



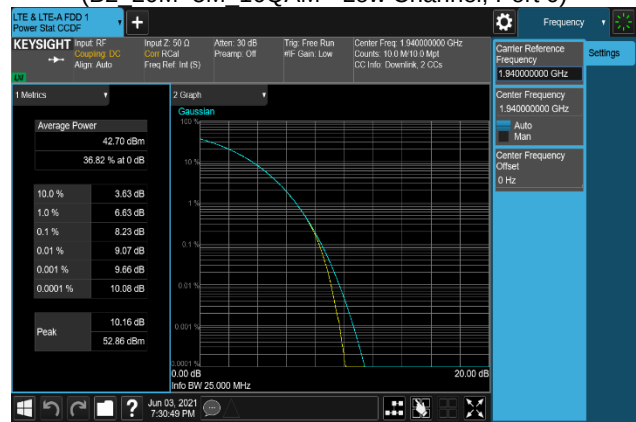
Plot 7-469. Peak To Average Power Ratio Plot
(B2_20M+5M_QPSK - Low Channel, Port 0)



Plot 7-470. Peak To Average Power Ratio Plot
(B2_20M+5M_16QAM - Low Channel, Port 0)



Plot 7-471. Peak To Average Power Ratio Plot
(B2_20M+5M_64QAM - Low Channel, Port 0)



Plot 7-472. Peak To Average Power Ratio Plot
(B2_20M+5M_256QAM - Low Channel, Port 0)



Plot 7-473. Peak To Average Power Ratio Plot
(B2_20M+5M_QPSK - Low Channel, Port 1)



Plot 7-474. Peak To Average Power Ratio Plot
(B2_20M+5M_16QAM - Low Channel, Port 1)

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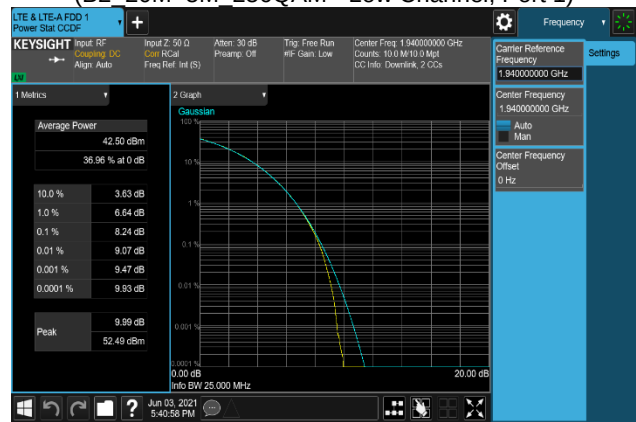
Plot 7-475. Peak To Average Power Ratio Plot
(B2_20M+5M_64QAM - Low Channel, Port 1)



Plot 7-476. Peak To Average Power Ratio Plot
(B2_20M+5M_256QAM - Low Channel, Port 1)



Plot 7-477. Peak To Average Power Ratio Plot
(B2_20M+5M_QPSK - Low Channel, Port 2)



Plot 7-478. Peak To Average Power Ratio Plot
(B2_20M+5M_16QAM - Low Channel, Port 2)

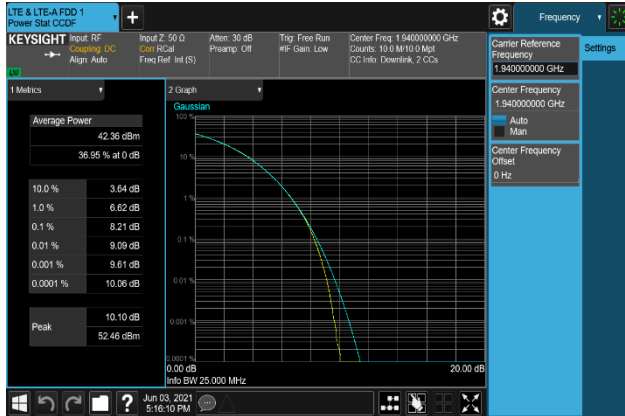


Plot 7-479. Peak To Average Power Ratio Plot
(B2_20M+5M_64QAM - Low Channel, Port 2)



Plot 7-480. Peak To Average Power Ratio Plot
(B2_20M+5M_256QAM - Low Channel, Port 2)

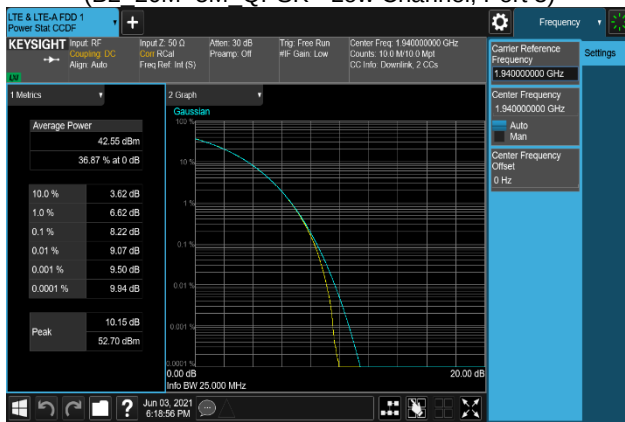
FCC ID: A3LRF4402D-D1A	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (Class II Permissive Change)	SAMSUNG	Approved by: Technical Manager
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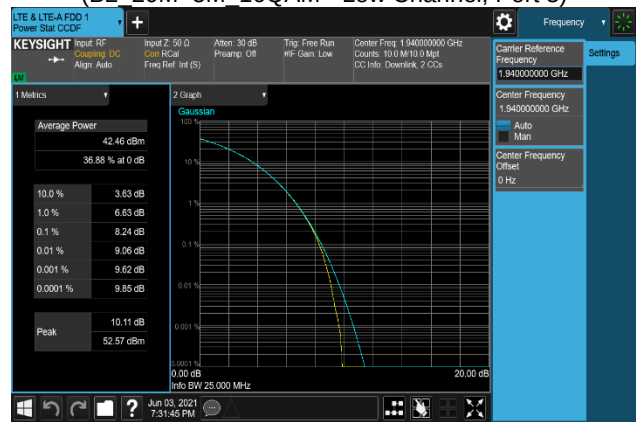
Plot 7-481. Peak To Average Power Ratio Plot
(B2_20M+5M_QPSK - Low Channel, Port 3)



Plot 7-482. Peak To Average Power Ratio Plot
(B2_20M+5M_16QAM - Low Channel, Port 3)



Plot 7-483. Peak To Average Power Ratio Plot
(B2_20M+5M_64QAM - Low Channel, Port 3)



Plot 7-484. Peak To Average Power Ratio Plot
(B2_20M+5M_256QAM - Low Channel, Port 3)



Plot 7-485. Peak To Average Power Ratio Plot
(B2_20M+5M_QPSK - Middle Channel, Port 0)



Plot 7-486. Peak To Average Power Ratio Plot
(B2_20M+5M_16QAM - Middle Channel, Port 0)

FCC ID: A3LRF4402D-D1A	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (Class II Permissive Change)	SAMSUNG	Approved by: Technical Manager
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Plot 7-487. Peak To Average Power Ratio Plot
(B2_20M+5M_64QAM - Middle Channel, Port 0)



Plot 7-488. Peak To Average Power Ratio Plot
(B2_20M+5M_256QAM - Middle Channel, Port 0)



Plot 7-489. Peak To Average Power Ratio Plot
(B2_20M+5M_QPSK - Middle Channel, Port 1)



Plot 7-490. Peak To Average Power Ratio Plot
(B2_20M+5M_16QAM - Middle Channel, Port 1)



Plot 7-491. Peak To Average Power Ratio Plot
(B2_20M+5M_64QAM - Middle Channel, Port 1)



Plot 7-492. Peak To Average Power Ratio Plot
(B2_20M+5M_256QAM - Middle Channel, Port 1)

FCC ID: A3LRF4402D-D1A	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (Class II Permissive Change)	SAMSUNG	Approved by: Technical Manager
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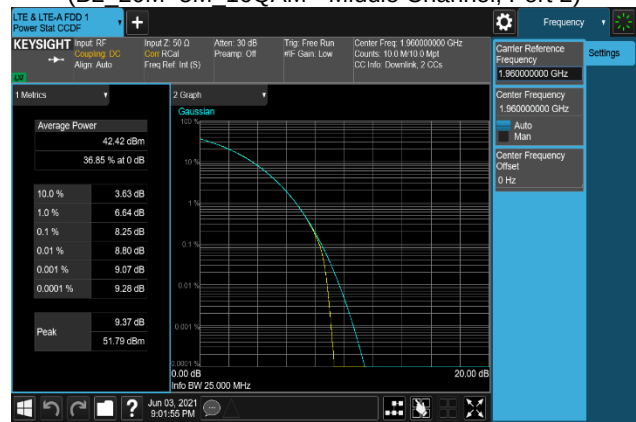
Plot 7-493. Peak To Average Power Ratio Plot
(B2_20M+5M_QPSK - Middle Channel, Port 2)



Plot 7-494. Peak To Average Power Ratio Plot
(B2_20M+5M_16QAM - Middle Channel, Port 2)



Plot 7-495. Peak To Average Power Ratio Plot
(B2_20M+5M_64QAM - Middle Channel, Port 2)



Plot 7-496. Peak To Average Power Ratio Plot
(B2_20M+5M_256QAM - Middle Channel, Port 2)



Plot 7-497. Peak To Average Power Ratio Plot
(B2_20M+5M_QPSK - Middle Channel, Port 3)



Plot 7-498. Peak To Average Power Ratio Plot
(B2_20M+5M_16QAM - Middle Channel, Port 3)

FCC ID: A3LRF4402D-D1A	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (Class II Permissive Change)	SAMSUNG	Approved by: Technical Manager
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Plot 7-499. Peak To Average Power Ratio Plot
(B2_20M+5M_64QAM - Middle Channel, Port 3)



Plot 7-500. Peak To Average Power Ratio Plot
(B2_20M+5M_256QAM - Middle Channel, Port 3)



Plot 7-501. Peak To Average Power Ratio Plot
(B2_20M+5M_QPSK - High Channel, Port 0)



Plot 7-502. Peak To Average Power Ratio Plot
(B2_20M+5M_16QAM - High Channel, Port 0)



Plot 7-503. Peak To Average Power Ratio Plot
(B2_20M+5M_64QAM - High Channel, Port 0)



Plot 7-504. Peak To Average Power Ratio Plot
(B2_20M+5M_256QAM - High Channel, Port 0)

FCC ID: A3LRF4402D-D1A	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (Class II Permissive Change)	SAMSUNG	Approved by: Technical Manager
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Plot 7-505. Peak To Average Power Ratio Plot
(B2_20M+5M_QPSK - High Channel, Port 1)



Plot 7-506. Peak To Average Power Ratio Plot
(B2_20M+5M_16QAM - High Channel, Port 1)



Plot 7-507. Peak To Average Power Ratio Plot
(B2_20M+5M_64QAM - High Channel, Port 1)



Plot 7-508. Peak To Average Power Ratio Plot
(B2_20M+5M_256QAM - High Channel, Port 1)



Plot 7-509. Peak To Average Power Ratio Plot
(B2_20M+5M_QPSK - High Channel, Port 2)



Plot 7-510. Peak To Average Power Ratio Plot
(B2_20M+5M_16QAM - High Channel, Port 2)

FCC ID: A3LRF4402D-D1A	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (Class II Permissive Change)	SAMSUNG	Approved by: Technical Manager
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Plot 7-511. Peak To Average Power Radio Plot
(B2_20M+5M_64QAM - High Channel, Port 2)



Plot 7-512. Peak To Average Power Radio Plot
(B2_20M+5M_256QAM - High Channel, Port 2)



Plot 7-513. Peak To Average Power Radio Plot
(B2_20M+5M_QPSK - High Channel, Port 3)



Plot 7-514. Peak To Average Power Radio Plot
(B2_20M+5M_16QAM - High Channel, Port 3)



Plot 7-515. Peak To Average Power Radio Plot
(B2_20M+5M_64QAM - High Channel, Port 3)



Plot 7-516. Peak To Average Power Radio Plot
(B2_20M+5M_256QAM - High Channel, Port 3)

FCC ID: A3LRF4402D-D1A	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (Class II Permissive Change)	SAMSUNG	Approved by: Technical Manager
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7.6 Band Edge Emissions at Antenna Terminal

§ 2.1051, § 24.238, § 27.53(h)

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6

KDB 662911 D01 v02r01 – Section E)3) Out-of-Band and Spurious Emission Measurements

a) Absolute Emission Limits

iii) Measure and add $10 \log(N_{ANT})$ dB

ANSI C63.26-2015 – Section 5.7

Test Setting

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW: Please see test notes below.
4. VBW $\geq 3 \times$ RBW
5. Detector = RMS
6. Number of sweep points $\geq 2 \times$ Span/RBW
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Limit

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

The power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm. The limit is adjusted to -19 dBm $[-13 \text{ dBm} - 10 \log(4)]$ per KDB 662911 D01 v02r01 - section E)3) because the EUT operate as a 4 port MIMO transmitter.

Test Setup

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

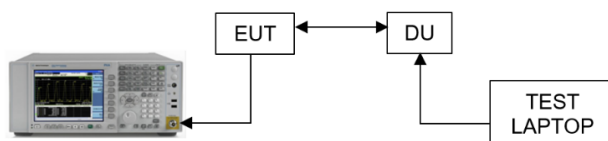


Figure 7-5. Test Instrument & Measurement Setup

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Test Notes

1. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.
2. All the measurement has been tested but test plots are referred from the highest of value of each of modulation of each antenna ports.

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- B66 15M+10M+10M Contiguous

Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Low	0	2109 to 2110	-24.569	-25.593	-25.691	-25.643	-19
	0	2108 to 2109	-38.560	-39.660	-38.340	-39.520	-19
	1	2109 to 2110	-25.524	-25.640	-25.960	-25.624	-19
	1	2108 to 2109	-38.110	-40.020	-38.750	-38.900	-19
	2	2109 to 2110	-26.082	-26.868	-25.689	-25.673	-19
	2	2108 to 2109	-40.230	-40.660	-41.680	-41.750	-19
	3	2109 to 2110	-25.963	-26.461	-25.753	-26.107	-19
	3	2108 to 2109	-41.720	-40.760	-41.260	-41.950	-19
High	0	2180 to 2181	-21.050	-21.492	-21.740	-21.543	-19
	0	2181 to 2182	-27.630	-27.700	-28.000	-27.960	-19
	1	2180 to 2181	-21.598	-21.518	-22.229	-21.718	-19
	1	2181 to 2182	-27.450	-27.910	-27.980	-27.720	-19
	2	2180 to 2181	-22.196	-21.819	-21.852	-21.701	-19
	2	2181 to 2182	-27.240	-27.640	-28.570	-28.700	-19
	3	2180 to 2181	-22.005	-21.647	-22.058	-20.741	-19
	3	2181 to 2182	-27.300	-27.980	-28.970	-28.640	-19

Table 7-29. Band Edge Emission Summary Data (B66 15M+10M+10M Contiguous)

FCC ID: A3LRF4402D-D1A	 PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Technical Manager
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- B66_15M+10M+10M_Non-Contiguous

Edge	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Lower	0	2109 to 2110	-23.738	-23.838	-24.317	-24.610	-19
	0	2108 to 2109	-39.950	-40.250	-40.410	-39.820	-19
	1	2109 to 2110	-24.311	-24.571	-24.561	-24.740	-19
	1	2108 to 2109	-39.650	-39.290	-39.720	-39.430	-19
	2	2109 to 2110	-25.014	-25.056	-24.620	-24.673	-19
	2	2108 to 2109	-40.570	-40.840	-41.070	-40.860	-19
	3	2109 to 2110	-24.704	-24.708	-24.647	-24.722	-19
	3	2108 to 2109	-41.450	-41.250	-41.750	-41.930	-19
Upper	0	2180 to 2181	-20.455	-20.532	-21.201	-21.074	-19
	0	2181 to 2182	-25.870	-26.200	-26.110	-26.320	-19
	1	2180 to 2181	-20.288	-20.978	-20.382	-20.845	-19
	1	2181 to 2182	-26.290	-26.000	-25.920	-25.850	-19
	2	2180 to 2181	-20.600	-21.009	-20.477	-21.545	-19
	2	2181 to 2182	-26.130	-26.350	-26.440	-26.510	-19
	3	2180 to 2181	-20.874	-20.801	-20.940	-21.700	-19
	3	2181 to 2182	-26.640	-26.490	-26.230	-26.390	-19

Table 7-30. Band Edge Emission Summary Data (B66_15M+10M+10M_Non-Contiguous)

FCC ID: A3LRF4402D-D1A		MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
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- B66 15M+10M+10M Contiguous



Plot 7-517. Band Edge Emission Plot
(B66 15M+10M+10M QPSK - Low Channel, Port 0)



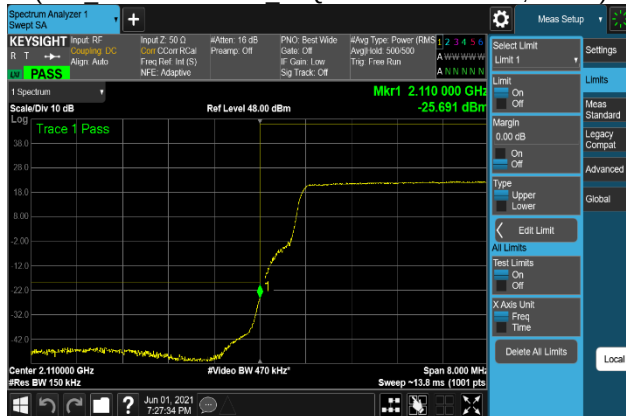
Plot 7-518. Band Edge Emission(Channel Power) Plot
(B66 15M+10M+10M QPSK - Low Channel, Port 0)



Plot 7-519. Band Edge Emission Plot
(B66 15M+10M+10M 16QAM - Low Channel, Port 0)



Plot 7-520. Band Edge Emission(Channel Power) Plot
(B66 15M+10M+10M 16QAM - Low Channel, Port 0)

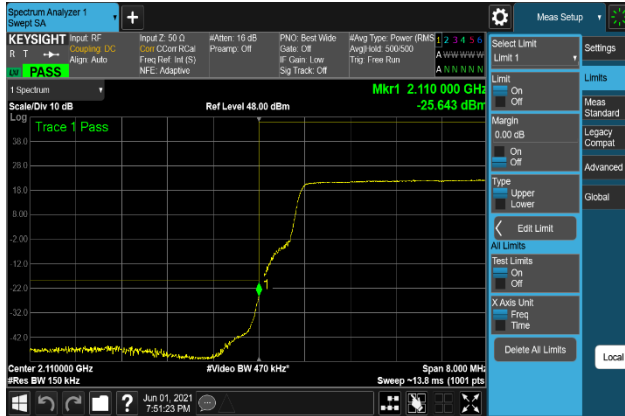


Plot 7-521. Band Edge Emission Plot
(B66_15M+10M+10M_64QAM - Low Channel, Port 0)

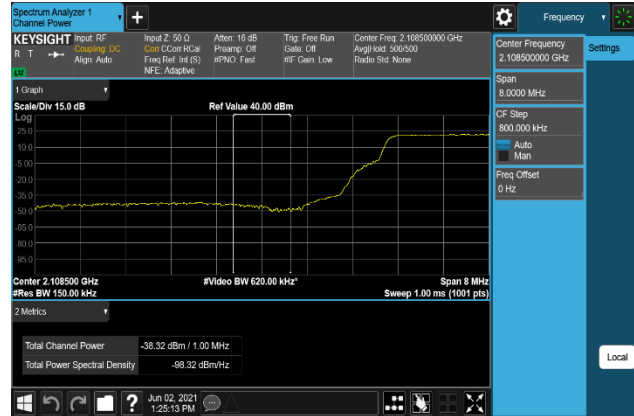


Plot 7-522. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M_64QAM - Low Channel, Port 0)

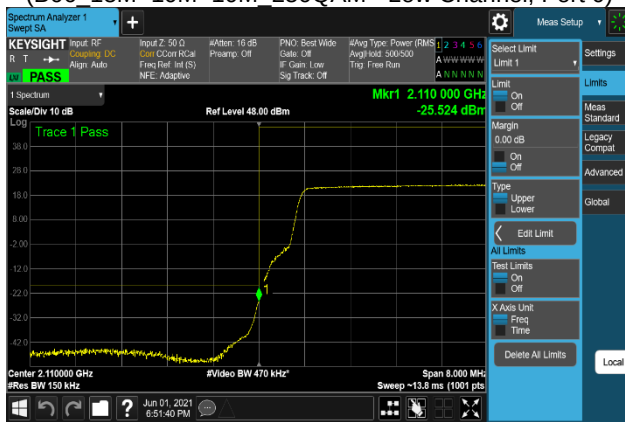
FCC ID: A3LRF4402D-D1A	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (Class II Permissive Change)	SAMSUNG	Approved by: Technical Manager
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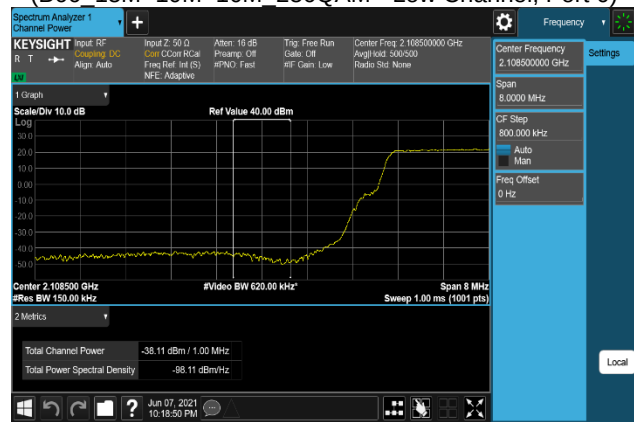
Plot 7-523. Band Edge Emission Plot
(B66_15M+10M+10M 256QAM - Low Channel, Port 0)



Plot 7-524. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M 256QAM - Low Channel, Port 0)



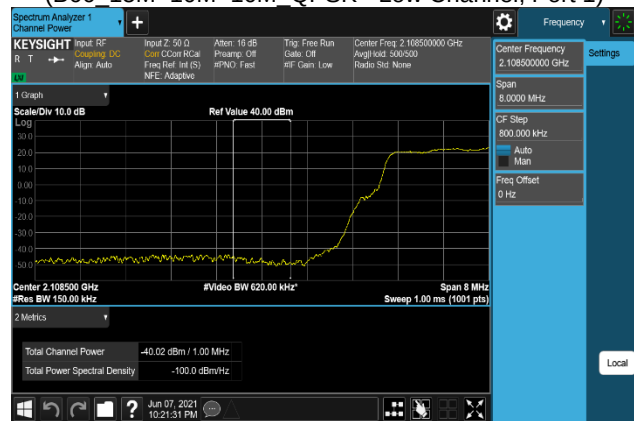
Plot 7-525. Band Edge Emission Plot
(B66_15M+10M+10M QPSK - Low Channel, Port 1)



Plot 7-526. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M QPSK - Low Channel, Port 1)

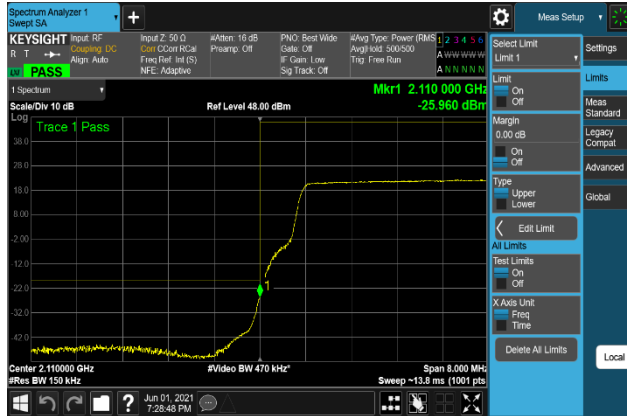


Plot 7-527. Band Edge Emission Plot
(B66_15M+10M+10M_16QAM - Low Channel, Port 1)



Plot 7-528. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M_16QAM - Low Channel, Port 1)

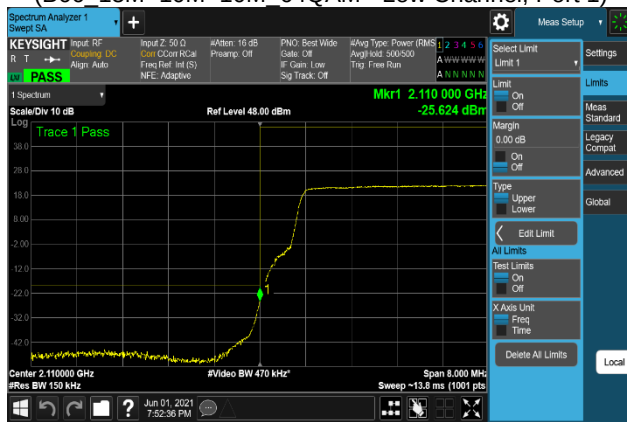
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Plot 7-529. Band Edge Emission Plot
(B66_15M+10M+10M_64QAM - Low Channel, Port 1)



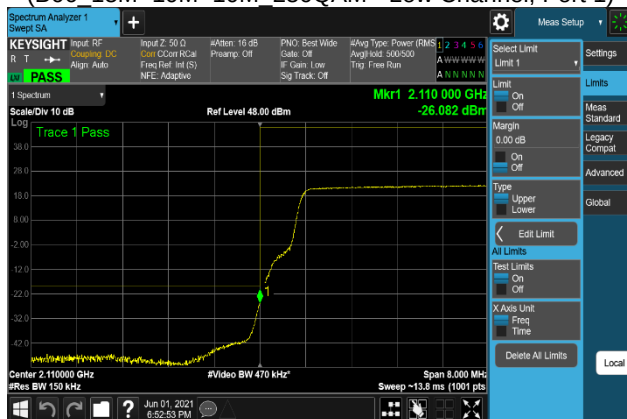
Plot 7-530. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M_64QAM - Low Channel, Port 1)



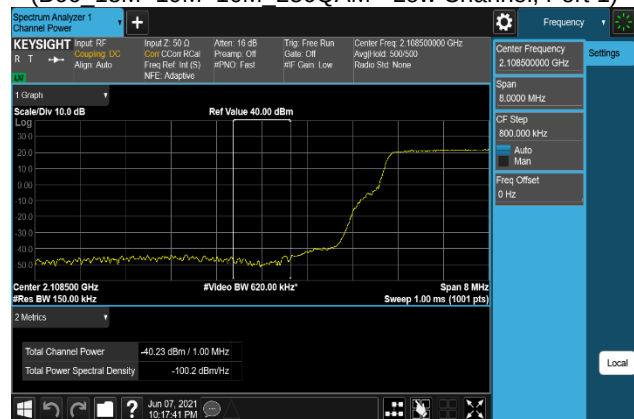
Plot 7-531. Band Edge Emission Plot
(B66_15M+10M+10M_256QAM - Low Channel, Port 1)



Plot 7-532. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M_256QAM - Low Channel, Port 1)

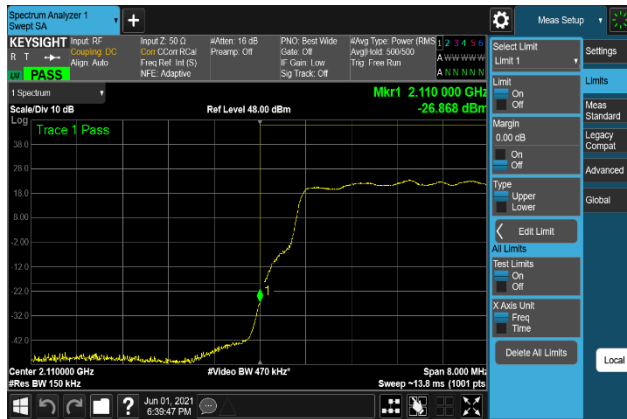


Plot 7-533. Band Edge Emission Plot
(B66_15M+10M+10M_QPSK - Low Channel, Port 2)



Plot 7-534. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M_QPSK - Low Channel, Port 2)

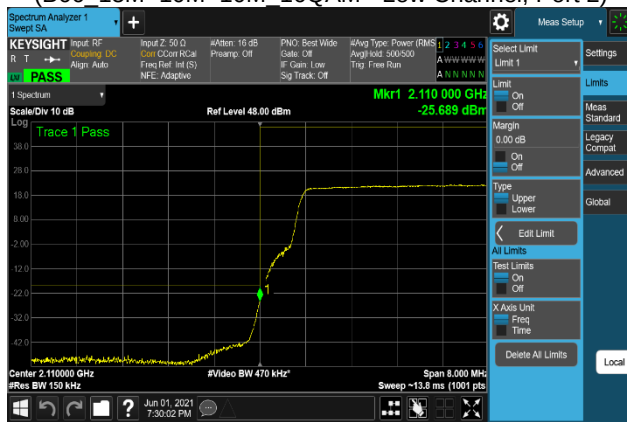
FCC ID: A3LRF4402D-D1A	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (Class II Permissive Change)	SAMSUNG	Approved by: Technical Manager
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Plot 7-535. Band Edge Emission Plot
(B66_15M+10M+10M_16QAM - Low Channel, Port 2)



Plot 7-536. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M_16QAM - Low Channel, Port 2)



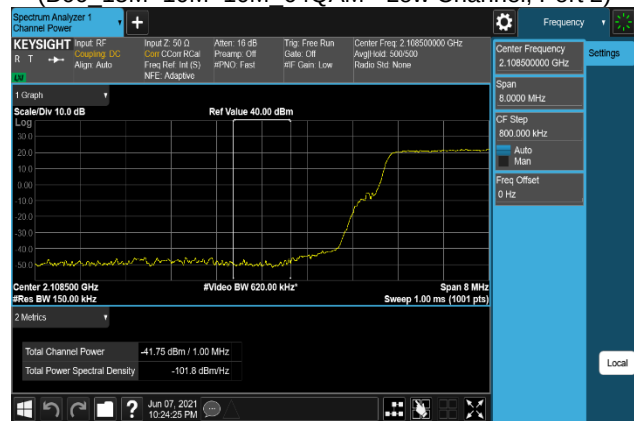
Plot 7-537. Band Edge Emission Plot
(B66_15M+10M+10M_64QAM - Low Channel, Port 2)



Plot 7-538. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M_64QAM - Low Channel, Port 2)

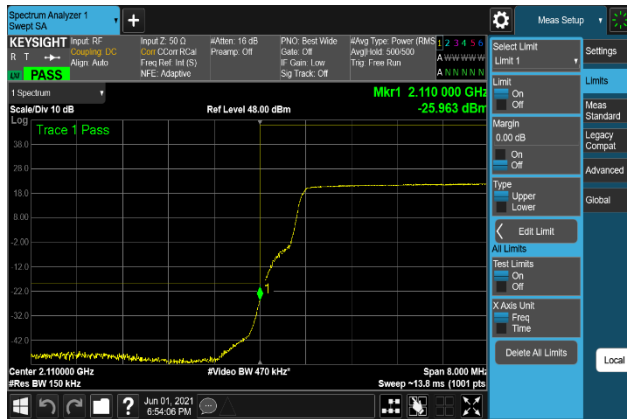


Plot 7-539. Band Edge Emission Plot
(B66_15M+10M+10M_256QAM - Low Channel, Port 2)



Plot 7-540. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M_256QAM - Low Channel, Port 2)

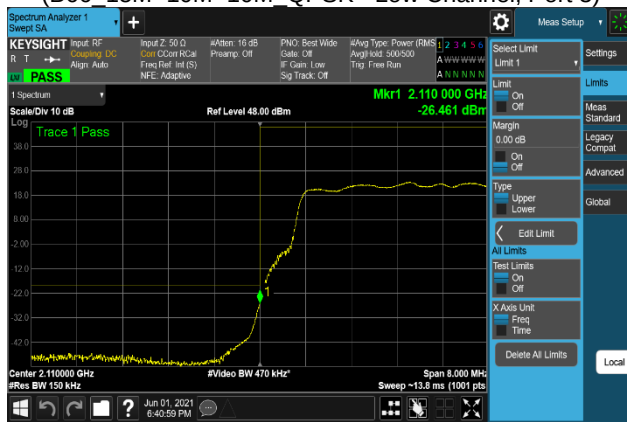
FCC ID: A3LRF4402D-D1A	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (Class II Permissive Change)	SAMSUNG	Approved by: Technical Manager
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Plot 7-541. Band Edge Emission Plot
(B66_15M+10M+10M_QPSK - Low Channel, Port 3)



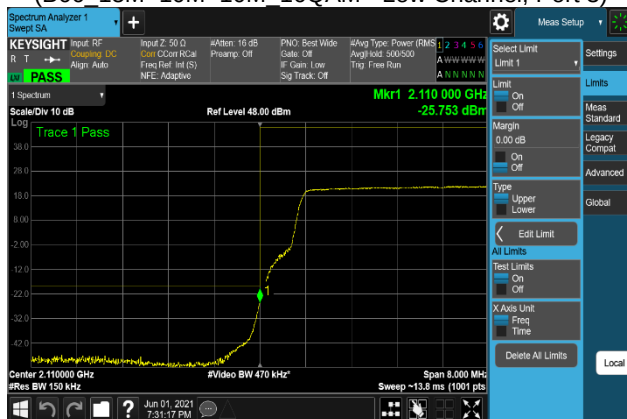
Plot 7-542. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M_QPSK - Low Channel, Port 3)



Plot 7-543. Band Edge Emission Plot
(B66_15M+10M+10M_16QAM - Low Channel, Port 3)



Plot 7-544. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M_16QAM - Low Channel, Port 3)



Plot 7-545. Band Edge Emission Plot
(B66_15M+10M+10M_64QAM - Low Channel, Port 3)



Plot 7-546. Band Edge Emission(Channel Power) Plot
(B66_15M+10M+10M_64QAM - Low Channel, Port 3)

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Test Report S/N: BK21053101R1.A3L	Test Dates: 06/01/2021-06/15/2021	EUT Type: RRU(RF4402d)		Page 128 of 515