

ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E DFS TEST REPORT

OF

	Panasonic Corporation of North America
FCC Applicant:	Two Riverfront Plaza, 9th Floor, Newark, NJ 07102-5490
Product Name:	Tablet Computer
Brand Name:	Panasonic
Marketing Name:	FZ-L1
Model No.:	FZ-L1AA
Model Difference:	N/A
FCC ID:	ACJFZL1B
Report No.:	ER/2018/B0034
FCC Rule Part:	§15.407, Cat: NII
Issue Date:	Dec. 20, 2018
Date of Test:	Nov. 15, 2018 ~ Nov. 27, 2018
Date of EUT Received:	Nov. 15, 2018
We hereby certify that:	

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits.

The test results of this report relate only to the tested sample identified in this report.

Tested By:

Louis Chen / Sr. Engineer

Approved By:

Jazz Huang / Asst. Supervisor



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Revision History

Report Number	Revision	Description	Effected Page	Issue Date	Revised By
ER/2018/B0034	Rev.00	Initial creation of docu- ment	All	Dec. 12, 2018	Violetta Tang
ER/2018/B0034	Rev.01	Update information for chapter 1	4	Dec. 20, 2018	Violetta Tang



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No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路 134 號 SGS Taiwan Ltd.



GENERAL INFORMATION 1

1.1 Product Description

General:

_			
Product Name:	Tablet Computer		
Brand Name:	Panasonic		
Model No.:	FZ-L1AA		
Model Difference:	N/A		
Product HW/SW version:	C-NA-002 / 15-02-521-008		
Radio HW/SW version:	N/A / MSM8909.LA.3.0.1		
	3.8V from Rechargeable Li-ion Battery or 5V from AC/DC Adapter		
Power Supply:	Battery: Model No.: FZ-VZSUT10U, Supplier: Panasonic		
	1. Model No.: FZ-AAE184EE, Supplier: PanasonicAdapter:2. Model No.: FZ-AAE184EG, Supplier: Panasonic3. Model No.: FZ-AAE184EM, Supplier: Panasonic		

FCC WLAN 5GHz:

WLAN	Frequency Range	Channels	Avg. Power (dBm)	Modulation Technology
	5150~5250	4	12.67	
110.00	5250~5350	4	15.75	
11a_20	5470~5725	12	15.81	OFDM
	5725~5850	5	15.77	
	5150~5250	4	12.75	
	5250~5350	4	14.77	OFDM
11n_HT20M	5470~5725	11	14.84	OFDIVI
	5725~5850	5	14.86	
	5150~5250	2	12.83	
	5250~5350	2	12.93	OFDM
11n_HT40M	5470~5725	5	12.53	
	5725~5850	2	12.64	
Modulation type 64QAM, 16QAM, QPSK, BPSK for OFDM		or OFDM		
802.11 a: 6/9/12/18/24/36/48/54 Mbps Transition Rate: 802.11 n_20MHz: 6.5 - 72.2Mbps 802.11 n 40MHz: 13.5 - 150Mbps		;		
Antenn	Antenna Designation: Monopole Antenna, Gain: 0dBi			



1.2 Test Methodology of Applied Standards

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

All test items have been performed and record as per the above standards.

1.3 Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803 (TAF code 0513)

FCC Registration Numbers and Designation number are: 509634 / TW0001

1.4 Special Accessories

There are no special accessories used while test was conducted.

1.5 Equipment Modifications

There was no modification incorporated into the EUT.

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SUMMARY OF TEST RESULT 2

FCC Rules	Description Of Test	Result
§15.407(h)	TPC and DFS Measurement	Compliant

MEASUREMENT UNCERTAINTY 3

Test Items	Uncertainty
TPC and DFS Measurement	+/- 123.36 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC=+/- 0.2%

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



4 TPC AND DFS MEASUREMENT

4.1 TPC: Standard Applicable

According to §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.

4.1.1 Result: N/A, The output power is less than 500mW.

4.2 DFS: Standard Applicable

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.

(i) 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.

(ii) 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.

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(iii) 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.

(iv) 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.

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4.2.1 Limit

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

	Operational Mode		
Requirement	Master	Client(without radar detection)	Client(with radar detection)
Non-occupancy Period	Yes	Not required	Yes
DFS Detection Thresh- old	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

	Operational Mode		
Requirement	Master Device or Client with Radar Detection	Client Without Radar Detection	
DFS Detection Threshold	Yes	Not required	
Cannel 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 Band- width and Statistical Performance Check	All BW modes must be tested	Not required		
Channel Move Time and Channel Closing Trans- mission Time	Test using widest BW mode availableTest using the widest BW mode available			
All other tests Any single BW mode Not required				
clude several frequencies w edge of the radar detection l	for statistical performance cheorithin the radar detection bandwi bandwidth. For 802.11 devices ded 20 MHz channels and the or	dth and frequencies near the it is suggested to select fre-		

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

Maximum Transmit Power	Value
	(See Notes 1, 2, and 3)
$EIRP \ge 200 \text{ milliwatt}$	-64 dBm
EIRP < 200 milliwatt and	-62 dBm
power spectral density < 10 dBm/MHz	
EIRP < 200 milliwatt that do not meet the power spectral	-64 dBm
density requirement	
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	
transmission waveforms to account for variations in measurement eq	-
test signal is at or above the detection threshold level to trigger a DFS	
Note3: EIRP is based on the highest antenna gain. For MIMO device	es refer to KDB Publication 662911
D01.	



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

Table 4: DFS Response requirement values

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.

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Table 5: Radar Test Waveforms

Short Pulse Radar

Radar	Pulse	PRI	Number of Pulses	Minimum	Minimum
Туре	Width	(µsec)	1100000100100000	Percentage of	Number
1)100	(µsec)	(µsee)		Successful	of
	(µsee)			Detection	Trials
0	1	1428	18	See Note 1	See Note
v	1	1420	10	See Note 1	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	$\operatorname{Roundup} \left\{ \begin{pmatrix} \frac{1}{360} \end{pmatrix} \cdot \\ \begin{pmatrix} \frac{19 \cdot 10^6}{\text{PRI}_{\mu \text{sec}}} \end{pmatrix} \right\}$	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: Sho		ar Type 0 should be u	sed for the detection ba	ndwidth test, ch	annel move

Long Pulse Radar

Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Number of Pulses per Burst	Number of <i>Bursts</i>	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	Minimum Percentage of Successful	Minimum Number of Trials
					(msec)	Detection	
6	1	333	9	0.333	300	70%	30

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

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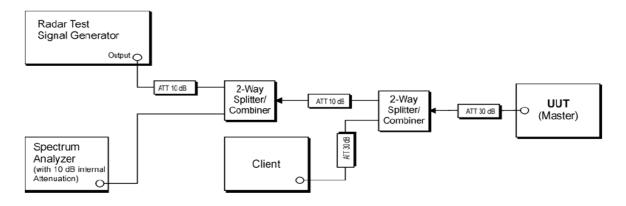
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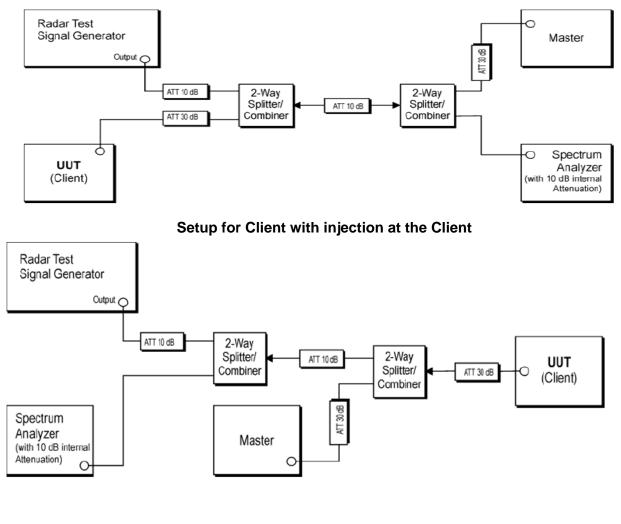


4.2.2 Test Setup

Setup for Master with injection at the Master



Setup for Client with injection at the Master



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4.2.3 Test Equipment Used:

		DFS Test S	ite		
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUM- BER	LAST CAL.	CAL DUE.
PXA Spectrum Analyzer	Agilent	N9030A	MY53120760	04/09/2018	04/08/2019
Signal Generator	Agilent	N5172B	MY53050661	04/05/2018	04/04/2019
Power Splitter	Mini-Circuits	ZN2PD-9G-S+	N/A	01/02/2018	01/01/2019
Power Splitter	Mini-Circuits	ZN2PD-9G-S+	N/A	01/02/2018	01/01/2019
Attenuator	Agilent	8495B	3308A22470	01/02/2018	01/01/2019
Attenuator	HP	8494B	2812A170605	01/02/2018	01/01/2019
Notebook	Lenovo	T440P	P0000564	N/A	N/A
Access Point	Cisco	AIR-LAP1262N -A-K9	FTX1605E1G1 FCC ID:LDK102073	N/A	N/A

4.2.4 Description of EUT:

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 with no adjustment of lowest, and highest power, but the level of power emission stays at fixed level.

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 >23dBm(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, and the master device as employed for the applicable DFS test is CISCO router whose FCC ID= LDK102061

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

Conducted test was performed with appropriate adjustment, and calibration to ensure power from DFS simulator injects to antenna port of DFS test equipment (DFS) is -64dBm

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

IP based system:

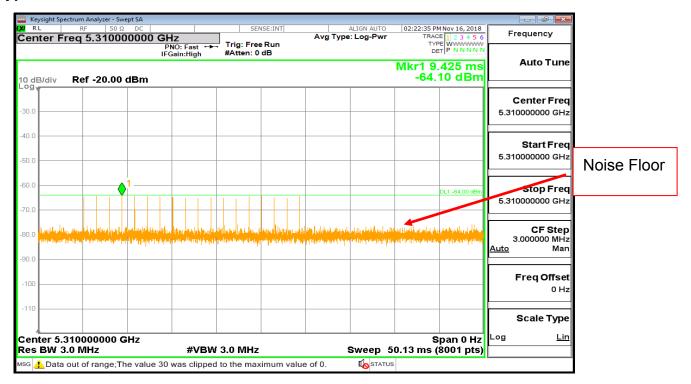
For the required channel loading, the full motion, 30 frames per second MPEG video file from http://ntiacsd.ntia.doc.gov/dfs/ was streamed from a network on a test bench (server of the storage to download the mandatory format of Video file), via the DFS Master device, to the UE (mobile phone).

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4.2.5 Test results Calibration plots for each of the required radar waveforms 5310 Radar type 0



Radar type 1 A

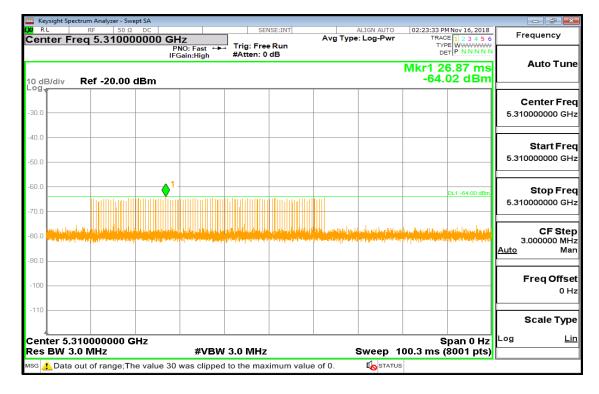


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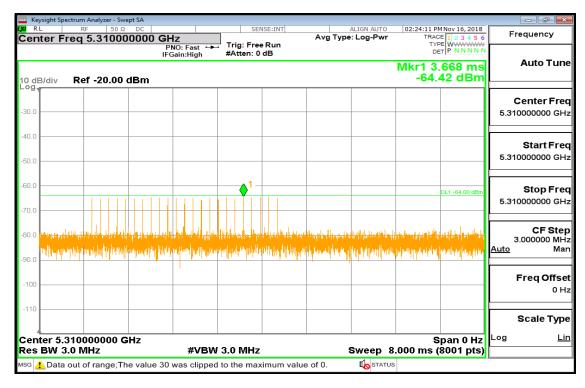
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Radar type 1 B



Radar type 2



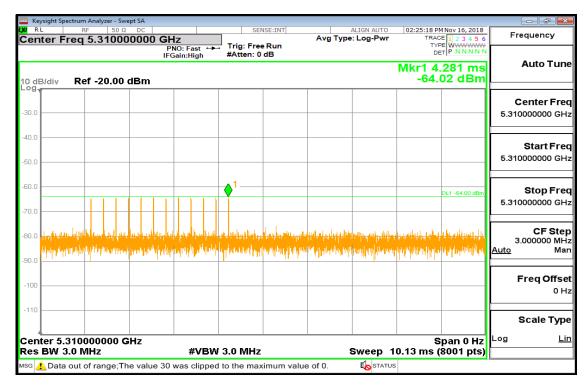
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Radar type 3

PNO: Fast →→ Trig: Free Run IO dB/div Ref -20.00 dBm #Atten: 0 dB -30.0	ALIGN AUTO		Frequency Auto Tune Center Freq 5.31000000 GHz Start Freq 5.31000000 GHz Stop Freq 5.31000000 GHz
		оет/Р NNNN Mkr1 1.439 ms -64.01 dBm	Center Freq 5.31000000 GHz Start Freq 5.31000000 GHz Stop Freq
-30.0 -40.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -50.0 -5		DL1 -64.00 dBm	5.31000000 GH2 Start Frec 5.31000000 GH2 Stop Frec
-50.0 -60.0 -60.0 -70.0 -80.0 -70.0 -80.0 -70.0 -80.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0		DL1 -64.00 dBm	5.310000000 GH: Stop Free
-70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0 -70.0		DL1 -64.00 dBm	
the present of the second states of the states and the second states and a state and the second states are second states as the			
		formul Alice for a state base of the product of a line of Office of the state of the place of the product of the state of	СF Ste 3.000000 МН <u>Auto</u> Ма
-100			Freq Offse 0 ⊢
Center 5.310000000 GHz Res BW 3.0 MHz #VBW 3.0 MHz	Sweep	Span 0 Hz 10.13 ms (8001 pts)	Scale Type

Radar type 4



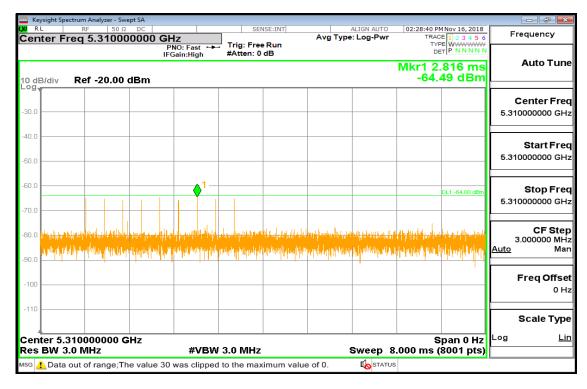
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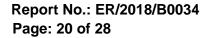
Radar type 5

	ectrum Analyzer - Swep	ot SA							
X RL Center F	RF 50 Ω			SENSE:INT	Avg Typ	ALIGN AUTO e: Log-Pwr	TRAC	E 1 2 3 4 5 6	Frequency
10 dB/div	Ref -20.00 c	PNO: Fast IFGain:High		Free Run 1: 0 dB			ΔMkr2	11.55 s 0.30 dB	Auto Tun
-30.0 -40.0 -50.0									Center Fre 5.310000000 GH
50.0 60.0 70.0 80.0	X 3							2 <u>03</u> DE1 -64.00 dBm	Start Fre 5.310000000 GI
90.0 -100 -110									Stop Fr 5.310000000 G
Center 5. Res BW 3			BW 3.0 MI		NCTION FU	Sweep	15.00 s (pan 0 Hz 8001 pts) N VALUE	CF Ste 3.000000 M <u>Auto</u> M
1 Ν 2 Δ3 3 F 4 5 6	1 t 1 t (Δ) 1 t	7.817 s 11.55 s 1.862 s	-64.04 (Δ) -0. -64.38	30 dB				E	Freq Offs 0
8 9 10									Scale Ty
11								-	Log <u>L</u>
мsg 🤔 Data	a out of range;The	e value 30 was clip	m oped to the n	naximum val	ue of 0.		s	•	

Radar type 6

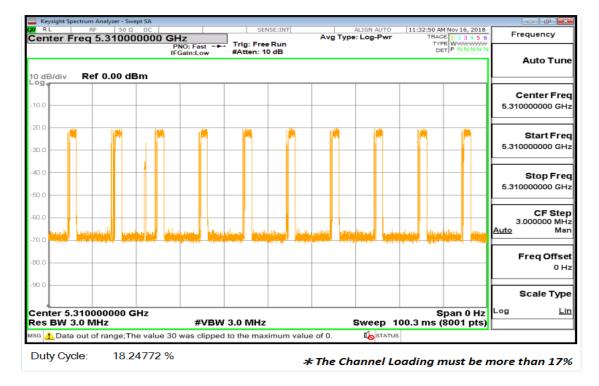


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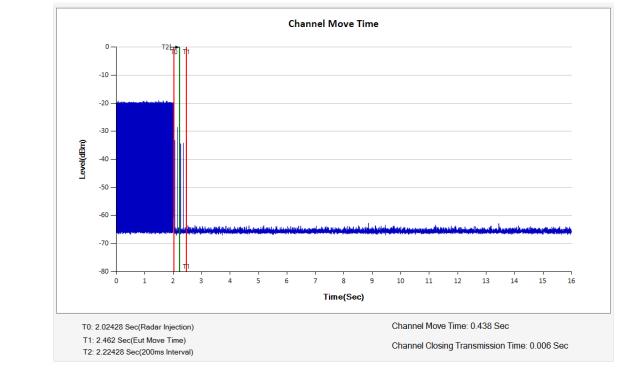
WLAN traffic



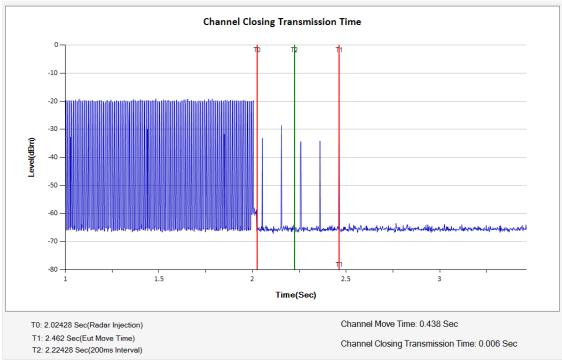
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Radar Type 1 Channel Move Transmission Time



Radar Type 1 Channel Closing Transmission Time



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

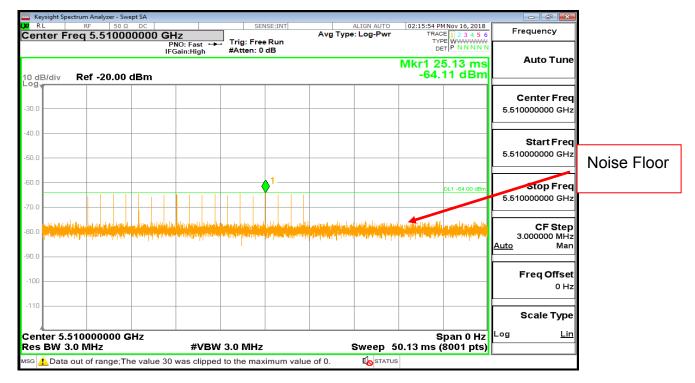
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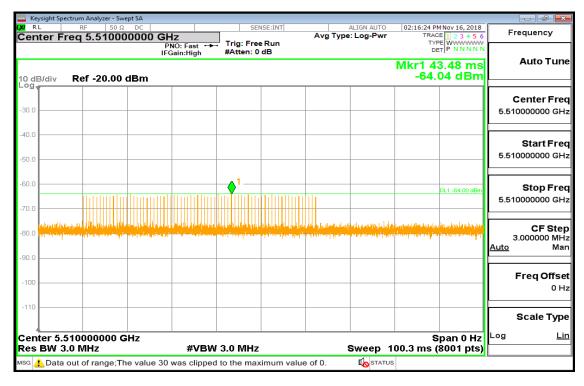
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5510 Radar type 0



Radar type 1 A



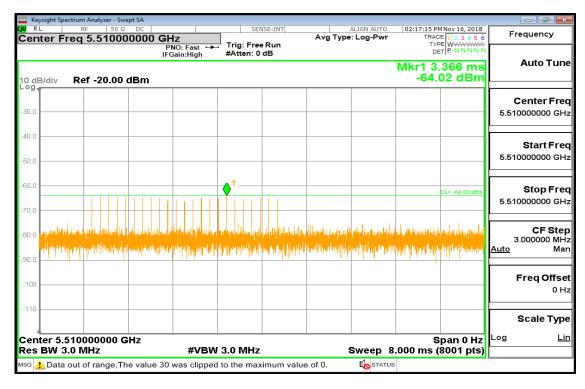
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Radar type 1 B

Mining Center Fm -300 -64.10 dBm -40.0 -1 -40.0 -1 -40.0 -1 -40.0 -1 -40.0 -1 -40.0 -1 -40.0 -1 -40.0 -1 -40.0 -1 -40.0 -1 -40.0 -1 -40.0 -1 -40.0 -1 -40.0	Keysight Spectrum Analyzer					
PNO: Fast					TRACE 1 2 3 4 5 6	Frequency
30.0 Center Fr 40.0 Start Fr 5.510000000 G Start Fr	10 dB/div Ref -20.	PNO: Fast ↔ IFGain:High			Mkr1 23.53 ms	Auto Tun
						Center Fre 5.510000000 GH
Image: Constraint of the second of the se						Start Fre 5.510000000 G⊦
-60.0 The second					DL1 -64.00 dBm	Stop Fre 5.510000000 G⊦
	80.0 <mark>YEEFE MAN AND AND AND AND AND AND AND AND AND A</mark>				si na minana ang santana asalaha	CF Ste 3.000000 MH <u>Auto</u> Ma
Scale Ty	-100					Freq Offs 0 I
Center 5.510000000 GHz Span 0 Hz	-110					Scale Typ
Res BW 3.0 MHz #VBW 3.0 MHz Sweep 100.3 ms (8001 pts)			3.0 MHz	Sweep 1	Sparronz	Log <u>Li</u>

Radar type 2



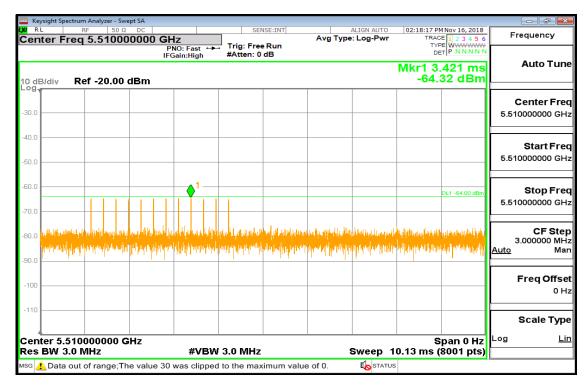
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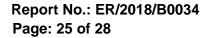
Radar type 3

	ysight Spec	trum A	nalyzer	r - Swe	pt SA																						×
Cen	ter Fr	eq 5		50 Ω 000	DC						T		ENSE				Avg			AUTO J-Pwr		TF	RACE 1	0v 16, 2018		Frequency	/
10 dE		Ref	-20.	.00 d	dBn		PNO: FGair					j: Fr ten:									N	Ikr1	DET F	45 ms dBm		Auto T	une
-30.0																									5.	Center F 510000000	
-40.0 -50.0																									5.	Start F 510000000	
-60.0 -70.0													,1										DL1	1 -64.00 dBm	5.	Stop F 510000000	
-80.0																								logitualis. Antipante		CF S 3.000000	
-100																										Freq Of	ffse 0⊦
	ter 5.5 BW 3.			10 G	Hz			#	VBI	N 3	.0 1	мн	z					5	Swe	ep	10.			an 0 Hz 101 pts)	Log	Scale T	Г ур <u>Li</u>
	BW 3. Data d			e;Th	e va	lue 3	0 wa					_	_	nur	n valu	le c	of 0.	S		STATU	_	13 ms	s (80	01 pts)			_

Radar type 4



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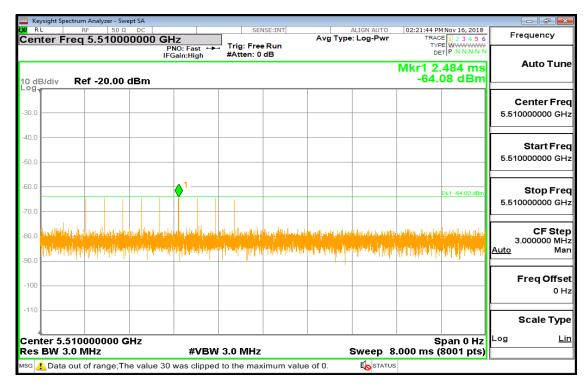




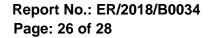
Radar type 5

	oectrum Analyzer - Swej	pt SA							
Center F	RF 50 Ω	0000 GHz		SENSE:INT	Avg Typ	ALIGN AUTO e: Log-Pwr	TRAC	Nov 16, 2018 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref -20.00 (PNO: Fast IFGain:High		ree Run : 0 dB			ΔMkr2	11.55 s 0.30 dB	Auto Tun
-30.0									Center Fre 5.510000000 GH
-50.0 -60.0 -70.0	×3	ikinen delation of any Advantion						2 <u>03</u> bt1-64.00 dBm	Start Fre 5.510000000 GF
90.0 -100 -110									Stop Fr 5.510000000 G
Center 5. Res BW 3			BW 3.0 MH			Sweep	15.00 s (pan 0 Hz 8001 pts) N VALUE	CF Ste 3.000000 Mi <u>Auto</u> Mi
1 Ν 2 Δ3 3 F 4 5 6	1 t 1 t (Δ) 1 t	5.589 s 11.55 s 1.862 s	-64.08 (Δ) 0.: -64.86	30 dB				E	Freq Offs 0
7 8 9									Scale Ty
10 11								-	Log <u>L</u>
	a out of range;The	e value 30 was clip		naximum val	ue of 0.		5		

Radar type 6

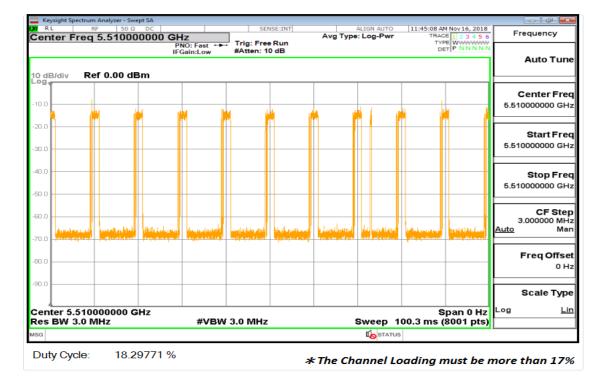


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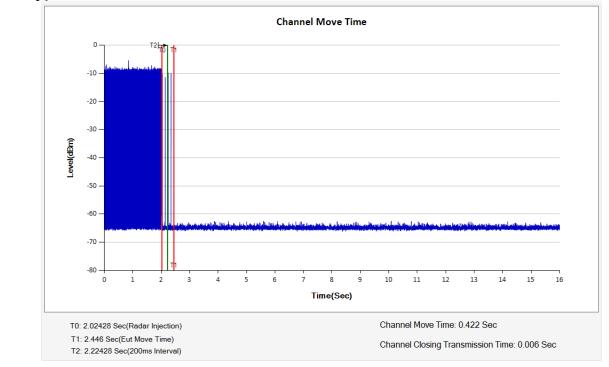
WLAN traffic



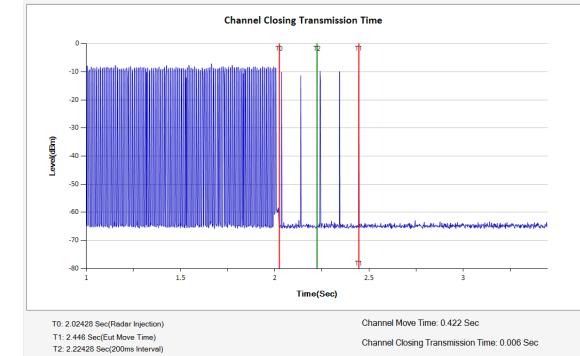
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Radar Type 1 Channel Move Transmission Time



Radar Type 1 Channel Closing Transmission Time



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

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Non-occupancy Period (without radar detection)

	pectrum Analyzer - Sv						
Center	RF 50 C				ALIGN AUTO Type: Log-Pwr	12:18:48 PM Nov 16, 2018 TRACE 1 2 3 4 5 6 TYPE WWWWW	
10 dB/div	Ref 0.00 d	IFGain:Lo		0 dB		<u>Det</u> PNNNN ΔMkr1 1.800 ks -52.51 dB	Auto Tune
-10.0 -20.0	×2						Center Freq 5.51000000 GHz
-40.0						1Δ2	Start Freq 5.510000000 GHz
-70.0 -80.0 -90.0							Stop Freq 5.51000000 GHz
Center 5 Res BW			VBW 3.0 MHz	FUNCTION	Sweep	Span 0 Hz 2.000 ks (8001 pts)	CF Step 3.000000 MHz <u>Auto</u> Man
1 Δ2 2 F 3 4 5	1 t (Δ) 1 t	1.800 ks 97.75 s		dB			Freq Offset
7 8 9							Scale Type
10 11							Log <u>Lin</u>
MSG					I o statu		μ

Verdict: To verify whether channel is unavailable to be operated in 30 minutes. 1.8ks = 1800s = 1800 s/min /60 = 30minute

~ End of Report ~