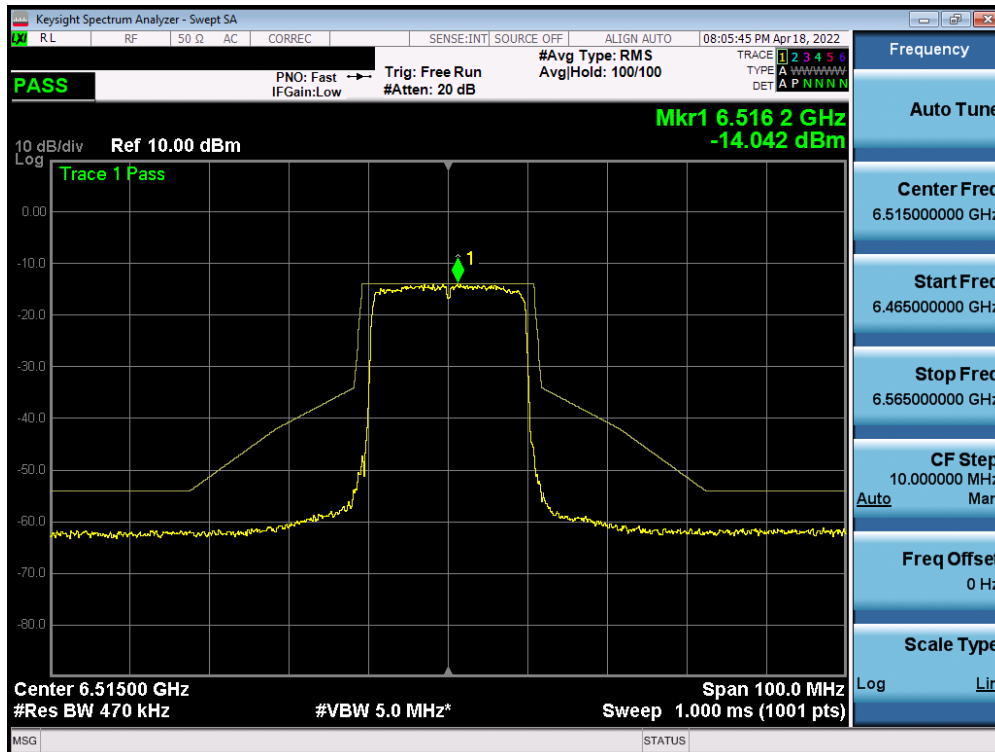
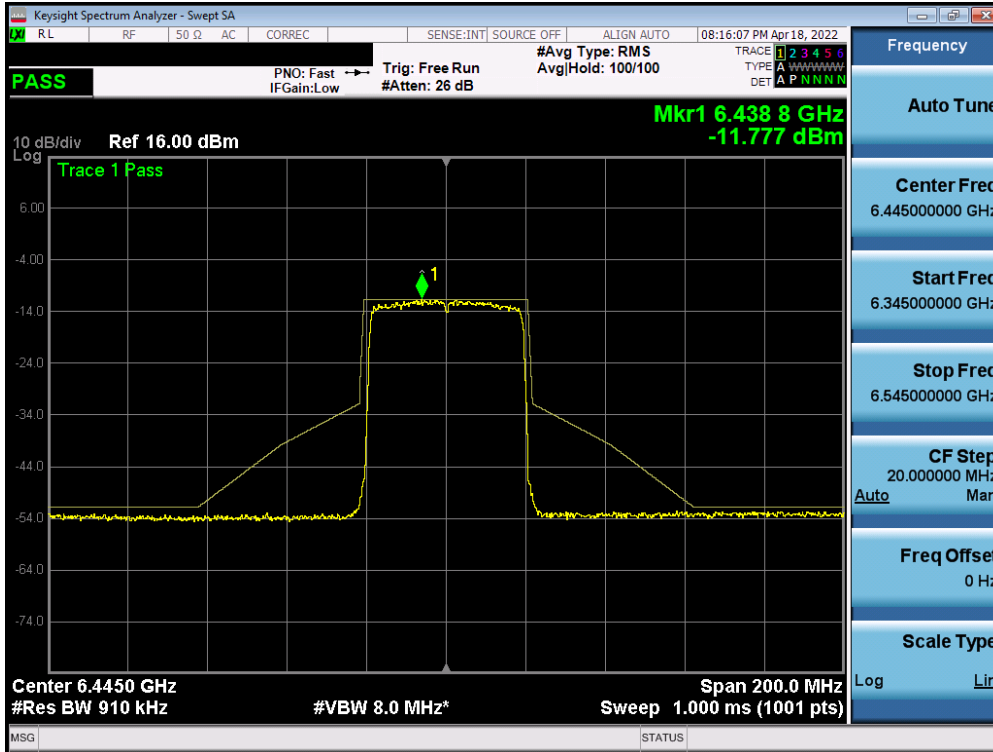


Plot 7-540. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11ax (UNII Band 6) – Ch. 105)

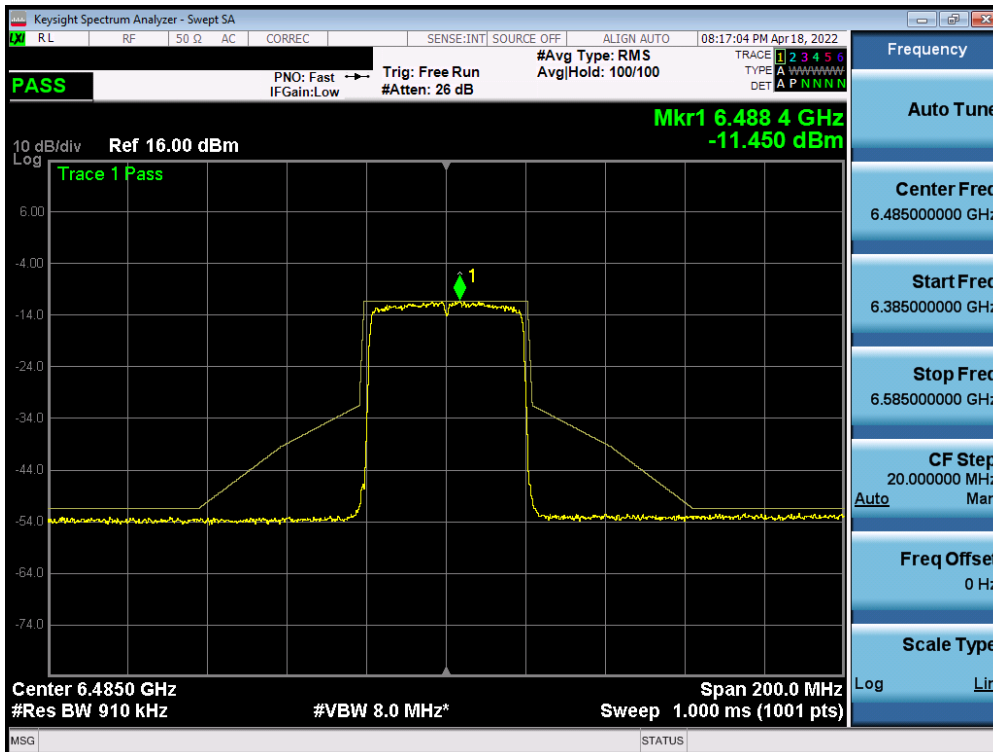


Plot 7-541. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11ax (UNII Band 6) – Ch. 113)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 310 of 422

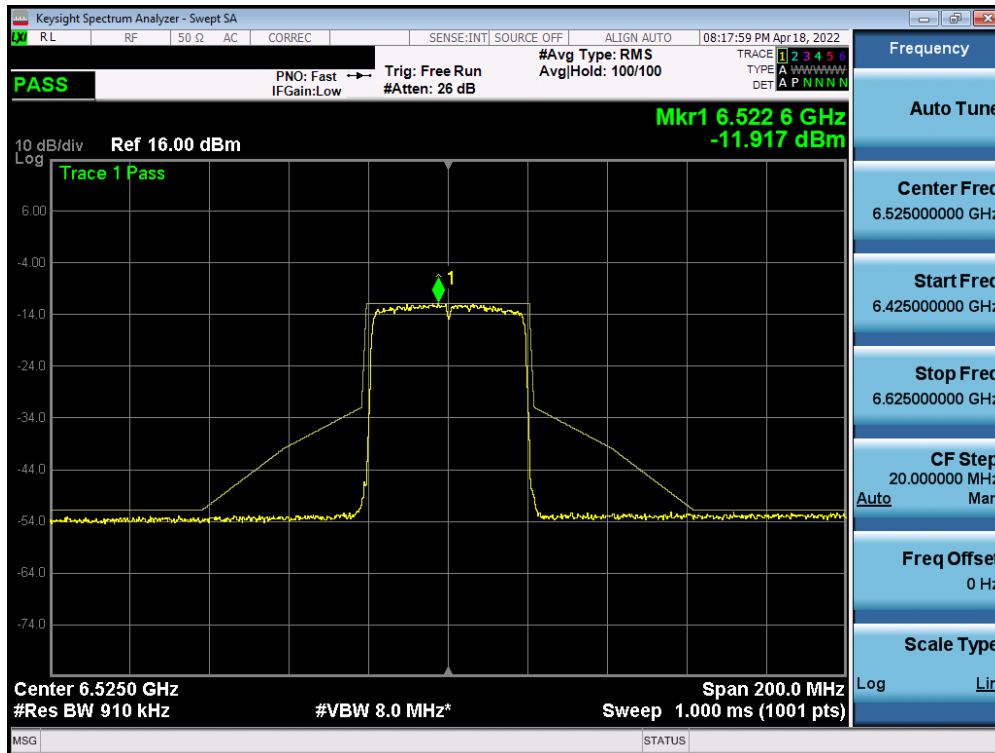


Plot 7-542. In-Band Emission Plot Measurement MIMO ANT1 (40MHz 802.11ax (UNII Band 6) – Ch. 99)

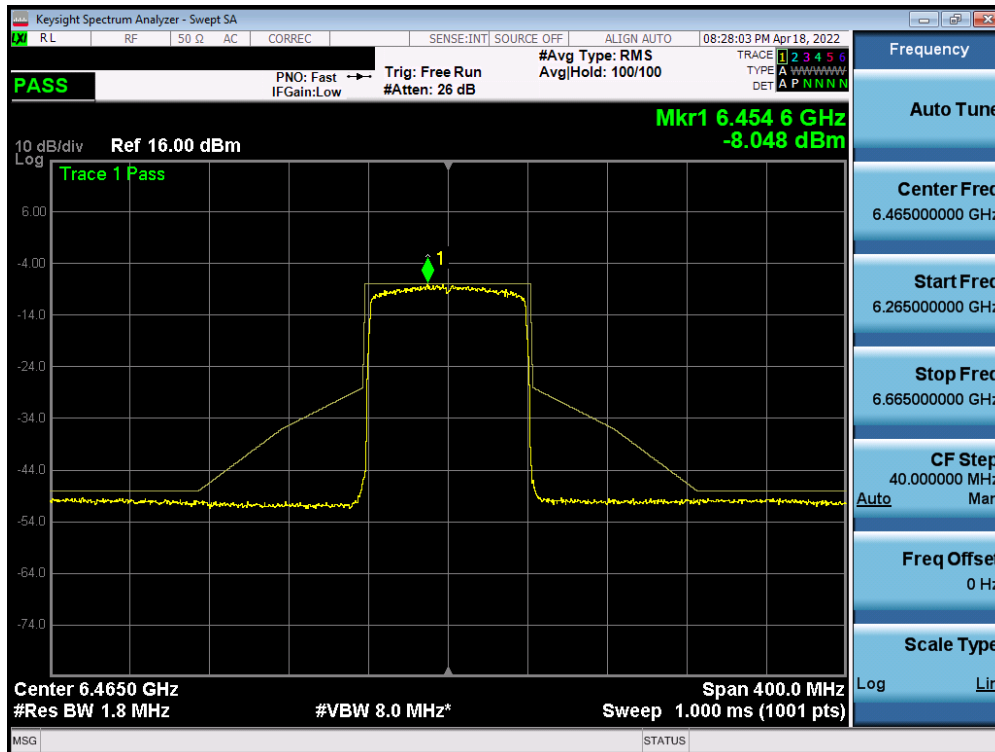


Plot 7-543. In-Band Emission Plot Measurement MIMO ANT1 (40MHz 802.11ax (UNII Band 6) – Ch. 107)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 311 of 422

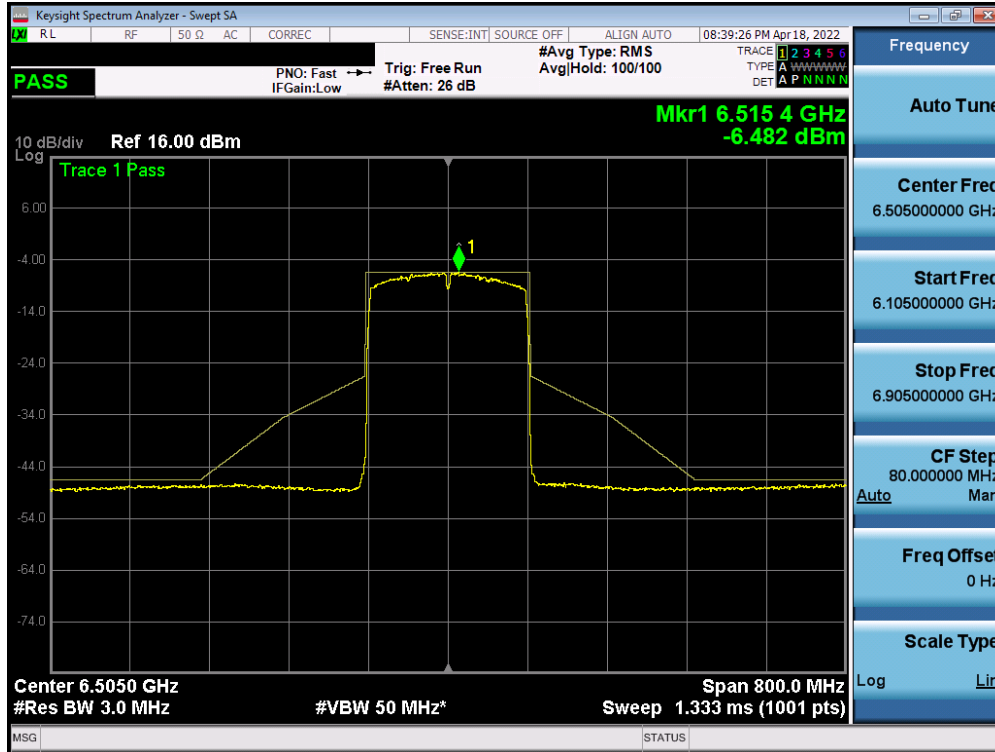


Plot 7-544. In-Band Emission Plot Measurement MIMO ANT1 (40MHz 802.11ax (UNII Band 6) – Ch. 115)



Plot 7-545. In-Band Emission Plot Measurement MIMO ANT1 (80MHz 802.11ax (UNII Band 6) – Ch. 103)

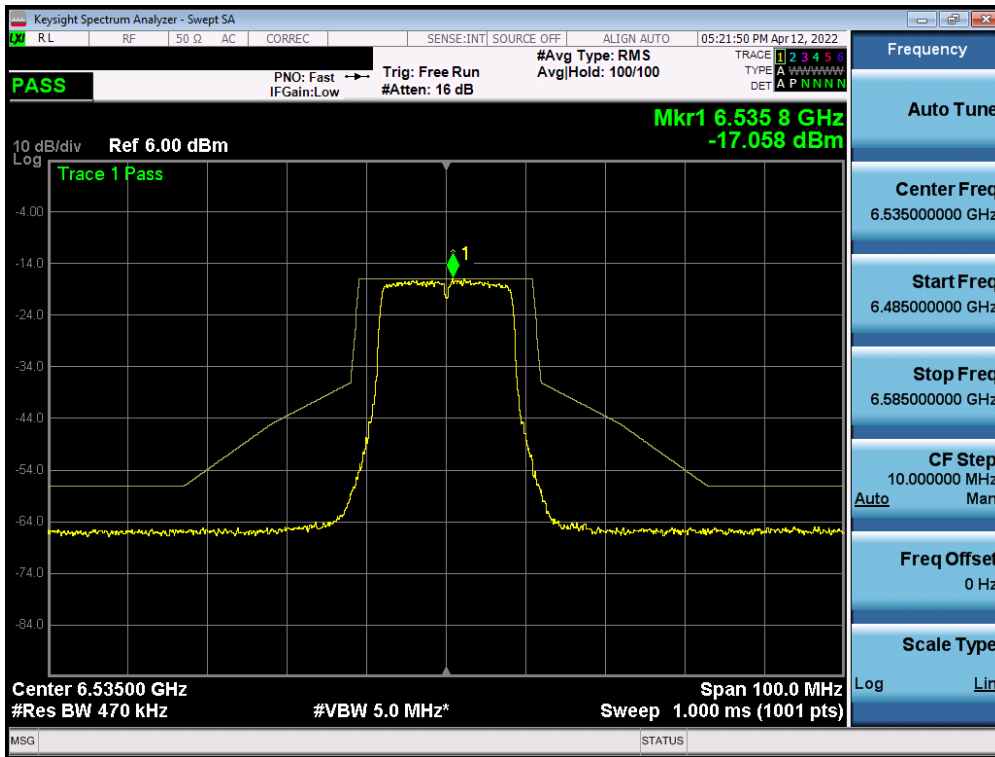
FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 312 of 422



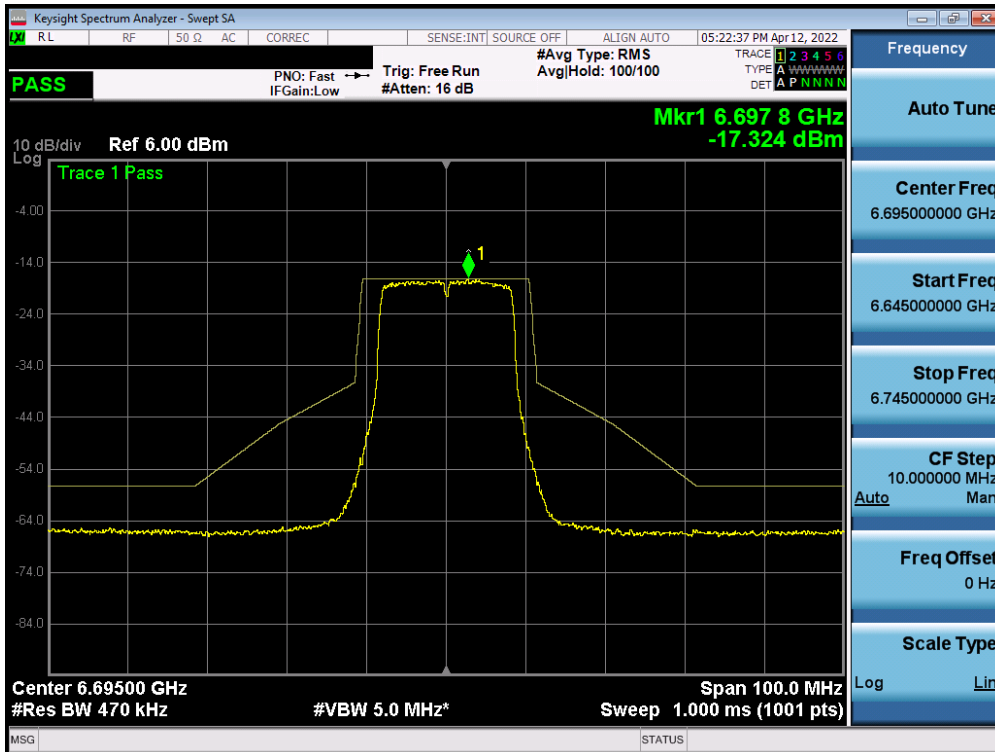
Plot 7-546. In-Band Emission Plot Measurement MIMO ANT1 (160MHz 802.11ax (UNII Band 6) – Ch. 111)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 313 of 422

MIMO Antenna-1 In-Band Emission Plot Measurement - (UNII Band 7)

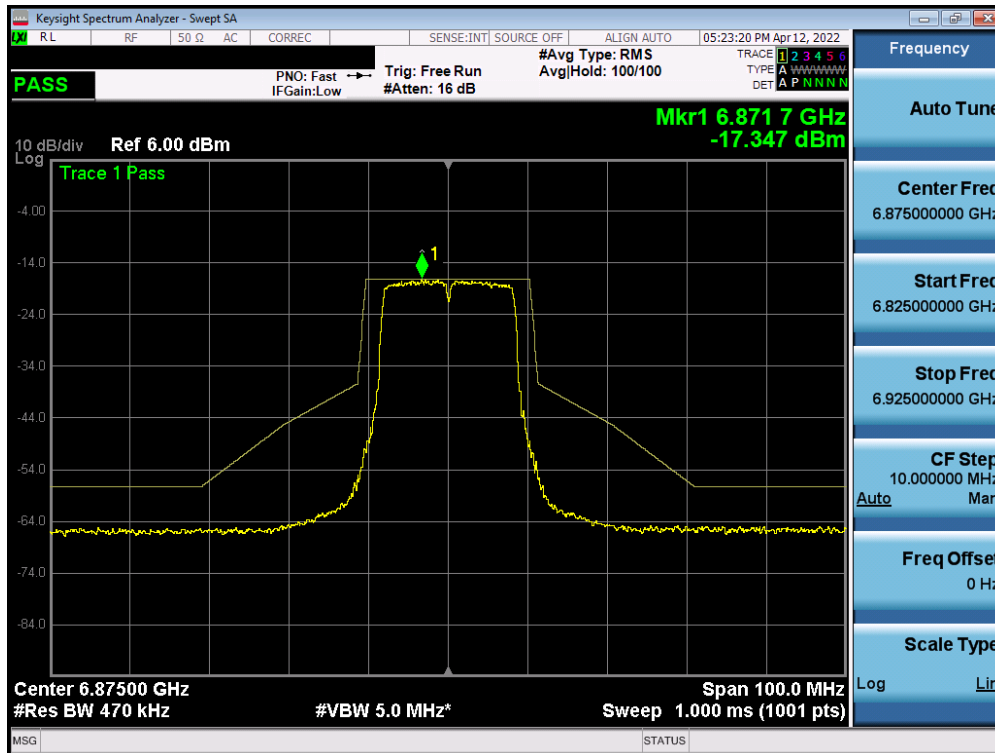


Plot 7-547. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11a (UNII Band 7) – Ch. 117)

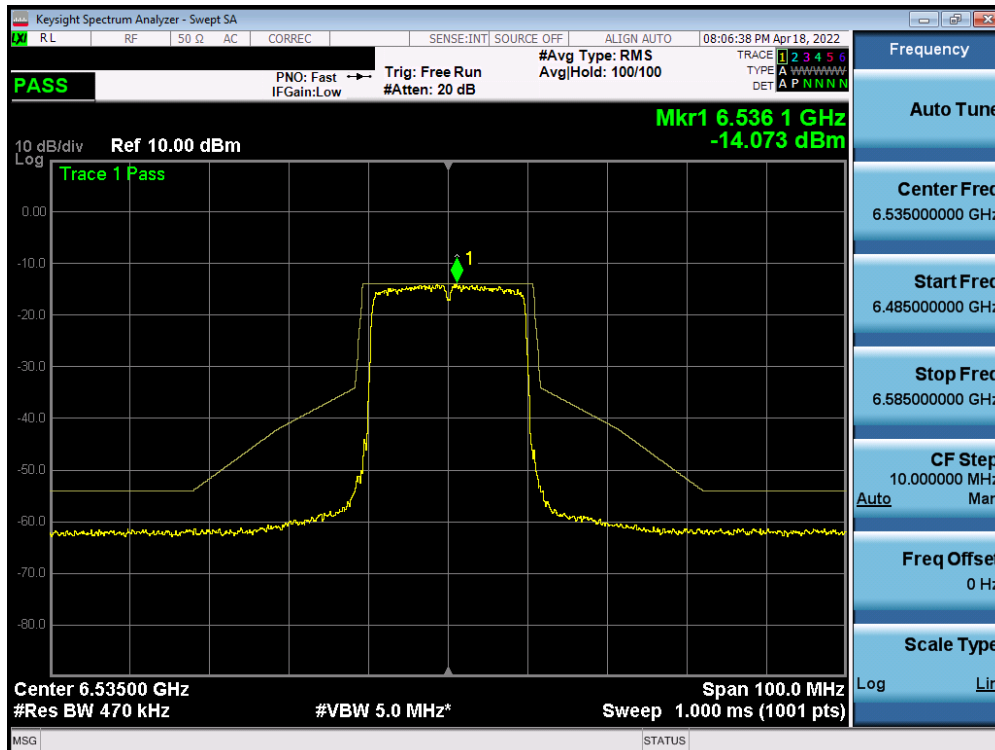


Plot 7-548. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11a (UNII Band 7) – Ch. 149)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 314 of 422

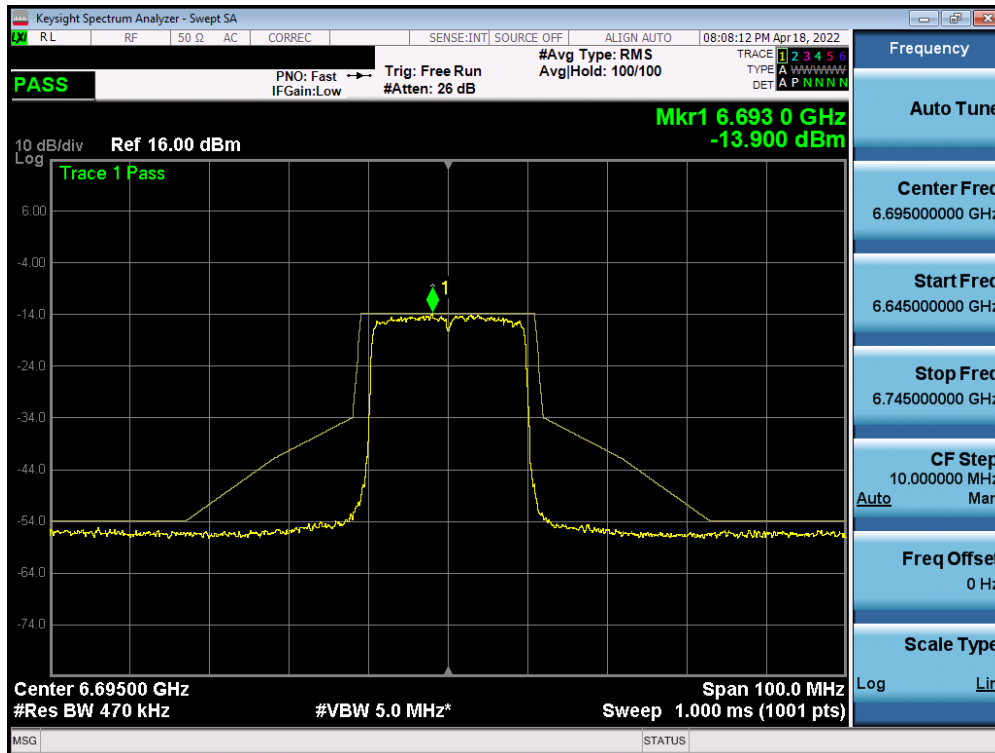


Plot 7-549. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11a (UNII Band 7) – Ch. 185)

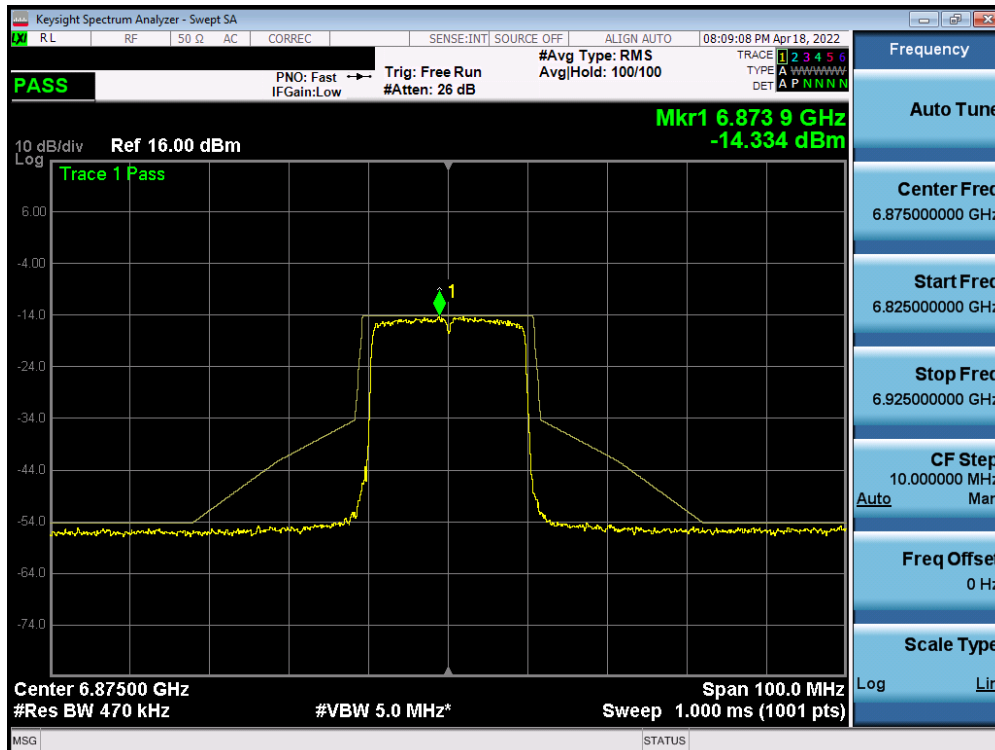


Plot 7-550. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11ax (UNII Band 7) – Ch. 117)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 315 of 422

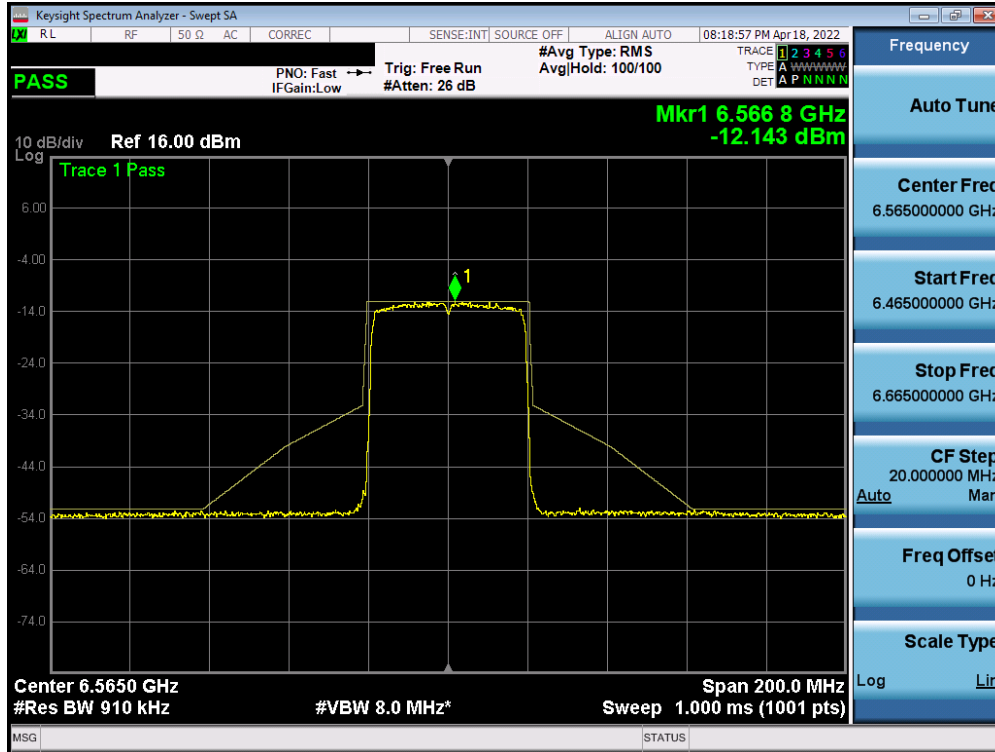


Plot 7-551. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11ax (UNII Band 7) – Ch. 149)

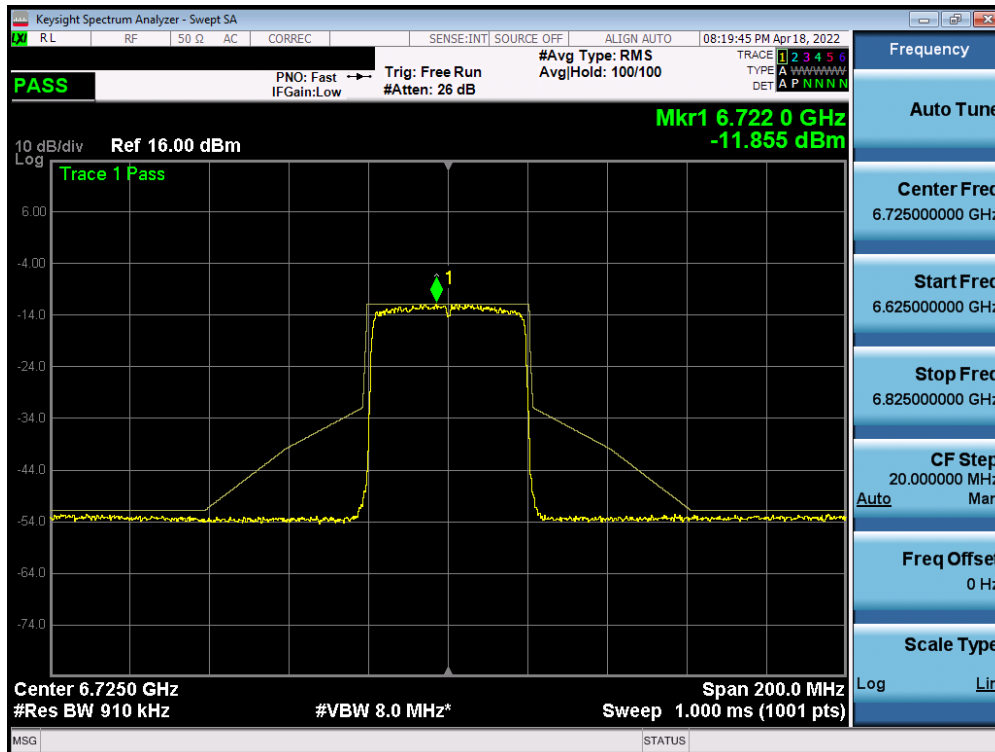


Plot 7-552. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11ax (UNII Band 7) – Ch. 185)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 316 of 422

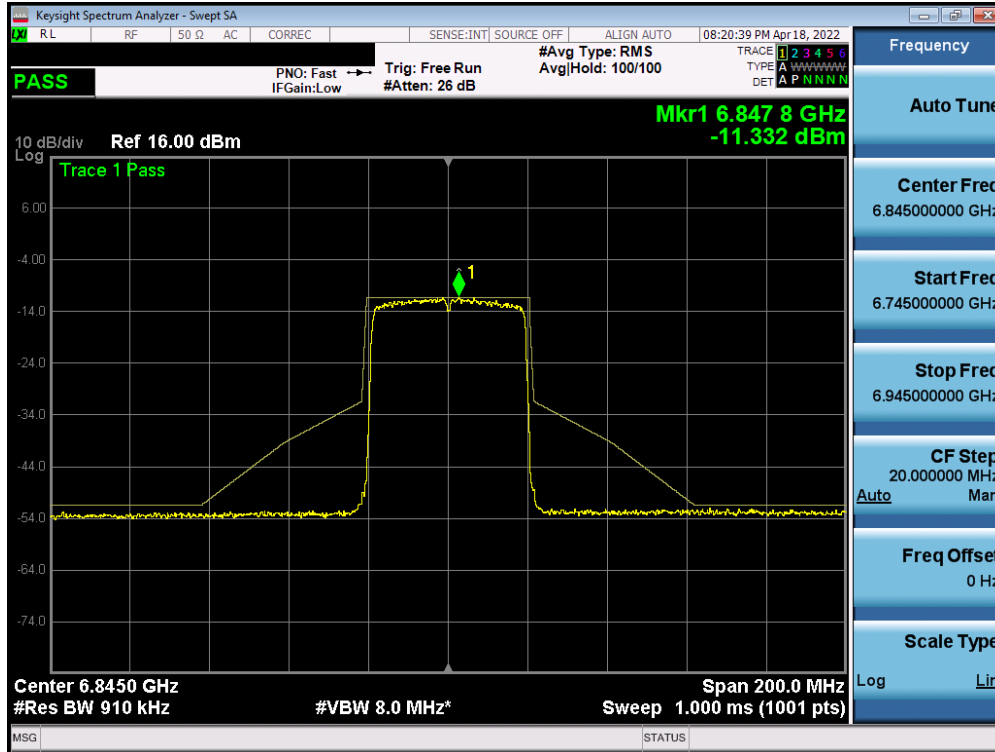


Plot 7-553. In-Band Emission Plot Measurement MIMO ANT1 (40MHz 802.11ax (UNII Band 7) – Ch. 123)

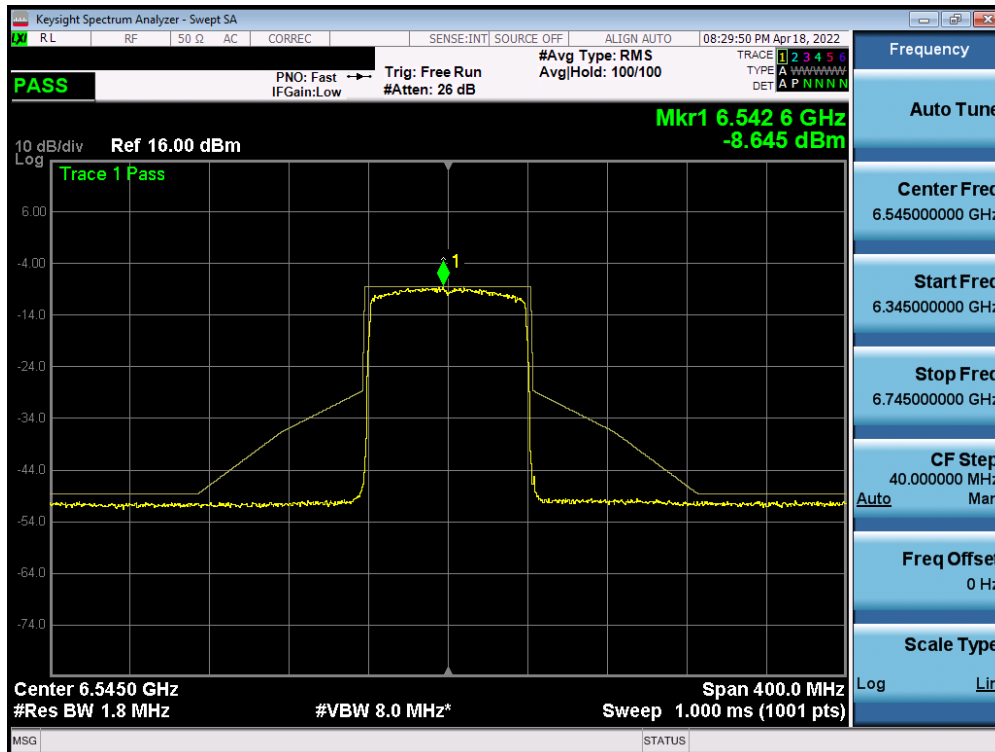


Plot 7-554. In-Band Emission Plot Measurement MIMO ANT1 (40MHz 802.11ax (UNII Band 7) – Ch. 155)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 317 of 422

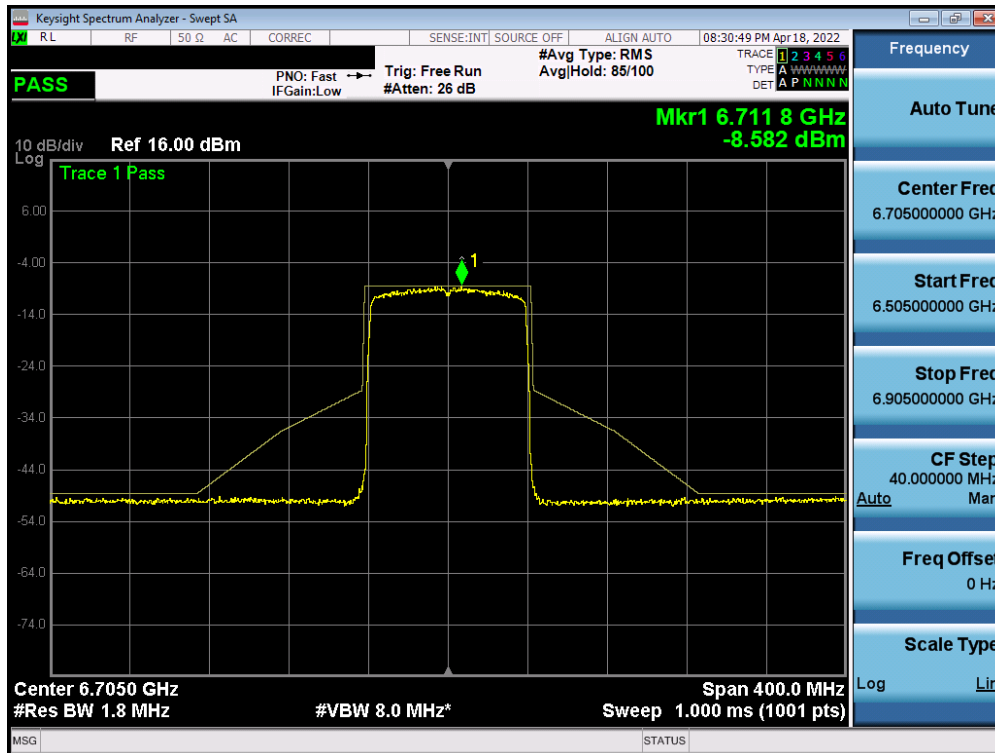


Plot 7-555. In-Band Emission Plot Measurement MIMO ANT1 (40MHz 802.11ax (UNII Band 7) – Ch. 179)

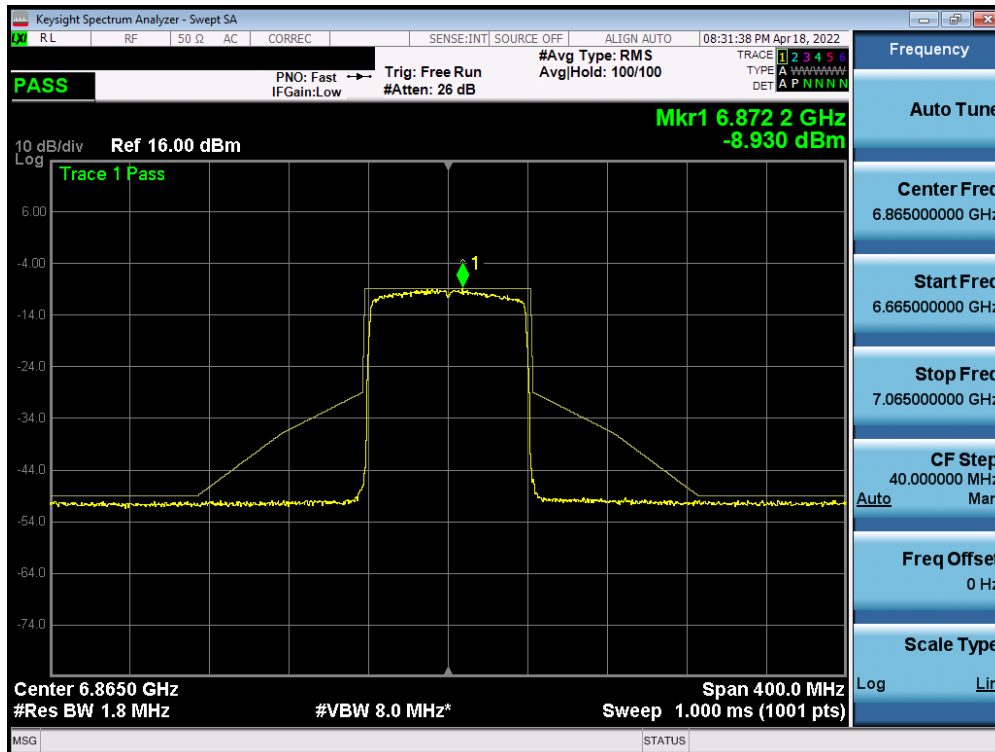


Plot 7-556. In-Band Emission Plot Measurement MIMO ANT1 (80MHz 802.11ax (UNII Band 7) – Ch. 119)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 318 of 422

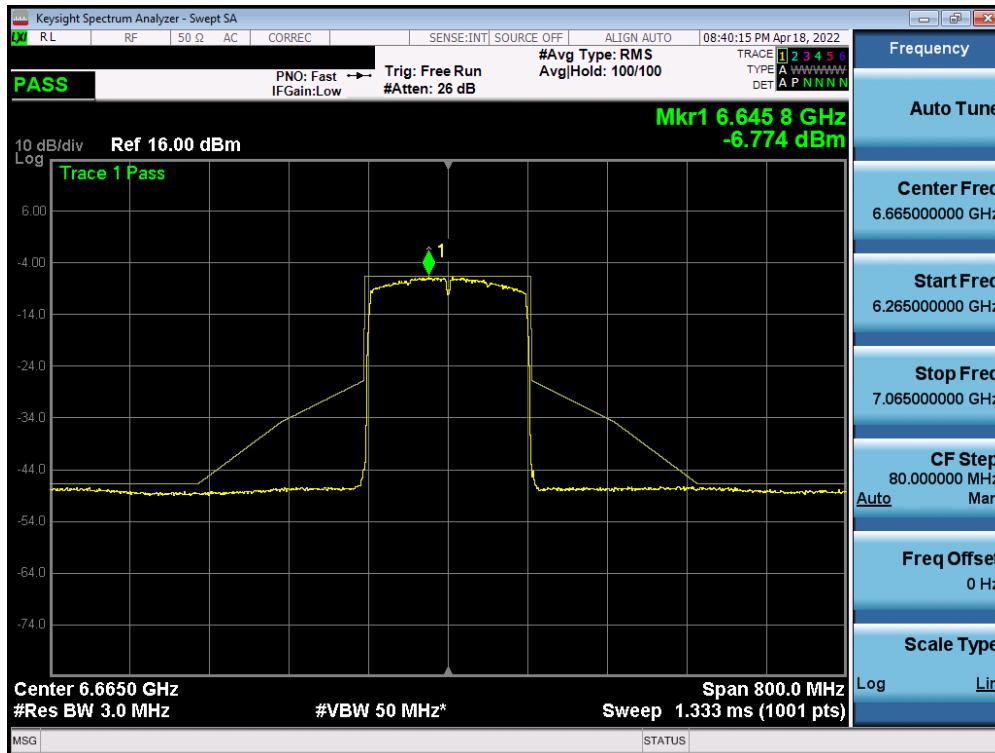


Plot 7-557. In-Band Emission Plot Measurement MIMO ANT1 (80MHz 802.11ax (UNII Band 7) – Ch. 151)

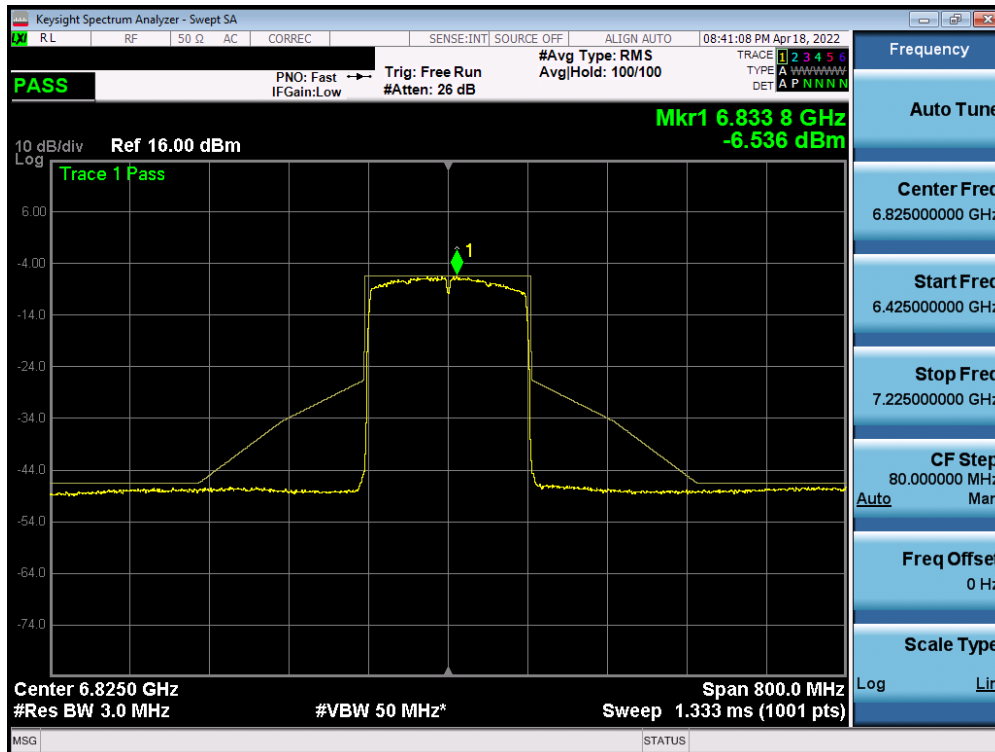


Plot 7-558. In-Band Emission Plot Measurement MIMO ANT1 (80MHz 802.11ax (UNII Band 7) – Ch. 183)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 319 of 422



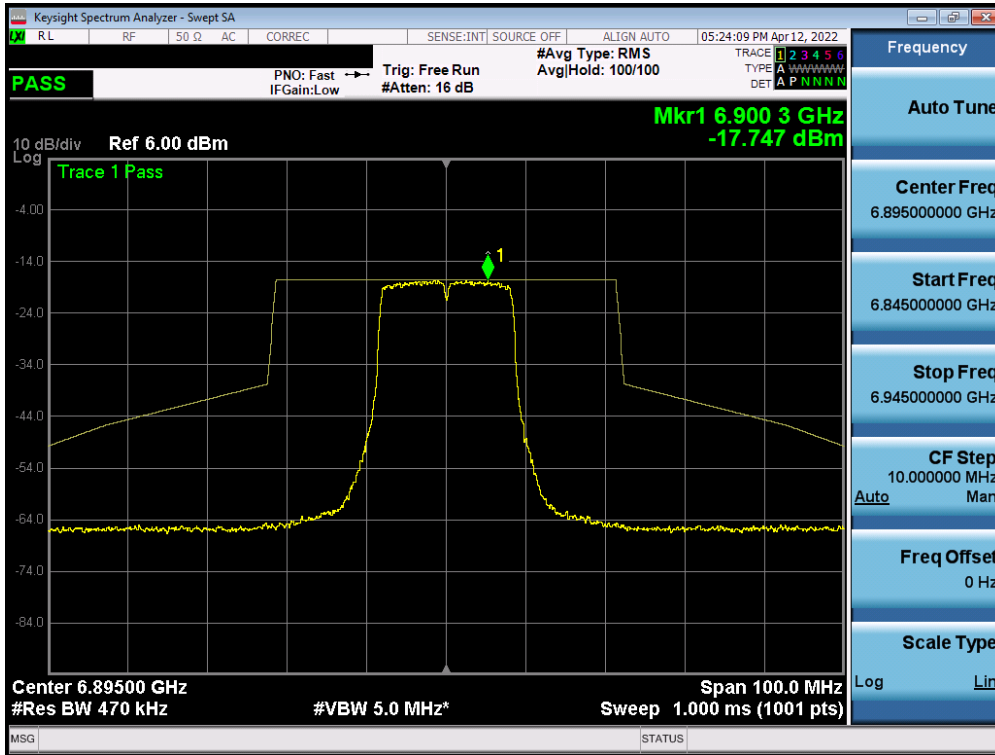
Plot 7-559. In-Band Emission Plot Measurement MIMO ANT1 (160MHz 802.11ax (UNII Band 7) – Ch. 143)



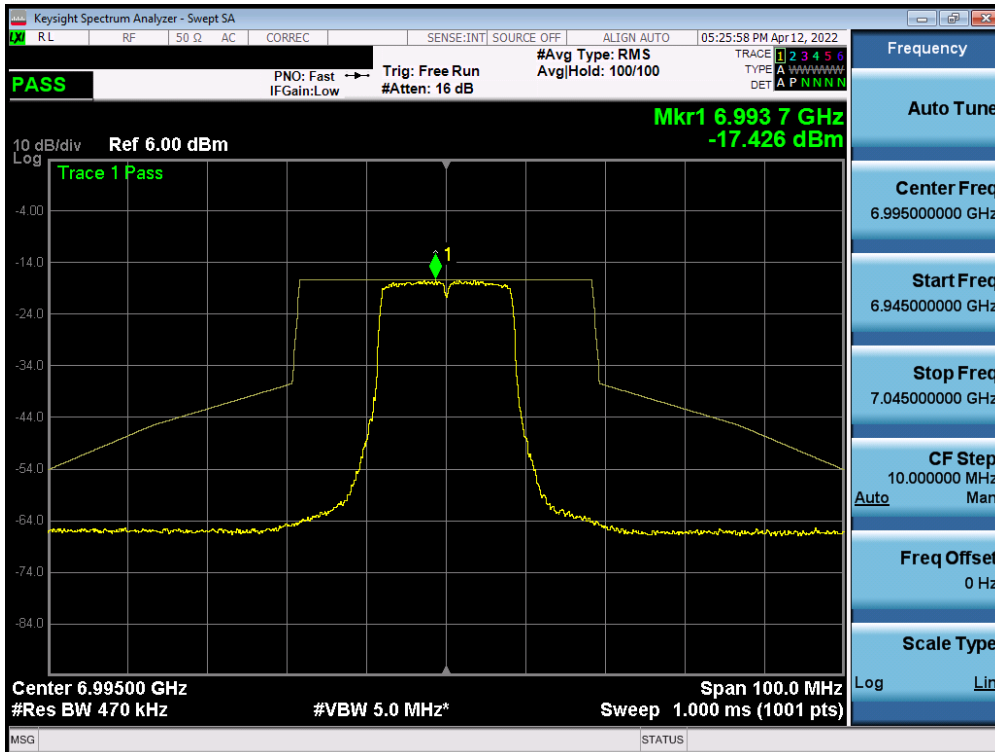
Plot 7-560. In-Band Emission Plot Measurement MIMO ANT1 (160MHz 802.11ax (UNII Band 7) – Ch. 175)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 320 of 422

MIMO Antenna-1 In-Band Emission Plot Measurement - (UNII Band 8)

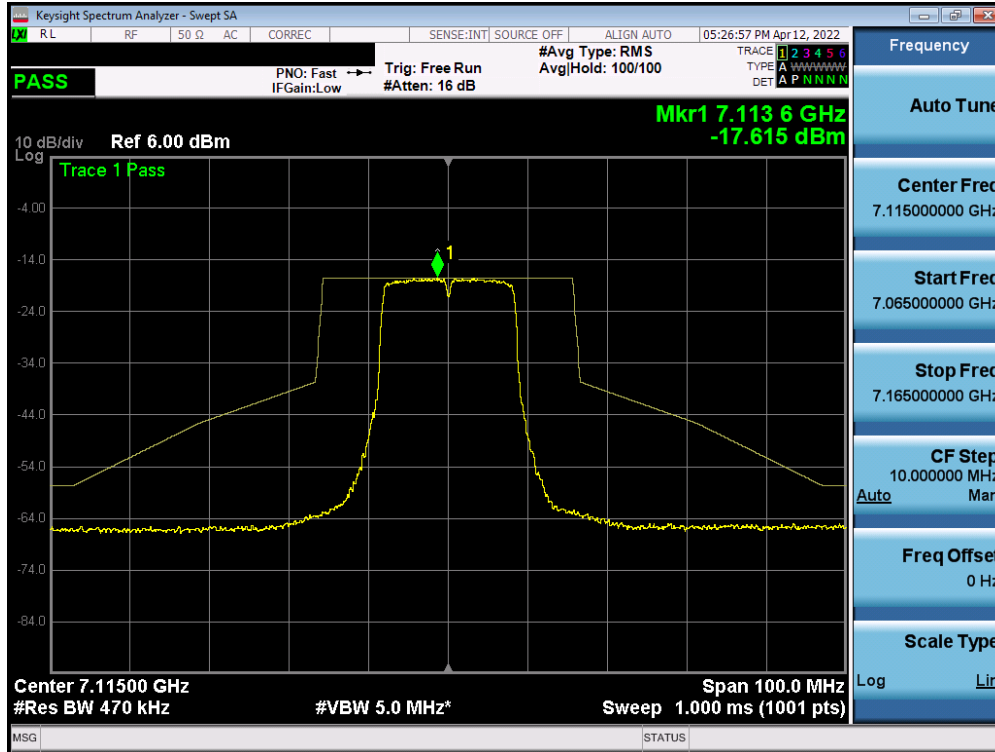


Plot 7-561. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11a (UNII Band 8) – Ch. 189)

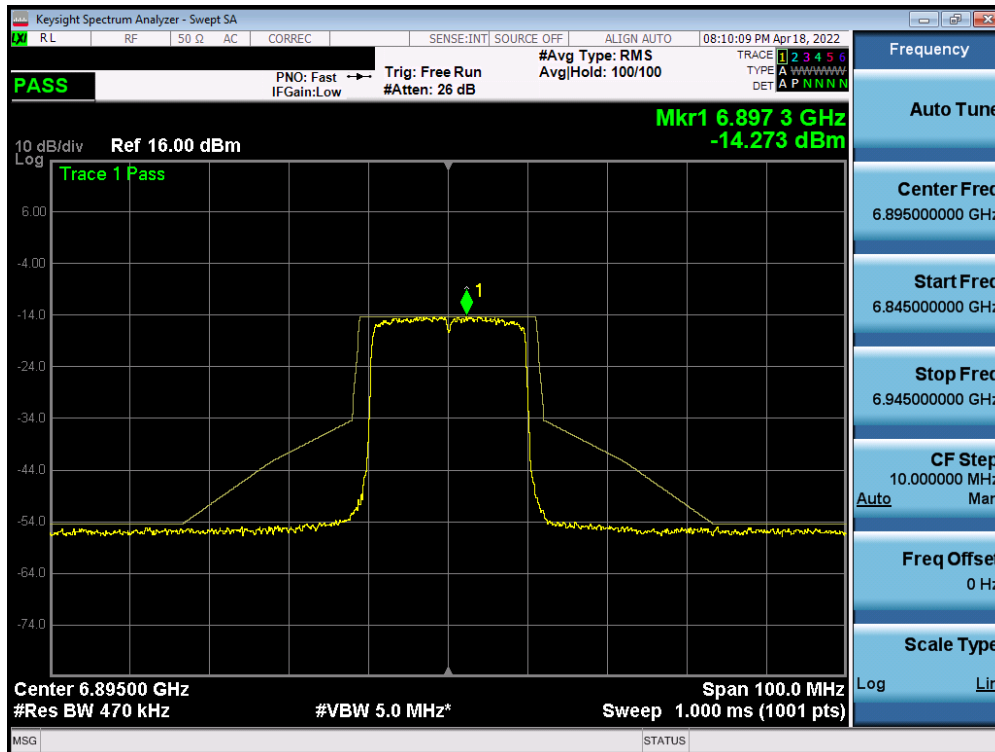


Plot 7-562. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11a (UNII Band 8) – Ch. 209)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 321 of 422

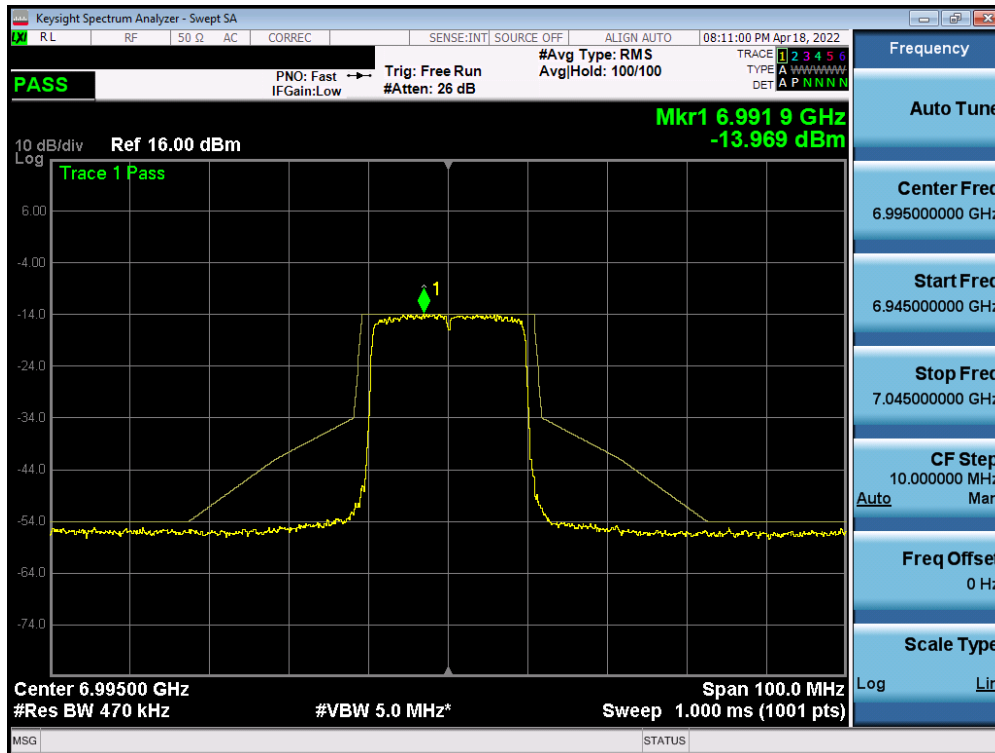


Plot 7-563. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11a (UNII Band 8) – Ch. 233)

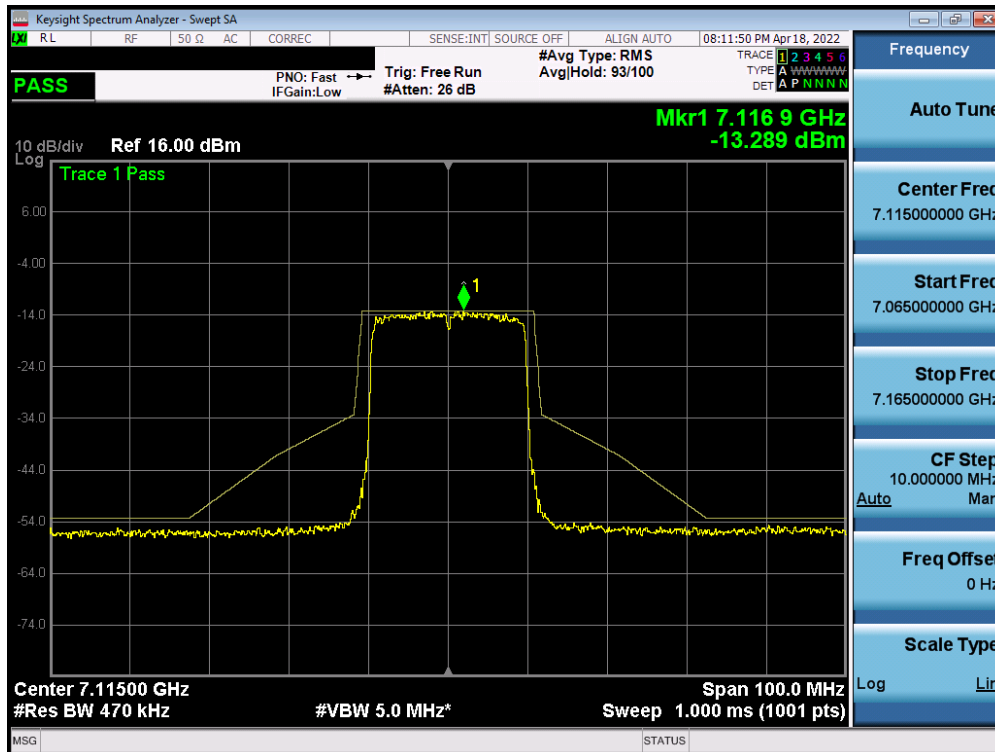


Plot 7-564. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11ax (UNII Band 8) – Ch. 189)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 322 of 422

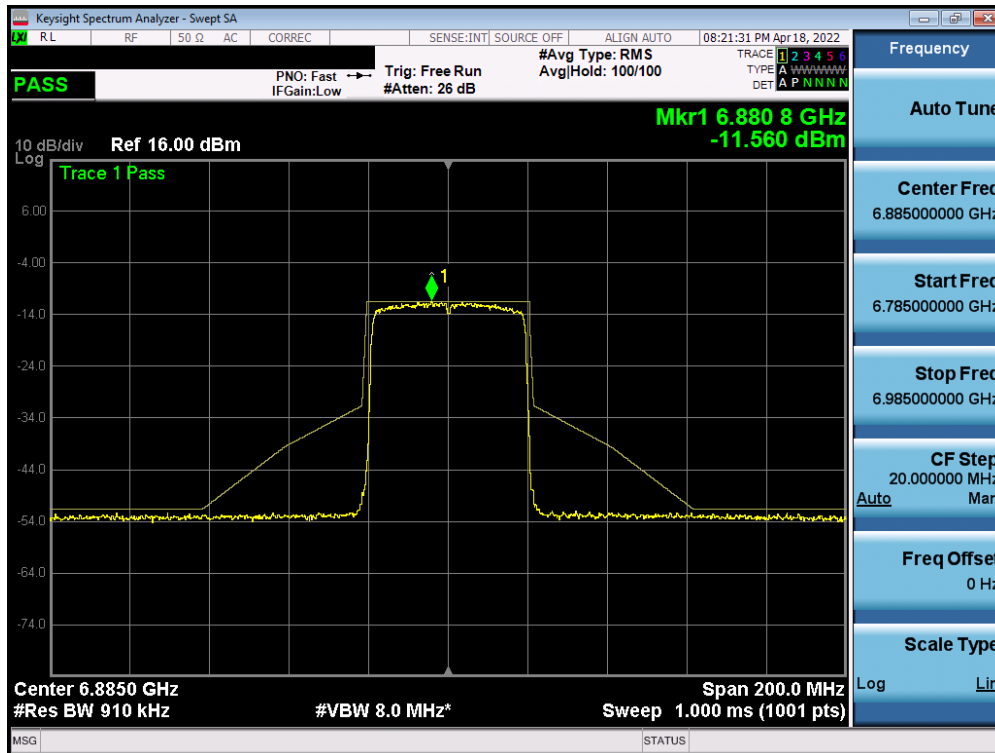


Plot 7-565. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11ax (UNII Band 8) – Ch. 209)

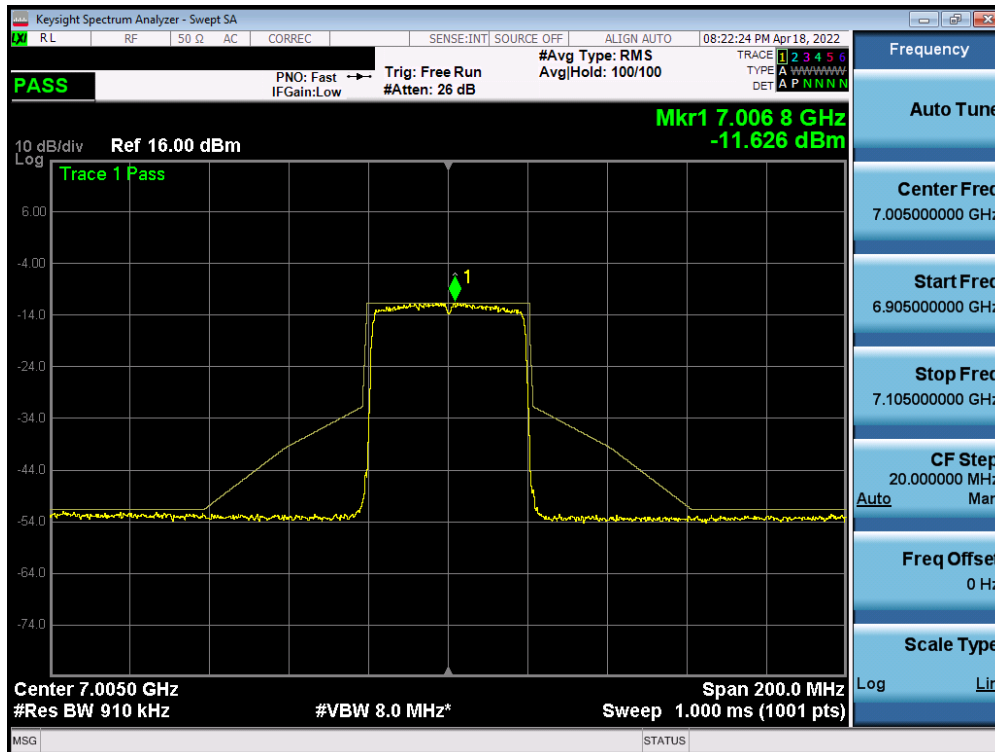


Plot 7-566. In-Band Emission Plot Measurement MIMO ANT1 (20MHz 802.11ax (UNII Band 8) – Ch. 233)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 323 of 422

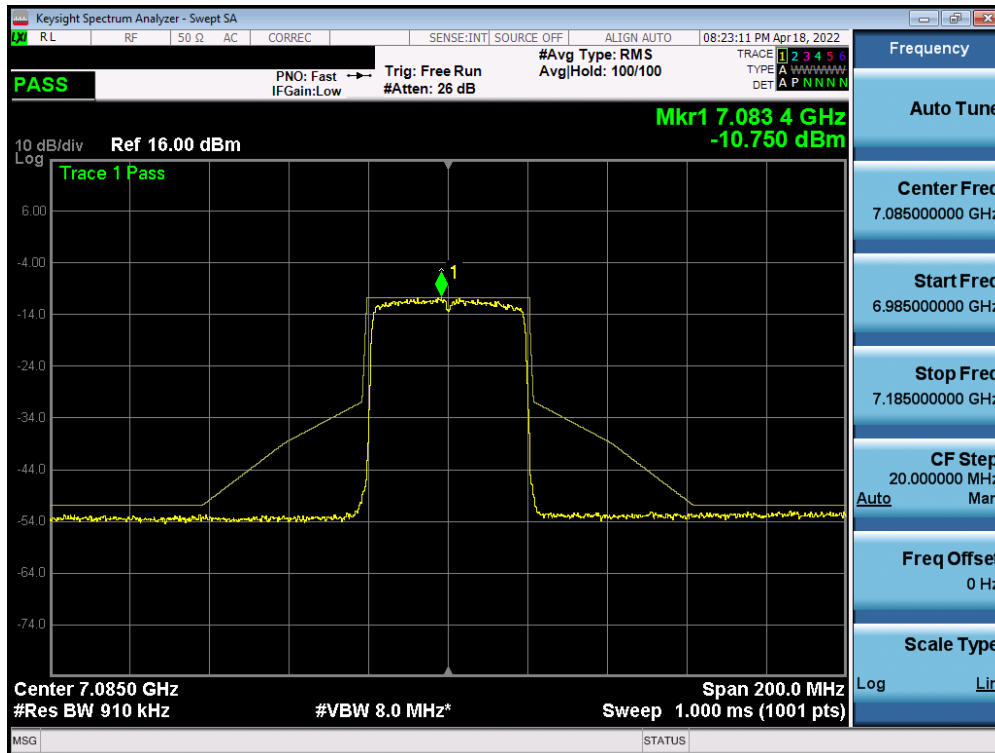


Plot 7-567. In-Band Emission Plot Measurement MIMO ANT1 (40MHz 802.11ax (UNII Band 8) – Ch. 187)

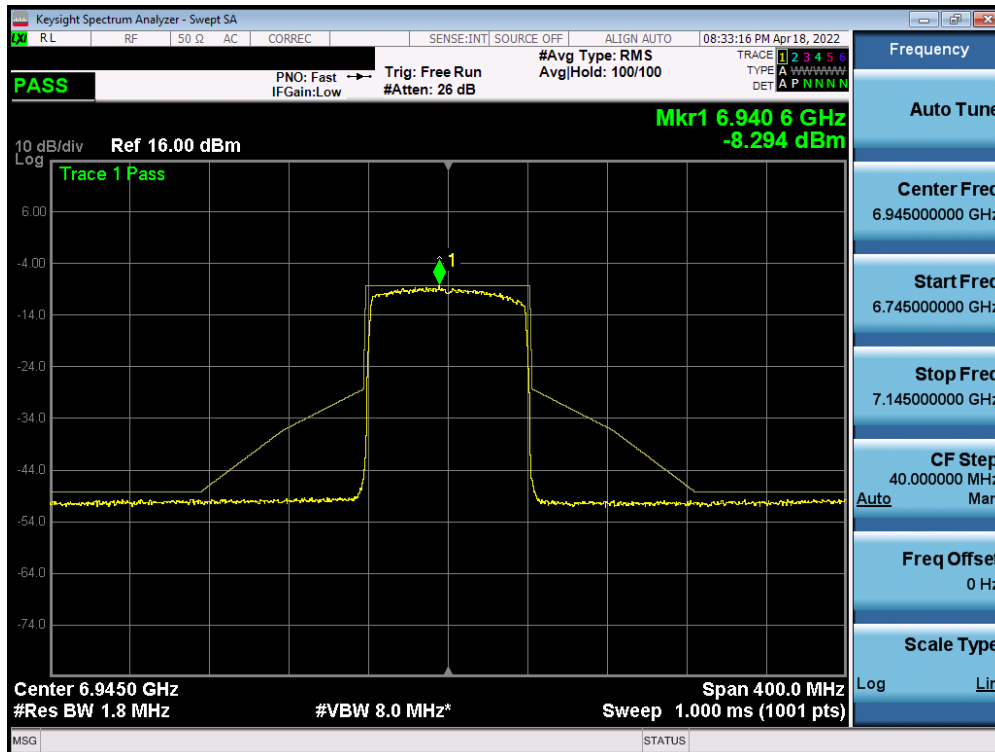


Plot 7-568. In-Band Emission Plot Measurement MIMO ANT1 (40MHz 802.11ax (UNII Band 8) – Ch. 211)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 324 of 422

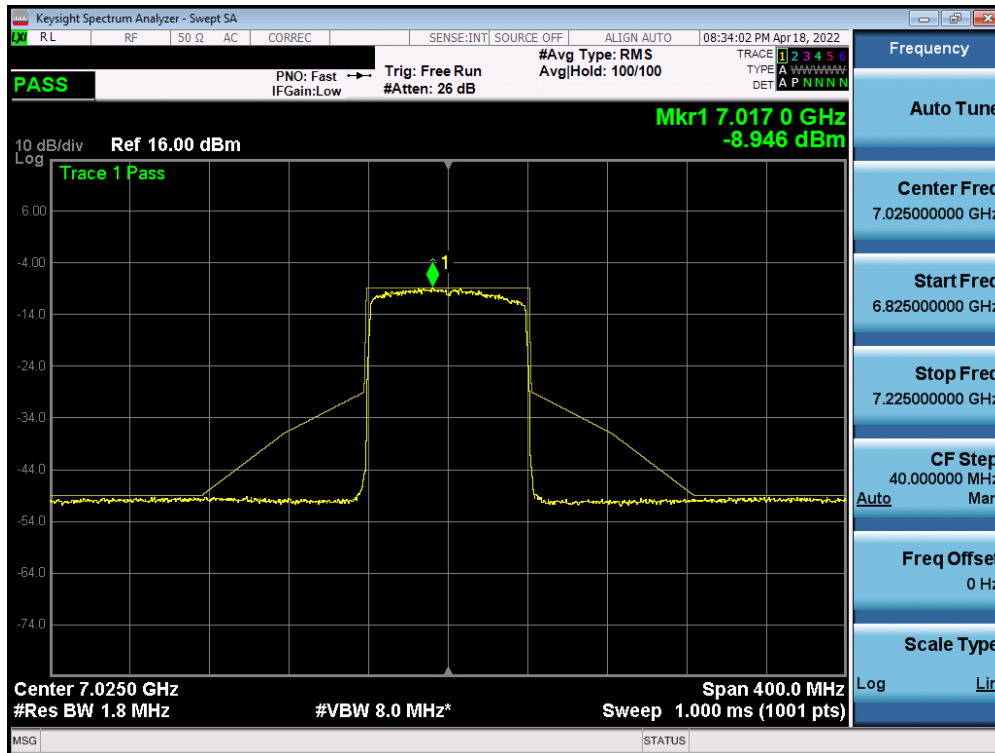


Plot 7-569. In-Band Emission Plot Measurement MIMO ANT1 (40MHz 802.11ax (UNII Band 8) – Ch. 227)

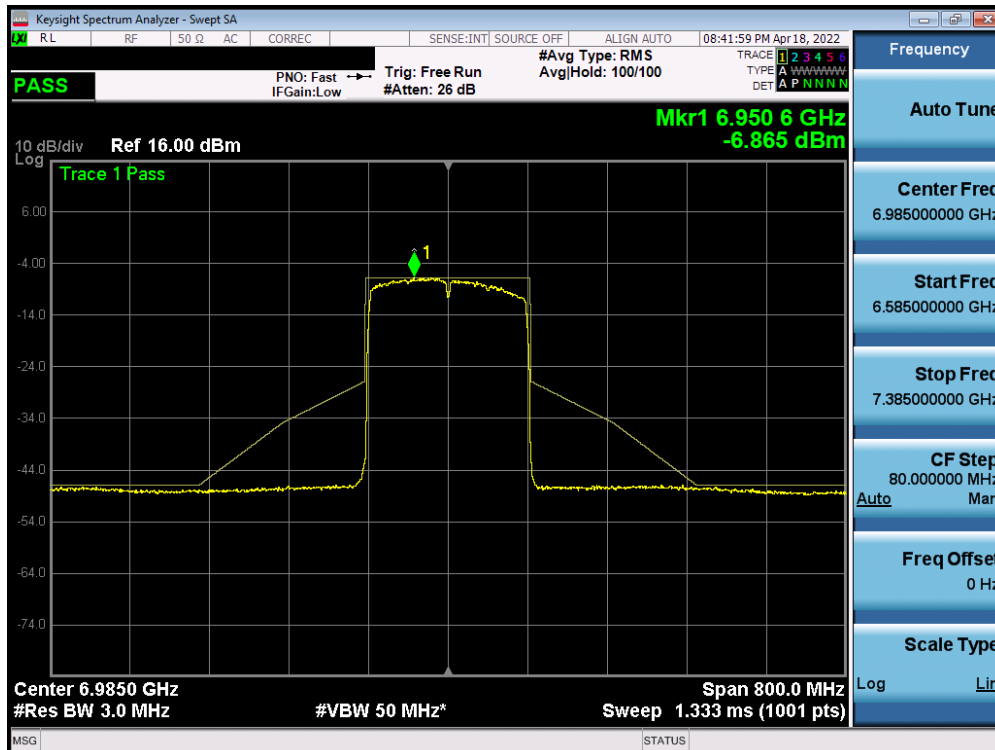


Plot 7-570. In-Band Emission Plot Measurement MIMO ANT1 (80MHz 802.11ax (UNII Band 8) – Ch. 199)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 325 of 422



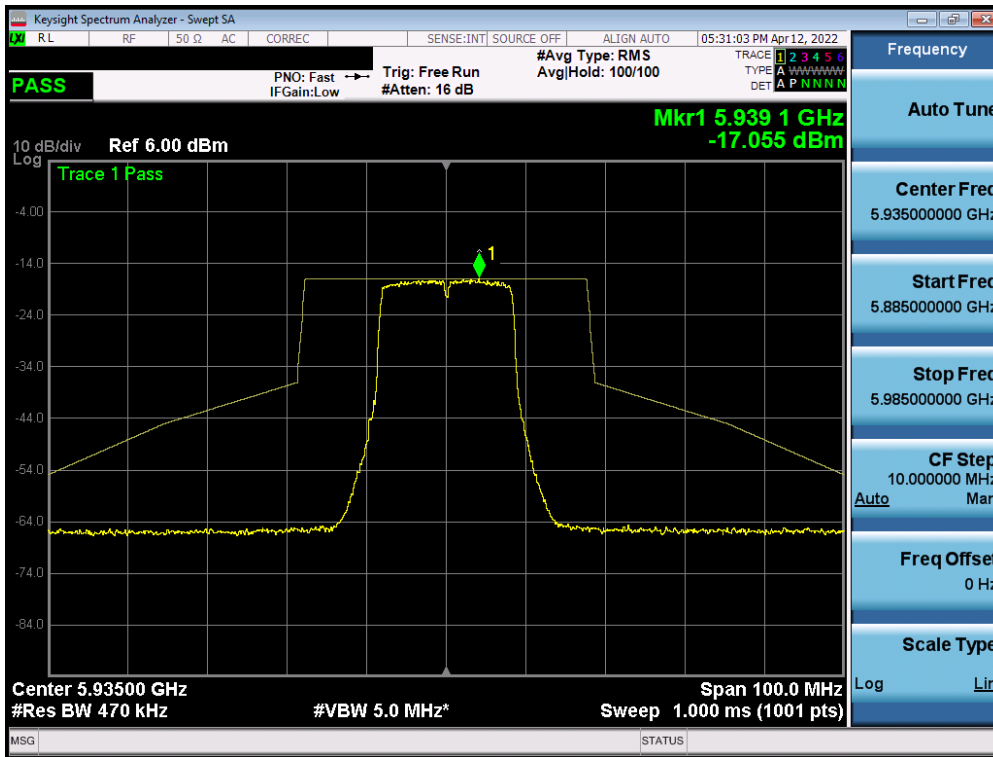
Plot 7-571. In-Band Emission Plot Measurement MIMO ANT1 (80MHz 802.11ax (UNII Band 8) – Ch. 215)



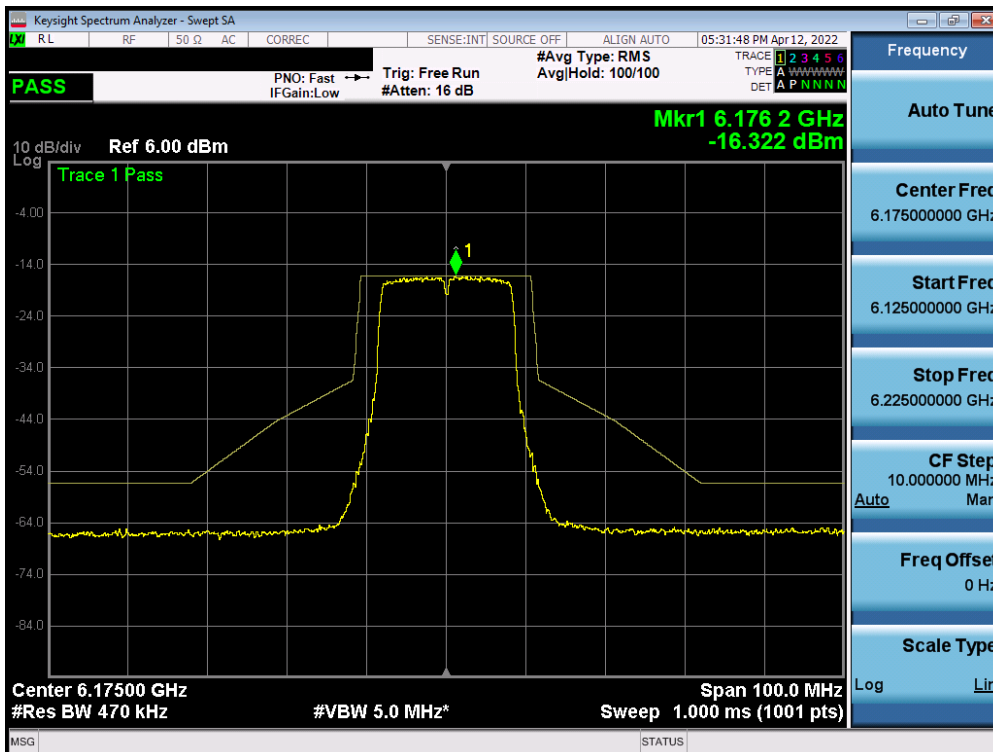
Plot 7-572. In-Band Emission Plot Measurement MIMO ANT1 (160MHz 802.11ax (UNII Band 8) – Ch. 207)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 326 of 422

MIMO Antenna-2 In-Band Emission Plot Measurement - (UNII Band 5)

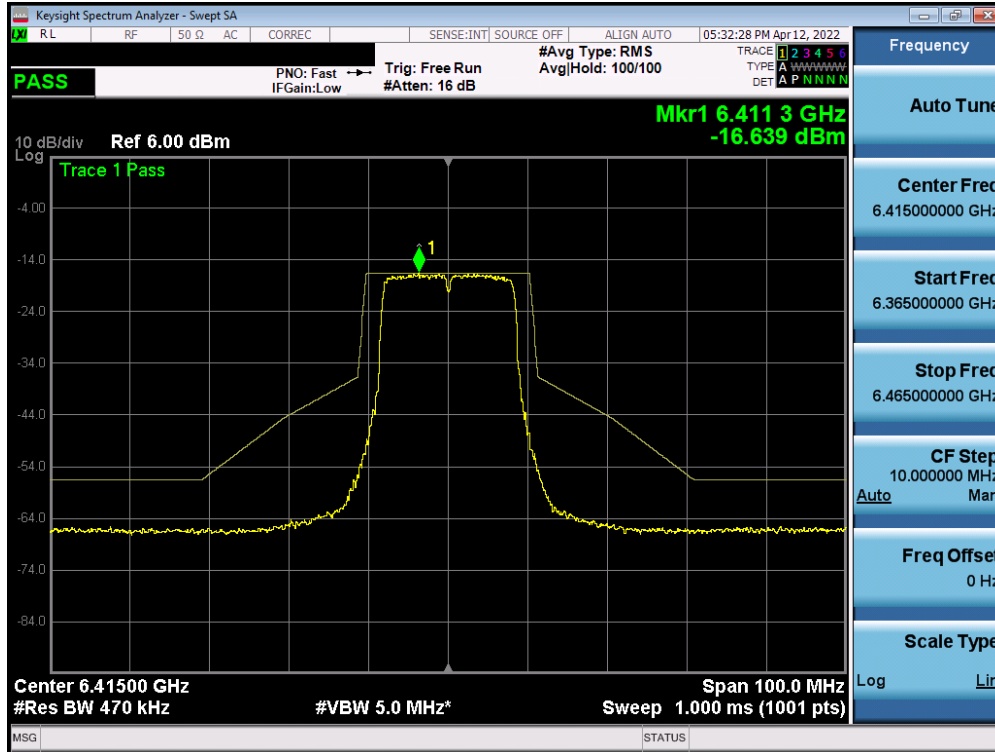


Plot 7-573. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 5) – Ch. 2)

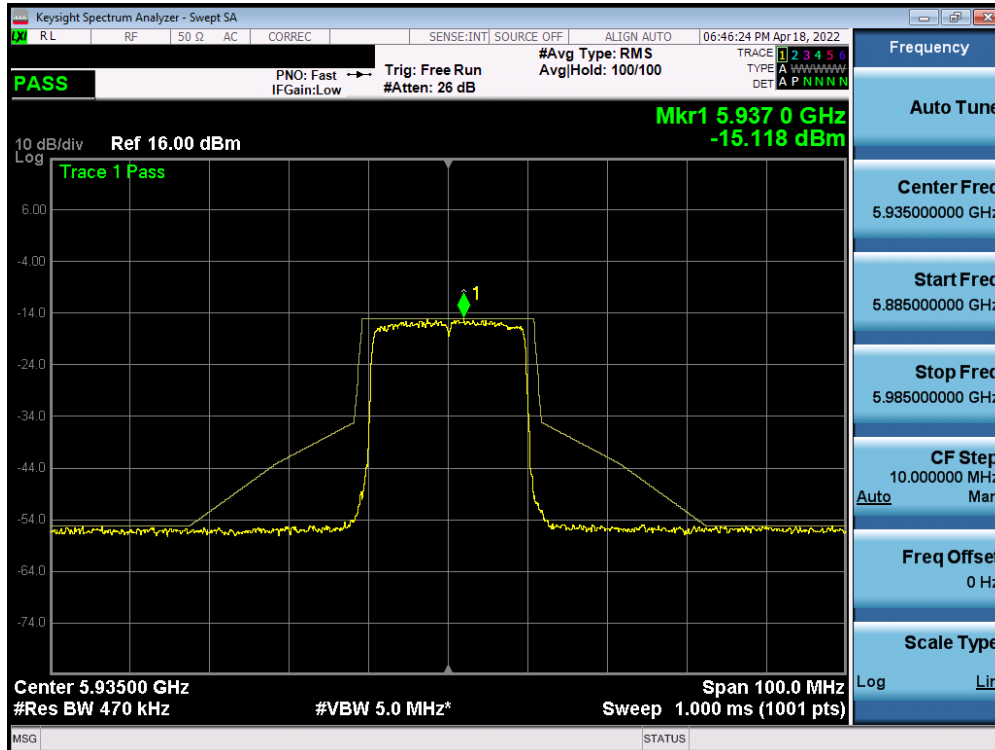


Plot 7-574. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 5) – Ch. 45)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 327 of 422

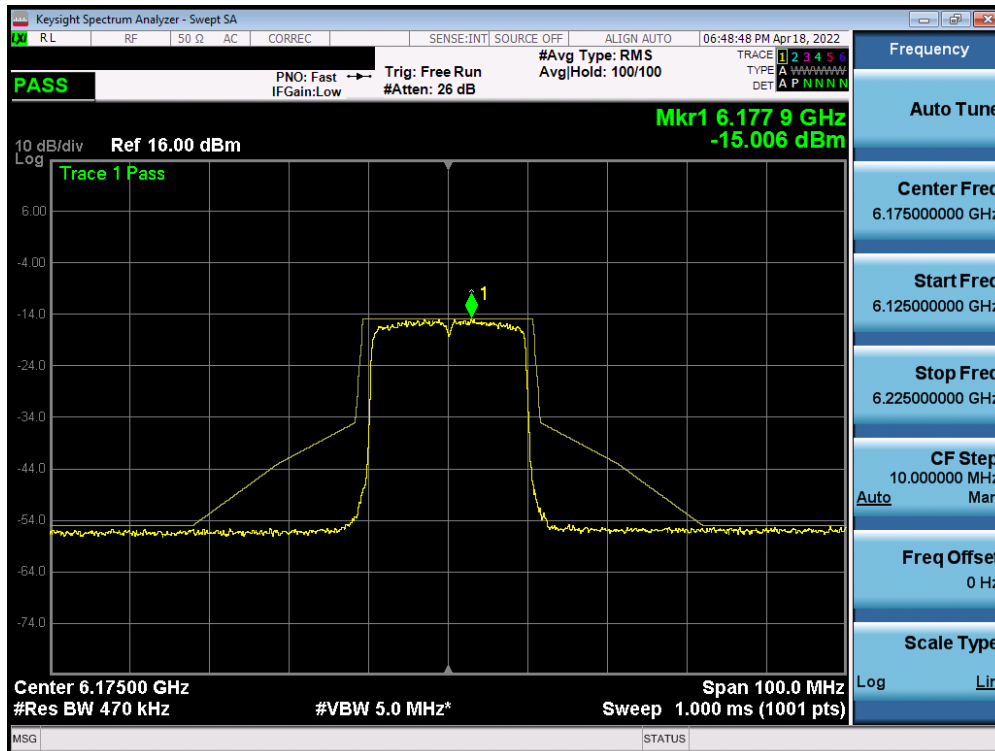


Plot 7-575. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 5) – Ch. 93)

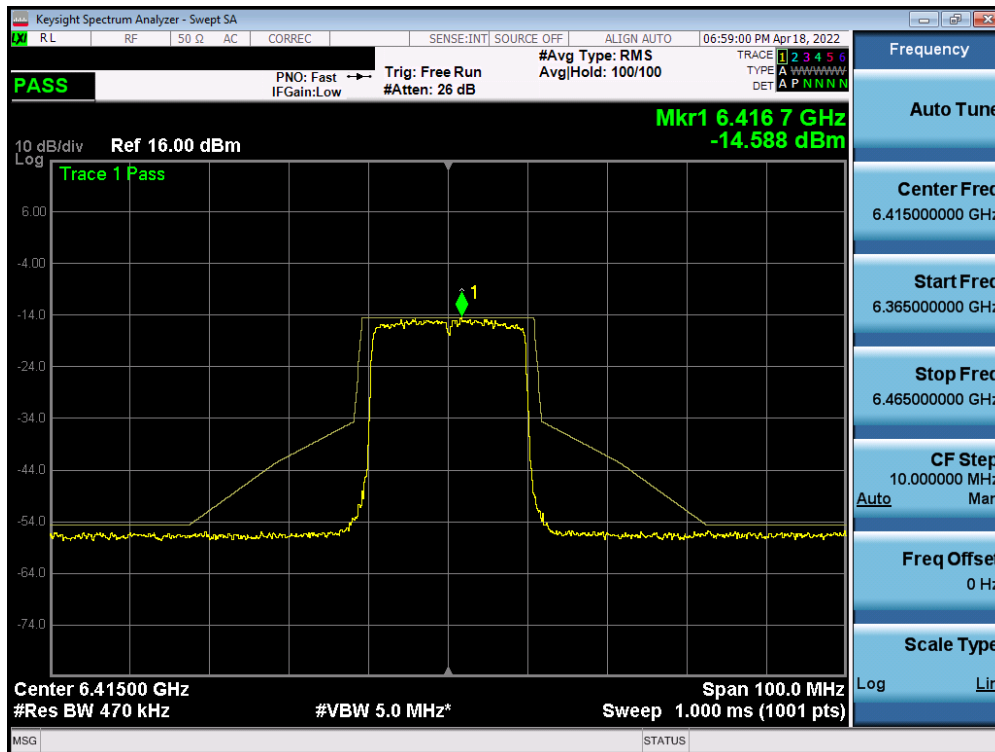


Plot 7-576. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 5) – Ch. 2)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 328 of 422

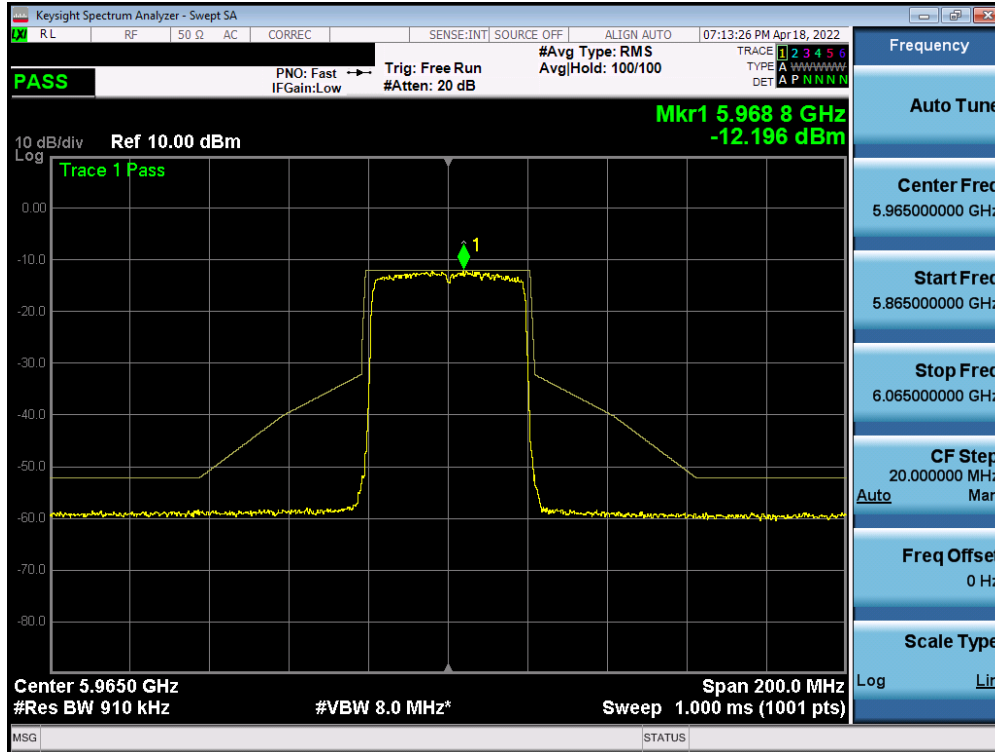


Plot 7-577. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 5) – Ch. 45)

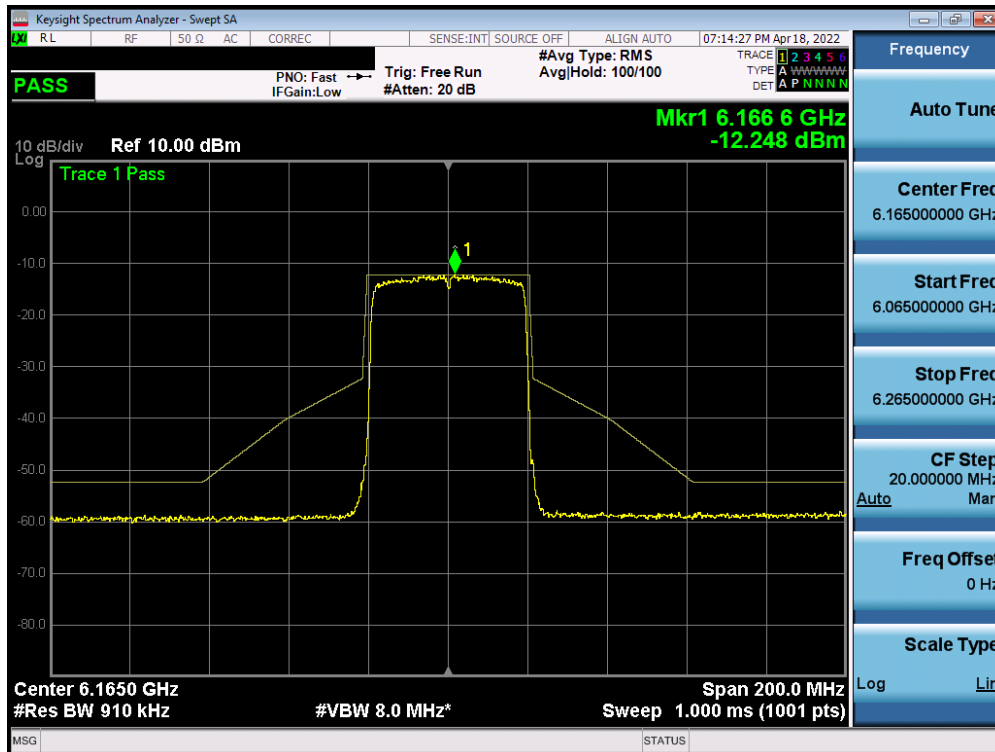


Plot 7-578. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 5) – Ch. 93)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 329 of 422

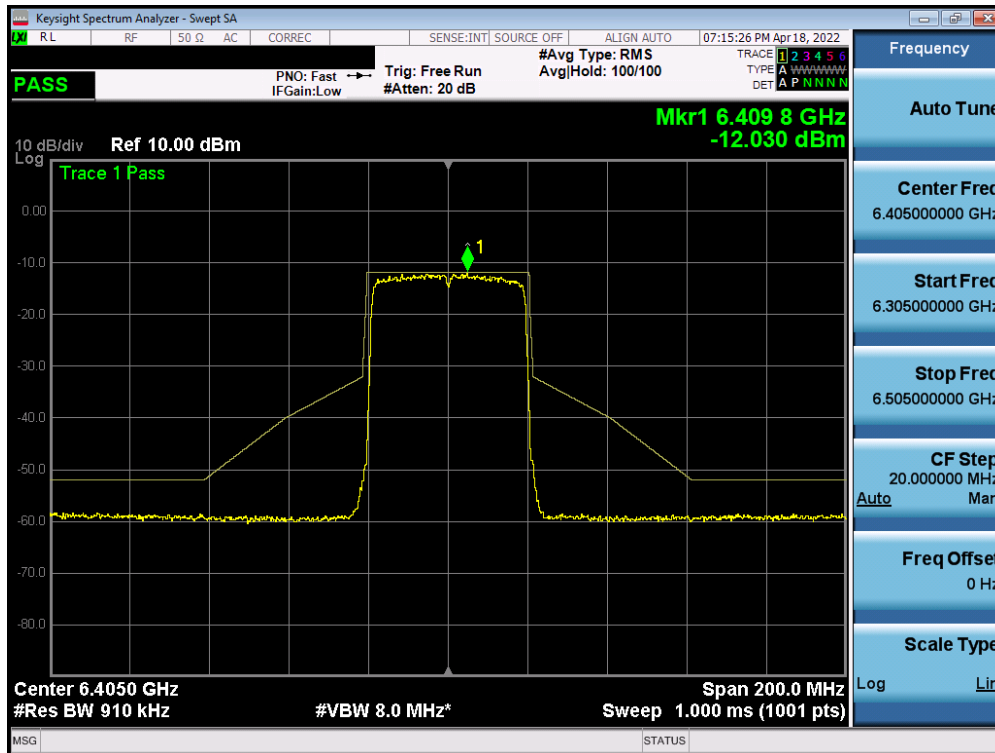


Plot 7-579. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 5) – Ch. 3)

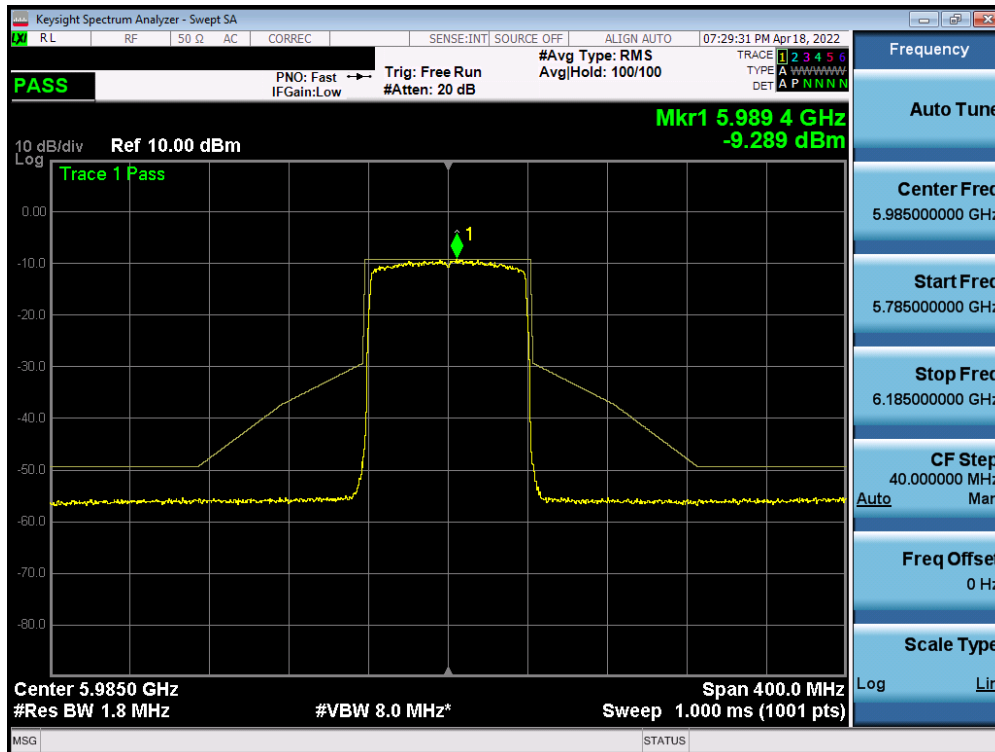


Plot 7-580. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 5) – Ch. 43)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 330 of 422

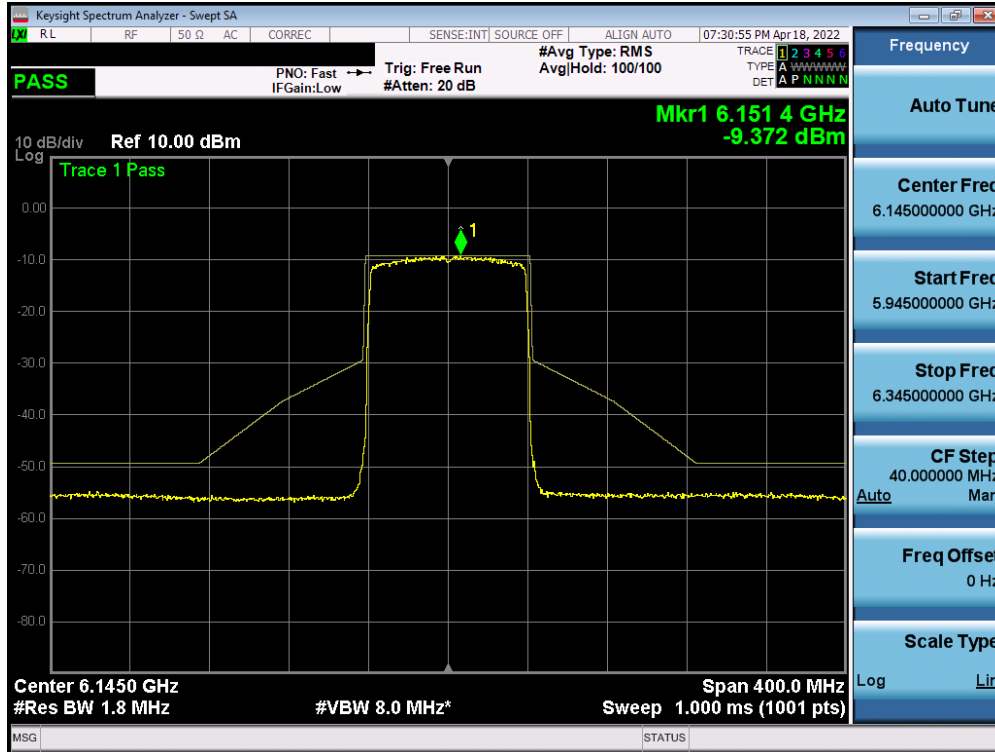


Plot 7-581. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 5) – Ch. 91)

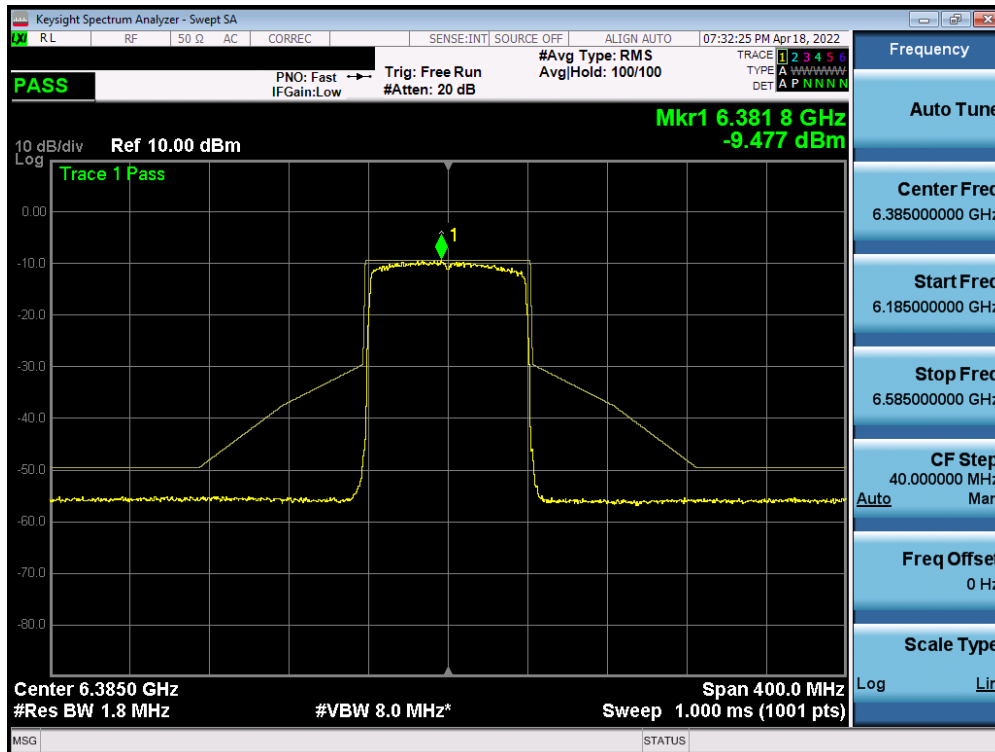


Plot 7-582. In-Band Emission Plot Measurement MIMO ANT2 (80MHz 802.11ax (UNII Band 5) – Ch. 7)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 331 of 422

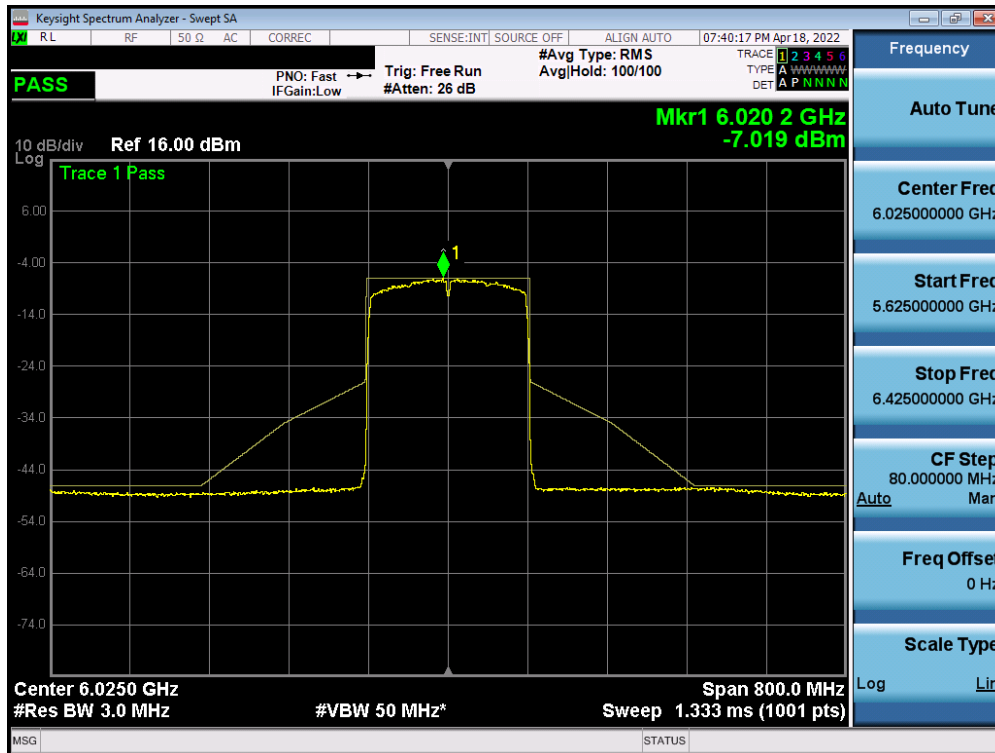


Plot 7-583. In-Band Emission Plot Measurement MIMO ANT2 (80MHz 802.11ax (UNII Band 5) – Ch. 39)

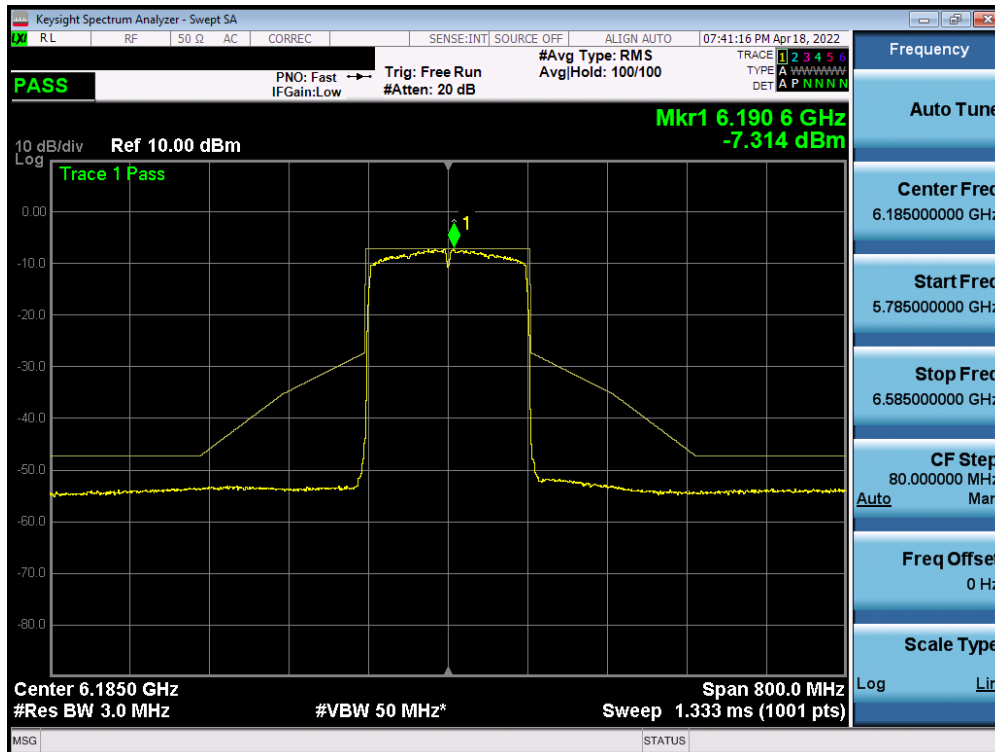


Plot 7-584. In-Band Emission Plot Measurement MIMO ANT2 (80MHz 802.11ax (UNII Band 5) – Ch. 87)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 332 of 422

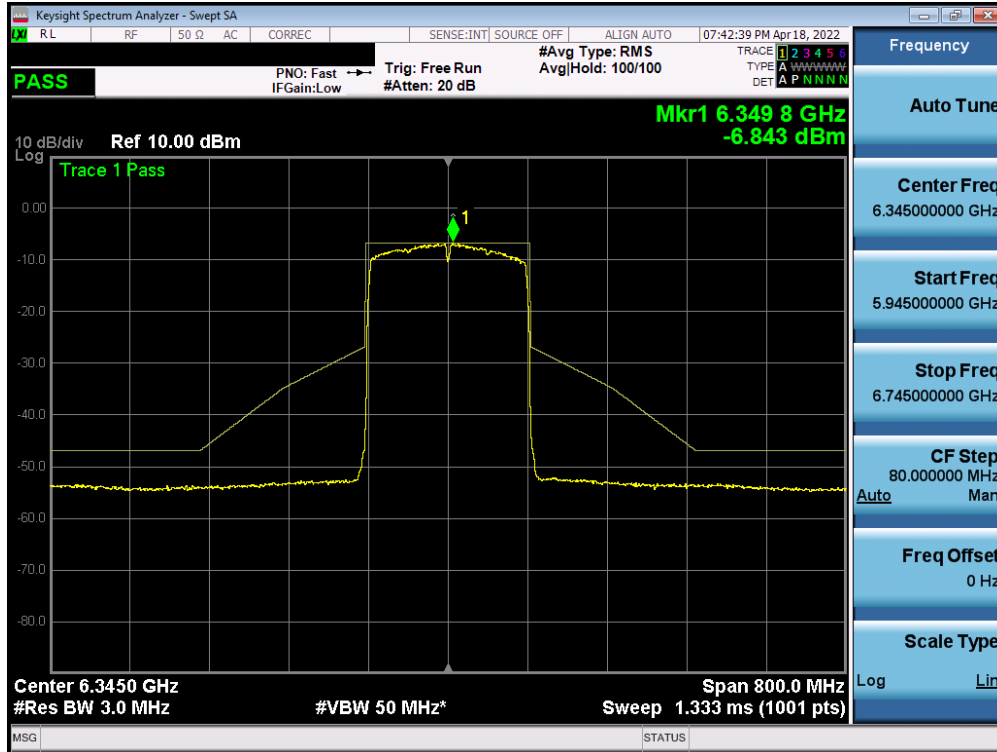


Plot 7-585. In-Band Emission Plot Measurement MIMO ANT2 (160MHz 802.11ax (UNII Band 5) – Ch. 15)



Plot 7-586. In-Band Emission Plot Measurement MIMO ANT2 (160MHz 802.11ax (UNII Band 5) – Ch. 47)

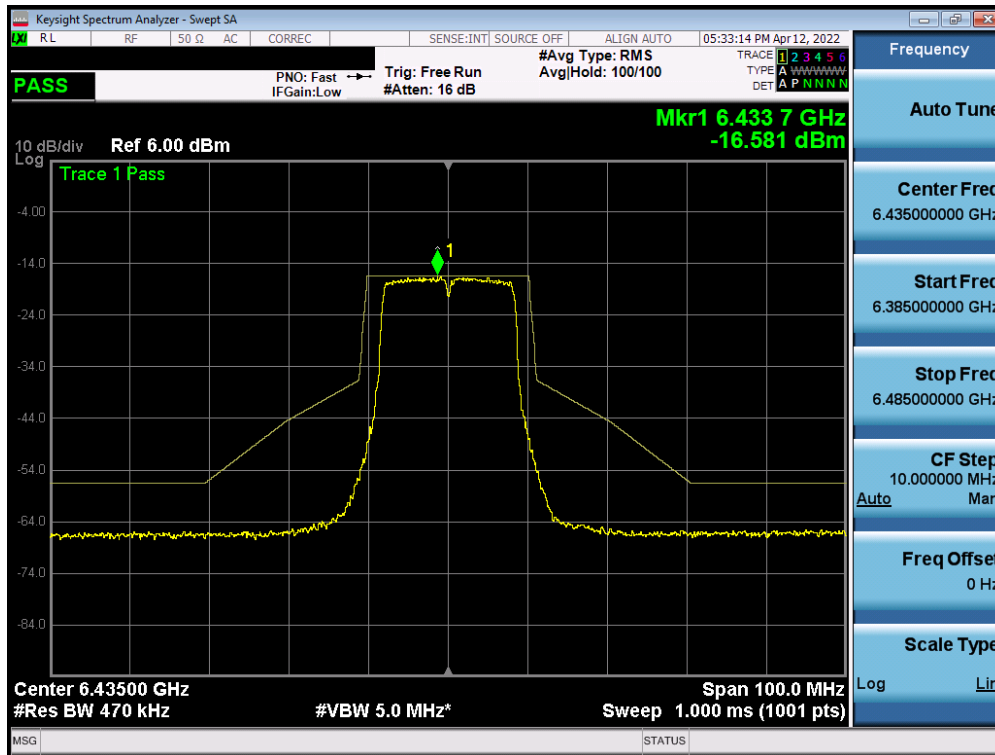
FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 333 of 422



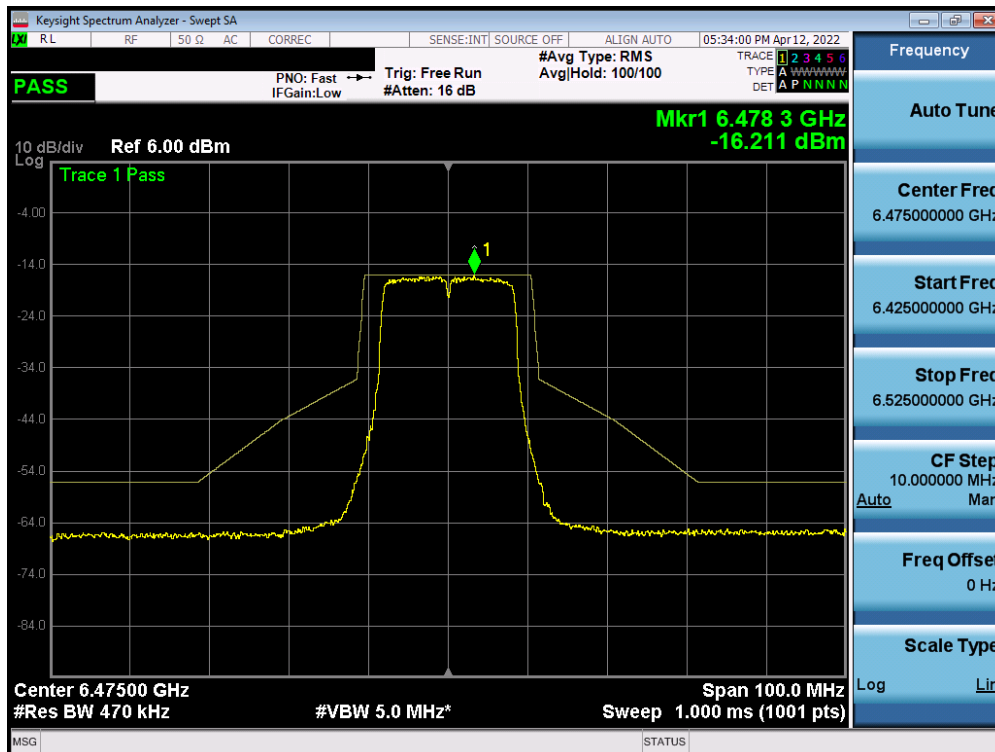
Plot 7-587. In-Band Emission Plot Measurement MIMO ANT2 (160MHz 802.11 ax (UNII Band 5) – Ch. 79)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 334 of 422

MIMO Antenna-2 In-Band Emission Plot Measurement - (UNII Band 6)

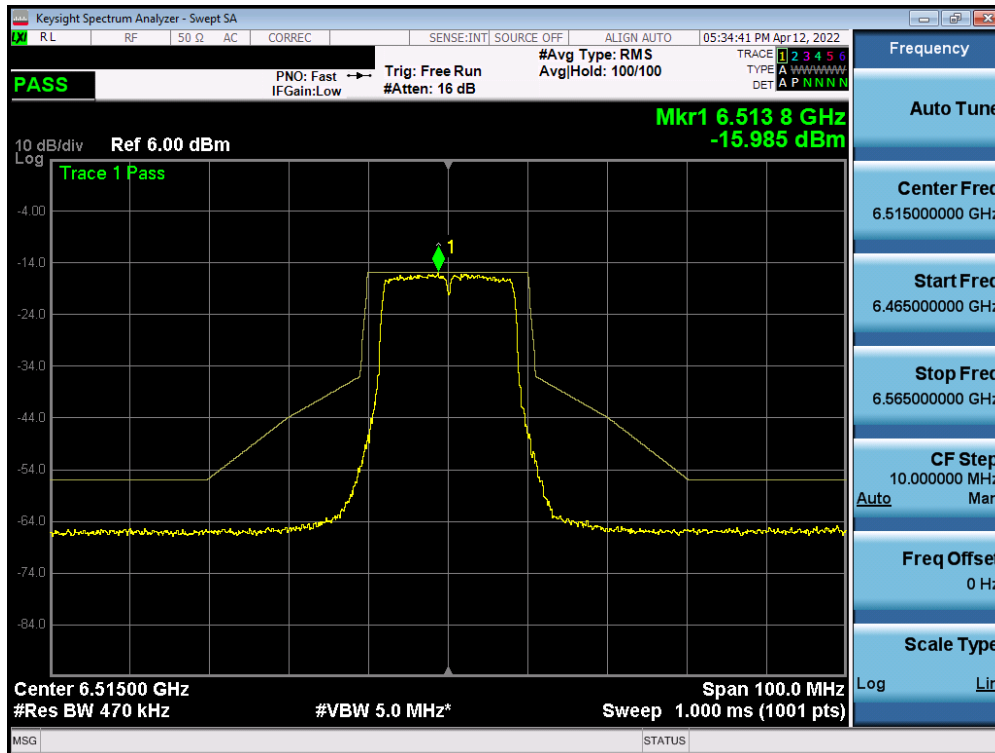


Plot 7-588. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 6) – Ch. 97)

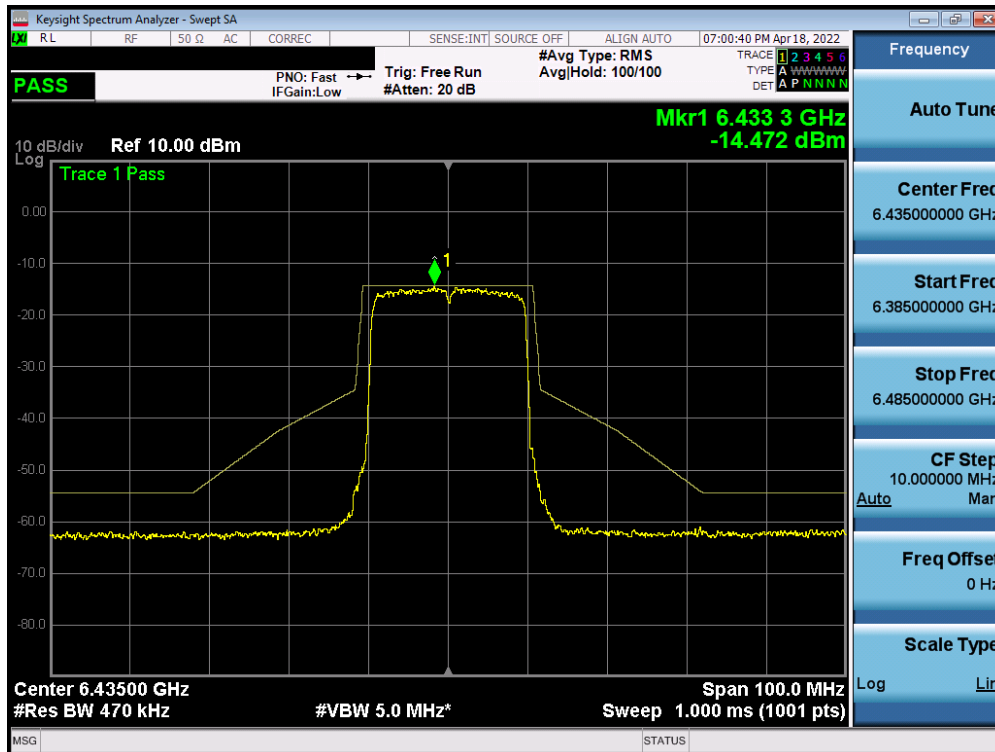


Plot 7-589. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 6) – Ch. 105)

MEASUREMENT REPORT (CERTIFICATION)			Approved by: Technical Manager
FCC ID: C3K1997	Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	Page 335 of 422
EUT Type: Portable Computing Device			

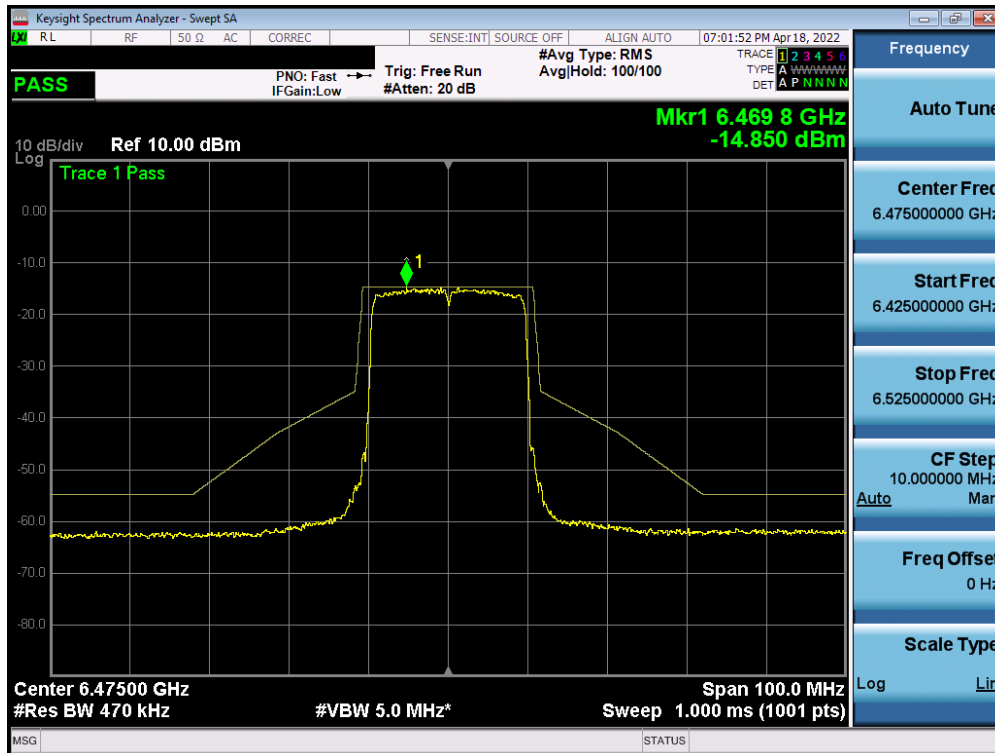


Plot 7-590. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 6) – Ch. 113)

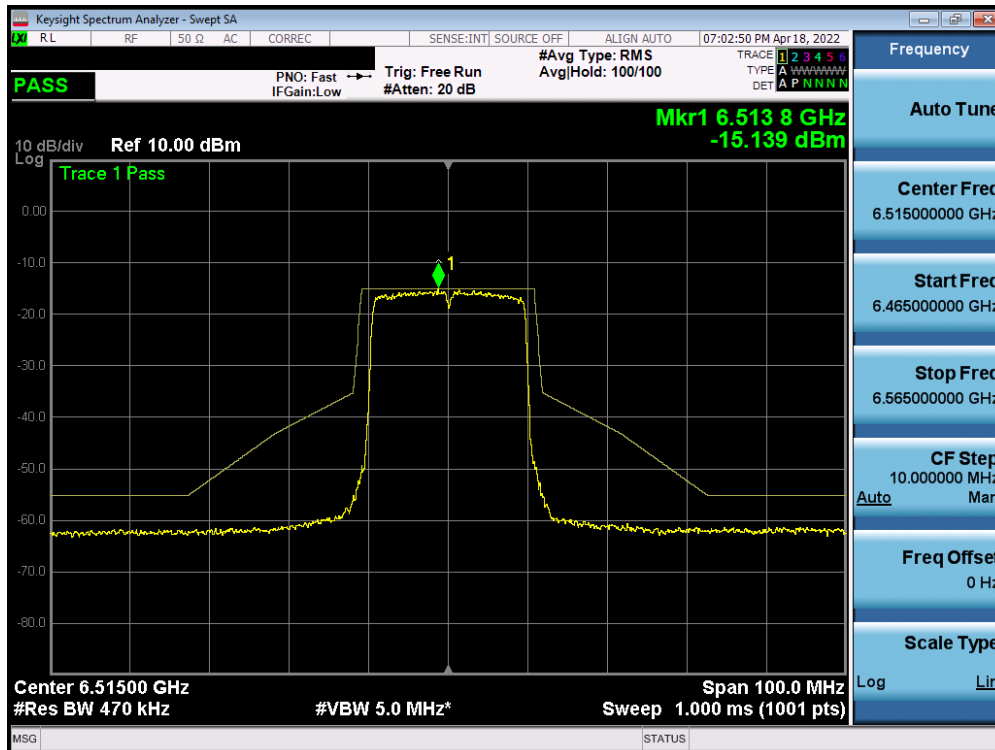


Plot 7-591. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 6) – Ch. 97)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 336 of 422

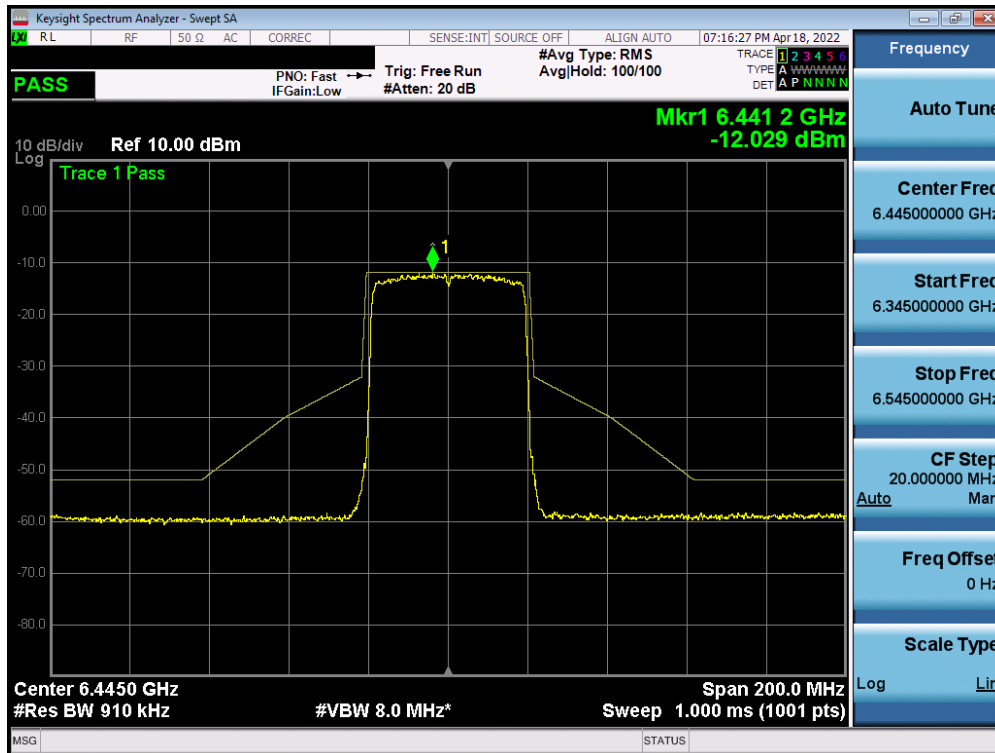


Plot 7-592. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 6) – Ch. 105)

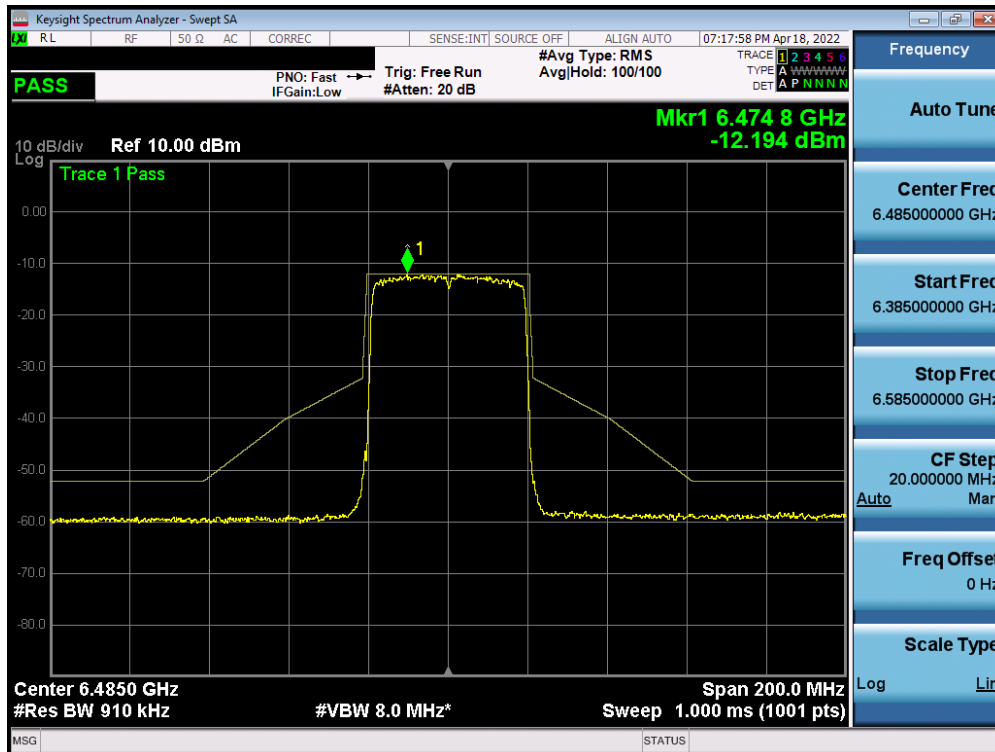


Plot 7-593. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 6) – Ch. 113)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 337 of 422

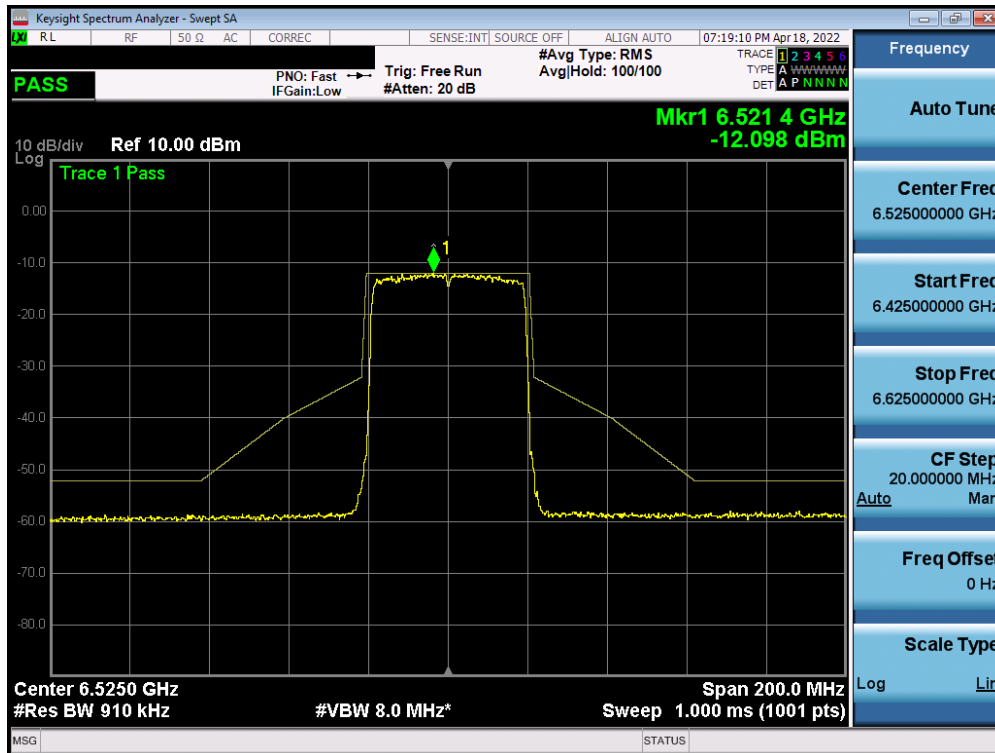


Plot 7-594. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 6) – Ch. 99)

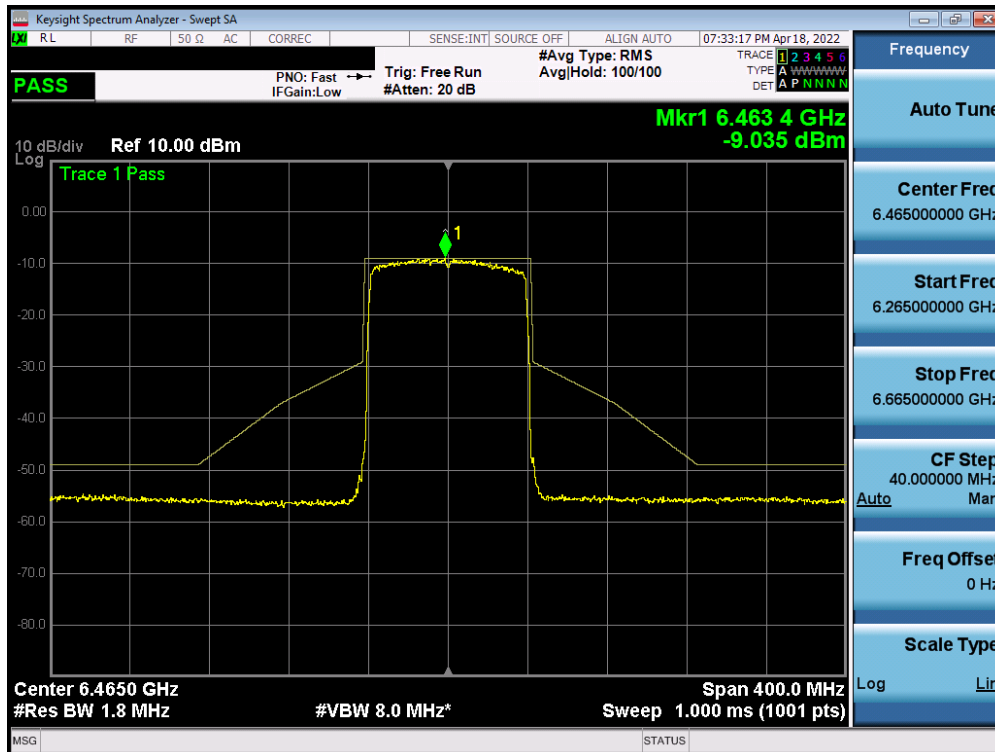


Plot 7-595. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 6) – Ch. 107)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 338 of 422

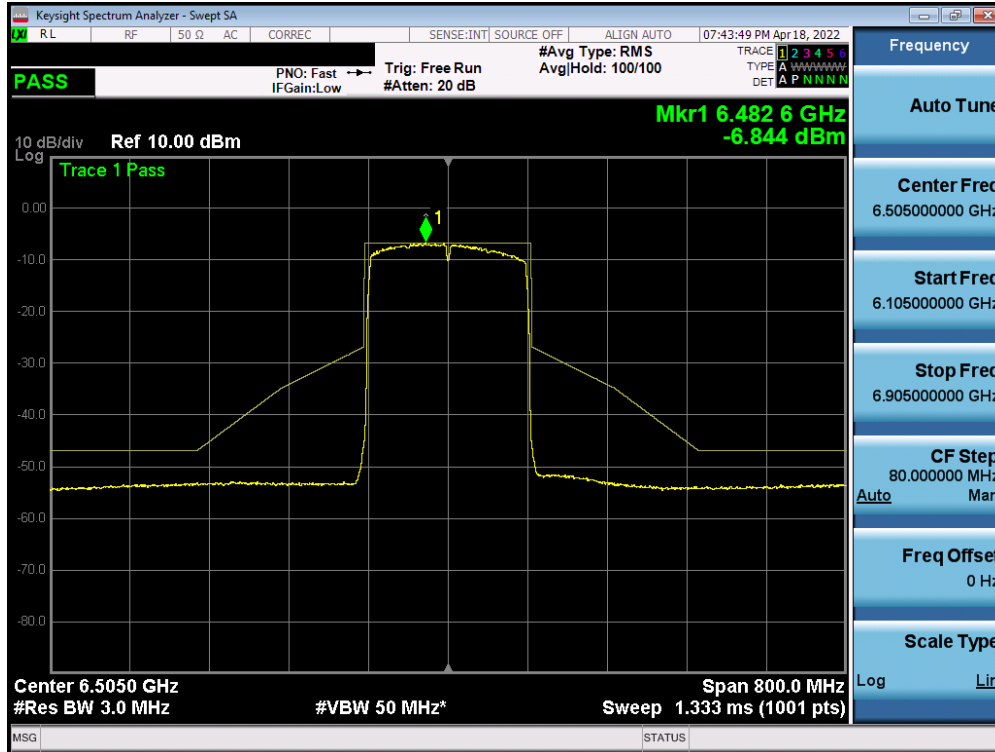


Plot 7-596. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 6) – Ch. 115)



Plot 7-597. In-Band Emission Plot Measurement MIMO ANT2 (80MHz 802.11ax (UNII Band 6) – Ch. 103)

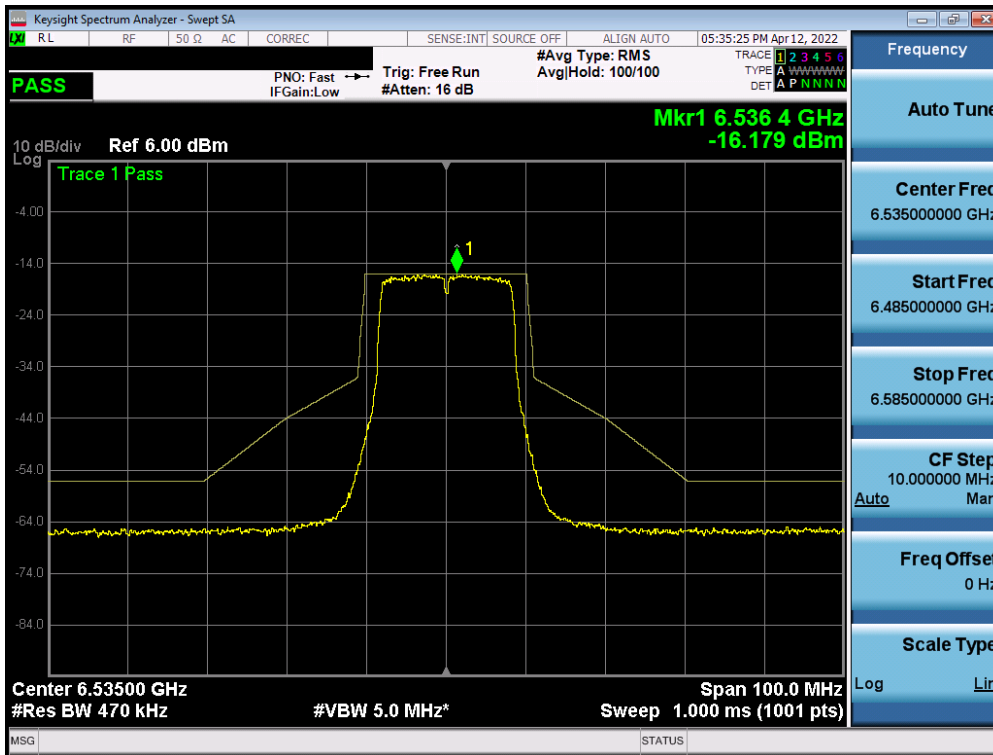
FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 339 of 422



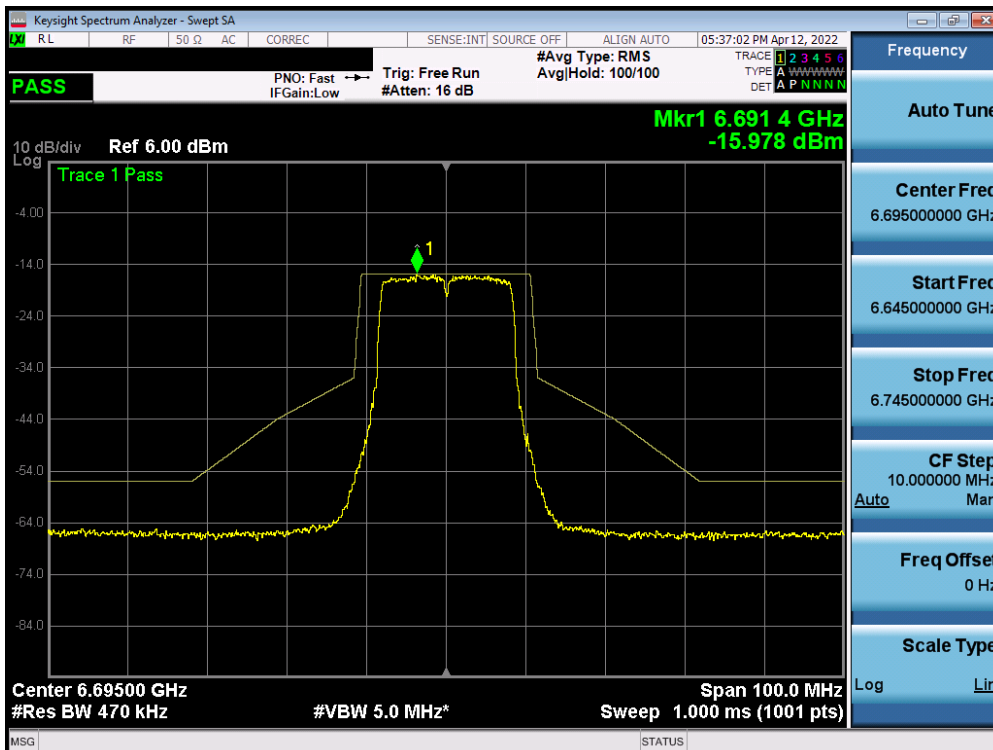
Plot 7-598. In-Band Emission Plot Measurement MIMO ANT2 (160MHz 802.11ax (UNII Band 6) – Ch. 111)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 340 of 422

MIMO Antenna-2 In-Band Emission Plot Measurement - (UNII Band 7)

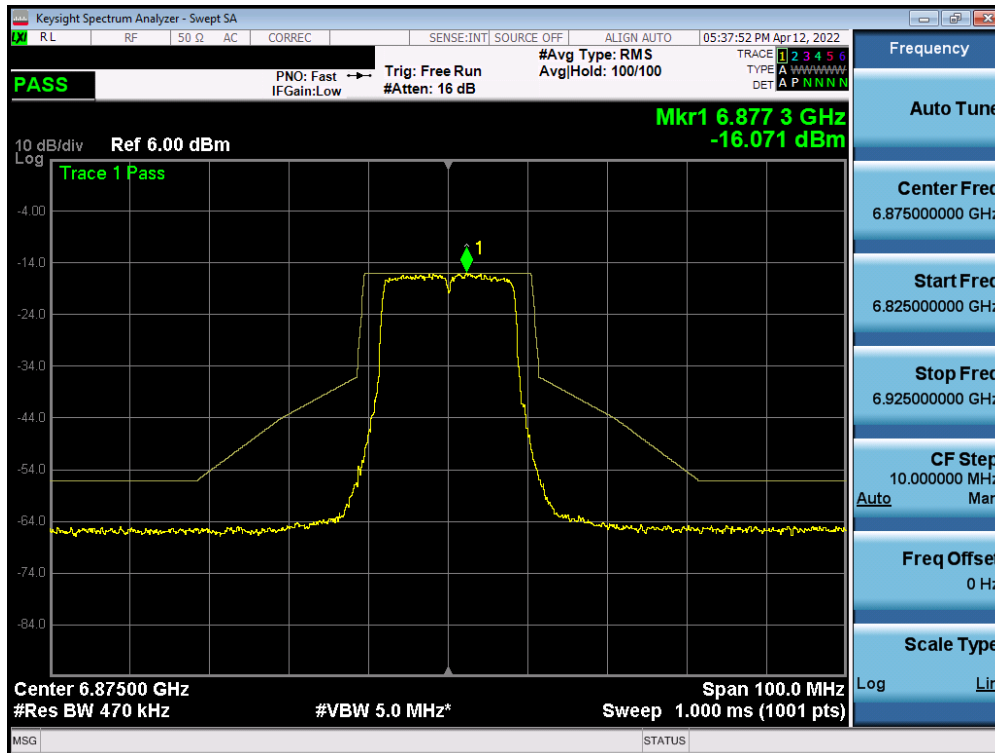


Plot 7-599. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 7) – Ch. 117)

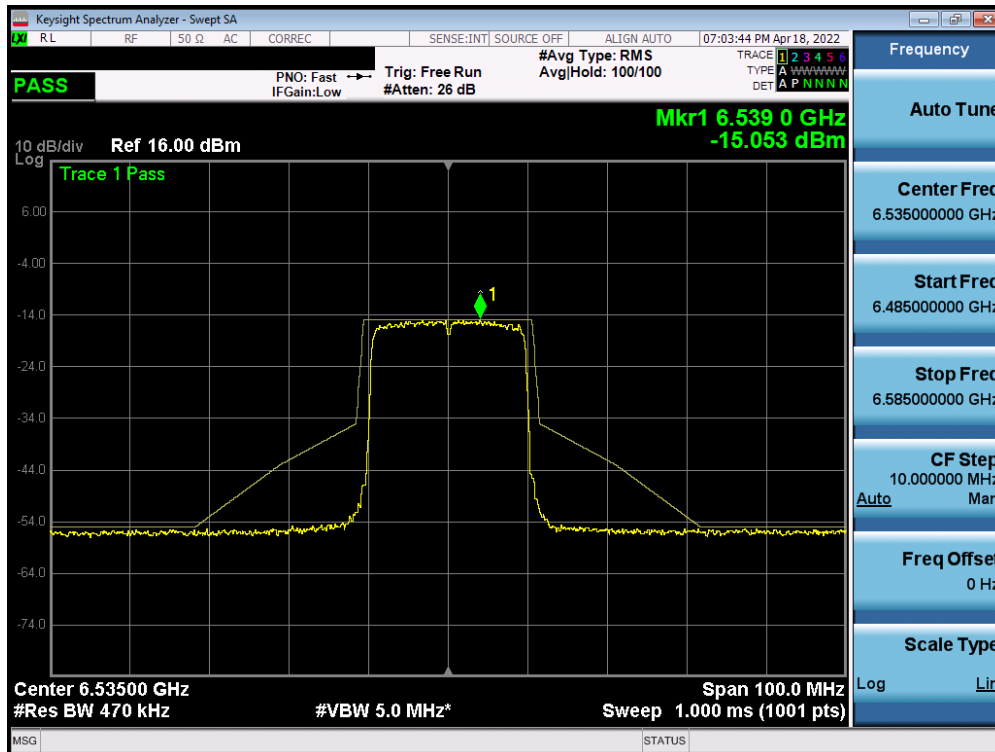


Plot 7-600. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 7) – Ch. 149)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 341 of 422

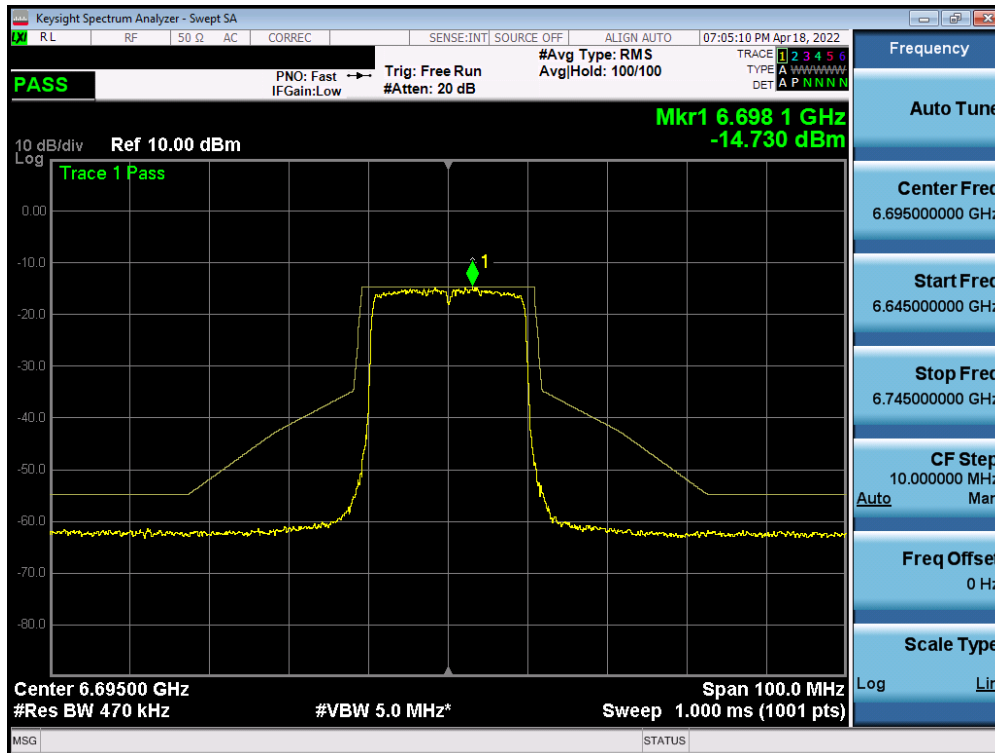


Plot 7-601. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 7) – Ch. 185)

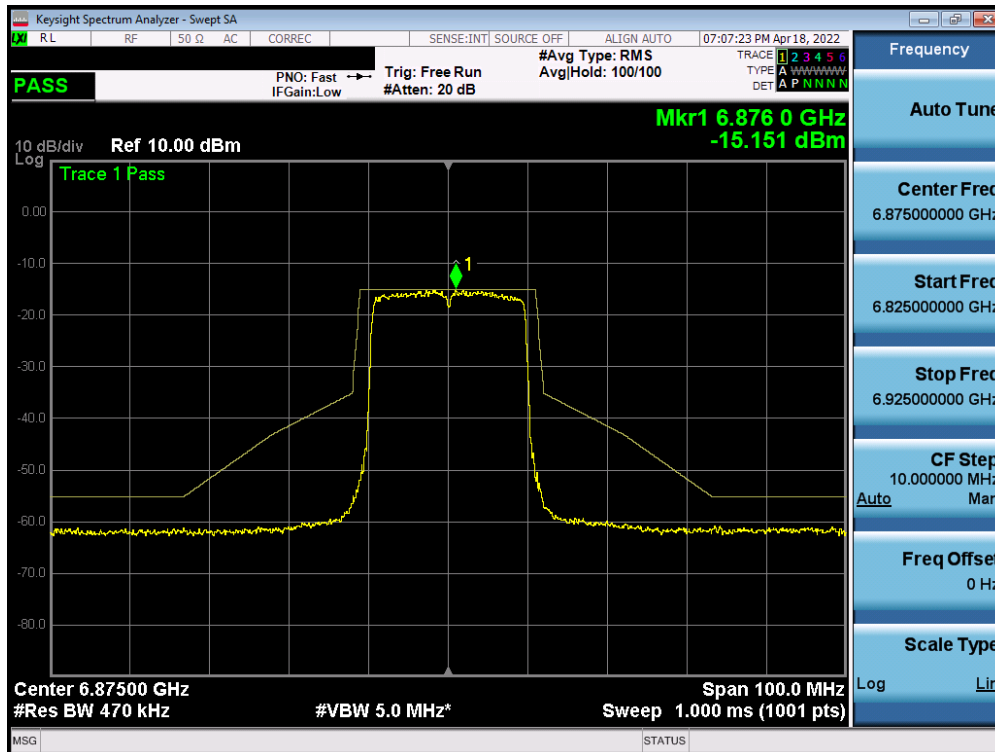


Plot 7-602. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 7) – Ch. 117)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 342 of 422

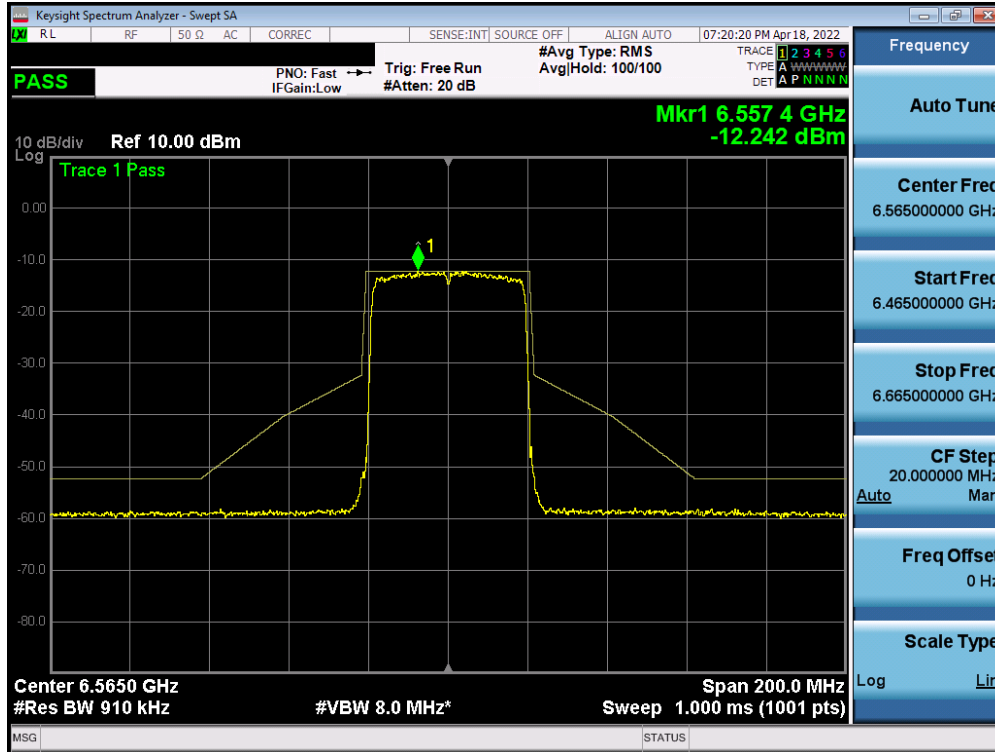


Plot 7-603. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 7) – Ch. 149)

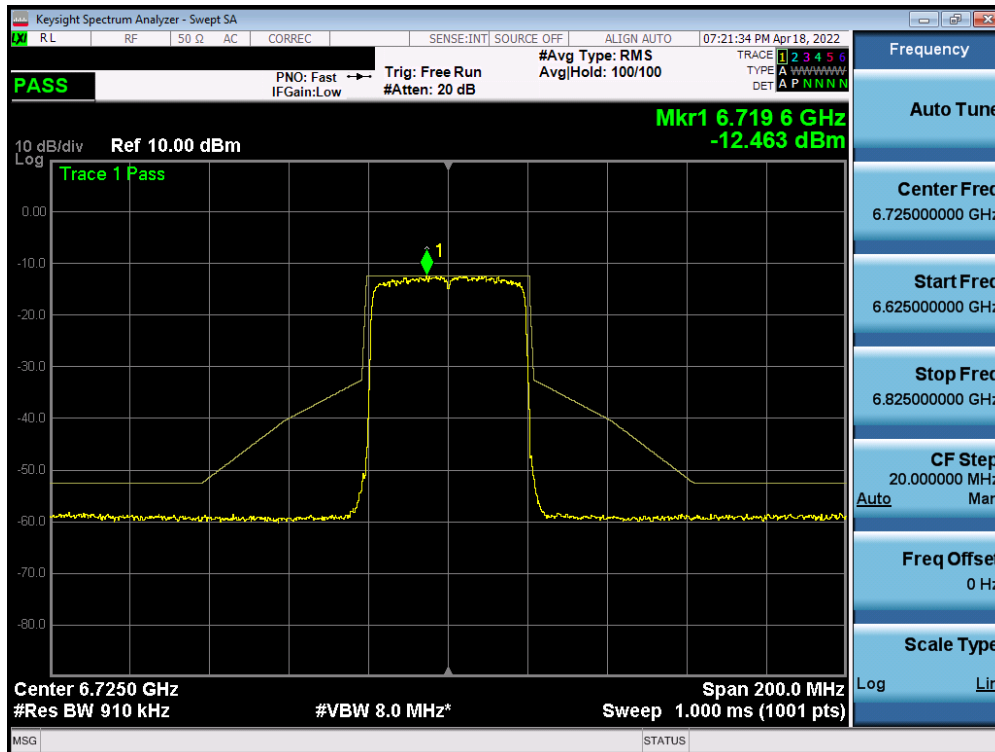


Plot 7-604. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 7) – Ch. 185)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 343 of 422

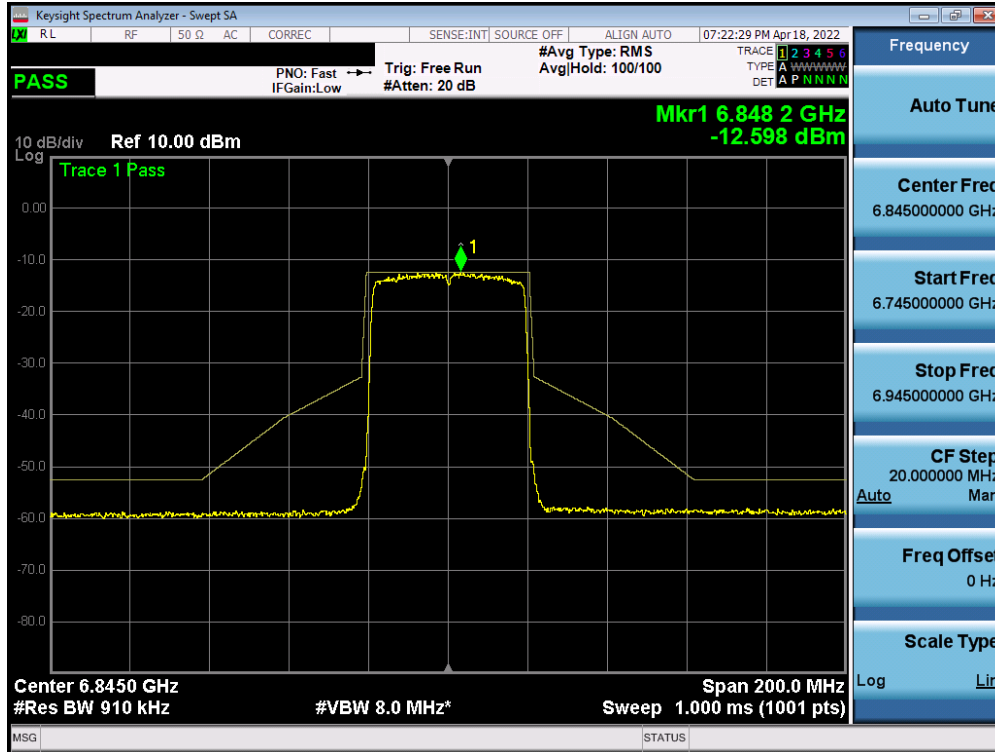


Plot 7-605. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 7) – Ch. 123)

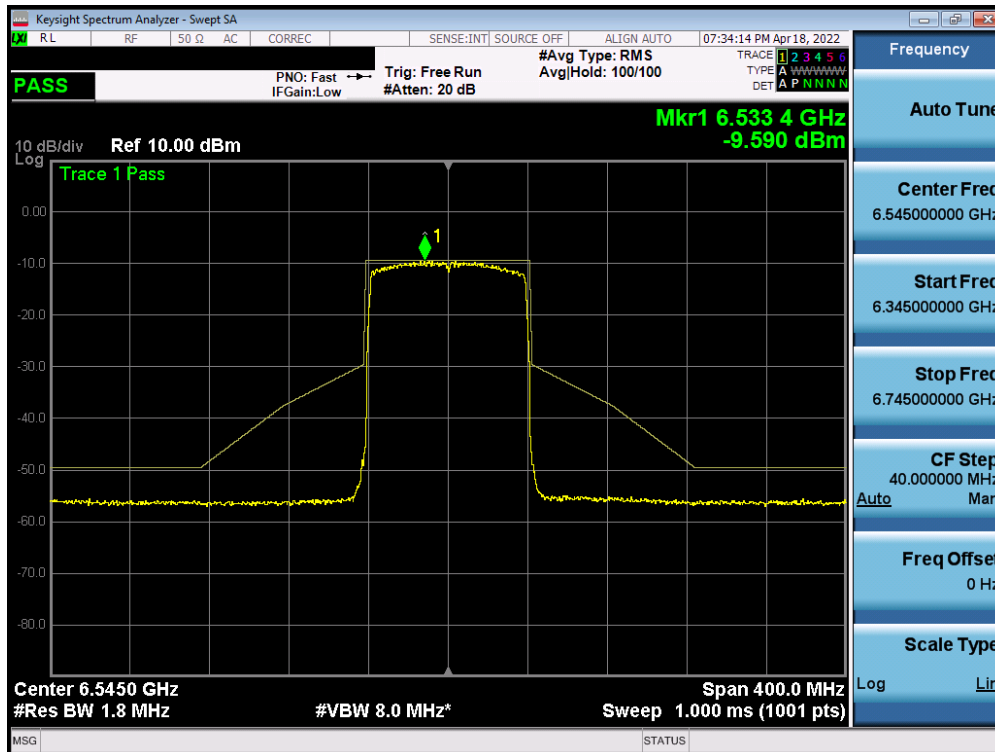


Plot 7-606. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 7) – Ch. 155)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 344 of 422

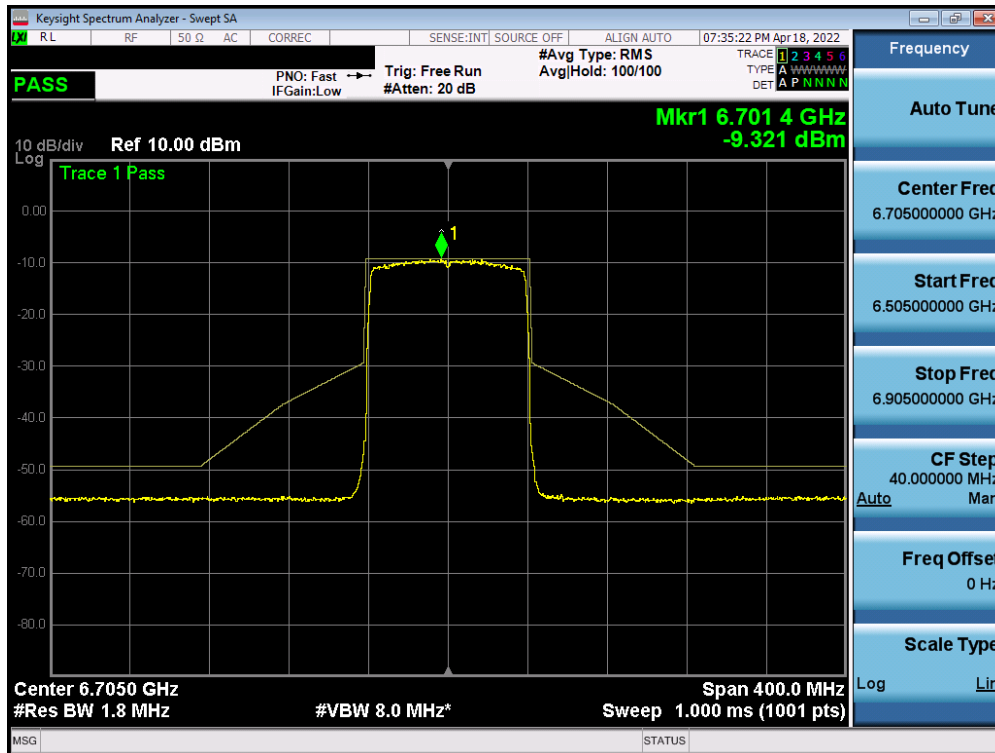


Plot 7-607. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 7) – Ch. 179)

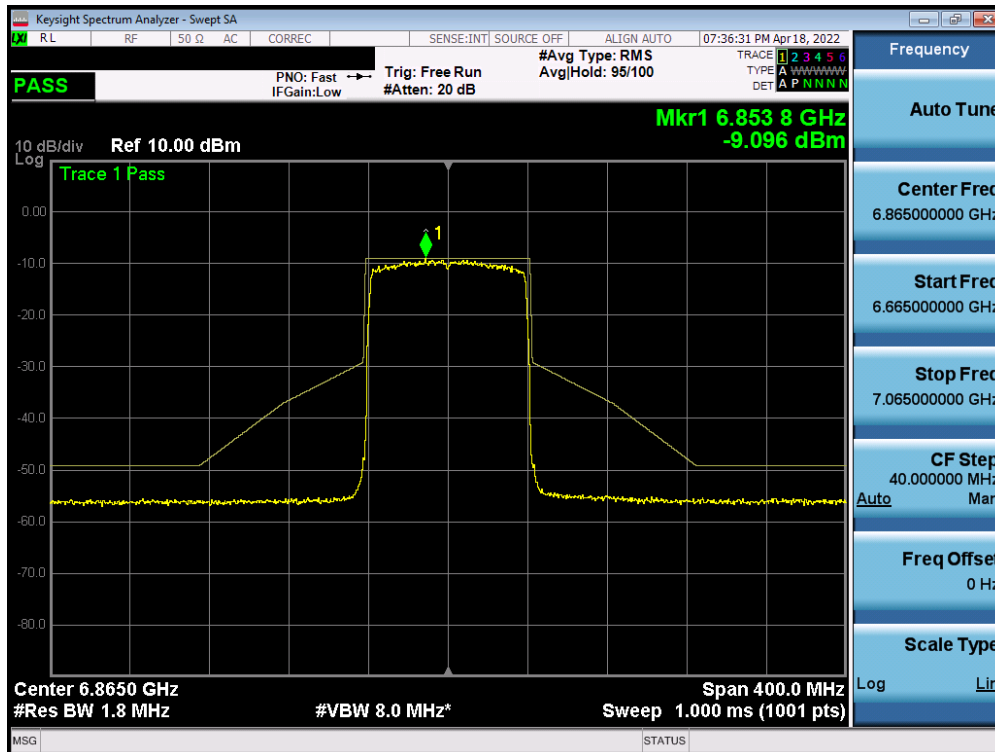


Plot 7-608. In-Band Emission Plot Measurement MIMO ANT2 (80MHz 802.11ax (UNII Band 7) – Ch. 119)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 345 of 422

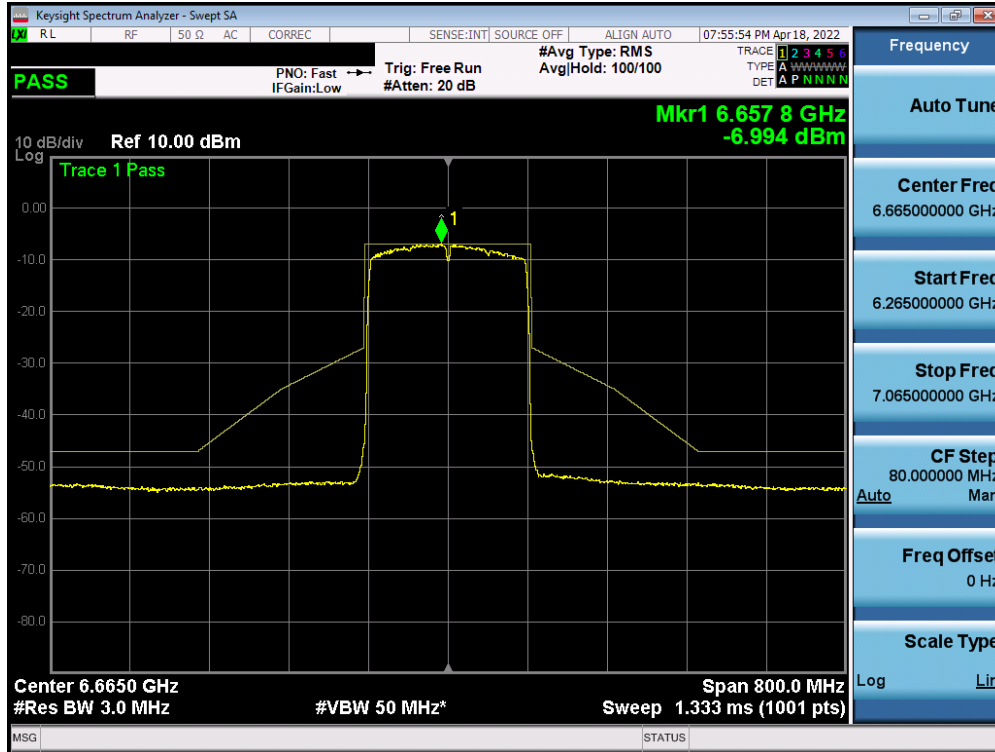


Plot 7-609. In-Band Emission Plot Measurement MIMO ANT2 (80MHz 802.11ax (UNII Band 7) – Ch. 151)

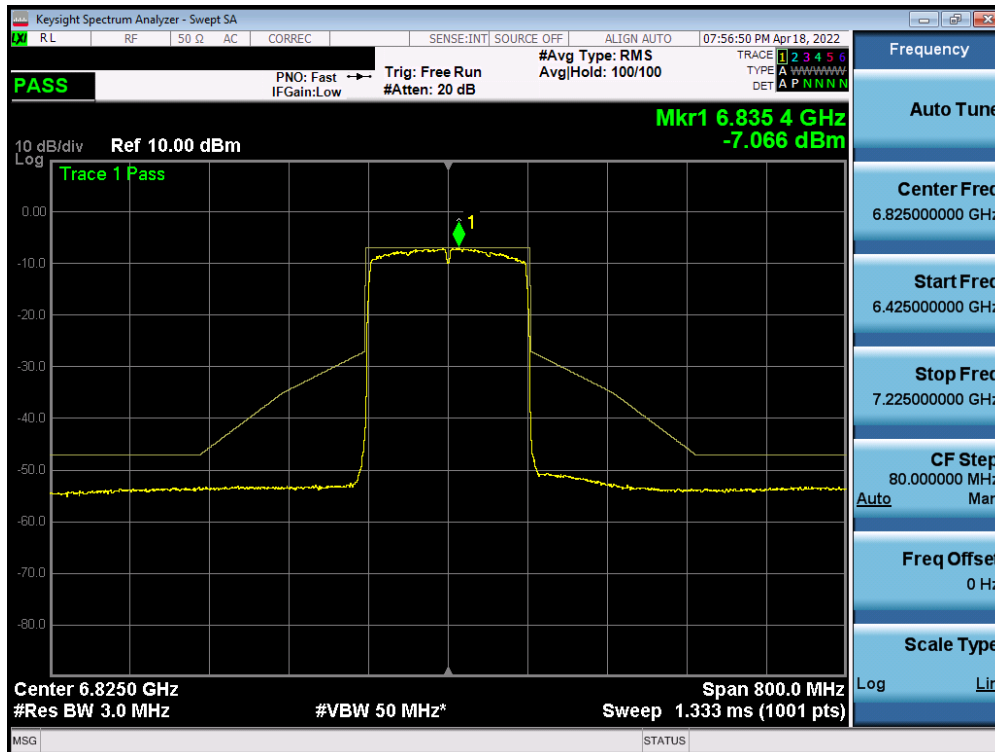


Plot 7-610. In-Band Emission Plot Measurement MIMO ANT2 (80MHz 802.11ax (UNII Band 7) – Ch. 183)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 346 of 422



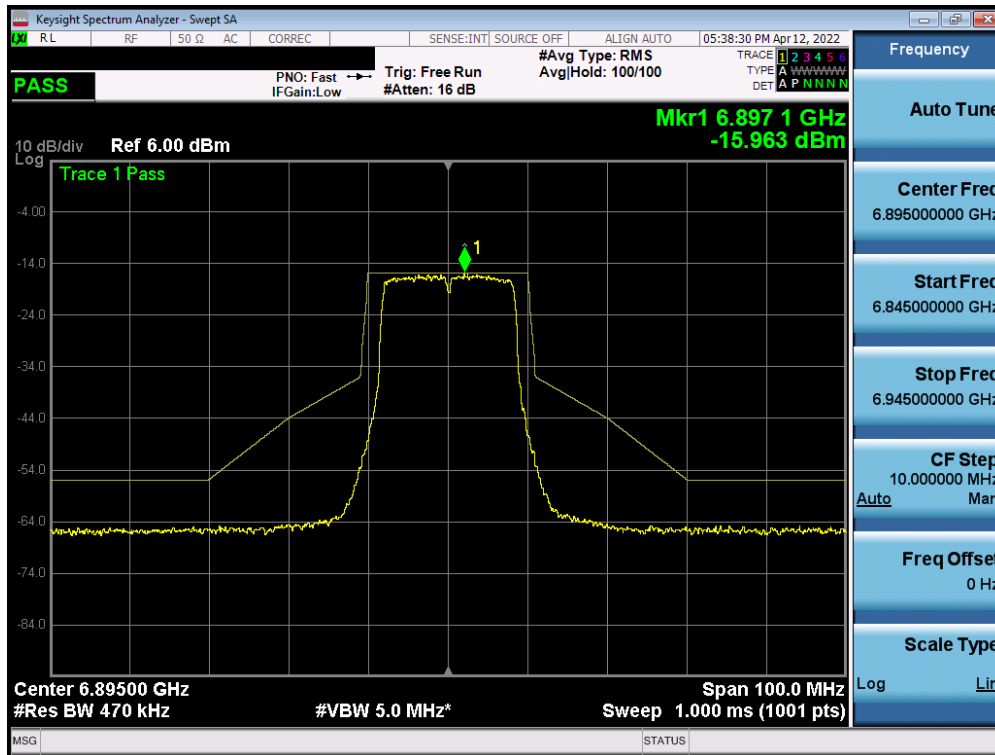
Plot 7-611. In-Band Emission Plot Measurement MIMO ANT2 (160MHz 802.11ax (UNII Band 7) – Ch. 143)



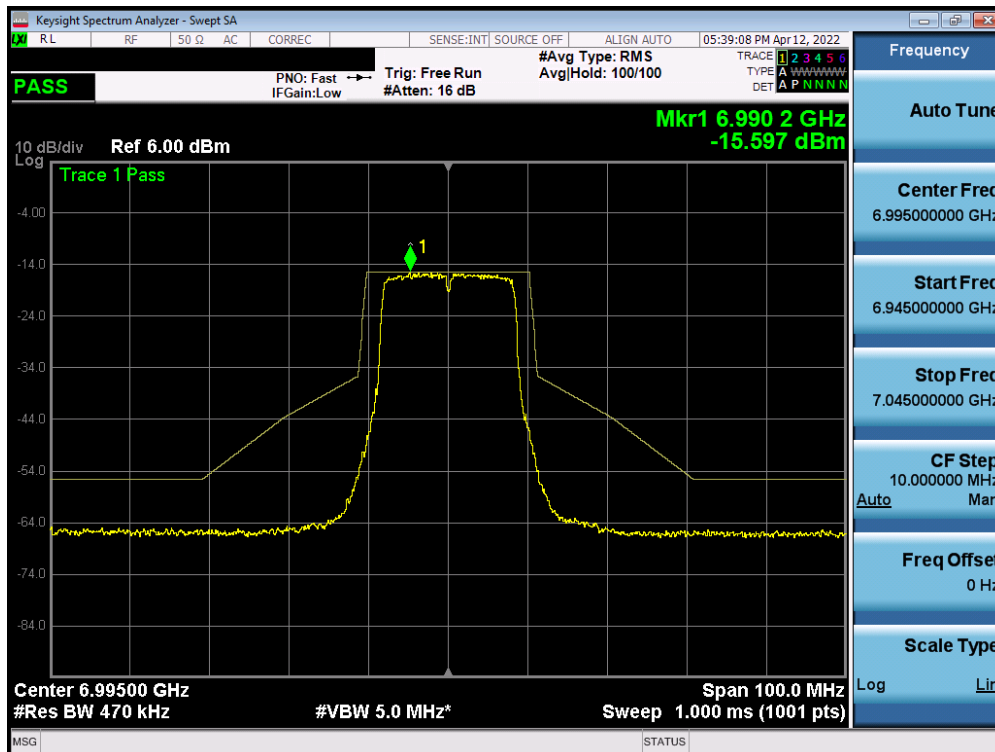
Plot 7-612. In-Band Emission Plot Measurement MIMO ANT2 (160MHz 802.11ax (UNII Band 7) – Ch. 175)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 347 of 422

MIMO Antenna-2 In-Band Emission Plot Measurement - (UNII Band 8)

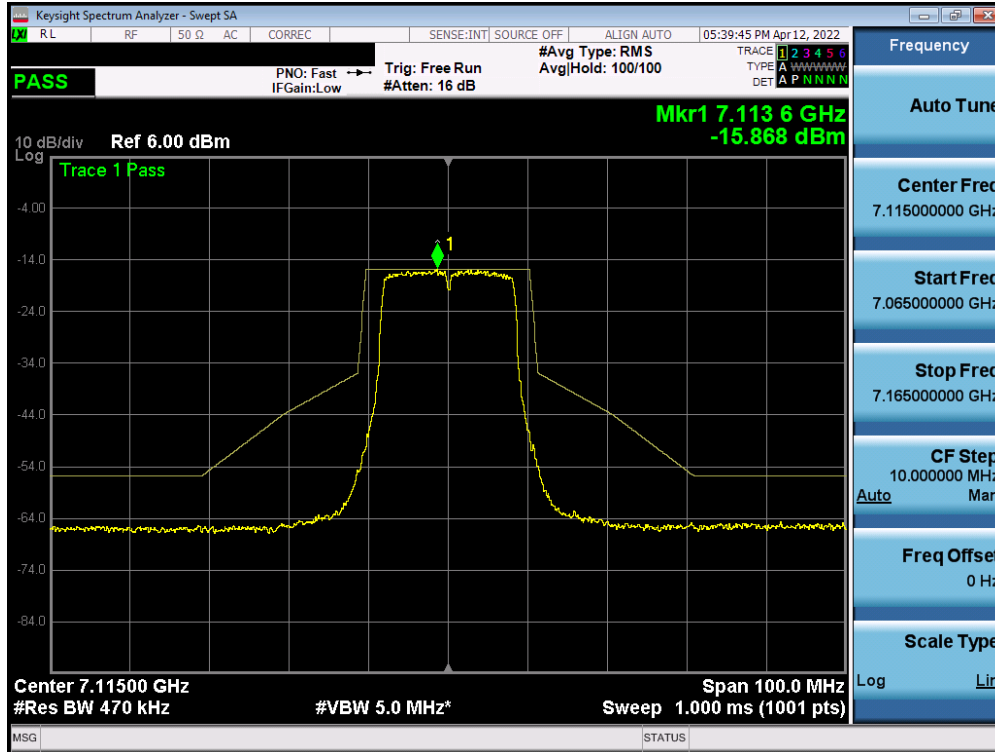


Plot 7-613. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 8) – Ch. 189)

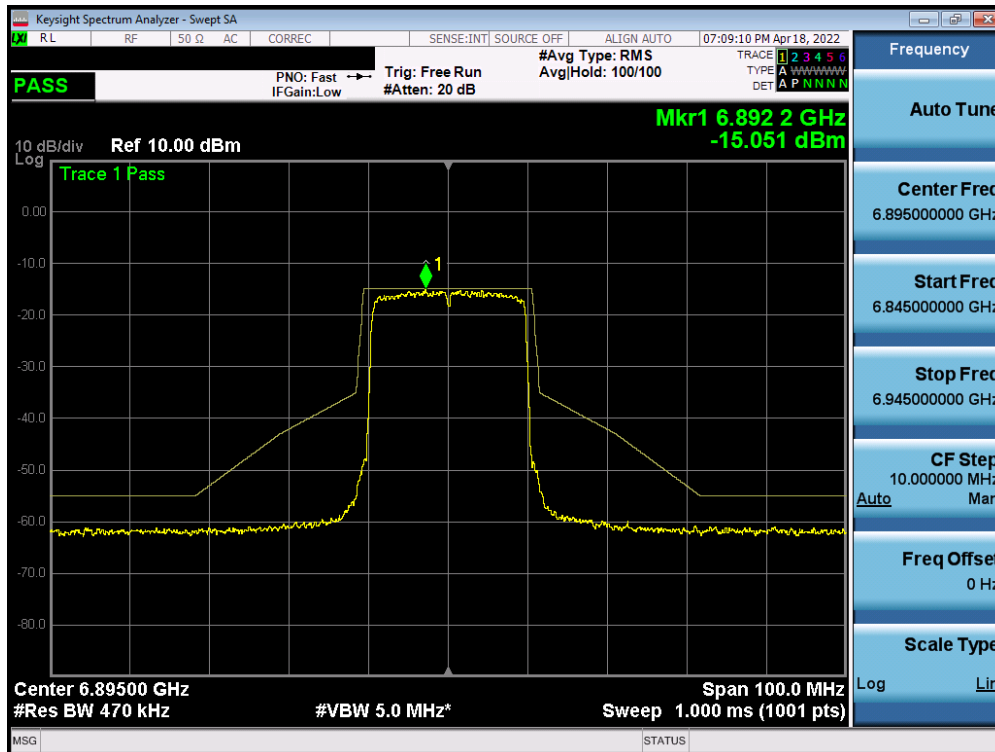


Plot 7-614. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 8) – Ch. 209)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 348 of 422

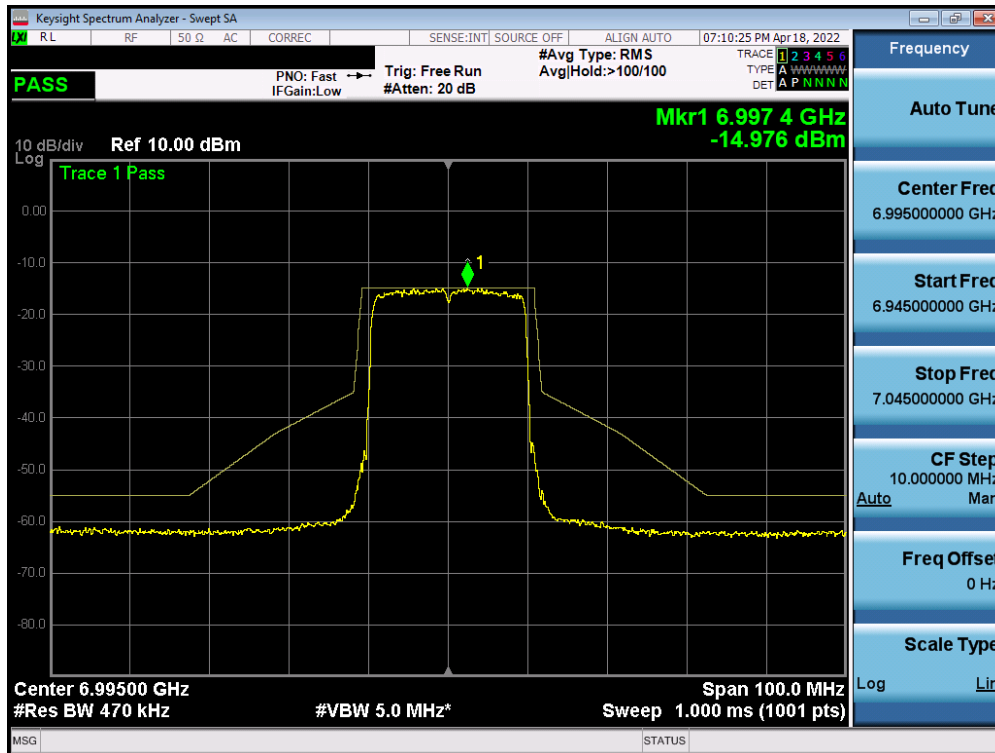


Plot 7-615. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11a (UNII Band 8) – Ch. 233)

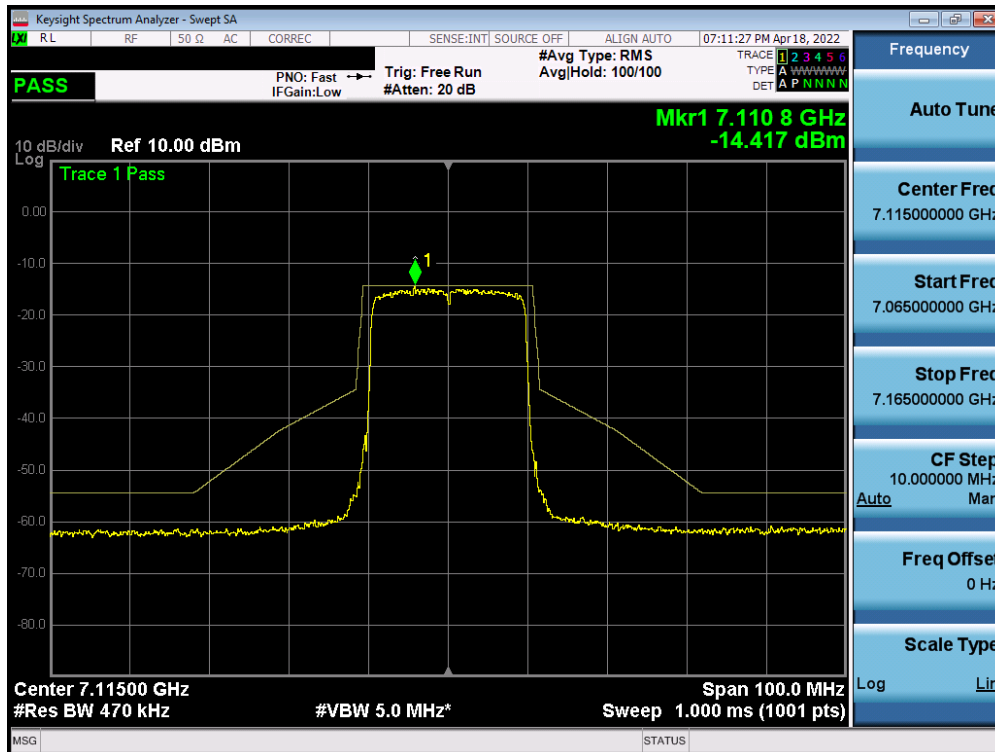


Plot 7-616. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 8) – Ch. 189)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 349 of 422

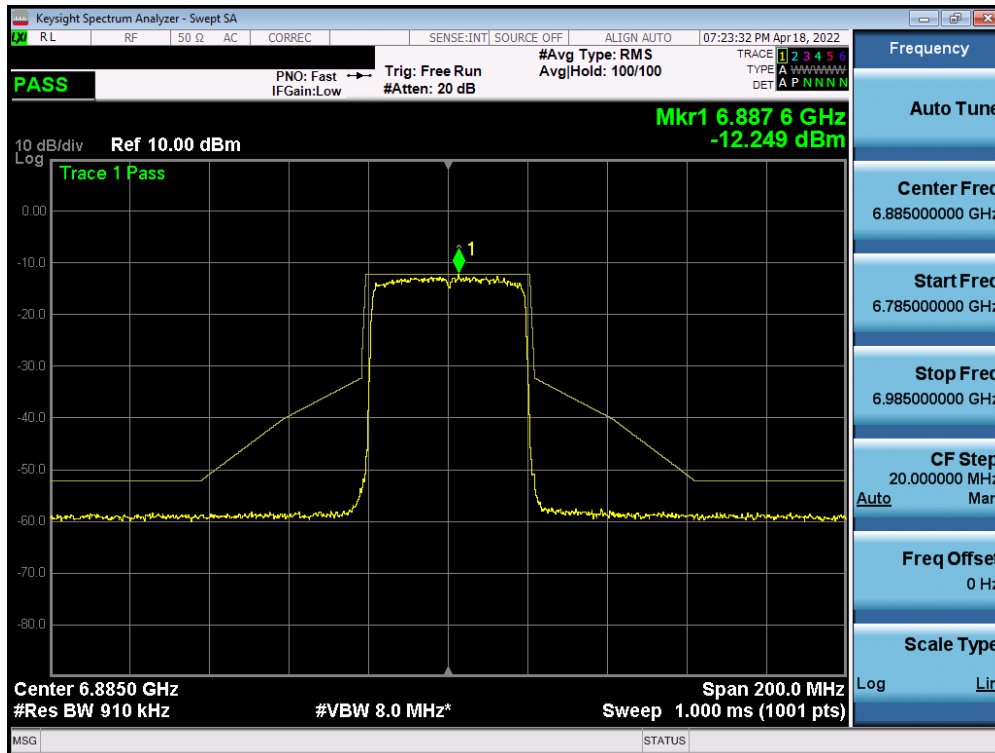


Plot 7-617. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 8) – Ch. 209)

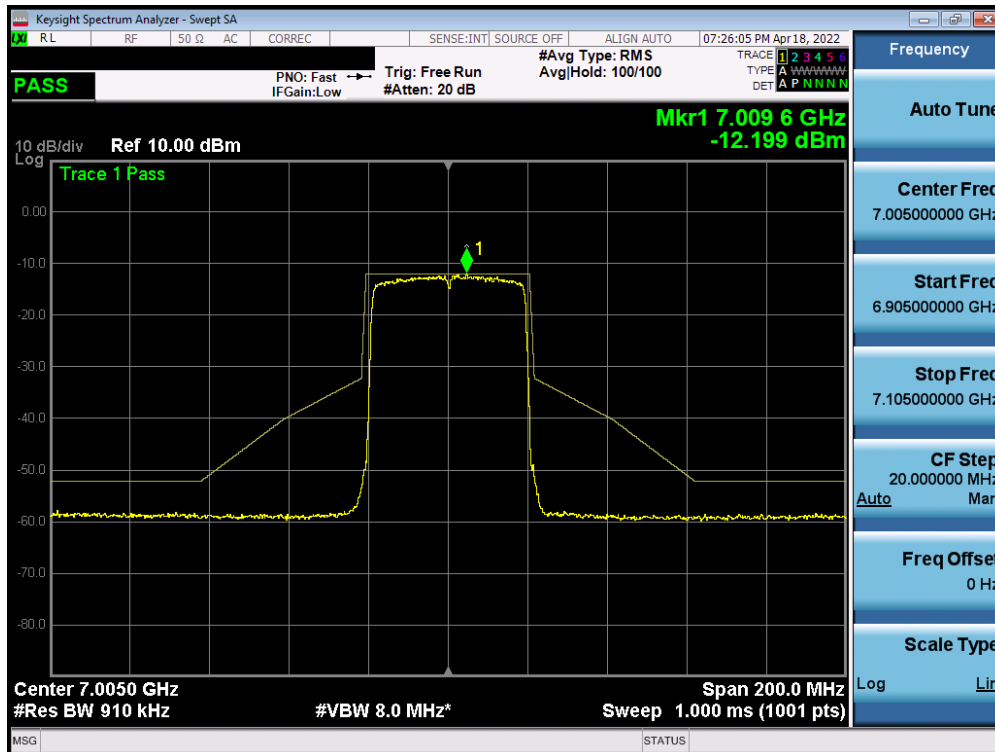


Plot 7-618. In-Band Emission Plot Measurement MIMO ANT2 (20MHz 802.11ax (UNII Band 8) – Ch. 233)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 350 of 422

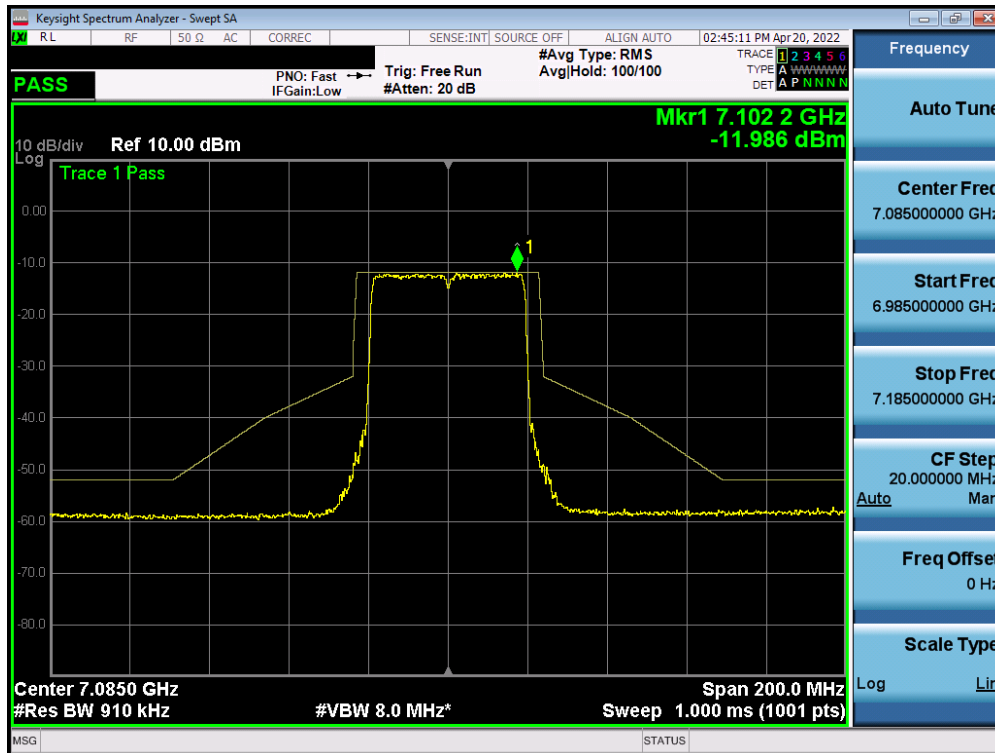


Plot 7-619. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 8) – Ch. 187)

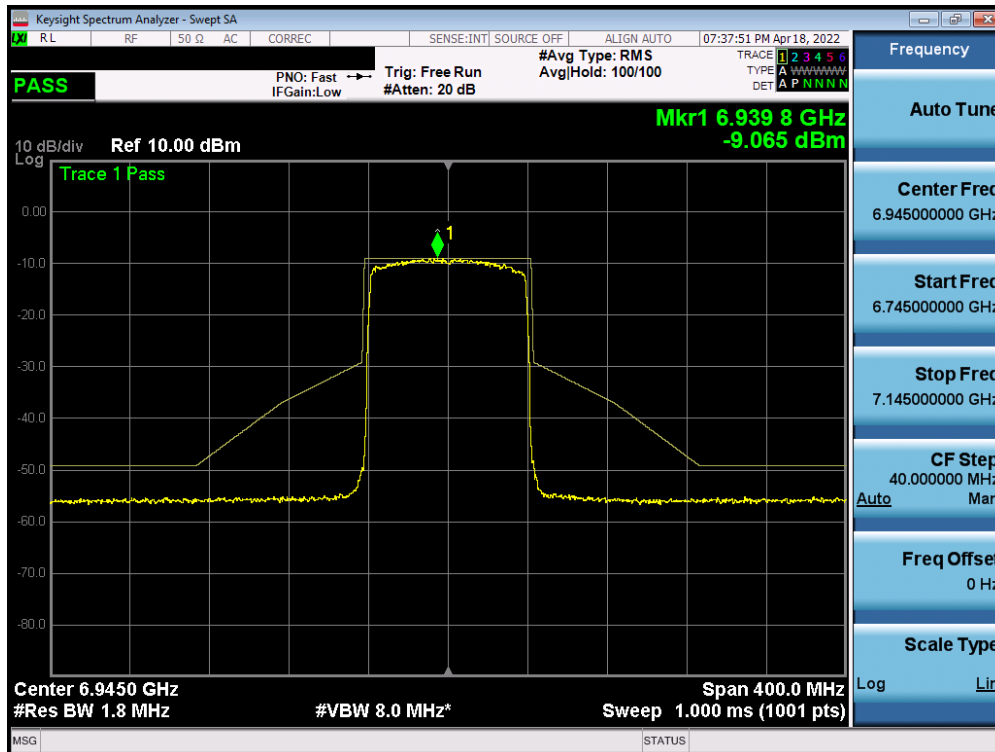


Plot 7-620. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 8) – Ch. 211)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 351 of 422

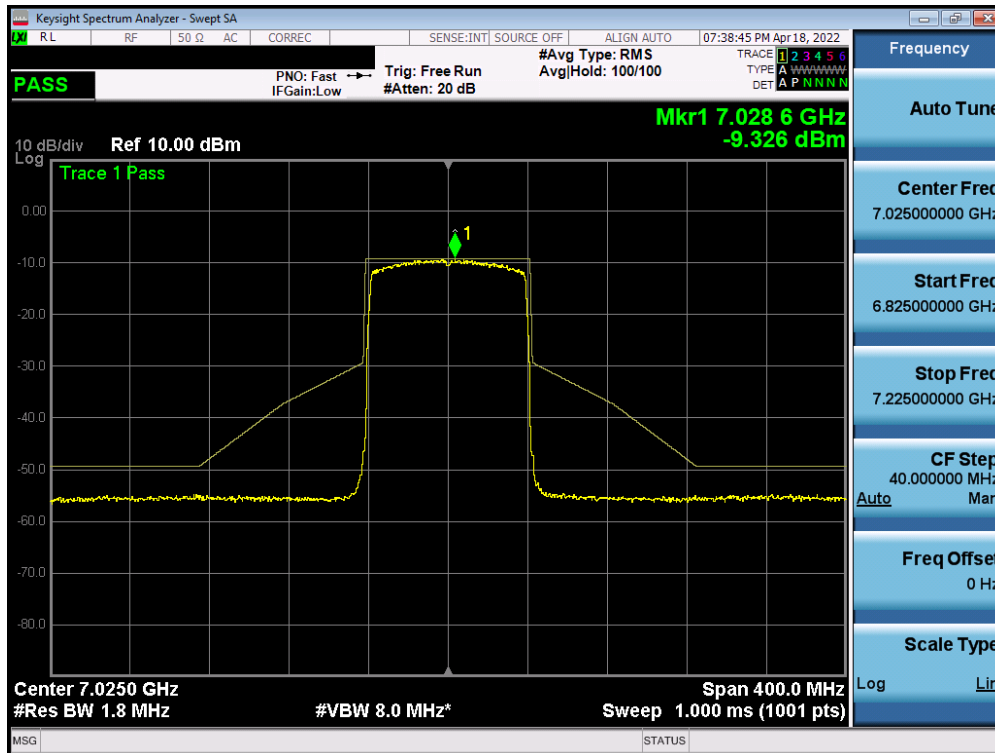


Plot 7-621. In-Band Emission Plot Measurement MIMO ANT2 (40MHz 802.11ax (UNII Band 8) – Ch. 227)

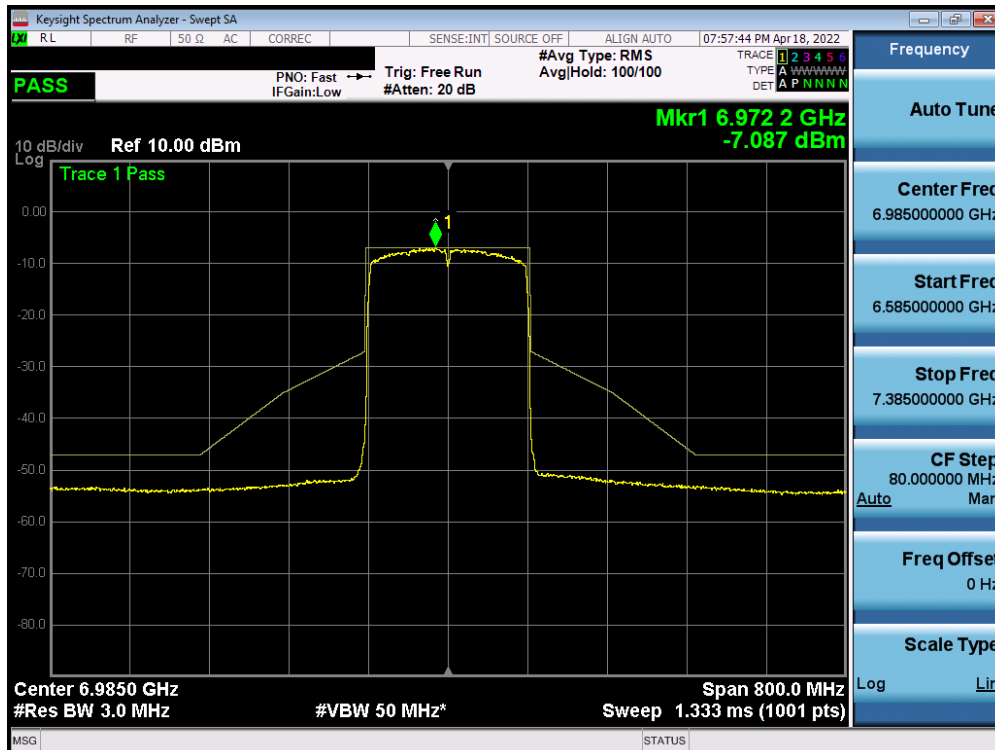


Plot 7-622. In-Band Emission Plot Measurement MIMO ANT2 (80MHz 802.11ax (UNII Band 8) – Ch. 199)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 352 of 422



Plot 7-623. In-Band Emission Plot Measurement MIMO ANT2 (80MHz 802.11ax (UNII Band 8) – Ch. 215)



Plot 7-624. In-Band Emission Plot Measurement MIMO ANT2 (160MHz 802.11ax (UNII Band 8) – Ch. 207)

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 353 of 422

7.6 Contention Based Protocol – 802.11a/ax §15.407(d)(6); RSS-248 [4.8]

Test Overview and Limit

Indoor access points, subordinate devices and client devices operating in the 5.925-7.125 GHz band (herein referred to as unlicensed devices) are required to use technologies that include a contention-based protocol to avoid co-channel interference with incumbent devices sharing the band. To ensure incumbent co-channel operations are detected in a technology-agnostic manner, unlicensed devices are required to detect co-channel radio frequency energy (energy detect) and avoid simultaneous transmission.

Unlicensed indoor low-power devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel and stay off the channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm). The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain.

To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2
KDB 987594 D02 v01r01

Test Settings

1. Configure the EUT to transmit with a constant duty cycle.
2. Set the operating parameters of the EUT including power level, operating frequency, modulation and bandwidth.
3. Set the signal analyzer center frequency to the nominal EEUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT. Connect the output port of the EUT to the signal analyzer 2, as shown in Figure 2. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.
4. Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters set at step two.
5. Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use Table 1 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
6. Set the AWGN signal power to an extremely low level (more than 20 dB below the -62 dBm threshold). Connect the AWGN signal source, via a 3-dB splitter, to the signal analyzer 1 and the EUT as shown in Figure 2.
7. Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.
8. Monitor the signal analyzer 2 to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
9. (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
10. Refer to Table 1 to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 5, choose a different center frequency for the AWGN signal and repeat the process.

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 354 of 422

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

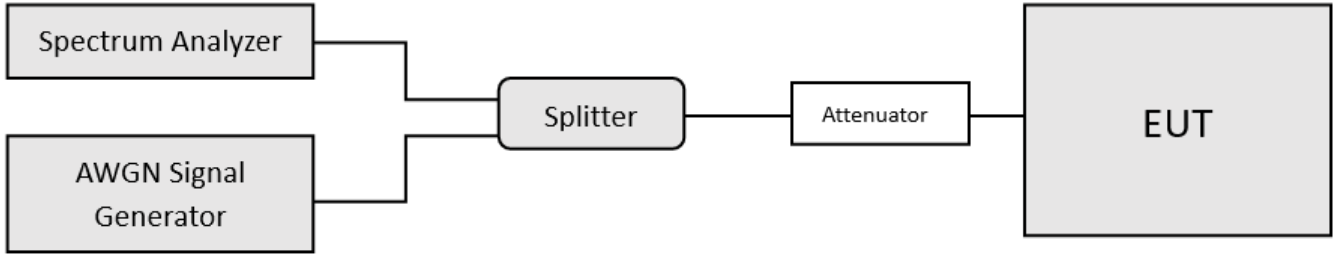


Figure 7-5. Contention-based protocol test setup, conducted method

Test Notes

1. Per guidance from KDB 987594 D02 v01r01, contention based protocol was tested using an AWGN signal with a bandwidth of 10MHz (see Plot 7-625). The amplitude of the signal was increased until detected by the EUT, signaled by the ceasing of transmission (see Plot 7-641), marker indicates the point at which the AWGN signal is introduced.
2. 15 trials were ran in order to assure that at least 90% of certainty was met.
3. Per Guidance from KDB 987594 D04 v01, contention based protocol was tested with receiver with the lowest antenna gain.
4. All CBP Timing Plots shown are for the ceased condition. Some spikes that may be shown are from adjacent portions of the spectrum that are still transmitting.

$$\text{Detection Level} = \text{Injected AWGN Power (dBm)} - \text{Antenna Gain (dBi)} + \text{Path Loss (dB)}$$

Equation 7-1. Detection Level Calculation

Band	Channel	Channel Freq [MHz]	Channel BW [MHz]	Incumbent Freq [MHz]	Injected (AWGN) [dBm]	Antenna Gain [dBi]	Path Loss (dB)	Adjusted Power Level [dBm]	Detection Limit [dBm]	Margin [dB]
UNII Band 5	53	6215	20	6215	-62.67	3.20	1.50	-64.37	-62.0	-2.37
				6110	-63.59	3.20	1.50	-65.29	-62.0	-3.29
	47	6185	160	6185	-62.70	3.20	1.50	-64.40	-62.0	-2.40
				6260	-68.35	3.20	1.50	-70.05	-62.0	-8.05
UNII Band 6	101	6455	20	6455	-61.56	2.40	1.50	-62.46	-62.0	-0.46
				6430	-69.74	2.40	1.50	-70.64	-62.0	-8.64
	111	6505	160	6505	-64.93	2.40	1.50	-65.83	-62.0	-3.83
				6580	-68.89	2.40	1.50	-69.79	-62.0	-7.79
UNII Band 7	149	6695	20	6695	-61.19	3.30	1.50	-62.99	-62.0	-0.99
				6750	-69.08	3.30	1.50	-70.88	-62.0	-8.88
	175	6825	160	6825	-62.46	3.30	1.50	-64.26	-62.0	-2.26
				6900	-70.02	3.30	1.50	-71.82	-62.0	-9.82
UNII Band 8	197	6935	20	6935	-60.32	3.30	1.50	-62.12	-62.0	-0.12
				6910	-68.26	3.30	1.50	-70.06	-62.0	-8.06
	207	6985	160	6985	-63.48	3.30	1.50	-65.28	-62.0	-3.28
				7060	-69.45	3.30	1.50	-71.25	-62.0	-9.25

Table 7-18. Contention Based Protocol – Incumbent Detection Results

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 355 of 422

Band	Channel	Channel Freq [MHz]	Channel BW [MHz]	Incumbent Freq [MHz]	EUT Transmission Status		
					Adjusted AWGN Power (dBm)		
					Normal	Minimal	Ceased
UNII Band 5	53	6215	20	6215	-70.37	-66.37	-64.37
	47	6185	160	6110	-71.29	-67.29	-65.29
				6185	-70.40	-66.40	-64.40
				6260	-76.05	-72.05	-70.05
UNII Band 6	101	6455	20	6455	-68.46	-64.46	-62.46
	111	6505	160	6430	-76.64	-72.64	-70.64
				6505	-71.83	-67.83	-65.83
				6580	-75.79	-71.79	-69.79
UNII Band 7	149	6695	20	6695	-70.99	-66.99	-62.99
	175	6825	160	6750	-78.88	-74.88	-70.88
				6825	-72.26	-68.26	-64.26
				6900	-79.82	-75.82	-71.82
UNII Band 8	197	6935	20	6935	-70.12	-66.12	-62.12
	207	6985	160	6910	-78.06	-74.06	-70.06
				6985	-73.28	-69.28	-65.28
				7060	-79.25	-75.25	-71.25

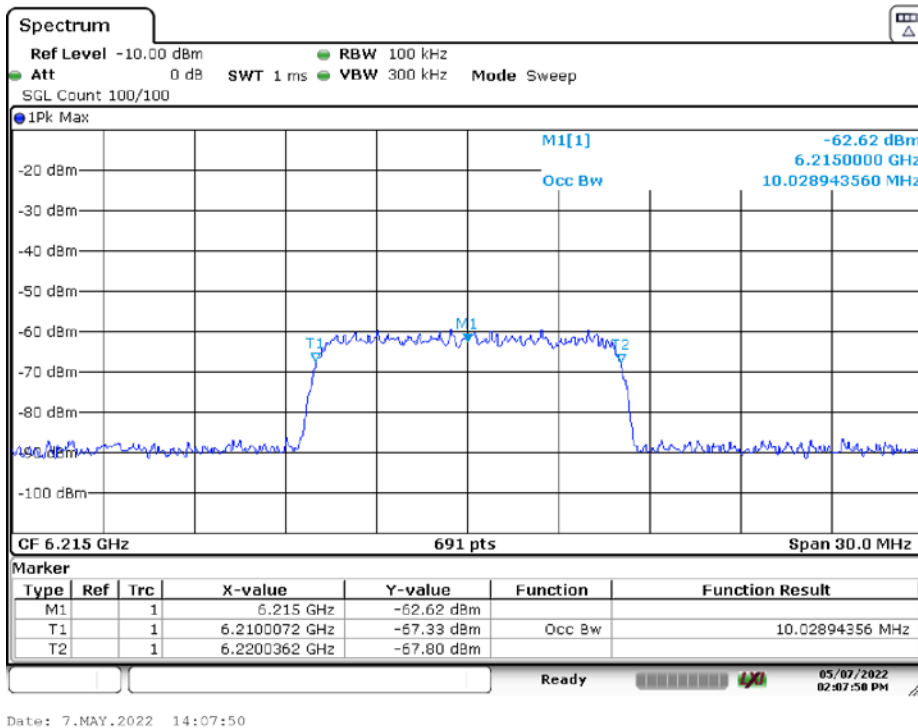
Table 7-19. Contention Based Protocol – Detection Results – All Tx Cases

Band	Channel	Channel Freq [MHz]	Channel BW [MHz]	Incumbent Freq [MHz]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Detection Rate (%)		
UNII Band 5	53	6215	20	6215	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
				6110	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	47	6185	160	6185	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
				6260	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UNII Band 6	101	6455	20	6455	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
				6430	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	111	6505	160	6505	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
				6580	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UNII Band 7	149	6695	20	6695	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
				6750	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	175	6825	160	6825	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
				6900	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
UNII Band 8	197	6935	20	6935	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
				6910	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	207	6985	160	6985	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100
				7060	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

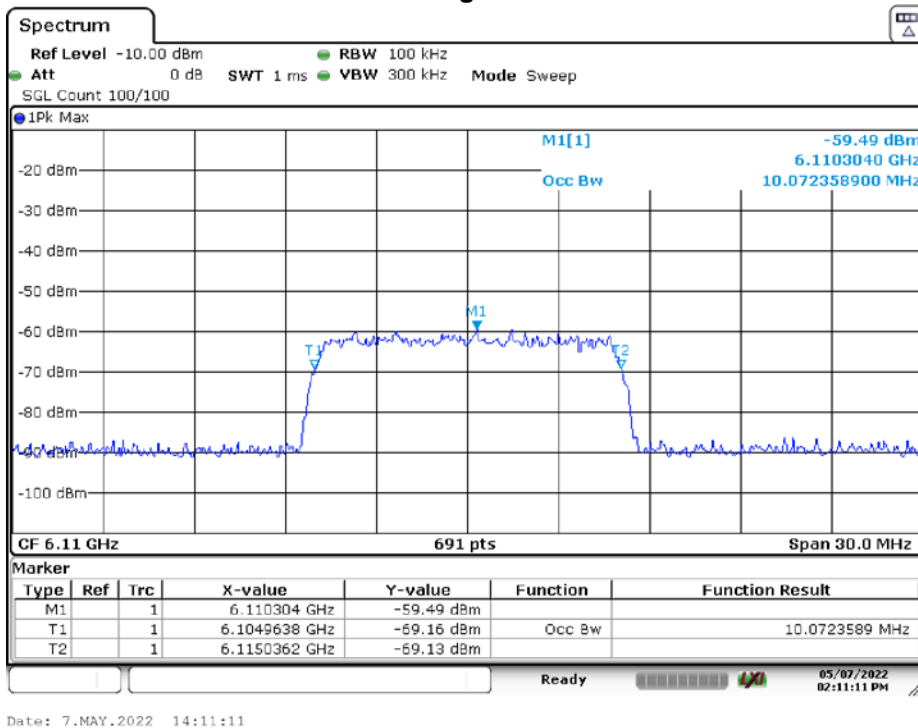
Table 7-20. Contention Based Protocol – Incumbent Detection Trial Results

FCC ID: C3K1997	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device	Page 356 of 422

AWGN Plots

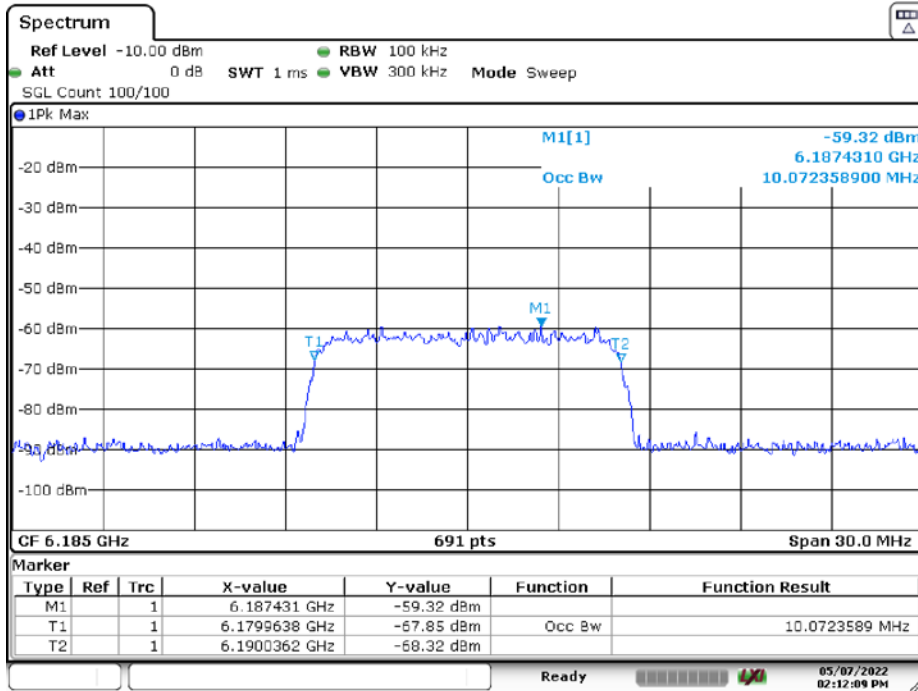


Plot 7-625. AWGN Signal – UNII 5 – 20MHz



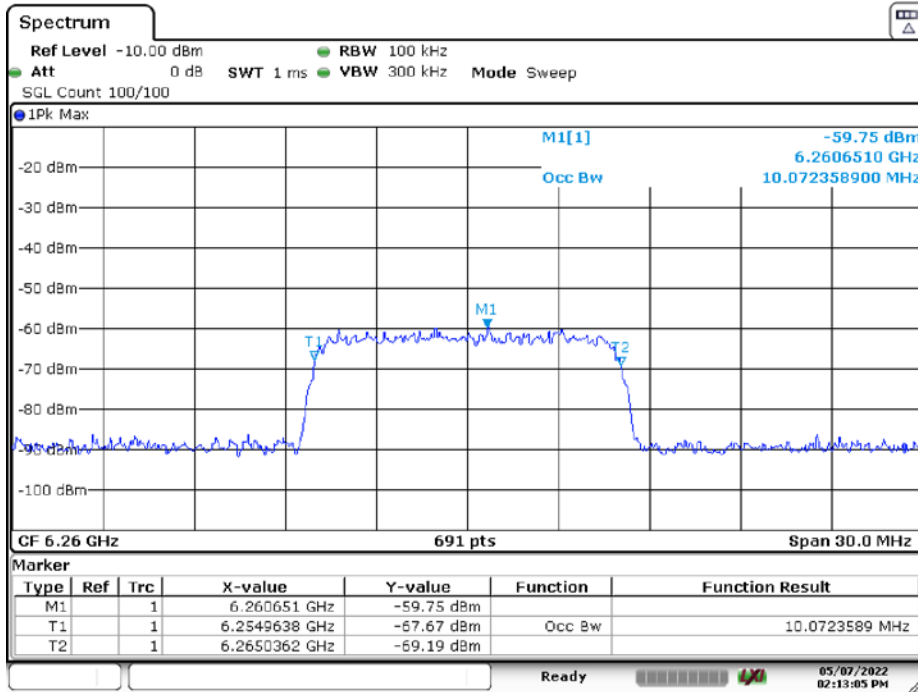
Plot 7-626. AWGN Signal – UNII 5 – 160MHz - Low

FCC ID: C3K1997		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device		Page 357 of 422



Date: 7.MAY.2022 14:12:09

Plot 7-627. AWGN Signal – UNII 5 – 160MHz - Mid



Date: 7.MAY.2022 14:13:05

Plot 7-628. AWGN Signal – UNII 5 – 160MHz - High

FCC ID: C3K1997		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1M2204040049-17-R1.C3K	Test Dates: 3/14/2022 – 7/8/2022	EUT Type: Portable Computing Device		Page 358 of 422