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1. Dynamic Frequency Selection (DFS)

Summary

Test	Frequency (MHz)	Nominal Bandwidth (MHz)	Result
DFS In-Service Monitoring	5310.000	40.000000	PASS
DFS In-Service Monitoring	5510.000	40.000000	PASS

DFS In-Service Monitoring (5310 MHz; 23.000 dBm; 40 MHz)

Test according to FCC title 47 part 15 §15.407(h), KDB 905462 D02 U-NII DFS Compliance Procedures New Rules v02

Measurement Summary

DUT Frequency (MHz)	Radar Type No.	Type of Measurement value	Overall Result
5310.000000	0	First of all Transmitt Test	---
5310.000000	0	Channel Move Time	PASS
5310.000000	0	Channel Closing Transmission Time	PASS
5310.000000	0	Non-occupancy period	PASS

(continuation of the "Measurement Summary" table from column 4 ...)

DUT Frequency (MHz)	Overall Comment
5310.000000	not performed / not finished
5310.000000	
5310.000000	
5310.000000	

Channel Move Time Detailed Results

DUT Frequency (MHz)	Radar Type No.	CMT Tx Time (s)	CMT Limit (s)	CMT Result
5310.000000	0	0.000	10.000	PASS

(continuation of the "Channel Move Time Detailed Results" table from column 5 ...)

DUT Frequency (MHz)	CMT Comment
5310.000000	Tx Time value is last trailing edge found within sweep. See Note 1.

Channel Closing Transmission Time Detailed Results

DUT Frequency (MHz)	Radar Type No.	CCTT Type of Value	CCTT No. of Pulses found	CCTT Tx Time (ms)
5310.000000	0	first 200 ms	0	0.000
5310.000000	0	remaining 10.0 second(s) period	0	0.000

(continuation of the "Channel Closing Transmission Time Detailed Results" table from column 5 ...)

DUT Frequency (MHz)	CCTT Tx Time Limit (ms)	CCTT Result	CCTT Comment
5310.000000	200.000	PASS	See Note 1.
5310.000000	60.000	PASS	See Note 1.

Non-occupancy period Detailed Results

DUT Frequency (MHz)	Radar Type No.	NOP No. of Pulses found	NOP No. of Pulses Limit	NOP Tx Time (s)	NOP Tx Time Limit (s)
5310.000000	0	0	0	0.000	0.000

(continuation of the "Non-occupancy period Detailed Results" table from column 6 ...)

DUT Frequency (MHz)	NOP Result
5310.000000	PASS

Transmitting Test Detailed Results

DUT Frequency (MHz)	Tx-Test Result	Tx-Test Comment
5310.000000	---	not performed / not finished

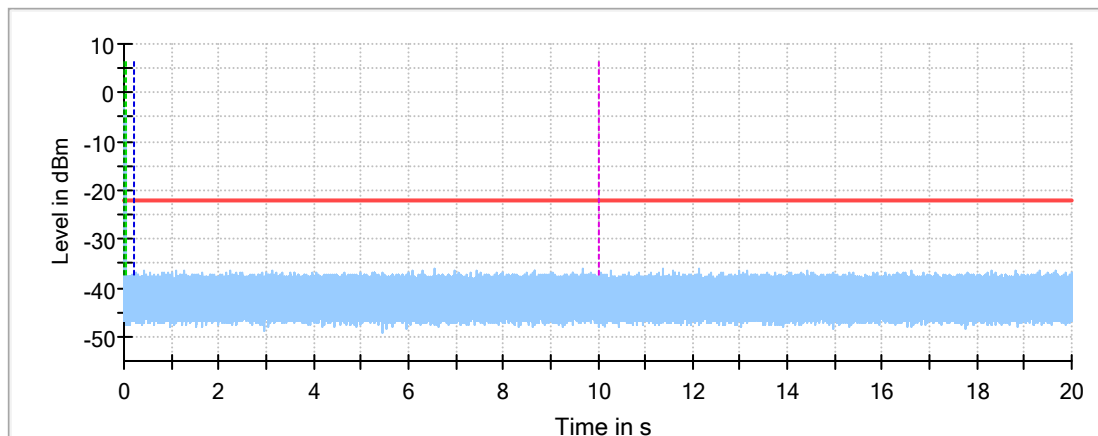
Radar level verification

Description / Formula	Value	Unit
IF(({DFS Mode(0/1/2)}=0)or({DFS Mode(0/1/2)}=1) , IF((dBm2W({Nominal Power[dBm]}>0.2) , -64 , IF({Configured PSD[dBm]}<10) , -62 , -64))+ {Attenuation Vector Generator to DUT[dB]} , -50+ {Attenuation Vector Generator to COMP[dB]}+ {Radar Signal Level Offset[dB]})	Given setting / formula to calculate Vector Generator level	--
Configured DUT EIRP:	199.53	mW
Configured DUT PSD:	-3.70	dBm/MHz
Requirement of the Detection threshold value for this given values acc. to FCC clause 5.2 / Table 3	-62	dBm
Vector Generator level setting	-2.71	dBm
Configured overall pathloss from Vector Generator RF out to DUT connector of 'DUT to OSP'-cable	34.81	dB
Given additional level added to the amplitude of the waveform to account for variations in measurement equipment acc. to FCC clause 5.2 / Table 3 / Note 2	1.00	dB
This results in the following radar signal level at the DUT	-37.52	dBm

Additional Information

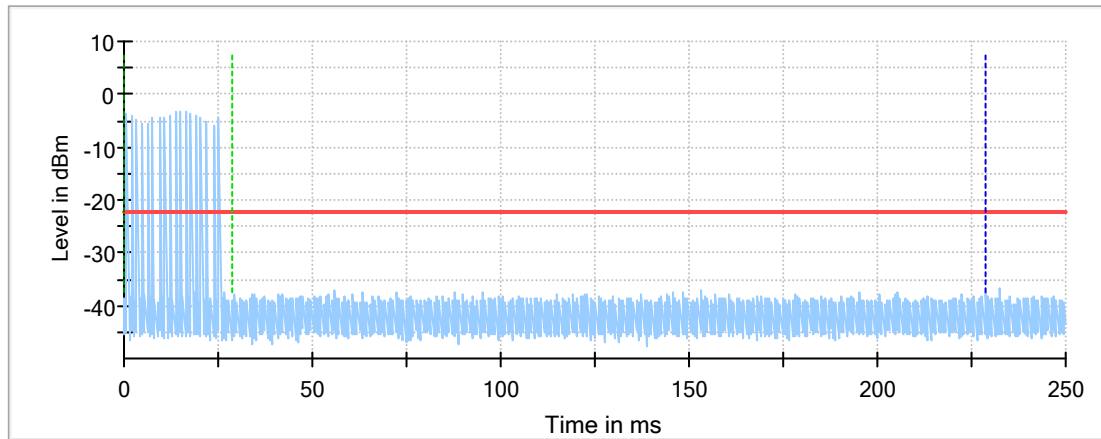
Note	Description
Note 1:	Because of the radar pulse event at the beginning, the investigation of the trace begins with an offset of 28.7 ms conforming to the end of the Radar burst.
Note 2:	Channel move time (CMT) / channel closing transmission time (CCTT) measurement was made with hi resolution video sweep using OSP DAQ channel
Note 3:	Because of the substantially higher sampling rate of the video signal the results for CCTT and CMT are more accurate than in the graphics visible. Reached timing accuracy of the video trace: approx 4 μ s
Note 4:	The Non-Occupancy Period trace starts at the end of the Channel move time trace (20.000 secs.) Labeling of the x-axis (time) is relative to its beginning (0 secs.)

Channel Move Time



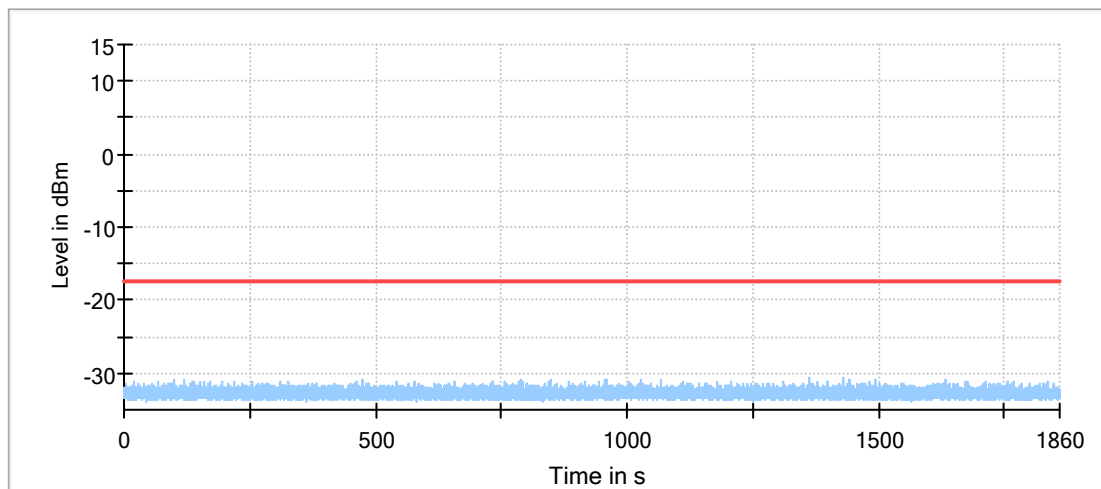
- Channel Move Time
- Threshold
- - - Start of Radar
- - - Trigger at end of Radar
- - - First 200ms of Channel Closing Tx Time
- - - 10sec Channel Move Time Limit

Channel Move Time first 200ms



— Channel Move Time first 200ms — Threshold
- - - Start of Radar - - - Trigger at end of Radar
- - - First 200ms of Channel Closing Tx Time

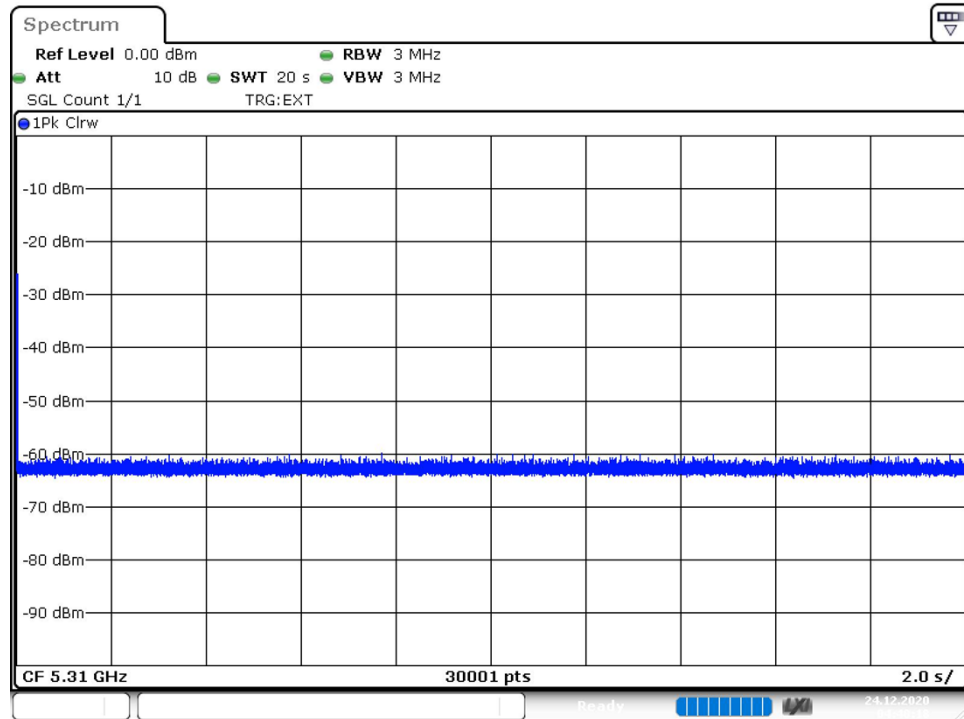
Non-occupancy period



— Non-occupancy period — Threshold

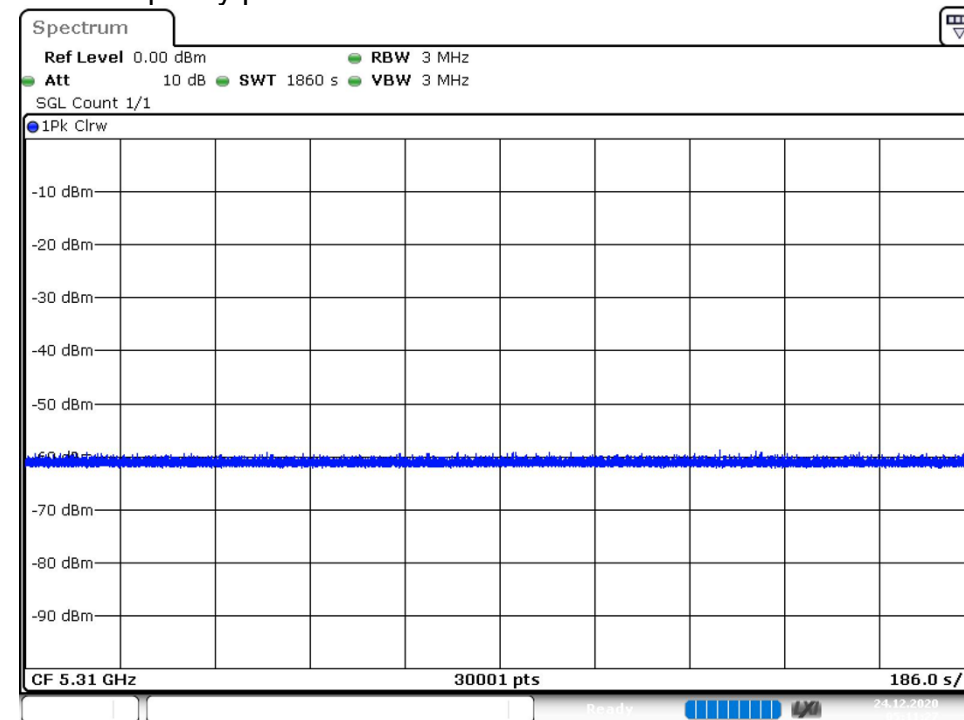
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Channel Move Time



Date: 24.DEC.2020 04:40:18

Non-occupancy period



Date: 24.DEC.2020 05:11:27

Channel Move Time; Channel Closing Transmission Time

Setting	Instrument Value	Target Value
Center Frequency	5.31000 GHz	5.31000 GHz
Span	ZeroSpan	ZeroSpan
RBW	3.000 MHz	>= 3.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	30001	~ 30001
SweepTime	20.000 s	20.000 s
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off
Trigger	External	External
Trigger Offset	0.000 s	0.000 s

Non-occupancy period

Setting	Instrument Value	Target Value
Center Frequency	5.31000 GHz	5.31000 GHz
Span	ZeroSpan	ZeroSpan
RBW	3.000 MHz	>= 3.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	30001	~ 30001
SweepTime	1.860 ks	1.860 ks
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off

OSP Video Detector

Setting	Instrument Value	Target Value
Measurement Time	20.000 s	20.000 s
Samplerate	2500 kHz	2500 kHz
Tracepoints	50000000	50000000
Time resolution	4.000 µs	4.000 µs
Detector	Peak	Peak

DFS In-Service Monitoring (5510 MHz; 23.000 dBm; 40 MHz)

Test according to FCC title 47 part 15 §15.407(h), KDB 905462 D02 U-NII DFS Compliance Procedures New Rules v02

Measurement Summary

DUT Frequency (MHz)	Radar Type No.	Type of Measurement value	Overall Result
5510.000000	0	First of all Transmitt Test	---
5510.000000	0	Channel Move Time	PASS
5510.000000	0	Channel Closing Transmission Time	PASS
5510.000000	0	Non-occupancy period	PASS

(continuation of the "Measurement Summary" table from column 4 ...)

DUT Frequency (MHz)	Overall Comment
5510.000000	not performed / not finished
5510.000000	
5510.000000	
5510.000000	

Channel Move Time Detailed Results

DUT Frequency (MHz)	Radar Type No.	CMT Tx Time (s)	CMT Limit (s)	CMT Result
5510.000000	0	0.000	10.000	PASS

(continuation of the "Channel Move Time Detailed Results" table from column 5 ...)

DUT Frequency (MHz)	CMT Comment
5510.000000	Tx Time value is last trailing edge found within sweep. See Note 1.

Channel Closing Transmission Time Detailed Results

DUT Frequency (MHz)	Radar Type No.	CCTT Type of Value	CCTT No. of Pulses found	CCTT Tx Time (ms)
5510.000000	0	first 200 ms	0	0.000
5510.000000	0	remaining 10.0 second(s) period	0	0.000

(continuation of the "Channel Closing Transmission Time Detailed Results" table from column 5 ...)

DUT Frequency (MHz)	CCTT Tx Time Limit (ms)	CCTT Result	CCTT Comment
5510.000000	200.000	PASS	See Note 1.
5510.000000	60.000	PASS	See Note 1.

Non-occupancy period Detailed Results

DUT Frequency (MHz)	Radar Type No.	NOP No. of Pulses found	NOP No. of Pulses Limit	NOP Tx Time (s)	NOP Tx Time Limit (s)
5510.000000	0	0	0	0.000	0.000

(continuation of the "Non-occupancy period Detailed Results" table from column 6 ...)

DUT Frequency (MHz)	NOP Result
5510.000000	PASS

Transmitting Test Detailed Results

DUT Frequency (MHz)	Tx-Test Result	Tx-Test Comment
5510.000000	---	not performed / not finished

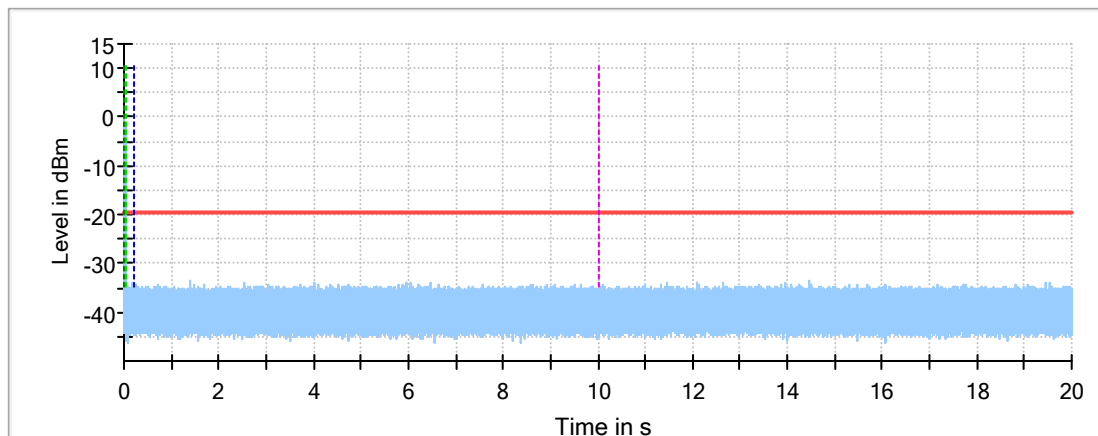
Radar level verification

Description / Formula	Value	Unit
IF(({DFS Mode(0/1/2)}=0)or({DFS Mode(0/1/2)}=1) , IF((dBm2W({Nominal Power[dBm]}>0.2) , -64 , IF({Configured PSD[dBm]}<10) , -62 , -64))+ {Attenuation Vector Generator to DUT[dB]} , -50+ {Attenuation Vector Generator to COMP[dB]}+ {Radar Signal Level Offset[dB]})	Given setting / formula to calculate Vector Generator level	--
Configured DUT EIRP:	199.53	mW
Configured DUT PSD:	-3.70	dBm/MHz
Requirement of the Detection threshold value for this given values acc. to FCC clause 5.2 / Table 3	-62	dBm
Vector Generator level setting	-1.29	dBm
Configured overall pathloss from Vector Generator RF out to DUT connector of 'DUT to OSP'-cable	35.80	dB
Given additional level added to the amplitude of the waveform to account for variations in measurement equipment acc. to FCC clause 5.2 / Table 3 / Note 2	1.00	dB
This results in the following radar signal level at the DUT	-37.10	dBm

Additional Information

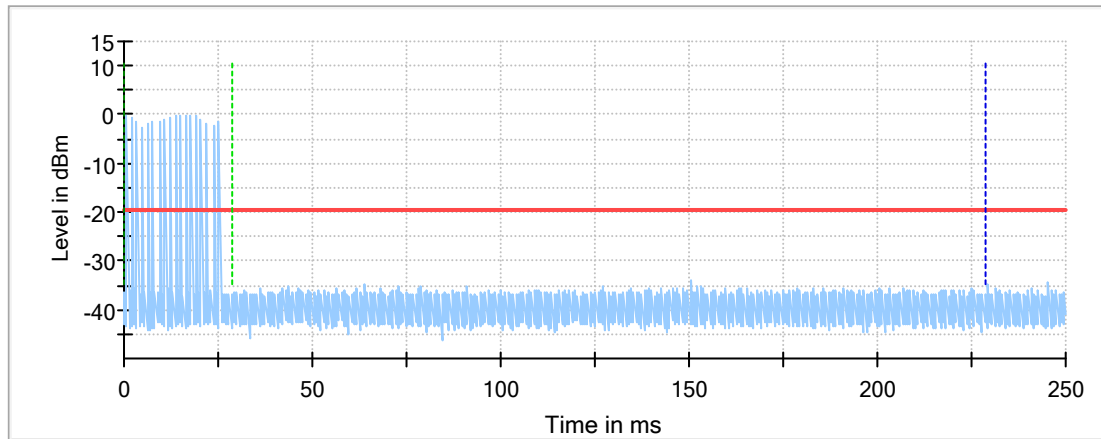
Note	Description
Note 1:	Because of the radar pulse event at the beginning, the investigation of the trace begins with an offset of 28.7 ms conforming to the end of the Radar burst.
Note 2:	Channel move time (CMT) / channel closing transmission time (CCTT) measurement was made with hi resolution video sweep using OSP DAQ channel
Note 3:	Because of the substantially higher sampling rate of the video signal the results for CCTT and CMT are more accurate than in the graphics visible. Reached timing accuracy of the video trace: approx 4 μ s
Note 4:	The Non-Occupancy Period trace starts at the end of the Channel move time trace (20.000 secs.) Labeling of the x-axis (time) is relative to its beginning (0 secs.)

Channel Move Time



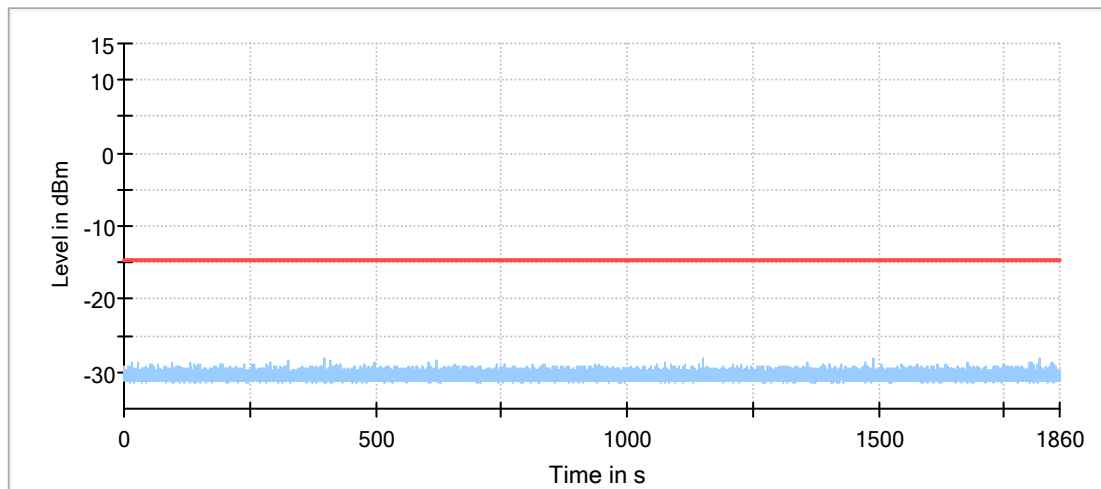
- Channel Move Time
- Threshold
- - - Start of Radar
- - - Trigger at end of Radar
- - - First 200ms of Channel Closing Tx Time
- - - 10sec Channel Move Time Limit

Channel Move Time first 200ms



— Channel Move Time first 200ms — Threshold
- - - Start of Radar - - - Trigger at end of Radar
- - - First 200ms of Channel Closing Tx Time

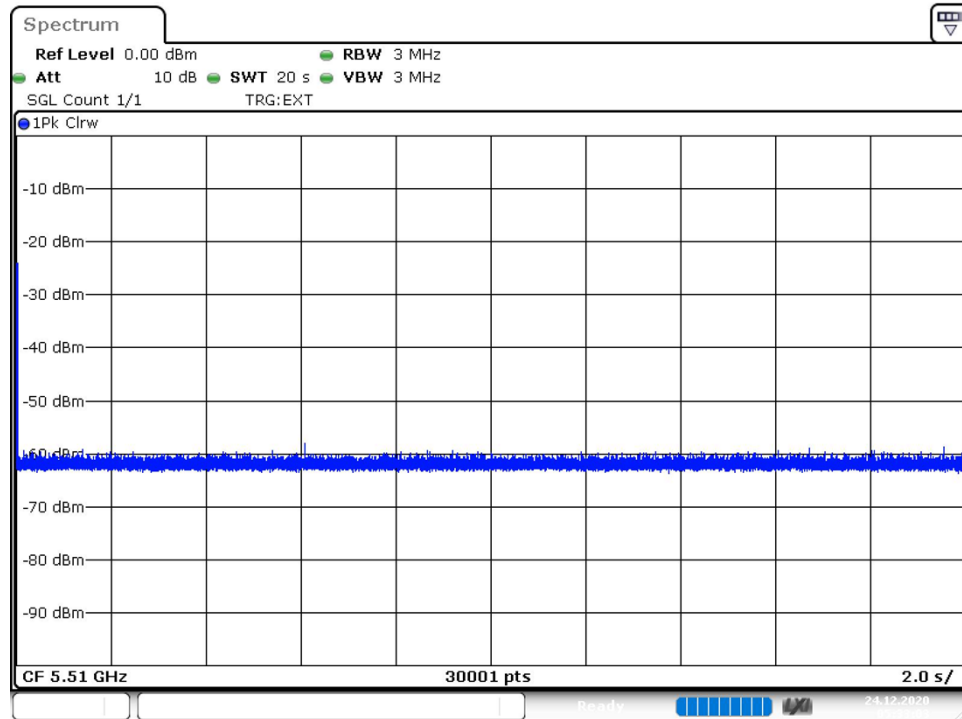
Non-occupancy period



— Non-occupancy period — Threshold

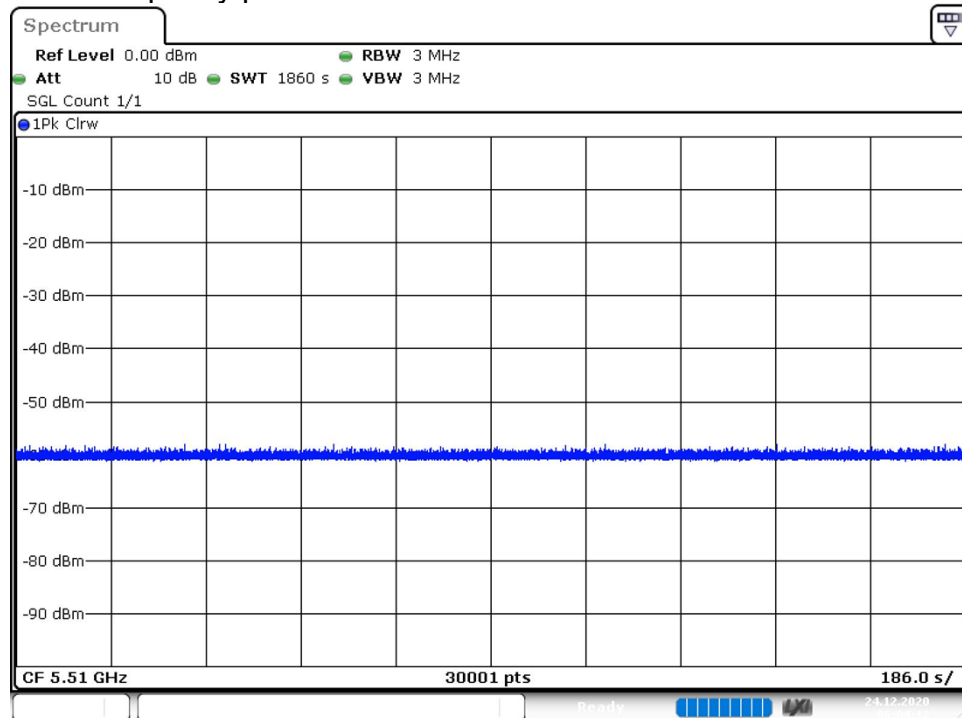
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Channel Move Time



Date: 24.DEC.2020 05:33:03

Non-occupancy period



Date: 24.DEC.2020 06:04:12

Channel Move Time; Channel Closing Transmission Time

Setting	Instrument Value	Target Value
Center Frequency	5.51000 GHz	5.51000 GHz
Span	ZeroSpan	ZeroSpan
RBW	3.000 MHz	>= 3.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	30001	~ 30001
SweepTime	20.000 s	20.000 s
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off
Trigger	External	External
Trigger Offset	0.000 s	0.000 s

Non-occupancy period

Setting	Instrument Value	Target Value
Center Frequency	5.51000 GHz	5.51000 GHz
Span	ZeroSpan	ZeroSpan
RBW	3.000 MHz	>= 3.000 MHz
VBW	3.000 MHz	>= 3.000 MHz
SweepPoints	30001	~ 30001
SweepTime	1.860 ks	1.860 ks
Reference Level	0.000 dBm	0.000 dBm
Attenuation	10.000 dB	0.000 dB
Detector	MaxPeak	MaxPeak
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Clear Write	Clear Write
SweepType	Sweep	AUTO
Preamp	off	off

OSP Video Detector

Setting	Instrument Value	Target Value
Measurement Time	20.000 s	20.000 s
Samplerate	2500 kHz	2500 kHz
Tracepoints	50000000	50000000
Time resolution	4.000 µs	4.000 µs
Detector	Peak	Peak