

Figure 643 - U-NII-3 - 5825 MHz (CH165), HE20, RU26-0, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Horizontal

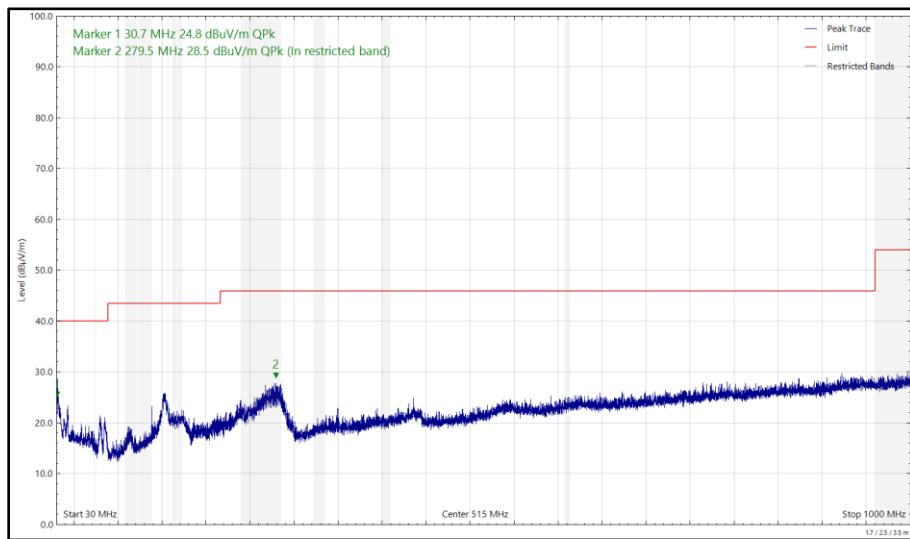


Figure 644 - U-NII-3 - 5825 MHz (CH165), HE20, RU26-0, CDD, Core 0 + Core 1, 30 MHz to 1 GHz, Vertical (Peak)

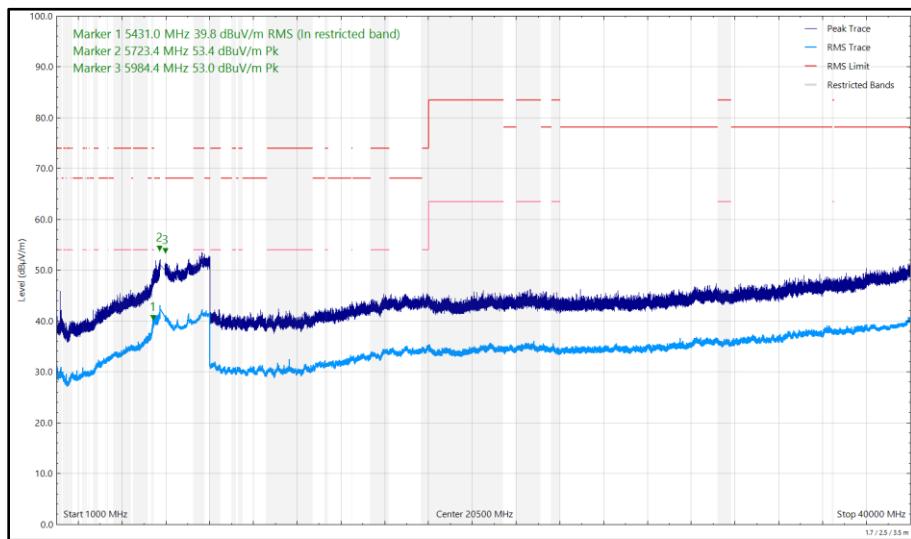


Figure 645 - U-NII-3 - 5825 MHz (CH165), HE20, RU26-0, CDD, Core 0 + Core 1, 1 GHz to 40 GHz, Vertical

FCC 47 CFR Part 15, Limit Clause 15.407(b)(1)(2)(3)(4)

Emissions not falling within the restricted bands listed in FCC 47 CFR Part 15.209:

For transmitters operating in the 5.15-5.25 GHz band: ≤ -27 dBm/MHz outside 5150-5350 MHz.

For transmitters operating in the 5.25-5.35 GHz band: ≤ -27 dBm/MHz outside 5150-5350 MHz.

For transmitters operating in the 5.47-5.725 GHz band: ≤ -27 dBm/MHz outside 5470-5725 MHz.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Emissions within the restricted bands listed in FCC 47 CFR Part 15.209:

Frequency (MHz)	Field Strength (μ V/m) at 3m	Field Strength Limit (μ V/m) at 3m
30 to 88	100	40.00
88 to 216	150	43.52
216 to 960	200	46.02
Above 960	500	53.98

Table 748 - Radiated Emissions Limit Table (FCC)



ISED RSS-247, Limit Clause 6.2.1.2, 6.2.2.2, 6.2.3.2 and 6.2.4.2 and ISED RSS-GEN, Limit Clause 8.9

Emissions not falling within the restricted bands listed in ISED RSS-GEN, Clause 8.10:

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB.

For transmitters with operating frequencies in the bands 5250-5350 MHz and 5470-5725 MHz, all emissions outside the band 5250-5350 MHz and 5470-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p.

Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

- a) 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;
- b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;
- c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and
- d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

Emissions falling within the restricted bands listed in ISED RSS-GEN, Clause 8.10:

Frequency (MHz)	Field Strength (μ V/m) at 3m	Field Strength Limit ($\text{dB}\mu$ V/m) at 3m
30 to 88	100	40.00
88 to 216	150	43.52
216 to 960	200	46.02
Above 960	500	53.98

Table 749 - Radiated Emissions Limit Table (ISED)

For the 5895 MHz band edge and above, all devices shall be measured using average detection and shall comply with the following e.i.r.p. spectral density limits:

Fixed outdoor access points and fixed outdoor client devices shall not exceed -27 dBm/MHz e.i.r.p. spectral density at or above the 5895 MHz band edge.

Indoor access points or indoor subordinate devices shall not exceed 15 dBm/MHz e.i.r.p. spectral density at the 5895 MHz band edge and shall decrease linearly to not exceed -7 dBm/MHz e.i.r.p. spectral density at or above 5925 MHz.

Client devices shall not exceed -5 dBm/MHz e.i.r.p. spectral density at the 5895 MHz band edge and shall decrease linearly to not exceed -27 dBm/MHz e.i.r.p. spectral density at or above 5925 MHz.



2.6.8 Test Location and Test Equipment Used

This test was carried out in RF Chamber 14, RF Chamber 15, RF Chamber 16, RF Chamber 17 and RF Chamber 18.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Power Supply Unit	Hewlett Packard	6253A	441	-	O/P Mon
Emissions Software	TÜV SÜD	EmX V3.2.0	5125	-	Software
Test Receiver	Rohde & Schwarz	ESW44	5379	12	12-Dec-2024
EMI Test Receiver	Rohde & Schwarz	ESW44	5911	12	11-Sep-2024
Test Receiver	Rohde & Schwarz	ESW44	5914	12	24-May-2025
DRG Horn Antenna (7.5-18GHz)	Schwarzbeck	HWRD750	5939	12	05-May-2025
TRILOG Super Broadband Test Antenna	Schwarzbeck	VULB 9168	5943	24	24-May-2026
1500W (300V 12A) AC Power Supply	iTech	IT7324	5955	-	O/P Mon
1500W (300V 12A) AC Power Supply	iTech	IT7324	5956	-	O/P Mon
1500W (300V 12A) AC Power Supply	iTech	IT7324	5957	-	O/P Mon
5m Semi-Anechoic Chamber (Dual-Axis)	Albatross Projects	RF Chamber 14	5958	36	26-Apr-2025
Compact Antenna Mast	Maturo GmbH	CAM4.0-P	5959	-	TU
Mast & Turntable Controller	Maturo GmbH	FCU3.0	5960	-	TU
Tilt Antenna Mast	Maturo GmbH	BAM4.5-P	5961	-	TU
Turntable	Maturo GmbH	TT1.5SI	5962	-	TU
5m Semi-Anechoic Chamber (Dual-Axis), Chamber 15	Albatross Projects	RF Chamber 15	5963	36	28-Apr-2025
Compact Antenna Mast	Maturo GmbH	CAM4.0-P	5964	-	TU
Mast & Turntable Controller	Maturo GmbH	FCU3.0	5966	-	TU
Tilt Antenna Mast	Maturo GmbH	BAM4.5-P	5967	-	TU
Turntable	Maturo GmbH	TT1.5SI	5968	-	TU
3m Semi-Anechoic Chamber, Chamber 16	Albatross Projects	RF Chamber 16	5972	36	24-May-2025
Mast & Turntable Controller	Maturo GmbH	FCU3.0	5973	-	TU
Tilt Antenna Mast	Maturo GmbH	BAM4.5-P	5974	-	TU
Turntable	Maturo GmbH	TT1.5SI	5975	-	TU
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/A	6007	12	20-May-2025
Cable (SMA to SMA 6.5m)	Junkosha	MWX221-06500AMSAMS/B	6014	12	24-Aug-2024
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6140	12	05-May-2025
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6141	12	05-May-2025
Horn Antenna (1-10 GHz)	Schwarzbeck	BBHA9120B	6142	12	05-May-2025
Digital Multimeter	Fluke	115	6145	12	06-Jun-2025
Digital Multimeter	Fluke	115	6146	12	06-Jun-2025
Digital Multimeter	Fluke	115	6147	12	06-Jun-2025



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
Humidity & Temperature meter	R.S Components	1364	6148	12	21-Jul-2024
Humidity & Temperature meter	R.S Components	1364	6149	12	07-Jul-2024*
SAC Switch Unit	TUV SUD	TUV_SSU_001	6190	12	22-Dec-2024
EMI Test Receiver	Rohde & Schwarz	ESW44	6294	12	06-Jan-2025
Cable (SMA to SMA 1m)	Junkosha	MWX221/B	6305	12	20-May-2025
Cable (SMA to SMA 8m)	Junkosha	MWX221-08000AMSAMS/B	6318	12	18-Feb-2025
Cable (K Type 2m)	Junkosha	MWX241-02000KMSKMS/B	6323	12	04-Feb-2025
EMC Test Receiver	Rohde & Schwarz	ESW44	6333	12	16-Feb-2025
8 GHz High Pass Filter	Wainwright	WHKX 7150 8000 18000 50SS	6427	12	23-Apr-2025
Horn Antenna (1-8 GHz)	Schwarzbeck	BBHA 9120 B	6457	12	05-May-2025
Humidity and Temperature Meter	R.S Components	1364	6486	12	04-Jun-2025
3m Semi-Anechoic Chamber , Chamber18	Albatross Projects	Chamber 18	6597	36	07-Feb-2026
Coax cable sma to sma with N-Type adapter	TUV SUD	N/A	6637	12	23-Apr-2025
AC Power Supply	iTech	IT7324	6657	-	O/P Mon
3m Semi-Anechoic Chamber	Albatross Projects	RF Chamber 17	6658	36	28-Jan-2026
Mast and Turntable Controller	Maturo GmbH	FCU3.0	6659	-	TU
Tilt Antenna Mast	Maturo GmbH	BAM4.5-P	6660	-	TU
Turntable	Maturo GmbH	TT1.5SI	6661	-	TU
1m Cable	Junkosha	MWX241-01000AMSAMS/B	6741	12	01-Feb-2025
8m Cable	Junkosha	MWX221-08000AMSAMS/B	6748	12	01-Feb-2025
Double Ridge Active Horn Antenna (18-40 GHz)	Com-Power	AHA-840	6771	24	17-Jan-2025
Pre Amp 8 - 18 GHz	Wright Technologies	APS06-0061	6783	12	23-Apr-2025
Mast & Turntable Controller	Maturo GmbH	FCU3.0	6795	-	TU
Tilt Antenna Mast	Maturo GmbH	BAM4.5-P	6796	-	TU
Turntable	Maturo GmbH	TT1.5SI	6797	-	TU
AC Programmable Power Supply	iTech	IT7324	6812	-	O/P Mon

Table 750

TU - Traceability Unscheduled
O/P Mon - Output Monitored using calibrated equipment

*NOTE: Only used within calibration period.



2.7 Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period

2.7.1 Specification Reference

FCC 47 CFR Part 15E, Clause 15.407 (h)(2)(iii)(iv)
ISED RSS-247, Clause 6.3.2(c)(d)(e)

2.7.2 Equipment Under Test and Modification State

A3137, S/N: DMKVPMJ9XD - Modification State 0

2.7.3 Date of Test

24-May-2024

2.7.4 Test Method

This test was performed in accordance with FCC KDB 905462 D02, clause 7.8.3.

Radar Pulse Type 0 was then transmitted, and the Spectrum monitored. The transmissions from the UUT were observed for a period of 12 seconds after the final injected Radar Pulse.

It was checked that all transmissions stopped within the 10 second period defined from the point of the end of the final Radar pulse + 10 seconds. In addition, the aggregate on time during the first 200ms and the following 9.8 seconds of the Channel Move Time was computed.

The markers on the trace data correspond to the following time periods:

Yellow - End Of Radar Burst, (T0)

Purple - End Of Channel Move Time, (T0 + 10 seconds)

To verify the non-occupancy period, the external trigger was used to trigger a 30-minute sweep from the moment the radar burst sequence was injected. It was verified that no transmissions occurred on the test channel during this time period.

2.7.5 Environmental Conditions

Ambient Temperature 21.2 °C

Relative Humidity 40.8 %

2.7.6 Test Results

5 GHz WLAN - Master to Client

The equipment under test was a Client without Radar Detection.

This test was performed in the following mode of operation: 802.11ac VHT160.

The equipment was set up as shown in the diagram below. The test laptop was configured to run iPerf, transmitting UDP data to the EUT via the DFS Master. The channel loading was set to >17% by adjusting the bandwidth specified in the iPerf UDP transfer.

To calibrate the level of the radar at the input to the companion device, the companion device was replaced by the spectrum analyser and the output of the vector signal generator adjusted to give -62 dBm.

Radar Type	Pulse Width (μs)	PRI (μs)	Number of Pulses
0	1	1428	18

Table 751 - Radar Pulse Type 0 Characteristics

Manufacturer	Model	Serial Number	FCC ID
ASUS	GT-AXE11000	M8IG0X400285XVN	MSQ-RTAXJF00

Table 752 - Details of Master Device used to support testing

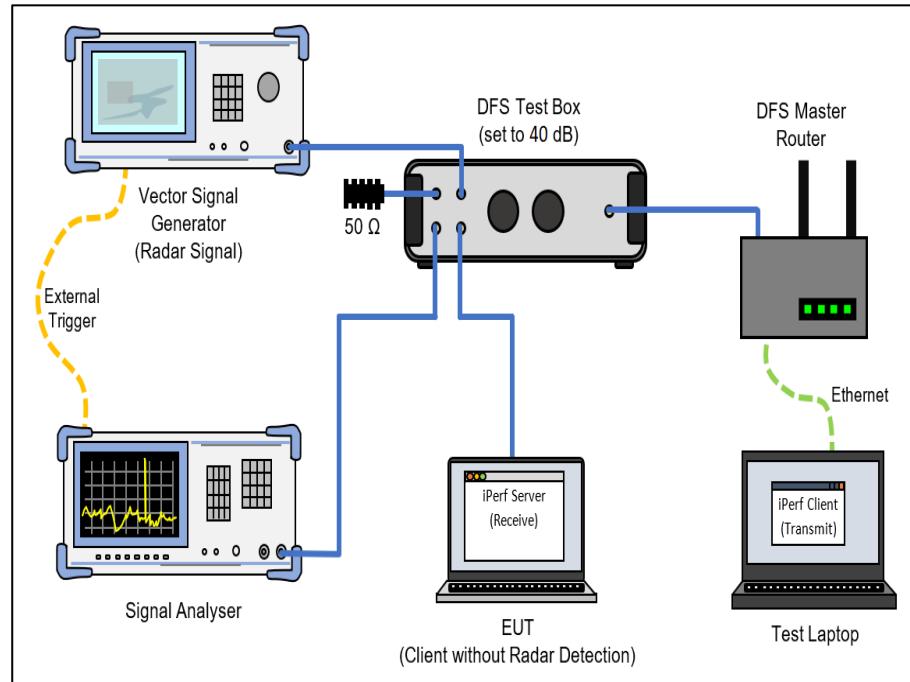


Figure 646- Test Equipment Setup Diagram for Client without Radar Detection with Injection at the Master

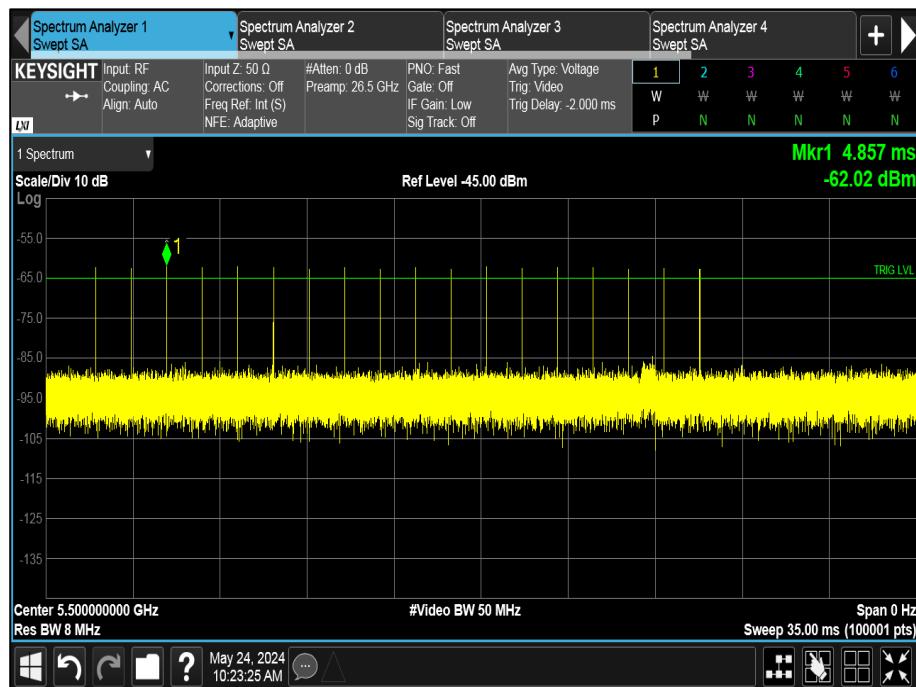


Figure 647- Verification of Radar Type 0

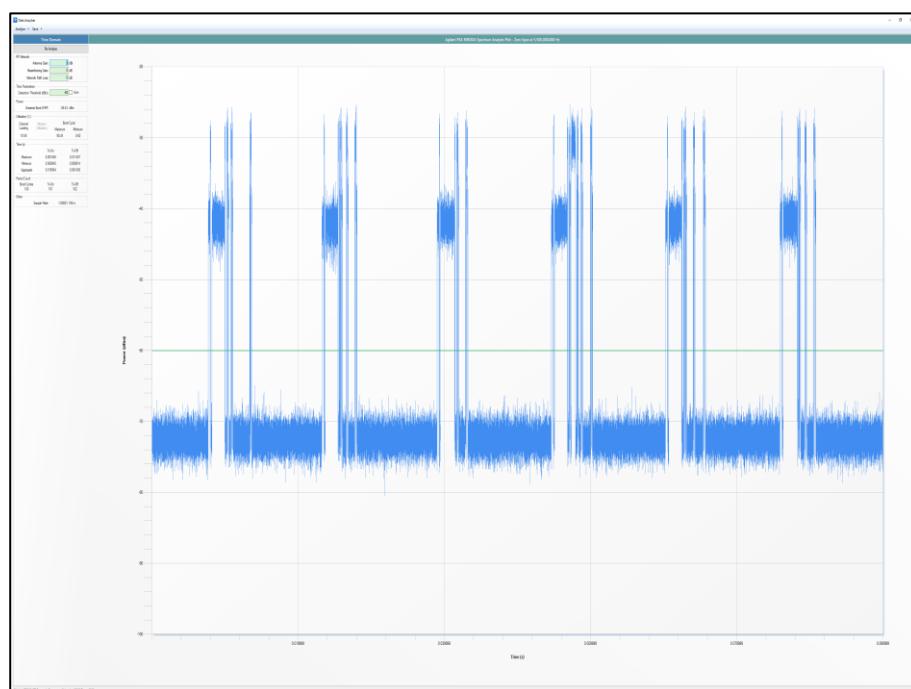


Figure 648- Channel Loading

The channel loading was 18.56%



Maximum Transmit Power	Value (Notes 1 and 2)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 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.

Table 753 - DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Test Parameter	Result
Test Channel	CH114 (5570 MHz), Control CH100 (5500 MHz)
Channel Move Time	0.077 s
Channel Closing Time (Aggregate Time During 200 ms)	6.120 ms
Channel Closing Time (Aggregate Time During 200 ms to 10 s)	0 ms
Channel Closing Time (Aggregate Time During 10 s)	6.120 ms
Transmission Observed During Non-Occupancy Period	No

Table 754 - In-Service Monitoring Test Results

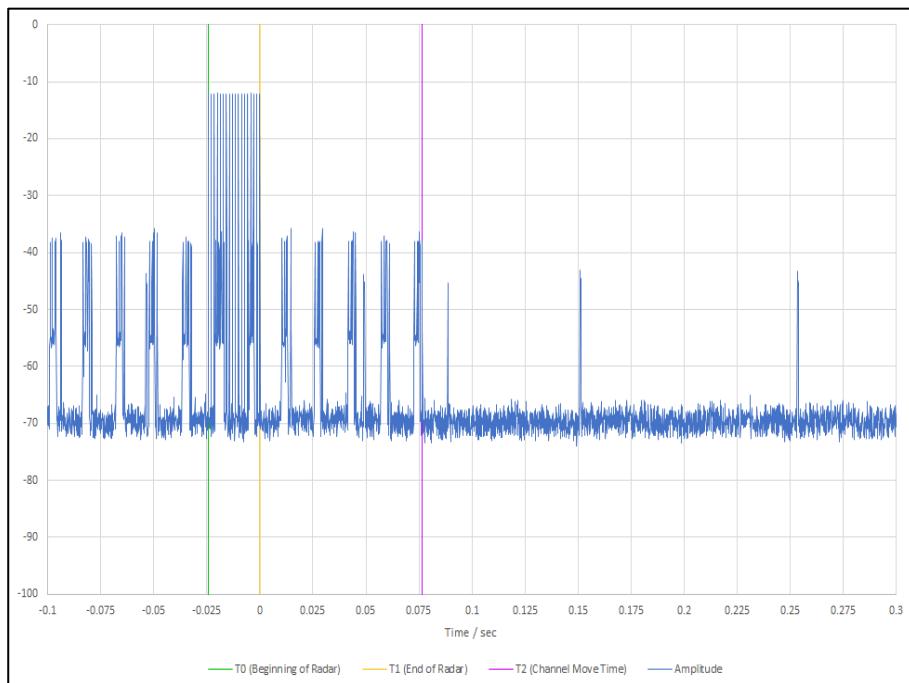


Figure 649 - First 200 ms of Channel Shutdown Period

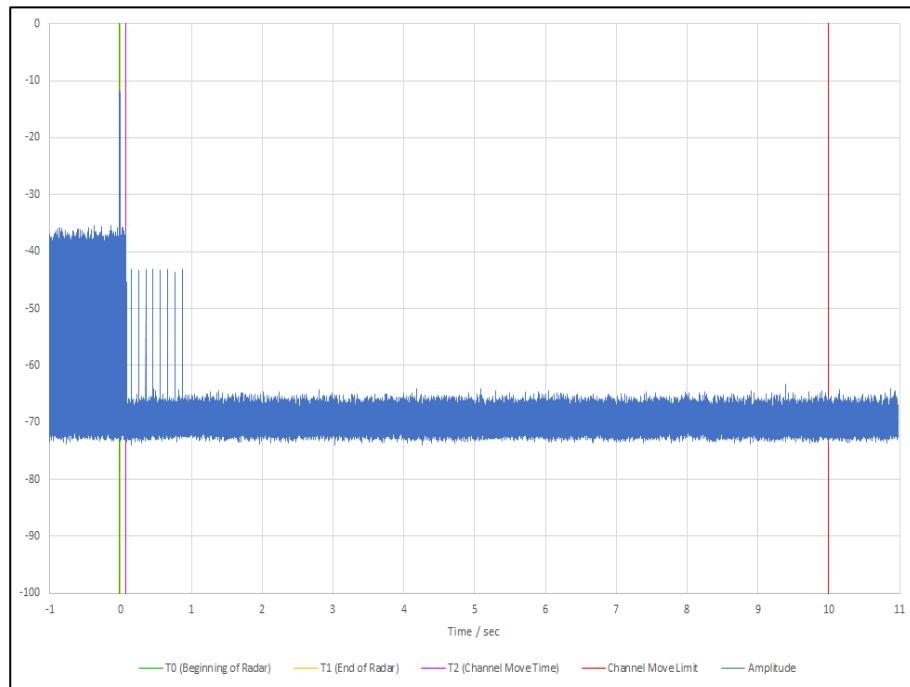


Figure 650 - First 12 s of Channel Shutdown Period

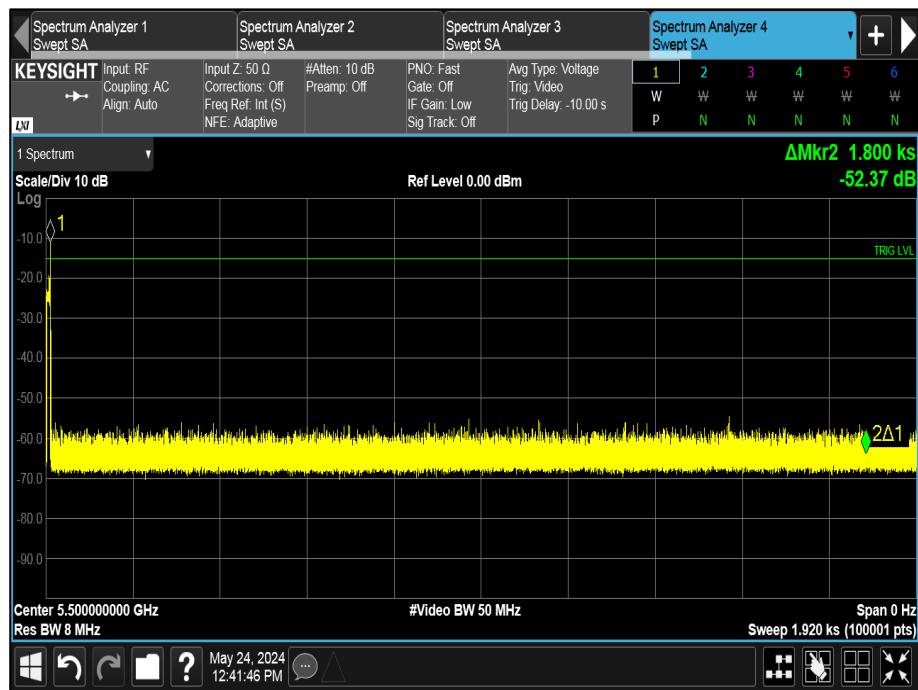


Figure 651 - 30 minute Non-Occupancy Period

5 GHz WLAN - Client to Client

The equipment under test was a Client without Radar Detection.

This test was performed in the following mode of operation: 802.11ac VHT160.

The equipment was set up as shown in the diagram below. The EUT and a 2nd client device were both connected to the DFS Master device. The 2nd client device was set to stream video directly to the EUT using the AirPlay protocol, while under the supervision of the DFS master (but without the DFS master re-transmitting the data packets). The channel loading was checked to ensure it was >17%.

To calibrate the level of the radar at the input to the DFS Master, the DFS Master device was replaced by the spectrum analyser and the output of the vector signal generator adjusted to give -62 dBm.

Radar Type	Pulse Width (μs)	PRI (μs)	Number of Pulses
0	1	1428	18

Table 755 - Radar Pulse Type 0 Characteristics

Manufacturer	Model	Serial Number	FCC ID
ASUS	GT-AXE11000	M8IG0X400285XVN	MSQ-RTAXJF00

Table 756 - Details of Master Device used to support testing

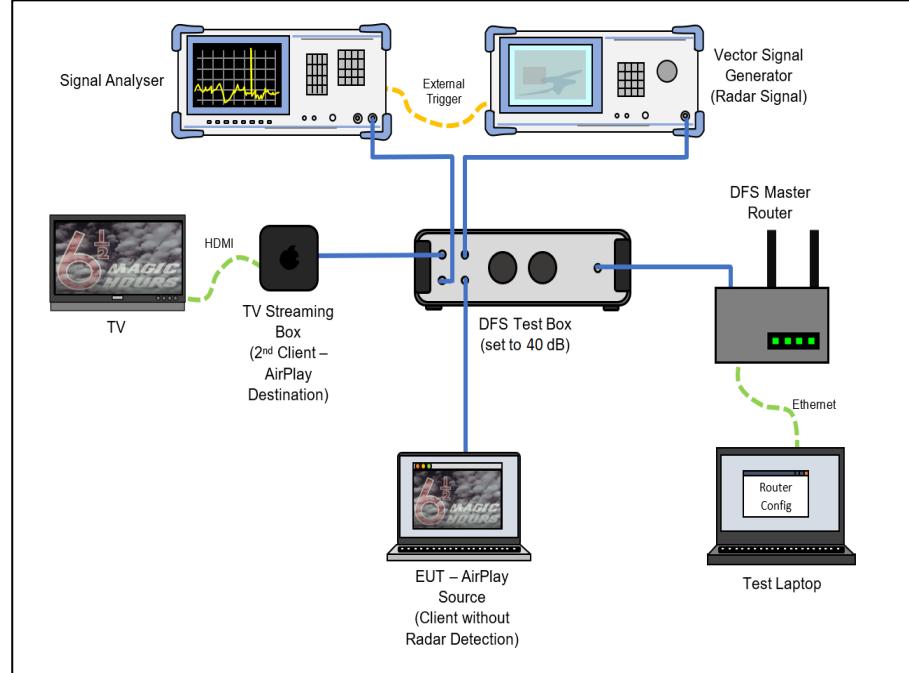


Figure 652- Test Equipment Setup Diagram for Client without Radar Detection with Injection at the Master



Figure 653- Verification of Radar Type 0

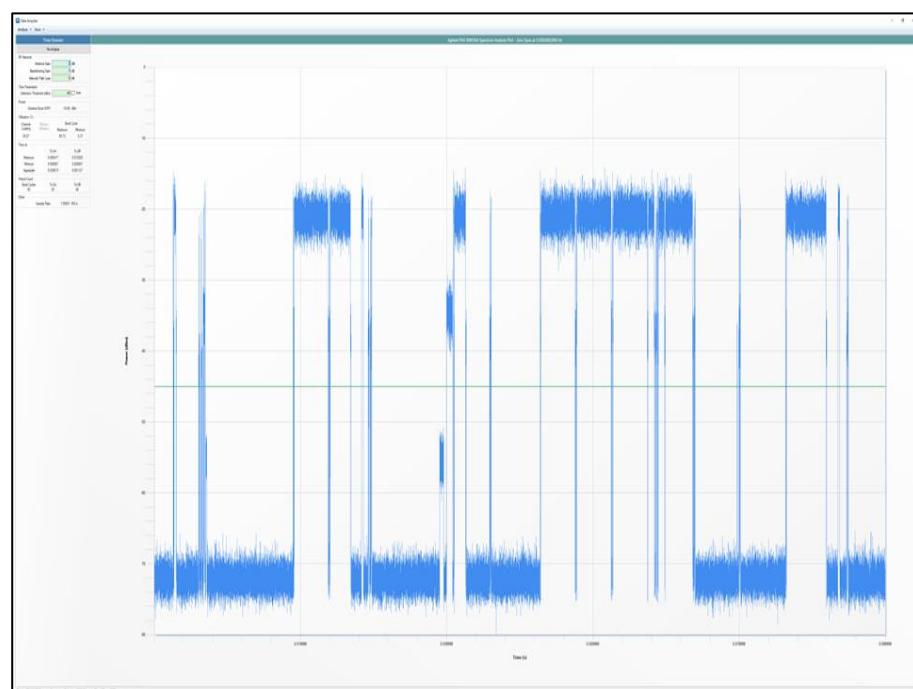


Figure 654- Channel Loading

The channel loading was 38.87%



Maximum Transmit Power	Value (Notes 1 and 2)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 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.

Table 757 - DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Test Parameter	Result
Test Channel	CH114 (5570 MHz), Control CH100 (5500 MHz)
Channel Move Time	0.838 s
Channel Closing Time (Aggregate Time During 200 ms)	12.360 ms
Channel Closing Time (Aggregate Time During 200 ms to 10 s)	6.120 ms
Channel Closing Time (Aggregate Time During 10 s)	18.480 ms
Transmission Observed During Non-Occupancy Period	No

Table 758 - In-Service Monitoring Test Results

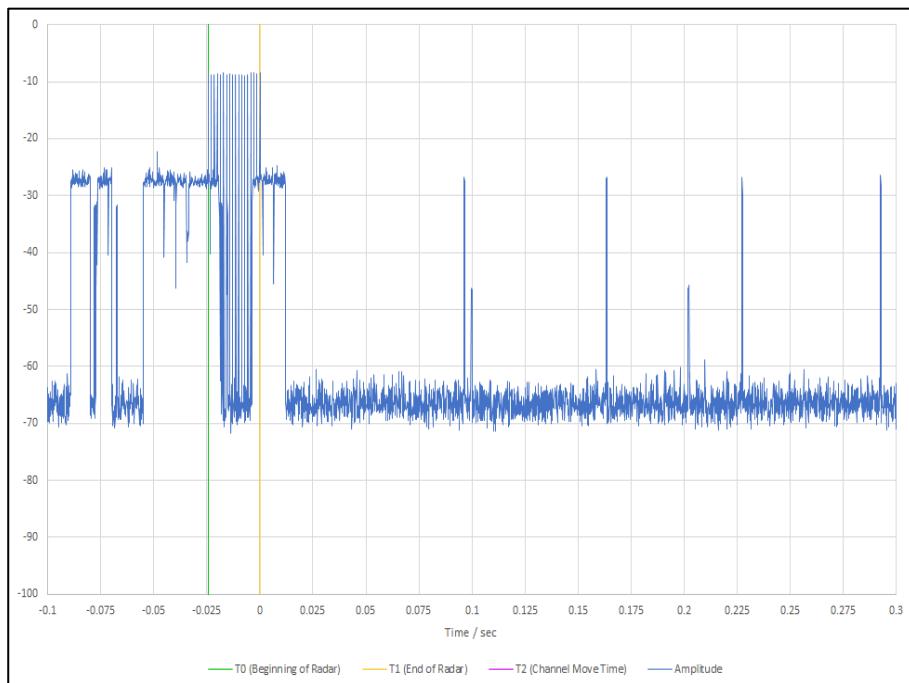


Figure 655 - First 200 ms of Channel Shutdown Period

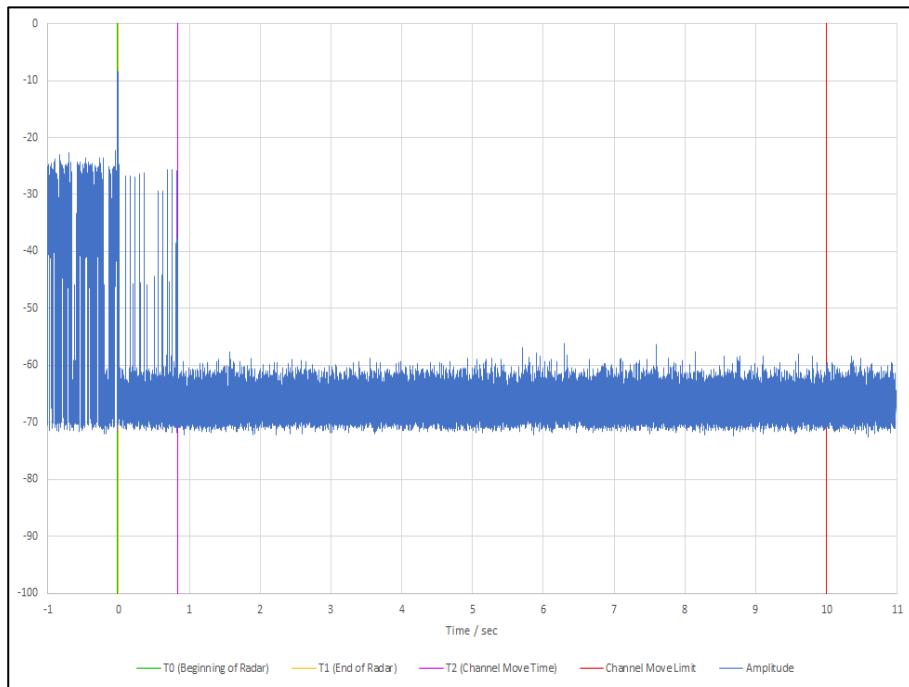


Figure 656 - First 12 s of Channel Shutdown Period

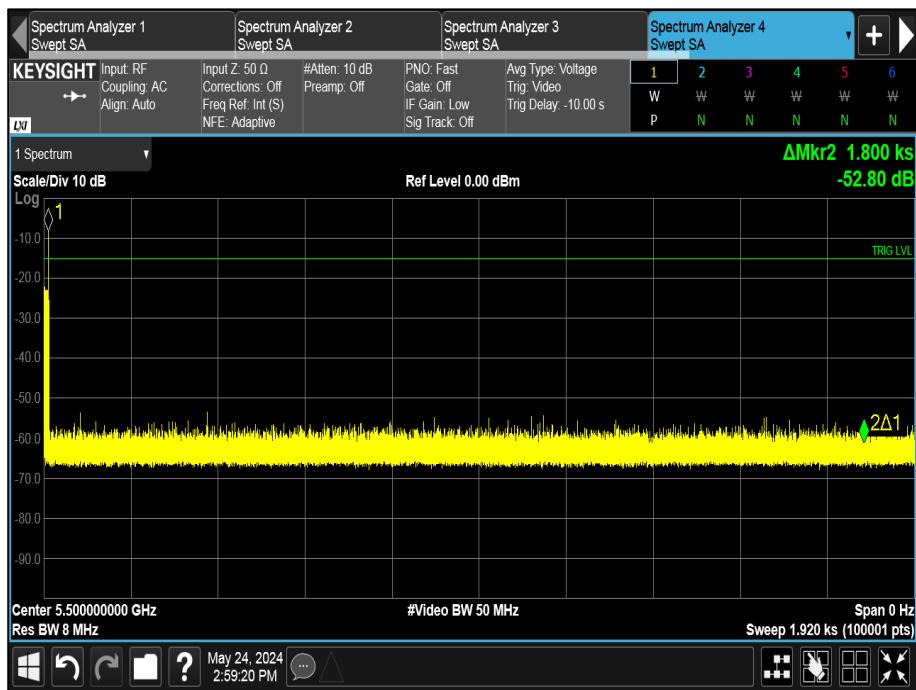


Figure 657 - 30 minute Non-Occupancy Period



FCC 47 CFR Part 15, Limit Clause 15.407 (h)(2)(iii)

Channel Move Time	<10 seconds
Channel Closing Time (Aggregate Time During 200ms)	<200 ms
Channel Closing Time (Aggregate Time During +200ms to 10s)	<60 ms

Table 759 - Channel Move Time and Channel Closing Transmission Time Limit

FCC 47 CFR Part 15, Limit Clause 15.407 (h)(2)(iv)

Non-occupancy Period	> 30 minutes
----------------------	--------------

Table 760 - Non-Occupancy Limit

ISED RSS-247, Limit Clause 6.3.2

Devices shall comply with the following requirements, however, the requirement for in-service monitoring does not apply to slave devices without radar detection.

In-service monitoring: an LE-LAN device shall be able to monitor the operating channel to check that a co-channel radar has not moved or started operation within range of the LE-LAN device. During in-service monitoring, the LE-LAN radar detection function continuously searches for radar signals between normal LE-LAN transmissions.

Channel availability check time: the device shall check whether there is a radar system already operating on the channel before it initiates a transmission on a channel and when it moves to a channel. The device may start using the channel if no radar signal with a power level greater than the interference threshold value specified in Section 6.3.1 above is detected within 60 seconds. This requirement only applies in the master operational mode.

Channel move time: after a radar signal is detected, the device shall cease all transmissions on the operating channel within 10 seconds.

Channel closing transmission time: is comprised of 200 ms 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 ms) over the remaining 10-second period of the channel move time.

Non-occupancy period: a channel that has been flagged as containing a radar signal, either by a channel availability check or in-service monitoring, is subject to a 30-minute non-occupancy period where the channel cannot be used by the LE-LAN device. The non-occupancy period starts from the time that the radar signal is detected.



2.7.7 Test Location and Test Equipment Used

This test was carried out in Shielded Laboratory 1.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Expiry Date
EXA Signal Analyser	Keysight Technologies	N9010B	4968	24	29-Jan-2026
3.5 mm 1m Cable	Junkosha	MWX221-01000DMS	5416	12	07-Mar-2025
3.5 mm 2m Cable	Junkosha	MWX221-02000DMS	5429	12	16-May-2025
3.5mm Cable (1m)	Junkosha	MWX221/B	5837	12	27-Jul-2024
Vector Signal Generator	Rohde & Schwarz	SMM100A	5915	36	01-Mar-2026
Cable (SMA to SMA 1m)	Junkosha	MWX221-01000AMSAMS/B	6019	12	05-Jun-2024
Humidity & Temperature meter	R.S Components	1364	6148	12	21-Jul-2024
WiFi 6E Tri-Band Gaming Router	Asus	GT-AXE110000	6251	-	TU
Test Coupling Network	TUV SUD	TUV_RxTest_001	6387	12	04-Sep-2024

Table 761

TU - Traceability Unscheduled



3 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
Restricted Band Edges	± 6.3 dB
Emission Bandwidth	± 3.91 MHz
Maximum Conducted Output Power	± 1.38 dB
Maximum Conducted Power Spectral Density	± 1.49 dB
Authorised Band Edges	± 6.3 dB
Spurious Radiated Emissions	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB
Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period	Time: ± 0.47 % Power: ± 1.29 dB

Table 762

Measurement Uncertainty Decision Rule – Accuracy Method

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115:2021, Clause 4.4.3 (Procedure 2). The measurement results are directly compared with the test limit to determine conformance with the requirements of the standard.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8.