Sweep: Single</p> <p>T1: 1.99s T2: 2.723s CMT: 0.743s CCT: 3.500ms</p>							
 <p>11A-5500</p> <p>Graph showing Level (dBm) vs Time (s) for 11A-5500. The plot displays a blue trace representing the signal level over time. Vertical lines indicate measurement points: T1 (red), T2 (orange), and T1 + 0.2s (purple). The graph includes a legend and a text box with the following parameters:</p> <p>CENT: 5500 MHz Span: 0 Hz RBW: 3 MHz VBW: 3 MHz Detector: Peak TraceType: Clear SweepPoint: 30001 SweepTime: 15 s Sweep: Single</p> <p>T1: 2.013s T2: 2.943s CMT: 0.93s CCT: 7.500ms</p>							

Non-Occupancy Period				
Test Mode	Frequency[MHz]	Result	Limit[s]	Verdict
11A	5260	see test graph	≥1800	PASS
11A	5500	see test graph	≥1800	PASS



11A-5260



11A-5500

7 Test Setup Photo

Reference to the **appendix I** for details.

8 EUT Constructional Details

Reference to the **appendix II** for details.



Annex A --Test Instruments list

RF conducted						
Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. cycle	Cal.Date
SST-E-RSC001	Shielding Room	BOST	543	/	3 year	2023.01.07
SST-E-RSC007	Spectrum analyzer	keysight	N9020A	MY51280659	1 year	2024.04.16
SST-E-RSC008	Analog signal source	Agilent	N5181A	MY48180054	1 year	2024.04.16
SST-E-RSC009	Vector signal source	keysight	N5172B	MY57281610	1 year	2024.04.16
SST-E-EMC007	Thermohygrometer	KTJ	TA218A	879032	1 year	2024.04.18
SST-E-RSC010	Spectrum analyzer	R&S	FSV40-N	/	1 year	2024.04.16
SST-E-RSC015-1	Power meter 1	TST	TST V2	/	1 year	2024.04.16
/	Test Software	TST PASS	TST PASS	V2.0	/	/

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