



RF Test Report



Report Number : 6128625036701
Applicant : VITA ELECTRONICS LTD
Product : TFT LCD COLOR MONITOR
PUBLIC VIEW MONITOR
Brand : clintonelectronics
Model : CE-P21E-B / CE-P21XXXXXXXXXX
FCC ID : 2AVEACE-P21-7005
:

In accordance with

FCC rule Part §15.407

RESPONSIBLE FOR	NAME	SIGNATURE	DATE
Approved By	Jack Chang		2025.10.14
Prepared By	Ariel Hsu		2025.10.14

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service control rules.

EXECUTIVE SUMMARY

TÜV SÜD Asia Ltd., reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Asia Ltd. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Asia Ltd. issued reports.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.

Contents

1	General Information	3
1.1	Report Modification Record.....	3
1.2	Introduction.....	3
1.3	Applied Standard.....	4
1.4	Deviation from standards	4
1.5	List of applied test(s) of the EUT	4
2	General EUT Information	5
2.1	Variation of family model(s).....	5
2.2	Technical Specification of EUT	6
2.3	DFS Firmware version.....	7
2.4	Antenna List	7
3	Configuration of Equipment.....	8
3.1	Equipment used	8
4	General Test Configurations	9
4.1	Carrier Frequency and Channel.....	10
4.2	Description of test mode	11
5	Test Result	12
5.1	TPC and DFS Measurement.....	12
6	Measurement Uncertainty	25
7	Photographs of the Test Set-Up	26
	Appendix A. Test Equipment	27

1 General Information

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

History of this test report

Issue	Description of Change	Date of Issue
1	Initial Issue	2025-10-14

1.2 Introduction

The information contained in this report is intended to show verification of RF qualification approval. The testing requirements of the standards for the tests listed in Section 1.5.

Applicant : VITA ELECTRONICS LTD
Address : 5F., No. 103, Chou Tze St., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)
Manufacturer : VITA ELECTRONICS LTD
Product Name : TFT LCD COLOR MONITOR
PUBLIC VIEW MONITOR
Model Number(s) : CE-P21E-B / CE-P21XXXXXXXXXX
Kernal Version : 3.10.0
michael@ubuntu-srv1 #215
Hardware Version : rk3288-userdebug 6.0.1 MXC89K user.
Michael.20250709.203015 test-keys
OS : 6.0.1
Date of Receipt of EUT : 2025-06-30
Start of Test : 2025-09-24
Finish of Test : 2025-09-24
Test Laboratory : TÜV SÜD Asia Ltd., Taiwan Branch
Address : 7F., No. 37, Sec. 2, Zhongyang S. Rd., Beitou District, Taipei City 11270, R.O.C. Taiwan
Test Location : TÜV SÜD Asia Ltd., Taiwan Branch, Guishan Laboratory
Address : No. 31, Dinghu Road, Guishan District, Taoyuan City, TAIWAN (R.O.C.)

The test facility is accredited by TAF (member of ILAC), under number 2573 according to ISO/IEC 17025: 2017.

1.3 Applied Standard

FCC rule Part §15.407
FCC Part 15, Subpart E §15.407 FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 FCC KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02

1.4 Deviation from standards

None

1.5 List of applied test(s) of the EUT

FCC rule Part §15.407			
FCC Clause	Test item	Result	Remark
§15.407(h)	TPC and DFS Measurement	Compliant	

2 General EUT Information

All information in this chapter was provided by the applicant.

2.1 Variation of family model(s)

2.1.1 List of family model(s)

Brand	Product Name	Type Identification	Difference
clintonelec tronics	PUBLIC VIEW MONITOR	CE-P21E-B	All models are electrically identical, different model names are for marketing purpose.
	TFT LCD COLOR MONITOR	CE-P21XXXXXXXXXX (clarified/ specied with it's definition)	
	PUBLIC VIEW MONITOR		

2.1.2 Reason for selection of EUT

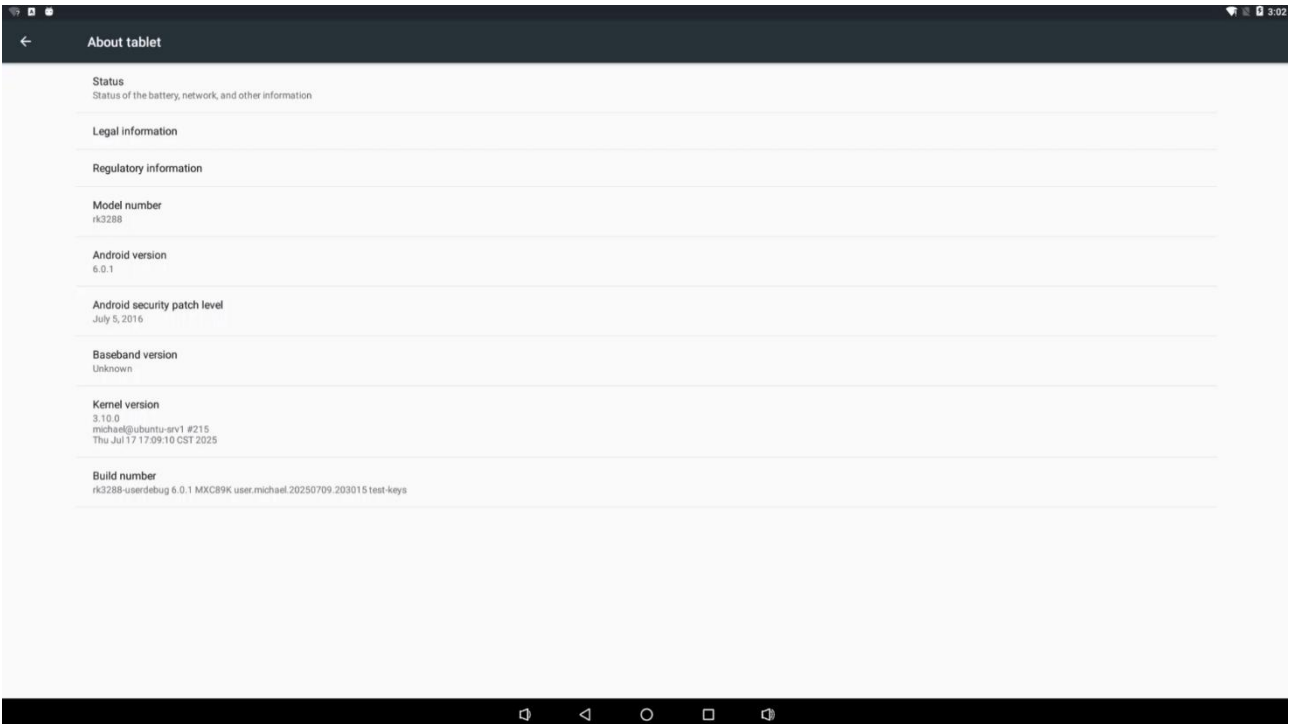
Not applicable

2.2 Technical Specification of EUT

Item	EUT information
Operating Frequency	Band 1: 5180 MHz to 5240 MHz Band 2a: 5260 MHz to 5320 MHz Band 2c: 5500 MHz to 5720 MHz Band 3: 5745 MHz to 5825 MHz
Channel number	Band 1: 4 for 20 MHz BW mode 2 for 40 MHz BW mode 1 for 80 MHz BW mode Band 2a: 4 for 20 MHz BW mode 2 for 40 MHz BW mode 1 for 80 MHz BW mode Band 2c: 12 for 20 MHz BW mode 6 for 40 MHz BW mode 3 for 80 MHz BW mode Band 3: 5 for 20 MHz BW mode 2 for 40 MHz BW mode 1 for 80 MHz BW mode
Data Rate	802.11a: up to 54 Mbps 802.11n HT20: up to 72.2 Mbps 802.11n HT40: up to 150 Mbps 802.11ac VHT20: up to 86.7 Mbps 802.11ac VHT40: up to 200 Mbps 802.11ac VHT80: up to 433.3 Mbps
Operation Voltage	24.0Vdc From Adapter
Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Maximum Output Power (mW)	5180 ~ 5240 MHz: 24.043628 5260 ~ 5320 MHz: 29.716660 5500 ~ 5720 MHz: 32.583670 5745 ~ 5825 MHz: 22.750974
Maximum EIRP (mW)	5260 ~ 5320 MHz: 42.101736 5500 ~ 5720 MHz: 47.796930



2.3 DFS Firmware version



2.4 Antenna List

Antenna Type	Brand	Model	Connector	Freq. (MHz)	Peak Antenna Gain (dBi)
PATCH	COWIN	CW-20241024100	Integral PCB Antenna	5150 – 5250	1.435
				5250 – 5350	1.513
				5470 – 5725	1.664
				5725 - 5850	1.173

3 Configuration of Equipment

3.1 Equipment used

No.	Equipment	Brand	Model No.	FCC ID/DoC	Comment
1	802.11ax wireless Router	NETGEAR	RAXE500	PY318300455	5G Ant gain:5dB

NOTE: This device was functioned as a ☒ Master ☐ Slave device during the DFS test.

No.	Equipment	Model No.	Software/Firmware Version
1	Tri-Band WiFi 6E Router	RAXE500	V1.2.13.100_2.1.46.1

Software/Firmware Information.

4 General Test Configurations

The EUT has been tested under Transmitting and Receiving condition. And used to control the EUT for staying in engineering mode that enables selectable of channel, and capable of continuous transmitting and constant receiving mode.

Remark: All applicable test items were tested based on the combination of modulation scheme that generates the worst case.

4.1 Carrier Frequency and Channel

Band	Channel	Frequency (MHz)	802.11a 802.11n HT20 802.11ac VHT20	802.11n HT40 802.11ac VHT40	802.11ac VHT80
U-NII-1 (Band 1)	36	5180	V		
	38	5190		V	
	40	5200	V		
	42	5210			V
	44	5220	V		
	46	5230		V	
	48	5240	V		
U-NII-2A (Band 2)	52	5260	V		
	54	5270		V	
	56	5280	V		
	58	5290			V
	60	5300	V		
	62	5310		V	
	64	5320	V		
U-NII-2C (Band 3)	100	5500	V		
	102	5510		V	
	104	5520	V		
	106	5530			V
	108	5540	V		
	110	5550		V	
	112	5560	V		
	116	5580	V		
	118	5590		V	
	120	5600	V		
	122	5610			V
	124	5620	V		
	126	5630		V	
	128	5640	V		
	132	5660	V		
	134	5670		V	
	136	5680	V		
	140	5700	V		
Straddle Channel	138	5690			V
	142	5710		V	
	144	5720	V		
U-NII-3 (Band 4)	149	5745	V		
	151	5755		V	
	153	5765	V		
	155	5775			V
	157	5785	V		
	159	5795		V	
	161	5805	V		
	165	5825	V		

4.2 Description of test mode

EUT operates over the 5250-5350MHz and 5470-5725MHz ranges and EUT is a slave device (client equipment) w/o radar detection and DFS capability.

EUT has no TPC mechanism implemented, the level of output power stays at fixed and not adjustable.

WLAN traffic is generated by streaming the mpeg file from the master to slave in full monitor video mode using the media player.

The rated output power of the master unit is ≥ 23 dBm (EIRP). therefore, the required interference threshold level is -64dBm. after correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is -64dBm.

The rated output power of the master unit is < 23 dBm (EIRP). therefore, the required interference threshold level is -62dBm. after correction for antenna gain and procedural adjustments, the required threshold at the antenna port is -62dBm.

While calibrate the path on antenna port of DFS test equipment (master), measurements equipment (spectrum) is ensured to be 50 Ohms, and therefore verification on antenna gain measurement can be ignored.

Message or files that is used for communication between Master and Client:

IP based system:

For the required channel loading, send packets via software to reach a pay load of at least 17%, via the DFS Master device to the UE.

5 Test Result

5.1 TPC and DFS Measurement

According to Part 15.407 (h)(1) Transmit power control (TPC). U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

Result: N/A, TPC is not required.

5.1.1 Antenna Requirement

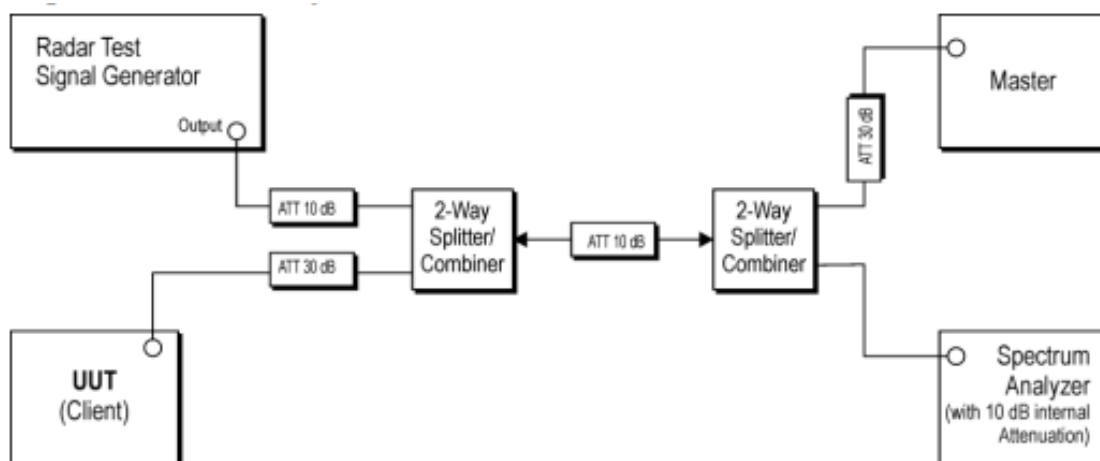
According to §15.407(h)(2) and FCC KDB 905462 D02 , Radar Detection Function of Dynamic Frequency Selection (DFS).

Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating with any part of its 26 dB emission bandwidth in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems. Operators shall only use equipment with a DFS mechanism that is turned on when operating in these bands. The device must sense for radar signals at 100 percent of its emission bandwidth. The minimum DFS detection threshold for devices with a maximum e.i.r.p. of 200 mW to 1 W is -64 dBm. For devices that operate with less than 200 mW e.i.r.p. and a power spectral density of less than 10 dBm in a 1 MHz band, the minimum detection threshold is -62 dBm. The detection threshold is the received power averaged over 1 microsecond referenced to a 0 dBi antenna. For the initial channel setting, the manufacturers shall be permitted to provide for either random channel selection or manual channel selection.

1. Operational Modes. The DFS requirement applies to the following operational modes:
 - a. The requirement for channel availability check time applies in the master operational mode.
 - b. The requirement for channel move time applies in both the master and slave operational modes.
2. Channel Availability Check Time. A U-NII device shall check if there is a radar system already operating on the channel before it can initiate a transmission on a channel and when it has to move to a new channel. The U-NII device may start using the channel if no radar signal with a power level greater than the interference threshold values listed in paragraph (h)(2) of this section, is detected within 60 seconds.
3. Channel Move Time. After a radar's presence is detected, all transmissions shall cease on the operating channel within 10 seconds. Transmissions during this period shall consist of normal traffic for a maximum of 200 ms after detection of the radar signal. In addition, intermittent management and control signals can be sent during the remaining time to facilitate vacating the operating channel.
4. Non-occupancy Period. A channel that has been flagged as containing a radar system, either by a channel availability check or in-service monitoring, is subject to a non-occupancy period of at least 30 minutes. The non-occupancy period starts at the time when the radar system is detected.

5.1.2 Test Setup

Setup for Client with injection at the Master (Conducted)



5.1.3 Limit

Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission time	Yes	Yes
Channel Move time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth mode	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required

Note:

Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

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.	

Table 4: 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: <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel move</i> (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 <i>U-NII Detection Bandwidth</i> 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.	

Table 5: Radar Test Waveforms

Short Pulse Radar

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 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	$\text{Roundup} \left\{ \left(\frac{1}{360} \right) \cdot \left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \right\}$	60%	30
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.					

Long Pulse Radar

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

Frequency Hopping Radar

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

Note:

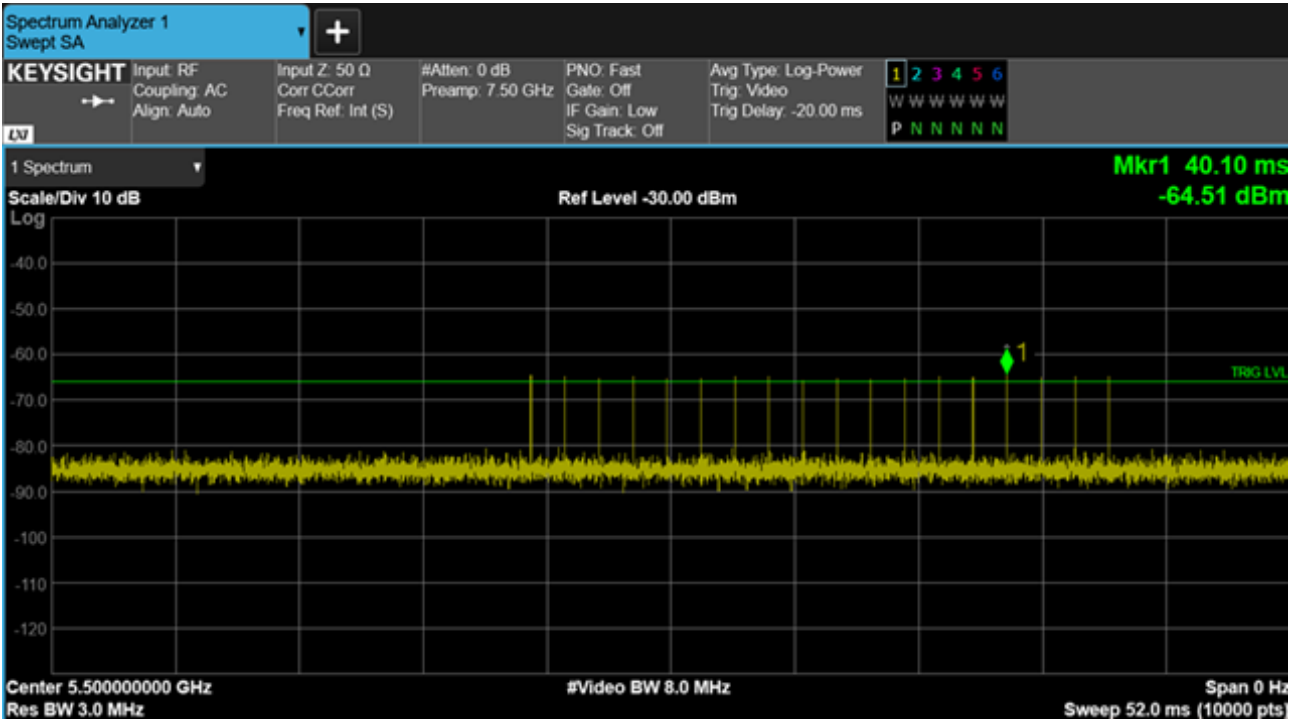
The applicant of this given application confirms that information regarding the parameters of the detected Radar Waveforms is not available to the end user.



5.1.4 Measurement result

Radar waveforms

Radar type 0





WLAN traffic





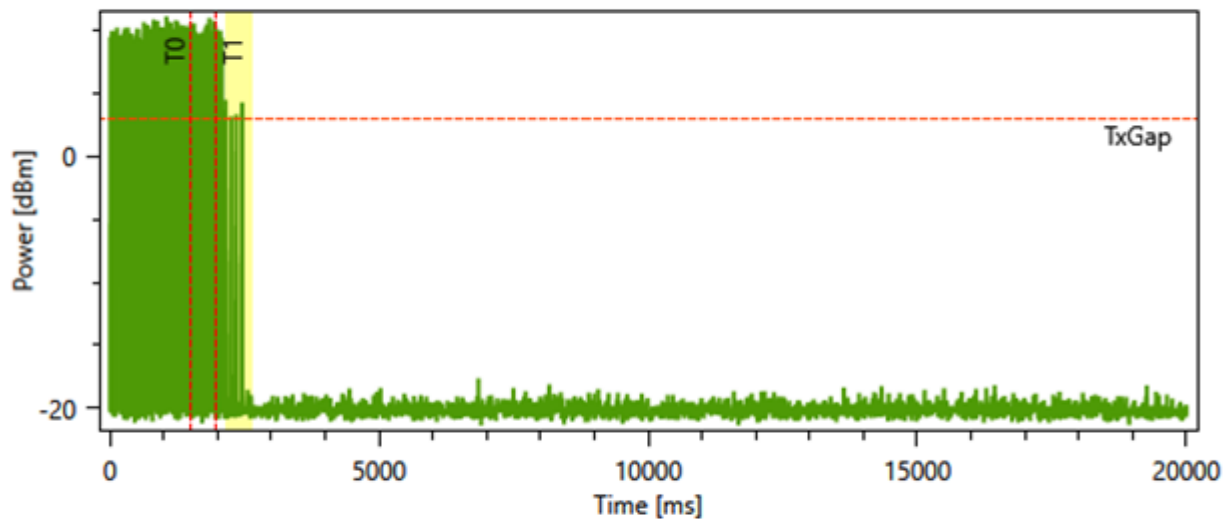
Channel closing transmission and Move time

Channel Shutdown Result				
Detection Threshold Level (dBm)			-64	
Modulation Mode	Freq. (MHz)	Radar Test Signal	Channel Closing Transmission Time(ms) 200ms~10sec	Channel Move Time(s)
VHT20	5500	Type 0	1.5	0.5
VHT40	5510	Type 0	50	0.915
VHT80	5530	Type 0	40	2.365
Limit			60 ms	10 sec
Result			Complied	

Channel Move and Closing Transmission Time - 1

Frequency: 5500MHz

Radar Type : FCC-13-22_type0[0]



Data

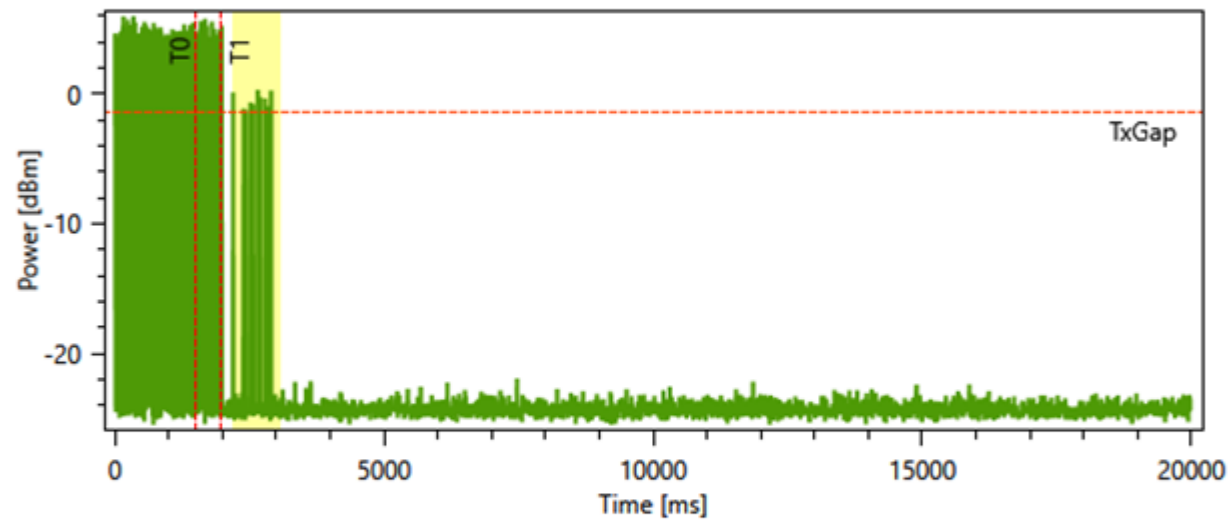
Amplitude (dBm)	-49
Channel Move Time (s)	0.5
Channel Closing Tx Time (s)	0.0015



Channel Move and Closing Transmission Time - 2

Frequency :	5510MHz
-------------	---------

Radar Type : FCC-13-22_type0[0]



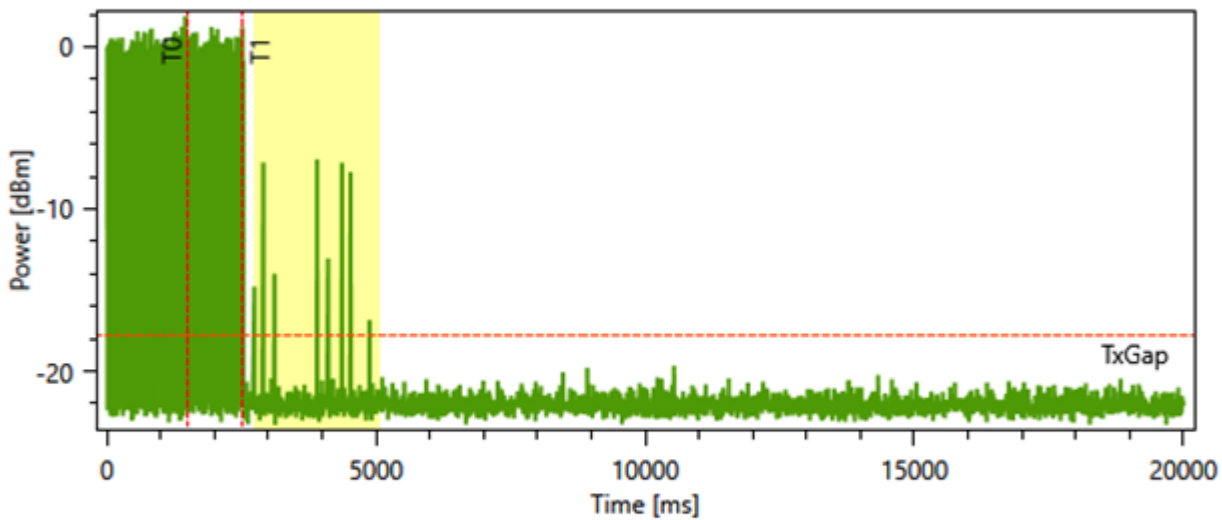
Data	
Amplitude (dBm)	-49
Channel Move Time (s)	0.915
Channel Closing Tx Time (s)	0.05



Channel Move and Closing Transmission Time – 3

Frequency:	5530MHz
------------	---------

Radar Type : FCC-13-22_type0[0]

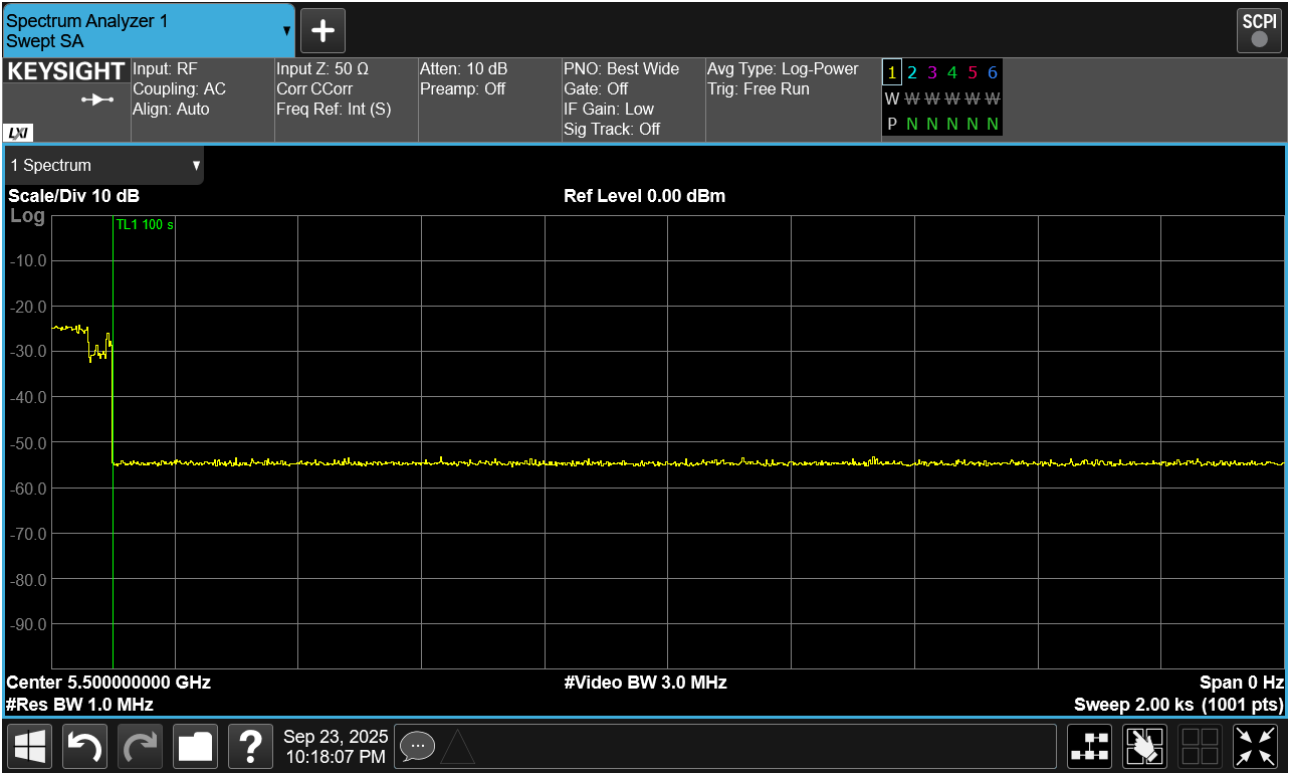


Data	
Amplitude (dBm)	-49
Channel Move Time (s)	2.365
Channel Closing Tx Time (s)	0.04

Verdict: Note: narrowing the sweep time as the good engineering process for the verification of transmission closing in 200ms



Non-occupancy Period (without radar detection)



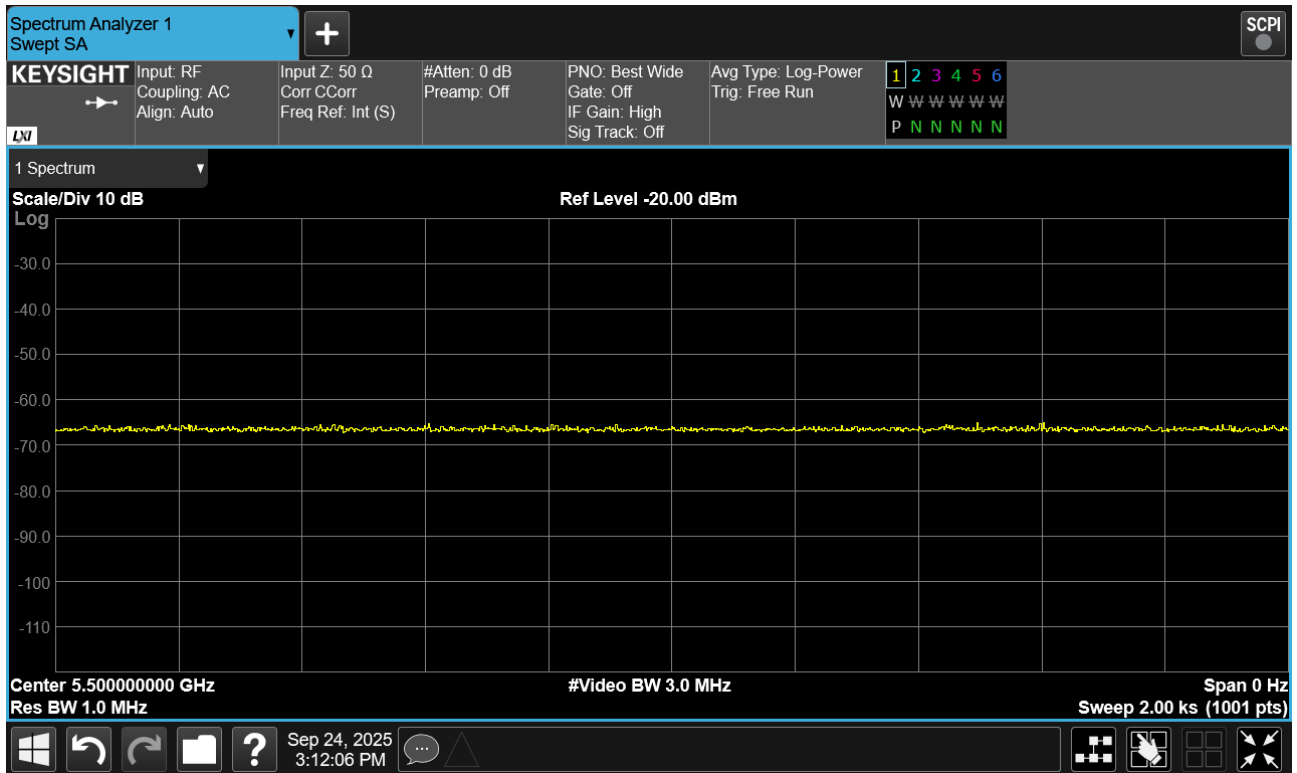
Verdict: To verify whether channel is unavailable to be operated in 30 minutes.

2.0ks = 2000s = 2000 s/min /60 > 30minute

Non-Associated Test

Master was off.

During the 30 minutes observation time, The UUT did not make any transmissions in the DFS band after UUT power up.



Verdict: To verify whether channel is unavailable to be operated in 30 minutes.

2.0ks = 2000s = 2000 s/min /60 > 30minute

6 Measurement Uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

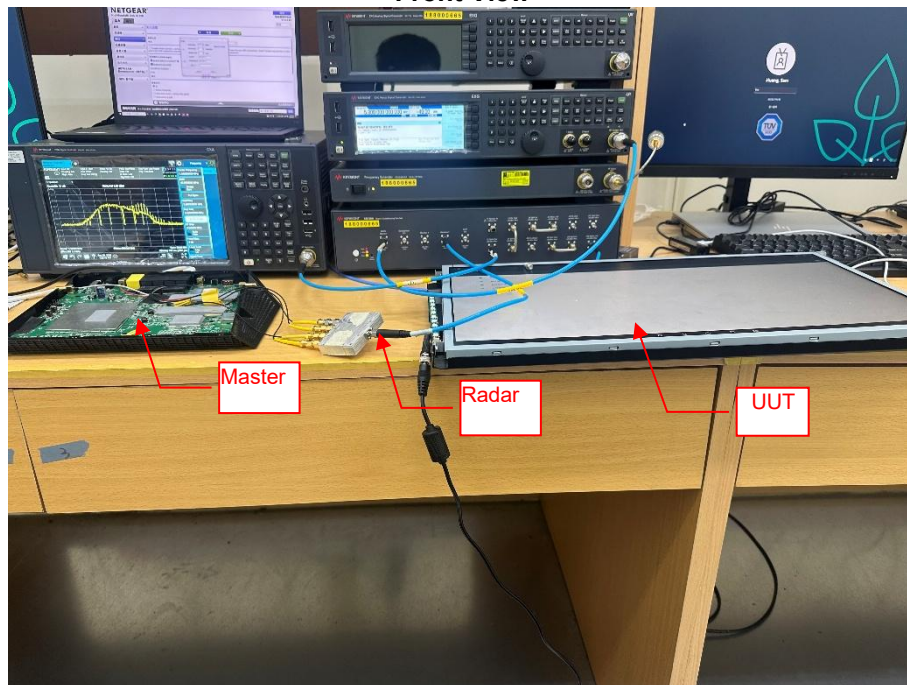
The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

Test Items	Measurement uncertainty
TPC and DFS Measurement	$\pm 1.04\text{Hz}$
Temperature	$\pm 0.7\text{ }^{\circ}\text{C}$
Humidity	$\pm 3\%$
DC / AC Power Source	$\pm 1\%$

7 Photographs of the Test Set-Up

Set-up for Spurious Emissions (Front View)

Front View





Appendix A. Test Equipment

Test Software	Manufacturer	Model No.	Version	Remark
Test Software	Keysight	IOT0047A	24.11.25.17	Conducted

Test Equipment Used (DFS)

Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
Spectrum Analyzer	Keysight	N9000B	MY62361242	Jul. 10, 2025	1 Year
Signal Generator	Keysight	N5172B	MY61253223	Jul. 08, 2025	1 Year
4Way Divider	Woken	0120A04208001S	NCR	NCR	NCR