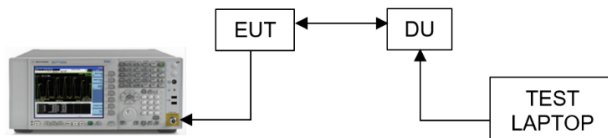


## Test Setup



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



**Figure 7-5. Test Instrument & Measurement Setup**

## Test Notes

- Per §22.917, compliance with these rules is based on the use of measurement instrumentation employing a reference bandwidth as follows. In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. 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.  
In the spectrum above 1 GHz, instrumentation should employ a reference bandwidth of 1 MHz.
- Per §27.53(c), compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed.
- All modes of operation were investigated. The port with highest level i.e. worst case port per each test range has been highlighted in the following emission tables.
- The integration method was performed using the spectrum analyzer's channel power, or band power functions.  
The spectrum analyzer marker was placed at one-half of the RBW away from the band edge.  
The integration value was set to the a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter


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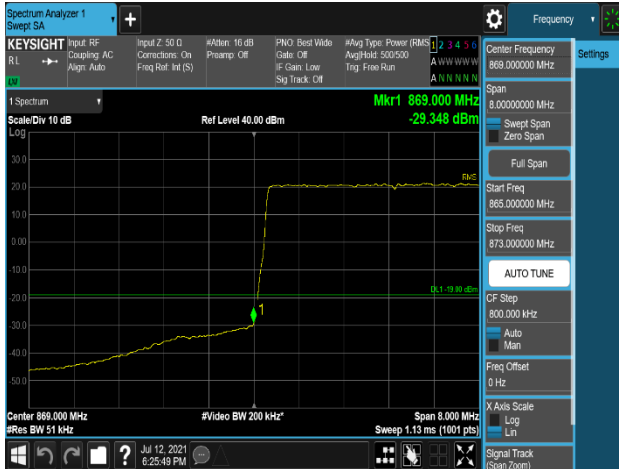
Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Low	0	868 to 869	-31.18	-29.89	-31.48	-30.61	-19.02
	1	868 to 869	-32.11	-30.01	-30.74	<b>-29.35</b>	-19.02
	2	868 to 869	-32.00	-30.05	-30.67	-29.62	-19.02
	3	868 to 869	-31.50	-29.95	-29.94	-28.59	-19.02
High	0	894 to 895	-30.34	-29.80	-30.90	-31.04	-19.02
	1	894 to 895	-31.94	-32.10	-32.31	<b>-28.99</b>	-19.02
	2	894 to 895	-31.49	-30.52	-31.69	-31.13	-19.02
	3	894 to 895	-30.88	-31.01	-30.51	-30.08	-19.02

**Table 7-65. Band Edge Emission Summary Data (LTE\_B5\_5M\_1C)**

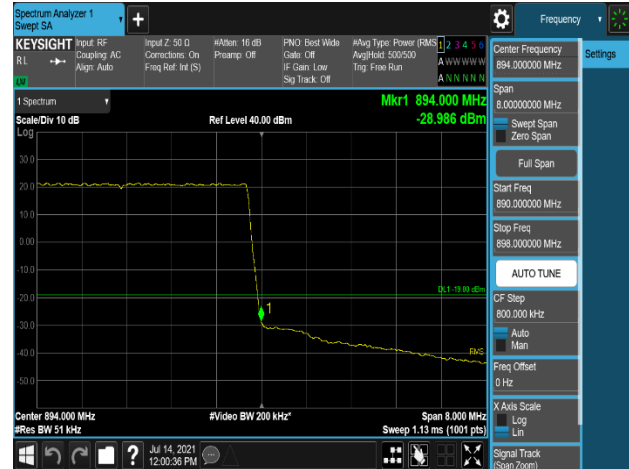
Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Low	0	868 to 869	<b>-26.53</b>	-27.87	-27.38	-28.38	-19.02
	1	868 to 869	-27.61	-27.36	-27.22	-27.22	-19.02
	2	868 to 869	-27.46	-27.42	-27.83	-27.72	-19.02
	3	868 to 869	-28.23	-28.21	-28.13	-27.67	-19.02
High	0	894 to 895	-26.73	-25.46	-25.56	-27.53	-19.02
	1	894 to 895	-26.84	-26.17	-26.93	-28.12	-19.02
	2	894 to 895	-26.45	<b>-25.30</b>	-26.81	-26.47	-19.02
	3	894 to 895	-26.62	-27.15	-27.34	-26.99	-19.02

**Table 7-66. Band Edge Emission Summary Data (LTE\_B5\_10M\_1C)**

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Plot 7-295. Band Edge Emission (868MHz to 869MHz) Plot  
(LTE\_B5\_5M\_1C\_256QAM - Low Channel, Port 1)



Plot 7-296. Band Edge Emission (894MHz to 895MHz) Plot  
(LTE\_B5\_5M\_1C\_256QAM - High Channel, Port 1)



Plot 7-297. Band Edge Emission (868MHz to 869MHz) Plot  
(LTE\_B5\_10M\_1C\_QPSK - Low Channel, Port 0)



Plot 7-298. Band Edge Emission (894MHz to 895MHz) Plot  
(LTE\_B5\_10M\_1C\_16QAM - High Channel, Port 2)

FCC ID: A3LRF4442D-13A	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Technical Manager
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Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Low	0	868 to 869	<b>-26.81</b>	-27.68	-27.65	-27.70	-19.02
	1	868 to 869	-27.23	-27.67	-28.07	-27.05	-19.02
	2	868 to 869	-27.93	-27.38	-28.30	-27.41	-19.02
	3	868 to 869	-27.60	-28.56	-28.17	-28.42	-19.02
High	0	894 to 895	-27.21	-28.48	-27.97	-28.18	-19.02
	1	894 to 895	-27.54	-28.77	-27.86	-27.64	-19.02
	2	894 to 895	-27.08	-28.00	<b>-26.58</b>	-27.94	-19.02
	3	894 to 895	-27.22	-28.34	-28.31	-28.17	-19.02



**Table 7-67. Band Edge Emission Summary Data (LTE\_B5\_5M+5M\_2C)**

Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Low	0	868 to 869	-21.93	-22.72	-21.49	-22.86	-19.02
	1	868 to 869	-23.22	-22.33	<b>-21.46</b>	-22.47	-19.02
	2	868 to 869	-22.55	-22.91	-21.99	-22.44	-19.02
	3	868 to 869	-23.34	-21.96	-22.87	-23.11	-19.02
High	0	894 to 895	<b>-21.20</b>	-22.83	-22.44	-23.46	-19.02
	1	894 to 895	-22.80	-23.65	-22.40	-22.64	-19.02
	2	894 to 895	-22.40	-22.91	-21.47	-23.77	-19.02
	3	894 to 895	-23.20	-23.24	-21.82	-22.86	-19.02

**Table 7-68. Band Edge Emission Summary Data (LTE\_B5\_10M+10M\_2C)**

Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Low	0	868 to 869	<b>-29.99</b>	-31.17	-30.32	-30.98	-19.02
	1	868 to 869	-31.26	-31.54	-31.30	-31.14	-19.02
	2	868 to 869	-30.21	-30.13	-30.92	-30.41	-19.02
	3	868 to 869	-32.23	-32.21	-31.52	-31.88	-19.02
High	0	894 to 895	-30.59	-29.97	-30.14	-30.21	-19.02
	1	894 to 895	-32.69	-32.92	-32.72	-33.24	-19.02
	2	894 to 895	-29.40	<b>-28.60</b>	-29.47	-29.53	-19.02
	3	894 to 895	-33.45	-32.94	-33.28	-33.22	-19.02

**Table 7-69. Band Edge Emission Summary Data (LTE\_B5\_5M+10M+10M\_3C)**

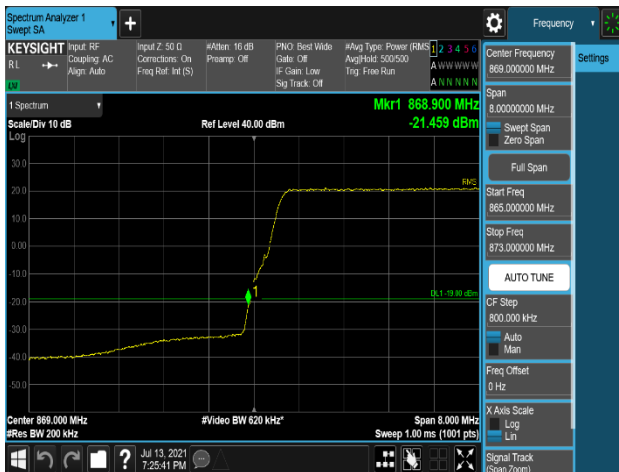
FCC ID: A3LRF4442D-13A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Plot 7-299. Band Edge Emission (868MHz to 869MHz) Plot  
(LTE\_B5\_5M+5M\_2C\_QPSK - Low Channel, Port 0)



Plot 7-300. Band Edge Emission (894MHz to 895MHz) Plot  
(LTE\_B5\_5M+5M\_2C\_64QAM - High Channel, Port 2)



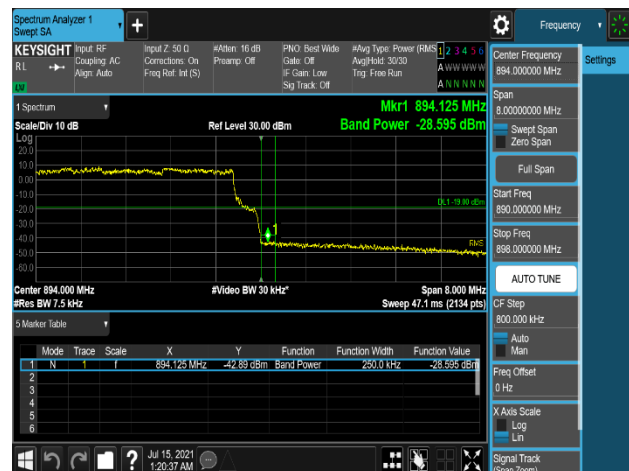
Plot 7-301. Band Edge Emission (868MHz to 869MHz) Plot  
(LTE\_B5\_10M+10M\_2C\_64QAM - Low Channel, Port 1)



Plot 7-302. Band Edge Emission (894MHz to 895MHz) Plot  
(LTE\_B5\_10M+10M\_2C\_QPSK - High Channel, Port 0)



Plot 7-303. Band Edge Emission (868MHz to 869MHz)  
Integration method Plot  
(B2 5M+10M+10M 3C QPSK - Low Channel, Port 0)



Plot 7-304. Band Edge Emission (894MHz to 895MHz)  
Integration method Plot  
(B2 5M+10M+10M 3C 16QAM - Low Channel, Port 2)

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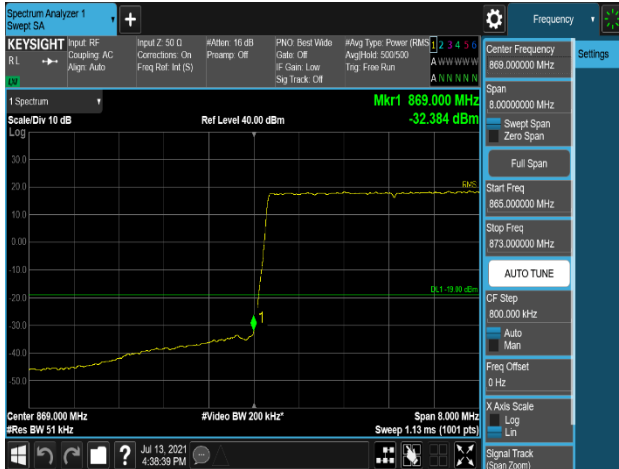
Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Low	0	868 to 869	-33.13	-33.54	-31.93	-33.05	-19.02
	1	868 to 869	-32.12	-31.46	-33.34	-32.68	-19.02
	2	868 to 869	-32.87	-32.52	-33.10	<b>-32.38</b>	-19.02
	3	868 to 869	-32.76	-32.77	-31.94	-32.79	-19.02
High	0	894 to 895	-30.71	-32.79	-31.70	-31.48	-19.02
	1	894 to 895	-33.05	-33.31	-33.08	-33.31	-19.02
	2	894 to 895	-31.33	-31.51	<b>-30.57</b>	-30.83	-19.02
	3	894 to 895	-31.94	-32.18	-32.07	-33.29	-19.02

**Table 7-70. Band Edge Emission Summary Data (LTE\_B5\_5M+5M\_2C - Non-contiguous)**

Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Low	0	868 to 869	-29.88	-30.16	-29.70	-31.15	-19.02
	1	868 to 869	-29.43	-30.32	<b>-29.05</b>	-30.14	-19.02
	2	868 to 869	-29.99	-29.53	-29.21	-30.26	-19.02
	3	868 to 869	-29.99	-30.87	-30.44	-31.29	-19.02
High	0	894 to 895	-29.71	-29.41	-28.93	-29.90	-19.02
	1	894 to 895	-29.65	-30.14	-30.77	-30.11	-19.02
	2	894 to 895	-29.09	<b>-28.46</b>	-28.94	-29.20	-19.02
	3	894 to 895	-30.44	-30.56	-29.11	-30.39	-19.02

**Table 7-71. Band Edge Emission Summary Data (LTE\_B5\_10M+10M\_2C - Non-contiguous)**

FCC ID: A3LRF4442D-13A		<b>MEASUREMENT REPORT (CERTIFICATION)</b>			<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 8K21070502R3.A3L	<b>Test Dates:</b> 07/09/2021 - 08/26/2021	<b>EUT Type:</b> RRU (RF4442d)		Page 110 of 225	



Plot 7-305. Band Edge Emission (868MHz to 869MHz) Plot  
(LTE\_B5\_5M+5M\_2C\_256QAM - Non-contiguous, Port 2)



Plot 7-306. Band Edge Emission (894MHz to 895MHz) Plot  
(LTE\_B5\_5M+5M\_2C\_64QAM - Non-contiguous, Port 2)



Plot 7-307. Band Edge Emission (868MHz to 869MHz) Plot  
(LTE\_B5\_10M+10M\_2C\_64QAM - Non-contiguous, Port 1)



Plot 7-308. Band Edge Emission (894MHz to 895MHz) Plot  
(LTE\_B5\_10M+10M\_2C\_16QAM - Non-contiguous, Port 2)


FCC ID: A3LRF4442D-13A	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Technical Manager
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Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Low	0	745.9 to 746	-31.14	-30.30	-29.21	-29.64	-19.02
	1	745.9 to 746	-32.15	-30.87	<b>-26.46</b>	-30.70	-19.02
	2	745.9 to 746	-30.28	-30.21	-26.88	-29.51	-19.02
	3	745.9 to 746	-31.05	-29.72	-28.03	-28.93	-19.02
High	0	756 to 756.1	-29.47	-30.23	-29.93	-29.37	-19.02
	1	756 to 756.1	-29.84	-29.79	-30.89	-30.08	-19.02
	2	756 to 756.1	-29.35	-29.35	-29.71	-29.12	-19.02
	3	756 to 756.1	-29.56	<b>-28.77</b>	-29.37	-29.36	-19.02

**Table 7-72. Band Edge Emission Summary Data (LTE\_B13\_5M\_1C)**

Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Low	0	745.9 to 746	-30.77	<b>-30.67</b>	-31.23	-32.09	-19.02
	1	745.9 to 746	-31.89	-32.20	-32.56	-32.29	-19.02
	2	745.9 to 746	-31.69	-31.50	-31.49	-31.25	-19.02
	3	745.9 to 746	-31.95	-31.10	-30.86	-30.69	-19.02
High	0	756 to 756.1	-32.42	-32.26	-31.84	-31.95	-19.02
	1	756 to 756.1	-32.16	-32.26	-32.08	-32.25	-19.02
	2	756 to 756.1	-31.78	-32.10	-31.83	-31.70	-19.02
	3	756 to 756.1	-31.86	-32.11	-31.93	<b>-31.53</b>	-19.02

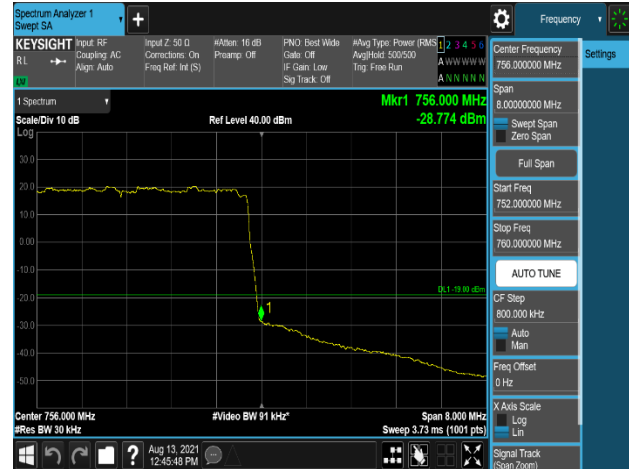
**Table 7-73. Band Edge Emission Summary Data (LTE\_B13\_10M\_1C)**

FCC ID: A3LRF4442D-13A		<b>MEASUREMENT REPORT (CERTIFICATION)</b>			<b>Approved by:</b> Technical Manager
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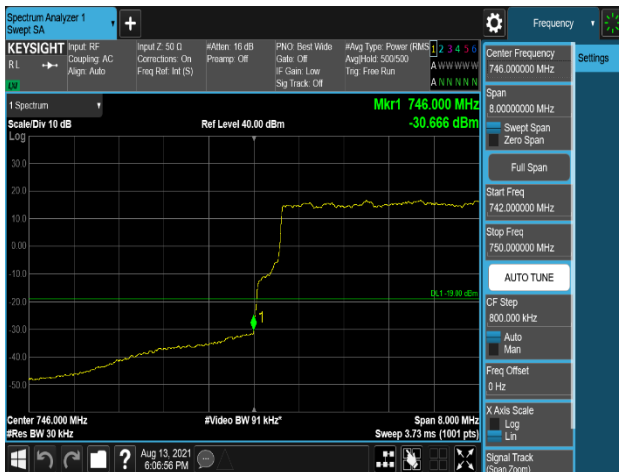




Plot 7-309. Band Edge Emission (745MHz to 746MHz) Plot  
(LTE\_B5\_5M\_1C\_64QAM - Low Channel, Port 1)



Plot 7-310. Band Edge Emission (756MHz to 757MHz) Plot  
(LTE\_B5\_5M\_1C\_16QAM - High Channel, Port 3)



Plot 7-311. Band Edge Emission (745MHz to 746MHz) Plot  
(LTE\_B5\_10M\_1C\_16QAM - Low Channel, Port 0)



Plot 7-312. Band Edge Emission (756MHz to 757MHz) Plot  
(LTE\_B5\_10M\_1C\_256QAM - High Channel, Port 3)

FCC ID: A3LRF4442D-13A	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT (CERTIFICATION)</b>	<b>SAMSUNG</b>	<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 8K21070502R3.A3L	<b>Test Dates:</b> 07/09/2021 - 08/26/2021	<b>EUT Type:</b> RRU (RF4442d)		Page 113 of 225

Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
			QPSK	16QAM	64QAM	256QAM	
Low	0	745.9 to 746	-33.81	-32.72	-31.89	-31.71	-19.02
	1	745.9 to 746	-34.50	-33.83	-33.18	-32.51	-19.02
	2	745.9 to 746	-33.79	-31.87	-32.40	<b>-31.19</b>	-19.02
	3	745.9 to 746	-32.93	-31.55	-32.04	-32.28	-19.02
High	0	756 to 756.1	-33.16	-33.02	-33.24	-33.75	-19.02
	1	756 to 756.1	-34.23	-32.58	-33.65	-34.09	-19.02
	2	756 to 756.1	-33.10	-32.29	-32.87	-33.58	-19.02
	3	756 to 756.1	-33.75	<b>-31.72</b>	-32.95	-33.39	-19.02

**Table 7-74. Band Edge Emission Summary Data (LTE\_B13\_5M+5M\_2C)**



FCC ID: A3LRF4442D-13A	<b>MEASUREMENT REPORT (CERTIFICATION)</b>			Approved by: Technical Manager
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Channel	Port	Measured Range (MHz)	Max. Value (dBm)	Limit (dBm)
Low	0	745.9 to 746	-28.25	-19.02
	1	745.9 to 746	-28.07	-19.02
	2	745.9 to 746	-28.46	-19.02
	3	745.9 to 746	<b>-27.49</b>	-19.02
High	0	756 to 756.1	<b>-27.49</b>	-19.02
	1	756 to 756.1	-29.16	-19.02
	2	756 to 756.1	-27.80	-19.02
	3	756 to 756.1	-28.95	-19.02

**Table 7-75. Band Edge Emission Summary Data (LTE\_B13\_5M+NB-lot(IB)\_ 1C)**

Channel	Port	Measured Range (MHz)	Max. Value (dBm)	Limit (dBm)
Low	0	745.9 to 746	-31.29	-19.02
	1	745.9 to 746	-32.01	-19.02
	2	745.9 to 746	-31.28	-19.02
	3	745.9 to 746	<b>-30.70</b>	-19.02
High	0	756 to 756.1	-31.81	-19.02
	1	756 to 756.1	-31.89	-19.02
	2	756 to 756.1	-31.86	-19.02
	3	756 to 756.1	<b>-31.43</b>	-19.02

**Table 7-76. Band Edge Emission Summary Data (LTE\_B13\_10M+Low\_NB-lot(IB)+High\_NB-lot(IB)\_ 1C )**


FCC ID: A3LRF4442D-13A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 8K21070502R3.A3L	Test Dates: 07/09/2021 - 08/26/2021	EUT Type: RRU (RF4442d)		Page 115 of 225

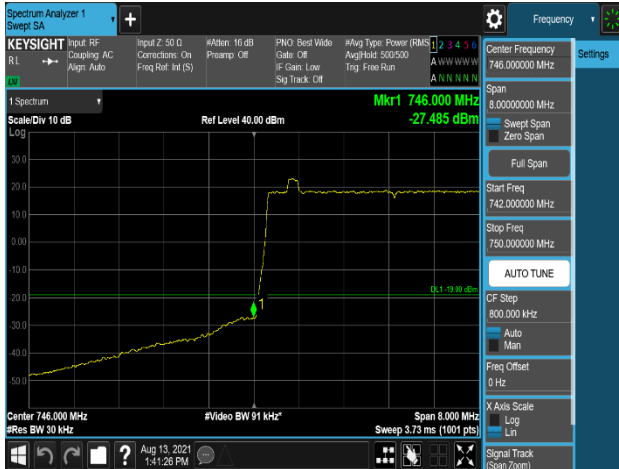
Channel	Port	Measured Range (MHz)	Max. Value (dBm)	Limit (dBm)
Low	0	745.9 to 746	-32.20	-19.02
	1	745.9 to 746	-32.17	-19.02
	2	745.9 to 746	-32.45	-19.02
	3	745.9 to 746	<b>-32.02</b>	-19.02
High	0	756 to 756.1	-32.81	-19.02
	1	756 to 756.1	-33.13	-19.02
	2	756 to 756.1	-32.50	-19.02
	3	756 to 756.1	<b>-32.44</b>	-19.02

**Table 7-77. Band Edge Emission Summary Data (LTE\_B13\_10M+Low\_NB-lot(IB)+Low\_NB-lot(IB)\_1C )**

Channel	Port	Measured Range (MHz)	Max. Value (dBm)	Limit (dBm)
Low	0	745.9 to 746	-33.15	-19.02
	1	745.9 to 746	-33.59	-19.02
	2	745.9 to 746	-32.94	-19.02
	3	745.9 to 746	<b>-32.77</b>	-19.02
High	0	756 to 756.1	-32.19	-19.02
	1	756 to 756.1	-32.34	-19.02
	2	756 to 756.1	-31.85	-19.02
	3	756 to 756.1	<b>-31.60</b>	-19.02

**Table 7-78. Band Edge Emission Summary Data (LTE\_B13\_10M+High\_NB-lot(IB)+High\_NB-lot(IB)\_1C)**

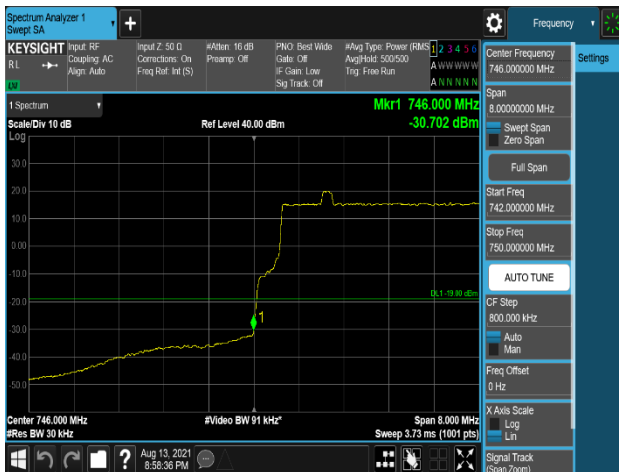
FCC ID: A3LRF4442D-13A		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
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Plot 7-315. Band Edge Emission (745MHz to 746MHz) Plot  
(LTE\_B13\_5M+NB-lot(IB)\_1C – Port 3)



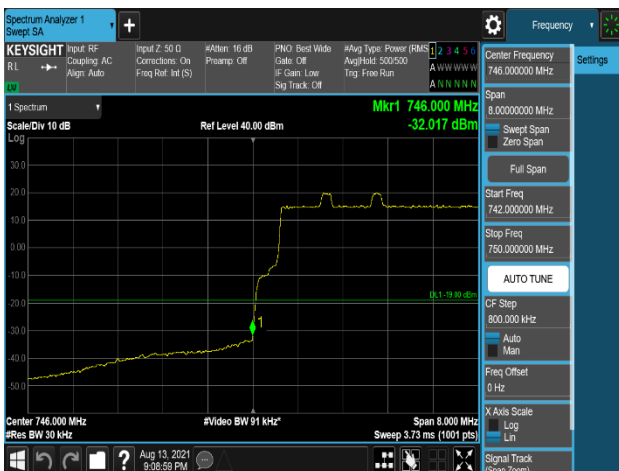
Plot 7-316. Band Edge Emission (756MHz to 757MHz) Plot  
(LTE\_B13\_5M+NB-lot(IB)\_1C – Port 0)



Plot 7-317. Band Edge Emission (745MHz to 746MHz) Plot  
(LTE\_B13\_10M+Low\_NB-lot(IB)+High\_NB-lot(IB)\_1C – Port 3)



Plot 7-318. Band Edge Emission (756MHz to 757MHz) Plot  
(LTE\_B13\_10M+Low\_NB-lot(IB)+High\_NB-lot(IB)\_1C – Port 3)

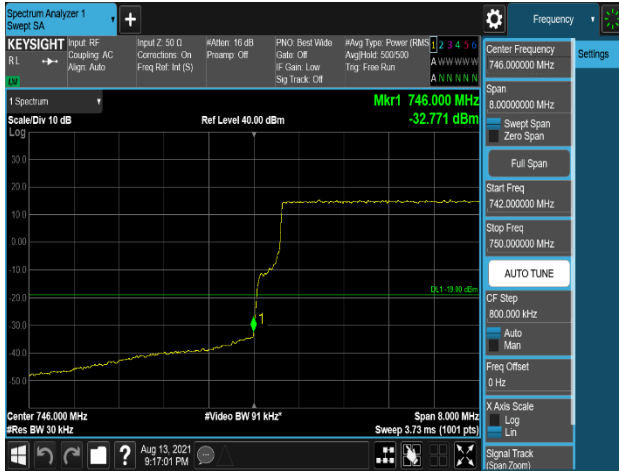


Plot 7-319. Band Edge Emission (745MHz to 746MHz) Plot  
(LTE\_B13\_10M+Low\_NB-lot(IB)+Low\_NB-lot(IB)\_1C – Port 3)



Plot 7-320. Band Edge Emission (756MHz to 757MHz) Plot  
(LTE\_B13\_10M+Low\_NB-lot(IB)+Low\_NB-lot(IB)\_1C – Port 3)

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Plot 7-321. Band Edge Emission (745MHz to 746MHz) Plot  
(LTE\_B13\_10M+High\_NB-lot(IB)+High\_NB-lot(IB)\_1C – Port 3)



Plot 7-322. Band Edge Emission (756MHz to 757MHz) Plot  
(LTE\_B13\_10M+High\_NB-lot(IB)+High\_NB-lot(IB)\_1C – Port 3)

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Channel	Port	Measured Range (MHz)	Max. Value (dBm)	Limit (dBm)
Low	0	745 to 746	<b>-26.16</b>	-19.02
	1	745 to 746	-27.12	-19.02
	2	745 to 746	-26.50	-19.02
	3	745 to 746	-26.23	-19.02
High	0	756 to 757	-28.36	-19.02
	1	756 to 757	-29.19	-19.02
	2	756 to 757	-28.33	-19.02
	3	756 to 757	<b>-27.83</b>	-19.02

**Table 7-79. Band Edge Emission Summary Data (LTE\_B13\_10M+Low\_NB-Iot(GB)+High\_NB-Iot(GB)\_3C)**

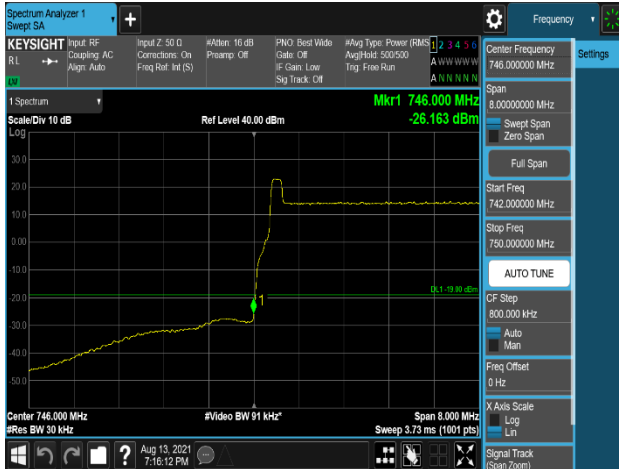
Channel	Port	Measured Range (MHz)	Max. Value (dBm)	Limit (dBm)
Low	0	745 to 746	-28.49	-19.02
	1	745 to 746	-29.00	-19.02
	2	745 to 746	-28.36	-19.02
	3	745 to 746	<b>-27.69</b>	-19.02
High	0	756 to 757	-30.75	-19.02
	1	756 to 757	-31.01	-19.02
	2	756 to 757	<b>-30.36</b>	-19.02
	3	756 to 757	-30.61	-19.02

**Table 7-80. Band Edge Emission Summary Data (LTE\_B13\_10M+Low\_NB-Iot(GB)+High\_NB-Iot(IB)\_2C)**

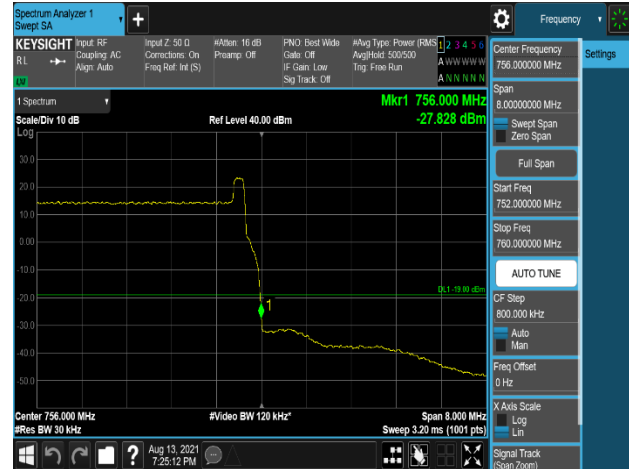
Channel	Port	Measured Range (MHz)	Max. Value (dBm)	Limit (dBm)
Low	0	745 to 746	<b>-29.80</b>	-19.02
	1	745 to 746	-31.41	-19.02
	2	745 to 746	-30.64	-19.02
	3	745 to 746	-31.15	-19.02
High	0	756 to 757	-28.49	-19.02
	1	756 to 757	-28.22	-19.02
	2	756 to 757	<b>-27.87</b>	-19.02
	3	756 to 757	-28.13	-19.02

**Table 7-81. Band Edge Emission Summary Data (LTE\_B13\_10M+High\_NB-Iot(GB)+Low\_NB-Iot(IB)\_2C)**

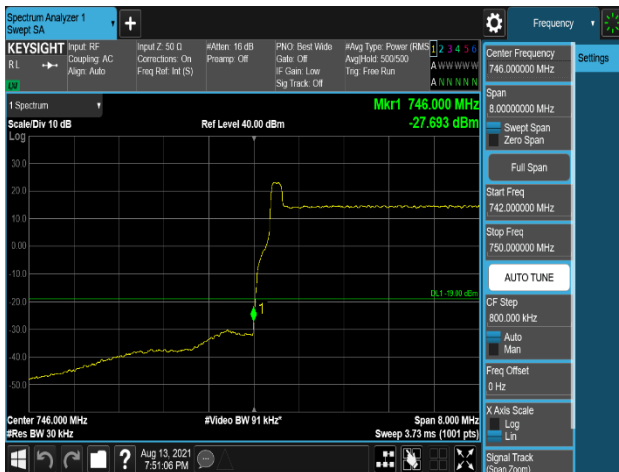
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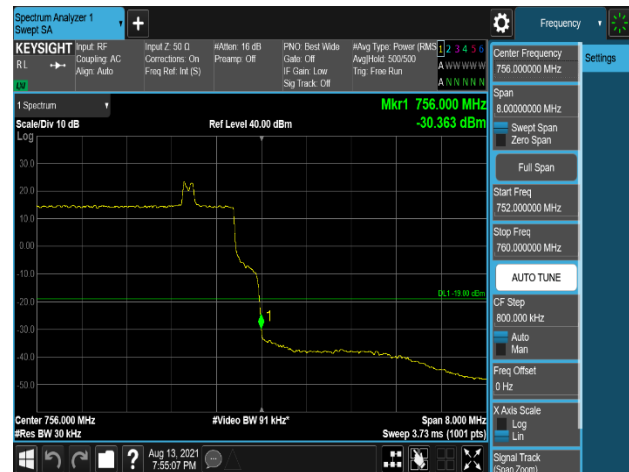
Plot 7-323. Band Edge Emission (745MHz to 746MHz) Plot  
(LTE\_B13\_10M+Low\_NB-lot(GB)+High\_NB-lot(GB)\_3C – Port 0)



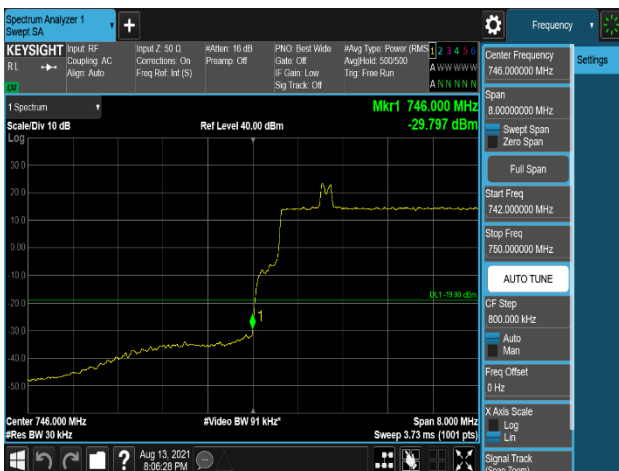
Plot 7-324. Band Edge Emission (756MHz to 757MHz) Plot  
(LTE\_B13\_10M+Low\_NB-lot(GB)+High\_NB-lot(GB)\_3C – Port 3)



Plot 7-325. Band Edge Emission (745MHz to 746MHz) Plot  
(LTE\_B13\_10M+Low\_NB-lot(GB)+High\_NB-lot(IB)\_2C – Port 3)



Plot 7-326. Band Edge Emission (756MHz to 757MHz) Plot  
(LTE\_B13\_10M+Low\_NB-lot(GB)+High\_NB-lot(IB)\_2C – Port 2)



Plot 7-327. Band Edge Emission (745MHz to 746MHz) Plot  
(LTE\_B13\_10M+High\_NB-lot(GB)+Low\_NB-lot(IB)\_2C – Port 0)





Plot 7-328. Band Edge Emission (756MHz to 757MHz) Plot  
(LTE\_B13\_10M+High\_NB-lot(GB)+Low\_NB-lot(IB)\_2C – Port 2)

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DSS Ratio	Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
				QPSK	16QAM	64QAM	256QAM	
LTE 9 : NR 1	Low	0	868 to 869	-30.99	-31.25	-31.37	-31.93	-19.02
		1	868 to 869	-31.96	-32.14	-31.89	-32.83	-19.02
		2	868 to 869	-32.11	-31.95	-31.04	-32.55	-19.02
		3	868 to 869	-32.20	-32.11	-31.97	-32.38	-19.02
	High	0	894 to 895	-32.75	-32.73	-31.33	-32.36	-19.02
		1	894 to 895	-33.86	-35.00	-33.87	-35.03	-19.02
		2	894 to 895	-32.85	-33.27	-30.63	-33.29	-19.02
		3	894 to 895	-32.65	-33.64	-31.46	-33.55	-19.02
LTE 8 : NR 2	Low	0	868 to 869	-31.92	-32.27	-31.55	-31.96	-19.02
		1	868 to 869	-32.42	-31.98	-32.67	-32.93	-19.02
		2	868 to 869	-32.19	-32.05	-32.33	-32.87	-19.02
		3	868 to 869	-32.29	-32.65	-32.22	-32.74	-19.02
	High	0	894 to 895	-32.30	-33.33	-32.59	-33.26	-19.02
		1	894 to 895	-33.58	-35.34	-33.32	-34.93	-19.02
		2	894 to 895	-32.85	-32.85	-32.44	-32.58	-19.02
		3	894 to 895	-33.18	-33.23	-32.28	-34.23	-19.02
LTE 7 : NR 3	Low	0	868 to 869	-32.25	-31.23	-31.37	-31.27	-19.02
		1	868 to 869	-32.69	-31.84	-32.37	-32.80	-19.02
		2	868 to 869	-33.16	-32.12	-32.54	-32.32	-19.02
		3	868 to 869	-32.32	-31.83	-32.70	-32.87	-19.02
	High	0	894 to 895	-31.55	-33.10	-32.34	-32.50	-19.02
		1	894 to 895	-34.58	-35.70	-35.06	-34.72	-19.02
		2	894 to 895	-31.65	-32.72	-32.32	-32.76	-19.02
		3	894 to 895	-33.70	-32.49	-32.39	-33.54	-19.02
LTE 6 : NR 4	Low	0	868 to 869	-31.87	-31.09	-30.16	-32.14	-19.02
		1	868 to 869	-32.01	-31.05	-31.33	-31.84	-19.02
		2	868 to 869	-32.38	-32.31	-31.87	-30.83	-19.02
		3	868 to 869	-32.88	-32.02	-32.93	-32.08	-19.02
	High	0	894 to 895	-32.74	-32.32	-30.78	-32.59	-19.02
		1	894 to 895	-34.67	-35.87	-34.12	-34.52	-19.02
		2	894 to 895	-32.69	-33.62	-32.25	-32.99	-19.02
		3	894 to 895	-33.10	-33.58	-31.89	-34.14	-19.02
LTE 5 : NR 5	Low	0	868 to 869	-32.15	<b>-30.96</b>	-31.87	-32.40	-19.02
		1	868 to 869	-31.70	-31.62	-31.98	-32.57	-19.02
		2	868 to 869	-31.62	-32.70	-32.11	-30.46	-19.02
		3	868 to 869	-32.20	-31.90	-32.34	-32.45	-19.02
	High	0	894 to 895	-32.14	-33.73	<b>-29.04</b>	-33.02	-19.02
		1	894 to 895	-34.92	-35.68	-34.28	-35.07	-19.02
		2	894 to 895	-32.52	-33.73	-32.33	-32.30	-19.02
		3	894 to 895	-33.01	-33.35	-31.99	-34.18	-19.02

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LTE 4 : NR 6	Low	0	868 to 869	-32.13	-30.52	-31.69	-32.34	-19.02
		1	868 to 869	-32.46	-31.48	-33.20	-33.33	-19.02
		2	868 to 869	-33.05	-30.89	-32.30	-33.61	-19.02
		3	868 to 869	-32.15	-31.56	-31.59	-33.04	-19.02
	High	0	894 to 895	-32.49	-34.07	-30.69	-33.03	-19.02
		1	894 to 895	-34.03	-35.64	-33.55	-34.00	-19.02
		2	894 to 895	-32.18	-32.26	-31.66	-32.14	-19.02
		3	894 to 895	-32.97	-33.62	-33.10	-33.28	-19.02
LTE 3 : NR 7	Low	0	868 to 869	-31.03	-30.95	-31.02	-32.09	-19.02
		1	868 to 869	-32.12	-31.53	-31.76	-32.59	-19.02
		2	868 to 869	-32.63	-31.97	-30.93	-33.25	-19.02
		3	868 to 869	-31.88	-30.92	-32.06	-32.52	-19.02
	High	0	894 to 895	-31.59	-33.19	-31.23	-32.39	-19.02
		1	894 to 895	-34.14	-34.03	-33.67	-34.63	-19.02
		2	894 to 895	-30.08	-33.37	-32.08	-31.93	-19.02
		3	894 to 895	-32.70	-34.16	-31.20	-32.85	-19.02
LTE 2 : NR 8	Low	0	868 to 869	-32.68	-31.95	-32.28	-32.79	-19.02
		1	868 to 869	-32.47	-31.64	-31.68	-33.09	-19.02
		2	868 to 869	-31.98	-31.59	-31.75	-33.50	-19.02
		3	868 to 869	-30.96	-31.09	-32.16	-33.05	-19.02
	High	0	894 to 895	-31.27	-33.47	-30.02	-31.80	-19.02
		1	894 to 895	-33.00	-35.38	-33.67	-33.99	-19.02
		2	894 to 895	-30.95	-33.78	-30.93	-32.09	-19.02
		3	894 to 895	-32.44	-33.63	-32.14	-32.12	-19.02

Table 7-82. Band Edge Emission Summary Data (DSS\_B5\_10M\_1C)

**Note:** Test result is no big difference depending on DSS Ratio. So, the only worst-ratio plots are included in this report.



Plot 7-329. Band Edge Emission (868MHz to 869MHz) Plot (DSS\_B5\_10M\_5:5)\_1C\_16QAM - Low Channel, Port 0)



Plot 7-330. Band Edge Emission (894MHz to 895MHz) Plot (DSS\_B5\_10M\_5:5)\_1C\_64QAM - High Channel, Port 0)

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DSS Ratio	Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
				QPSK	16QAM	64QAM	256QAM	
LTE 5 : NR 5	Low	0	868 to 869	-25.62	-29.96	-31.48	-29.84	-19.02
		1	868 to 869	-30.66	-26.15	-29.90	-29.53	-19.02
		2	868 to 869	<b>-24.50</b>	-25.47	-29.21	-28.31	-19.02
		3	868 to 869	-31.45	-30.88	-31.93	-31.03	-19.02
	High	0	894 to 895	-31.63	-29.10	-30.37	-28.65	-19.02
		1	894 to 895	-33.36	-31.73	-32.33	-31.25	-19.02
		2	894 to 895	-32.30	-29.63	<b>-28.00</b>	-28.65	-19.02
		3	894 to 895	-30.77	-29.98	-30.64	-31.36	-19.02

**Table 7-83. Band Edge Emission Summary Data (DSS\_B5\_10M+5M\_2C)**

DSS Ratio	Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
				QPSK	16QAM	64QAM	256QAM	
LTE 5 : NR 5	Low	0	868 to 869	-28.96	-28.86	-29.18	-30.76	-19.02
		1	868 to 869	-30.67	<b>-28.42</b>	-30.13	-30.99	-19.02
		2	868 to 869	-28.69	-29.43	-30.26	-30.12	-19.02
		3	868 to 869	-29.93	-28.73	-30.69	-31.75	-19.02
	High	0	894 to 895	-29.18	-28.52	<b>-27.01</b>	-27.85	-19.02
		1	894 to 895	-30.33	-28.11	-29.59	-29.28	-19.02
		2	894 to 895	-27.08	-28.18	-28.18	-28.06	-19.02
		3	894 to 895	-29.97	-30.34	-30.37	-32.89	-19.02

**Table 7-84. Band Edge Emission Summary Data (DSS\_B5\_10M+10M\_2C)**

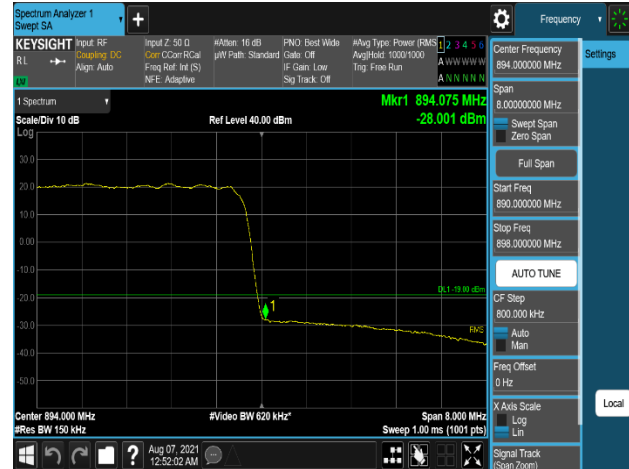
DSS Ratio	Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
				QPSK	16QAM	64QAM	256QAM	
LTE 5 : NR 5	Low	0	868 to 869	-29.06	-28.97	-29.06	-30.00	-19.02
		1	868 to 869	-30.64	-31.51	-31.93	-31.07	-19.02
		2	868 to 869	-29.20	<b>-27.83</b>	-28.87	-28.92	-19.02
		3	868 to 869	-31.41	-31.76	-31.31	-31.49	-19.02
	High	0	894 to 895	-28.98	-28.56	-28.73	-29.86	-19.02
		1	894 to 895	-32.27	-31.56	-32.09	-32.25	-19.02
		2	894 to 895	-28.41	<b>-27.75</b>	-29.15	-28.48	-19.02
		3	894 to 895	-32.76	-32.62	-32.88	-33.22	-19.02

**Table 7-85. Band Edge Emission Summary Data (DSS\_B5\_10M+10M+5M\_3C)**

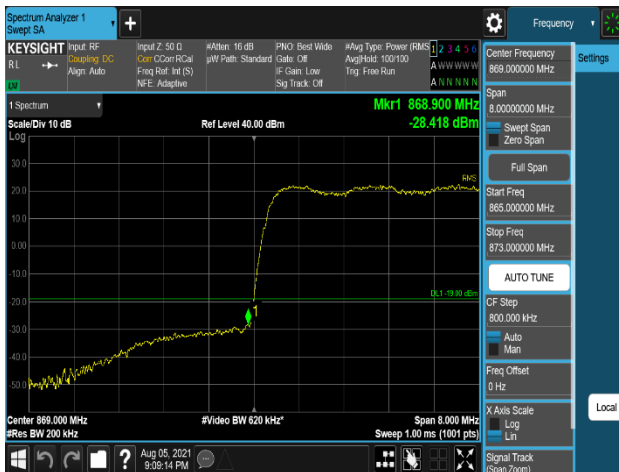
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Plot 7-331. Band Edge Emission (868MHz to 869MHz) Plot  
(DSS\_B5\_10M+5M\_2C\_QPSK - Low Channel, Port 2)



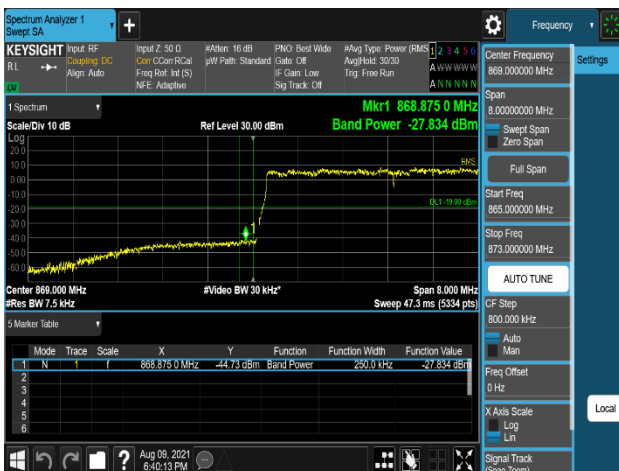
Plot 7-332. Band Edge Emission (894MHz to 895MHz) Plot  
(DSS\_B5\_10M+5M\_2C\_64QAM - High Channel, Port 2)



Plot 7-333. Band Edge Emission (868MHz to 869MHz) Plot  
(DSS\_B5\_10M+10M\_2C\_16QAM - Low Channel, Port 1)



Plot 7-334. Band Edge Emission (894MHz to 895MHz) Plot  
(DSS\_B5\_10M+10M\_2C\_64QAM - High Channel, Port 0)



Plot 7-335. Band Edge Emission (868MHz to 869MHz)  
Integration method Plot  
(DSS\_B5\_10M+10M+5M\_3C\_16QAM - Low Channel, Port 2)



Plot 7-336. Band Edge Emission (894MHz to 895MHz)  
Integration method Plot  
(DSS\_B5\_10M+10M+5M\_3C\_16QAM - High Channel, Port 2)


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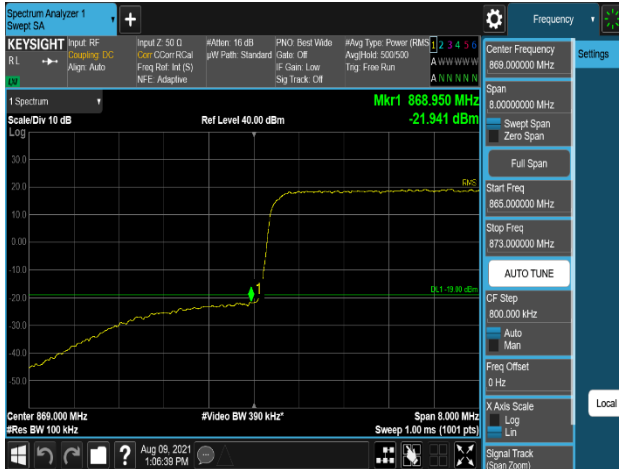
DSS Ratio	Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
				QPSK	16QAM	64QAM	256QAM	
LTE 5 : NR 5	Low	0	868 to 869	-27.67	-29.16	-30.27	-32.30	-19.02
		1	868 to 869	-28.50	-31.19	-32.91	-31.18	-19.02
		2	868 to 869	<b>-21.94</b>	-27.94	-27.35	-30.36	-19.02
		3	868 to 869	-34.82	-33.00	-33.88	-34.20	-19.02
	High	0	894 to 895	-25.47	-30.49	-30.85	-31.62	-19.02
		1	894 to 895	-30.17	-33.29	-35.72	-35.24	-19.02
		2	894 to 895	<b>-25.13</b>	-30.04	-30.53	-31.65	-19.02
		3	894 to 895	-34.10	-31.75	-35.57	-33.67	-19.02

**Table 7-86. Band Edge Emission Summary Data (DSS\_B5\_10M+5M\_2C - Non-contiguous)**

DSS Ratio	Channel	Port	Measured Range (MHz)	Max. Value (dBm)				Limit (dBm)
				QPSK	16QAM	64QAM	256QAM	
LTE 5 : NR 5	Low	0	868 to 869	-34.65	<b>-32.06</b>	-32.88	-34.04	-19.02
		1	868 to 869	-33.62	-33.49	-34.34	-33.55	-19.02
		2	868 to 869	-34.56	-32.90	-32.07	-33.63	-19.02
		3	868 to 869	-34.99	-34.98	-34.83	-35.12	-19.02
	High	0	894 to 895	-28.57	-27.98	-28.34	-27.71	-19.02
		1	894 to 895	-29.09	-29.84	-29.59	-28.97	-19.02
		2	894 to 895	-27.85	-27.32	<b>-27.08</b>	-28.40	-19.02
		3	894 to 895	-29.63	-29.99	-29.83	-28.66	-19.02

**Table 7-87. Band Edge Emission Summary Data (DSS\_B5\_10M+10M\_2C - Non-contiguous)**

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Plot 7-337. Band Edge Emission (868MHz to 869MHz) Plot  
(DSS\_B5\_10M+5M\_2C\_QPSK - Low Channel, Port 2)



Plot 7-338. Band Edge Emission (894MHz to 895MHz) Plot  
(DSS\_B5\_10M+5M\_2C\_QPSK - High Channel, Port 2)



Plot 7-339. Band Edge Emission (868MHz to 869MHz) Plot  
(DSS\_B5\_10M+10M\_2C\_16QAM - Low Channel, Port 0)



Plot 7-340. Band Edge Emission (894MHz to 895MHz) Plot  
(DSS\_B5\_10M+10M\_2C\_64QAM - High Channel, Port 2)

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<b>Test Report S/N:</b> 8K21070502R3.A3L	<b>Test Dates:</b> 07/09/2021 - 08/26/2021	<b>EUT Type:</b> RRU (RF4442d)		Page 126 of 225

## 7.6 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, §22.917, §27.53(c)(f)

### Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. 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  $10 \log(N_{\text{ANT}})$  dB

ANSI C63.26-2015 – Section 5.7

### Test Setting

1. Start frequency was set to 9 kHz and stop frequency was set to at least 10 \* the fundamental frequency excluding the frequency range of the band edge measurement.
2. RBW: Please see test notes below.
3.  $VBW \geq 3 \times RBW$
4. Detector = RMS
5. Number of sweep points  $\geq 2 \times \text{Span}/RBW$
6. Trace mode = trace average
7. Sweep time = auto couple
8. The trace was allowed to stabilize


### Limit

The minimum permissible attenuation level of any spurious emission is  $43 + 10 \log(P_{\text{Watts}})$ , 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.

Per §27.53(f), for operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

This equates to an EIRP of -40 dBm/MHz for wideband signals and -50 dBm/MHz for discrete emissions.

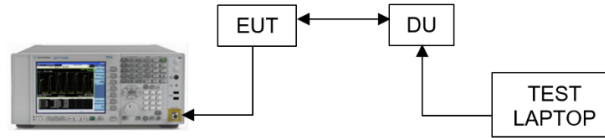
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The limit is adjusted to -46 dBm [-40 dBm - 10 log (4)] for wideband signals and -56 dBm [-50 dBm - 10 log (4)] for discrete emissions per KDB 662911 D01 v02r01 - section E)3) because the EUT operate as a 4 port MIMO transmitter.

### Test Setup

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



**Figure 7-6. Test Instrument & Measurement Setup**



### Test Notes

- Per §22.917, compliance with these rules is based on the use of measurement instrumentation employing a reference bandwidth as follows. In the spectrum below 1 GHz, instrumentation should employ a reference bandwidth of 100 kHz or greater. 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.  
In the spectrum above 1 GHz, instrumentation should employ a reference bandwidth of 1 MHz.
- Per §27.53(c), compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed. A resolution bandwidth was set to one percent of the emission bandwidth of the fundamental emission of the transmitter that is greater than 30 kHz.
- The display line on the plots for measurements in 1559 MHz to 1610 MHz frequency range reflects the required worst case limit (-56dBm).
- All modes of operation were investigated. The port with highest level i.e. worst case port per each test range has been highlighted in the following emission tables.
- To increase accuracy, the limit for the 9kHz to 150kHz frequency range was adjusted to -39dBm to correct for a spectrum analyzer RBW of 1kHz versus required RBW of 100kHz [i.e.:  $-39\text{dBm} = -19\text{dBm} - 10\log(100\text{kHz}/1\text{kHz})$ ].  
The limit for the 150kHz to 30MHz frequency range was adjusted to -29dBm to correct for a spectrum analyzer RBW of 10kHz versus required RBW of 100kHz [i.e.:  $-29\text{dBm} = -19\text{dBm} - 10\log(100\text{kHz}/10\text{kHz})$ ].  
The required limit of -19dBm with a RBW of > 100kHz was used for all other frequency ranges.

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Channel	Port	Measurement Range	Level (dBm)				Limit (dBm)	Worst Margin (dB)
			QPSK	16QAM	64QAM	256QAM		
Low	0	9 kHz to 150 kHz	-57.20	-54.51	-53.89	-54.86	-39.02	-14.87
		150 kHz to 30 MHz	-47.30	-46.47	-46.17	-46.19	-29.02	-17.15
		30 MHz to 858 MHz	-41.15	-41.12	-41.12	-40.93	-19.02	-21.91
		858 MHz to 868 MHz	-31.78	-29.63	-29.85	-29.97	-19.02	-10.61
		895 MHz to 1 GHz	-39.77	-40.51	-40.48	-40.31	-19.02	-20.75
		1 GHz to 10 GHz	-24.10	-24.08	-24.44	-24.00	-19.02	-4.98
	1	9 kHz to 150 kHz	-57.67	-56.01	-56.30	-55.92	-39.02	-16.90
		150 kHz to 30 MHz	-48.14	-46.91	-47.11	-46.65	-29.02	-17.63
		30 MHz to 858 MHz	-41.07	-41.14	-40.77	-41.33	-19.02	-21.75
		858 MHz to 868 MHz	-32.70	-32.95	-31.57	-31.34	-19.02	-12.32
		895 MHz to 1 GHz	-40.97	-40.76	-40.78	-41.04	-19.02	-21.74
		1 GHz to 10 GHz	-23.83	-22.99	-23.89	-23.76	-19.02	-3.97
	2	9 kHz to 150 kHz	-57.39	-55.77	-54.15	-54.92	-39.02	-15.13
		150 kHz to 30 MHz	-46.79	-46.52	-46.65	<b>-46.16</b>	-29.02	-17.14
		30 MHz to 858 MHz	-40.88	-40.83	-40.67	-40.90	-19.02	-21.65
		858 MHz to 868 MHz	-31.61	-30.93	<b>-29.15</b>	-29.70	-19.02	-10.13
		895 MHz to 1 GHz	-40.45	-40.03	-40.37	-40.33	-19.02	-21.01
		1 GHz to 10 GHz	-23.68	-23.89	-23.87	-23.56	-19.02	-4.54
	3	9 kHz to 150 kHz	-57.29	-55.17	-54.40	-54.64	-39.02	-15.38
		150 kHz to 30 MHz	-47.12	-46.57	-46.45	-47.20	-29.02	-17.43
		30 MHz to 858 MHz	-41.03	-41.21	-41.04	-40.87	-19.02	-21.85
		858 MHz to 868 MHz	-30.84	-31.41	-31.18	-31.09	-19.02	-11.82
		895 MHz to 1 GHz	-40.61	-40.86	-40.93	-40.63	-19.02	-21.59
		1 GHz to 10 GHz	-23.66	-23.35	-23.09	-23.27	-19.02	-4.07
Middle	0	9 kHz to 150 kHz	-54.48	-54.92	-53.91	-54.46	-39.02	-14.89
		150 kHz to 30 MHz	-46.74	-46.39	-46.64	-46.31	-29.02	-17.29
		30 MHz to 858 MHz	-40.87	-40.79	-41.06	-40.88	-19.02	-21.77
		858 MHz to 868 MHz	-37.64	-38.93	-39.32	-38.04	-19.02	-18.62
		895 MHz to 1 GHz	-39.76	-39.42	-39.43	-39.81	-19.02	-20.40
		1 GHz to 10 GHz	-23.99	-23.61	-24.15	-24.18	-19.02	-4.59
	1	9 kHz to 150 kHz	-55.68	-55.54	-55.41	-54.35	-39.02	-15.33
		150 kHz to 30 MHz	-47.00	-47.50	-47.52	-46.78	-29.02	-17.76
		30 MHz to 858 MHz	-40.85	-40.98	-41.16	-40.85	-19.02	-21.83
		858 MHz to 868 MHz	-39.66	-40.22	-40.00	-40.14	-19.02	-20.64
		895 MHz to 1 GHz	-38.86	-40.49	-40.44	-40.17	-19.02	-19.84
		1 GHz to 10 GHz	-23.69	-23.73	-23.59	-22.87	-19.02	-3.85


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	2	9 kHz to 150 kHz	-54.32	-55.29	-54.81	-55.38	-39.02	-15.30
		150 kHz to 30 MHz	-46.72	-46.96	-47.08	-46.57	-29.02	-17.55
		30 MHz to 858 MHz	-40.89	-40.62	-40.58	-40.80	-19.02	-21.56
		858 MHz to 868 MHz	-38.06	-38.58	-39.29	-39.09	-19.02	-19.04
		895 MHz to 1 GHz	-39.56	-38.36	-39.88	-39.65	-19.02	-19.34
		1 GHz to 10 GHz	-23.73	-23.79	-23.99	-23.93	-19.02	-4.71
	3	9 kHz to 150 kHz	-54.30	-54.54	-54.92	-55.55	-39.02	-15.28
		150 kHz to 30 MHz	-46.67	-46.61	-46.95	-46.72	-29.02	-17.59
		30 MHz to 858 MHz	-40.97	-40.89	-40.93	-41.17	-19.02	-21.87
		858 MHz to 868 MHz	-40.64	-40.01	-39.82	-40.53	-19.02	-20.80
		895 MHz to 1 GHz	-40.45	-40.12	-40.95	-40.61	-19.02	-21.10
		1 GHz to 10 GHz	-23.30	-23.25	-22.81	-23.14	-19.02	-3.79
High	0	9 kHz to 150 kHz	<b>-53.88</b>	-54.14	-54.55	-54.26	-39.02	-14.86
		150 kHz to 30 MHz	-47.06	-46.69	-46.65	-47.16	-29.02	-17.63
		30 MHz to 858 MHz	-40.67	-40.41	-40.59	-40.13	-19.02	-21.11
		858 MHz to 868 MHz	-40.37	-40.50	-40.65	-40.63	-19.02	-21.35
		895 MHz to 1 GHz	-32.89	-31.71	<b>-31.52</b>	-31.82	-19.02	-12.50
		1 GHz to 10 GHz	-24.01	-23.67	-24.10	-24.38	-19.02	-4.65
	1	9 kHz to 150 kHz	-55.43	-55.40	-55.15	-54.98	-39.02	-15.96
		150 kHz to 30 MHz	-47.43	-46.69	-47.26	-46.98	-29.02	-17.67
		30 MHz to 858 MHz	-40.76	-40.87	-40.69	-40.21	-19.02	-21.19
		858 MHz to 868 MHz	-41.04	-41.61	-41.15	-41.24	-19.02	-22.02
		895 MHz to 1 GHz	-34.58	-35.41	-32.89	-33.73	-19.02	-13.87
		1 GHz to 10 GHz	-23.32	-23.80	-23.57	-23.77	-19.02	-4.30
	2	9 kHz to 150 kHz	-54.46	-55.30	-54.82	-54.24	-39.02	-15.22
		150 kHz to 30 MHz	-46.76	-47.24	-46.69	-46.81	-29.02	-17.67
		30 MHz to 858 MHz	-40.47	-40.29	<b>-40.09</b>	-40.24	-19.02	-21.07
		858 MHz to 868 MHz	-40.19	-40.06	-40.53	-40.34	-19.02	-21.04
		895 MHz to 1 GHz	-33.29	-34.20	-31.73	-32.58	-19.02	-12.71
		1 GHz to 10 GHz	-23.45	-23.86	-23.99	-23.94	-19.02	-4.43
	3	9 kHz to 150 kHz	-54.70	-55.57	-54.62	-54.80	-39.02	-15.60
		150 kHz to 30 MHz	-47.23	-46.94	-46.81	-46.65	-29.02	-17.63
		30 MHz to 858 MHz	-40.42	-40.61	-40.64	-40.47	-19.02	-21.40
		858 MHz to 868 MHz	-41.32	-40.67	-41.09	-40.97	-19.02	-21.65
		895 MHz to 1 GHz	-33.12	-34.05	-32.99	-33.03	-19.02	-13.97
		1 GHz to 10 GHz	-23.11	-23.19	<b>-22.49</b>	-23.21	-19.02	-3.47

**Table 7-88. Conducted Spurious Emission Summary Data (LTE\_B5\_5M\_1C)**



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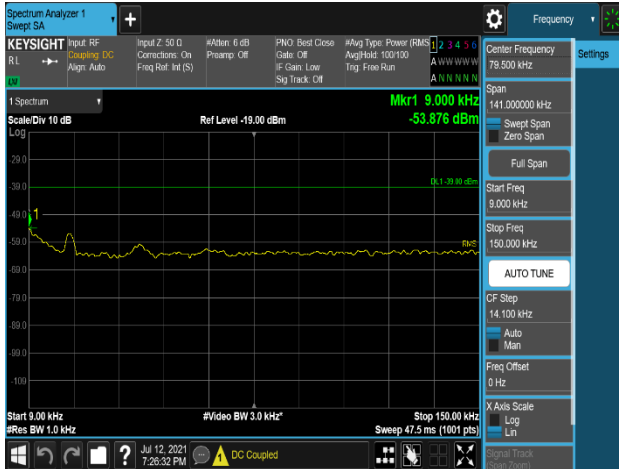
Channel	Port	Measurement Range	Level (dBm)				Limit (dBm)	Worst Margin (dB)
			QPSK	16QAM	64QAM	256QAM		
Low	0	9 kHz to 150 kHz	<b>-53.78</b>	-54.61	-54.91	-54.73	-39.02	<b>-14.76</b>
		150 kHz to 30 MHz	-47.00	-46.57	-46.62	-46.92	-29.02	-17.55
		30 MHz to 858 MHz	-40.79	-40.86	-40.79	-40.94	-19.02	-21.77
		858 MHz to 868 MHz	-35.22	-34.29	-34.49	-34.78	-19.02	-15.27
		895 MHz to 1 GHz	-39.86	-40.20	-39.93	-39.87	-19.02	-20.84
		1 GHz to 10 GHz	-23.76	-24.25	-23.76	-23.56	-19.02	-4.54
	1	9 kHz to 150 kHz	-54.85	-55.02	-55.39	-54.97	-39.02	-15.83
		150 kHz to 30 MHz	-46.70	-47.55	-47.64	-47.24	-29.02	-17.68
		30 MHz to 858 MHz	-41.12	-41.18	-41.19	-41.01	-19.02	-21.99
		858 MHz to 868 MHz	-34.10	<b>-33.79</b>	-34.29	-34.47	-19.02	<b>-14.77</b>
		895 MHz to 1 GHz	-40.39	-40.47	-40.39	-40.58	-19.02	-21.37
		1 GHz to 10 GHz	-23.23	-23.85	-23.81	-23.38	-19.02	-4.21
	2	9 kHz to 150 kHz	-54.63	-54.82	-54.46	-54.56	-39.02	-15.44
		150 kHz to 30 MHz	-46.81	-46.91	-46.79	-46.69	-29.02	-17.67
		30 MHz to 858 MHz	-41.05	-41.02	-40.90	-41.07	-19.02	-21.88
		858 MHz to 868 MHz	-34.63	-33.97	-34.53	-34.41	-19.02	-14.95
		895 MHz to 1 GHz	-40.10	-39.81	-39.38	-39.90	-19.02	-20.36
		1 GHz to 10 GHz	-23.74	-23.98	-24.17	-23.63	-19.02	-4.61
	3	9 kHz to 150 kHz	-54.09	-54.75	-54.65	-55.53	-39.02	-15.07
		150 kHz to 30 MHz	-46.94	-46.69	-46.99	-46.36	-29.02	-17.34
		30 MHz to 858 MHz	-41.11	-40.97	-41.11	-41.24	-19.02	-21.95
		858 MHz to 868 MHz	-34.64	-34.38	-34.87	-34.77	-19.02	-15.36
		895 MHz to 1 GHz	-40.31	-40.72	-40.42	-40.35	-19.02	-21.29
		1 GHz to 10 GHz	-23.09	-23.12	-22.81	-22.81	-19.02	-3.79
Middle	0	9 kHz to 150 kHz	-54.44	-54.68	-57.56	-57.60	-39.02	-15.42
		150 kHz to 30 MHz	-46.89	<b>-45.95</b>	-47.07	-47.08	-29.02	<b>-16.93</b>
		30 MHz to 858 MHz	-40.52	-40.54	-40.95	-40.88	-19.02	-21.50
		858 MHz to 868 MHz	-39.15	-39.84	-39.32	-39.64	-19.02	-20.13
		895 MHz to 1 GHz	-38.67	-38.91	-40.12	-37.35	-19.02	-18.33
		1 GHz to 10 GHz	-23.43	-24.05	-24.07	-24.31	-19.02	-4.41
	1	9 kHz to 150 kHz	-55.14	-55.44	-57.84	-57.80	-39.02	-16.12
		150 kHz to 30 MHz	-46.88	-46.51	-47.89	-48.19	-29.02	-17.49
		30 MHz to 858 MHz	-41.15	-40.65	-40.85	-40.99	-19.02	-21.63
		858 MHz to 868 MHz	-39.67	-39.99	-40.14	-40.69	-19.02	-20.65
		895 MHz to 1 GHz	-39.46	-40.05	-40.65	-40.67	-19.02	-20.44
		1 GHz to 10 GHz	-23.89	-23.82	-23.75	-23.41	-19.02	-4.39

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	2	9 kHz to 150 kHz	-55.04	-55.50	-57.14	-57.04	-39.02	-16.02
		150 kHz to 30 MHz	-47.27	-46.79	-48.00	-47.25	-29.02	-17.77
		30 MHz to 858 MHz	-40.76	-40.63	-40.84	-40.60	-19.02	-21.58
		858 MHz to 868 MHz	-38.66	-39.17	-39.21	-39.00	-19.02	-19.64
		895 MHz to 1 GHz	-38.60	-38.45	-38.83	-38.21	-19.02	-19.19
		1 GHz to 10 GHz	-23.19	-23.13	-23.72	-23.43	-19.02	-4.11
	3	9 kHz to 150 kHz	-54.39	-55.24	-57.69	-57.51	-39.02	-15.37
		150 kHz to 30 MHz	-46.66	-46.77	-47.82	-47.35	-29.02	-17.64
		30 MHz to 858 MHz	-40.86	-40.92	-40.83	-40.95	-19.02	-21.81
		858 MHz to 868 MHz	-39.04	-40.23	-40.51	-38.99	-19.02	-19.97
		895 MHz to 1 GHz	-39.94	-39.96	-39.61	-37.71	-19.02	-18.69
		1 GHz to 10 GHz	<b>-22.31</b>	-23.11	-22.98	-23.24	-19.02	-3.29
High	0	9 kHz to 150 kHz	-57.36	-56.52	-56.69	-56.81	-39.02	-17.50
		150 kHz to 30 MHz	-47.53	-47.35	-47.74	-47.17	-29.02	-18.15
		30 MHz to 858 MHz	-40.50	-40.46	-40.57	-40.21	-19.02	-21.19
		858 MHz to 868 MHz	-40.23	-40.20	-39.98	-40.29	-19.02	-20.96
		895 MHz to 1 GHz	-35.62	-34.42	-35.94	-36.51	-19.02	-15.40
		1 GHz to 10 GHz	-24.00	-23.79	-23.51	-23.70	-19.02	-4.49
	1	9 kHz to 150 kHz	-58.23	-58.11	-57.84	-57.15	-39.02	-18.13
		150 kHz to 30 MHz	-47.96	-48.38	-48.27	-47.65	-29.02	-18.63
		30 MHz to 858 MHz	-40.78	-40.43	-40.62	-40.88	-19.02	-21.41
		858 MHz to 868 MHz	-40.90	-41.04	-40.93	-39.26	-19.02	-20.24
		895 MHz to 1 GHz	-36.19	-35.45	-37.10	-35.28	-19.02	-16.26
		1 GHz to 10 GHz	-23.76	-23.86	-23.55	-23.56	-19.02	-4.53
	2	9 kHz to 150 kHz	-57.35	-57.13	-57.44	-57.10	-39.02	-18.08
		150 kHz to 30 MHz	-48.10	-47.30	-47.85	-47.66	-29.02	-18.28
		30 MHz to 858 MHz	-40.59	-40.32	-40.30	-40.61	-19.02	-21.28
		858 MHz to 868 MHz	-40.26	-40.25	-40.12	-39.69	-19.02	-20.67
		895 MHz to 1 GHz	-34.33	<b>-34.28</b>	-34.74	-34.84	-19.02	-15.26
		1 GHz to 10 GHz	-23.80	-23.92	-23.84	-22.71	-19.02	-3.69
	3	9 kHz to 150 kHz	-57.52	-57.43	-56.92	-57.22	-39.02	-17.90
		150 kHz to 30 MHz	-47.19	-47.16	-47.89	-47.93	-29.02	-18.14
		30 MHz to 858 MHz	-40.27	-40.66	-40.42	-40.69	-19.02	-21.25
		858 MHz to 868 MHz	-40.74	-40.96	-41.29	-40.61	-19.02	-21.59
		895 MHz to 1 GHz	-37.42	-37.06	-37.61	-37.66	-19.02	-18.04
		1 GHz to 10 GHz	-23.31	-22.82	-22.63	-23.13	-19.02	-3.61

**Table 7-89. Conducted Spurious Emission Summary Data (LTE\_B5\_10M\_1C)**

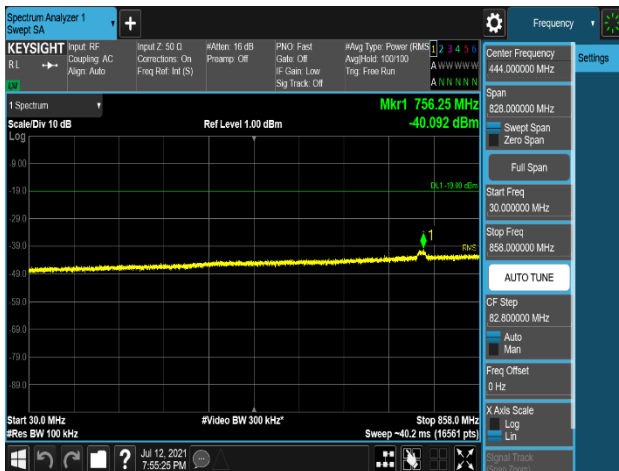
FCC ID: A3LRF4442D-13A	 <b>MEASUREMENT REPORT</b> (CERTIFICATION)			Approved by: Technical Manager
Test Report S/N: 8K21070502R3.A3L	Test Dates: 07/09/2021 - 08/26/2021	EUT Type: RRU (RF4442d)		Page 132 of 225



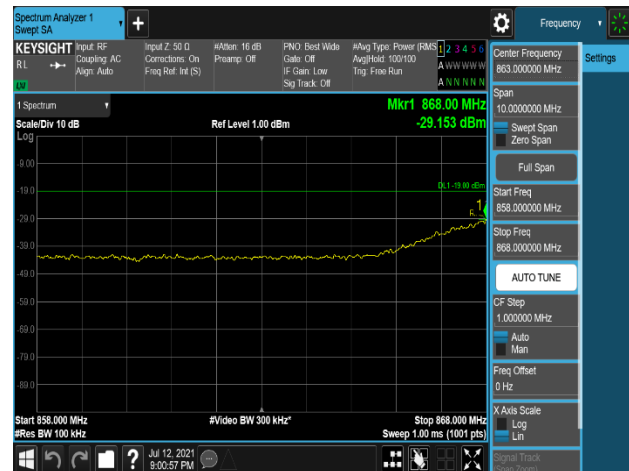
Plot 7-341. Conducted Spurious Emission Plot  
9 kHz to 150 kHz  
(LTE\_B5\_5M\_1C\_QPSK - High Channel, Port 0)



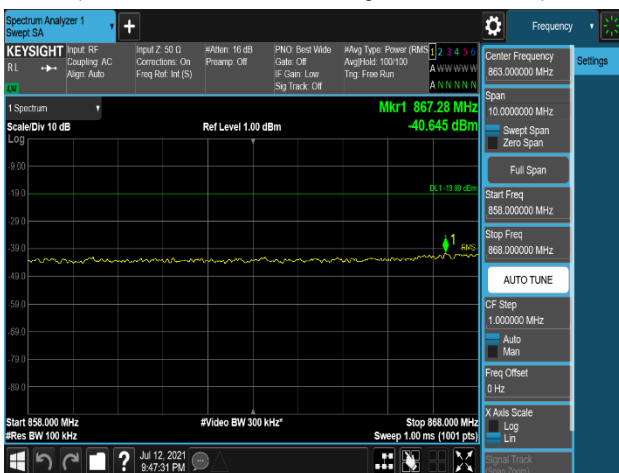
Plot 7-342. Conducted Spurious Emission Plot  
150 kHz to 30 MHz  
(LTE\_B5\_5M\_1C\_256QAM - Low Channel, Port 2)



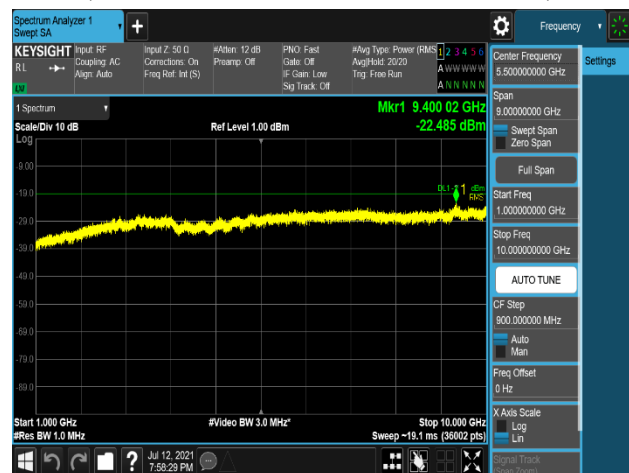
Plot 7-343. Conducted Spurious Emission Plot  
30 MHz to 858 MHz  
(LTE\_B5\_5M\_1C\_64QAM - High Channel, Port 2)



Plot 7-344. Conducted Spurious Emission Plot  
858 MHz to 868 MHz  
(LTE\_B5\_5M\_1C\_64QAM - Low Channel, Port 2)



Plot 7-345. Conducted Spurious Emission Plot  
895 MHz to 1 GHz  
(LTE\_B5\_5M\_1C\_64QAM - High Channel, Port 0)



Plot 7-346. Conducted Spurious Emission Plot  
1 GHz to 10 GHz  
(LTE\_B5\_5M\_1C\_64QAM - High Channel, Port 3)

FCC ID: A3LRF4442D-13A	<b>PCTEST</b> ENGINEERING LABORATORY, INC.	<b>MEASUREMENT REPORT</b> (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 8K21070502R3.A3L	Test Dates: 07/09/2021 - 08/26/2021	EUT Type: RRU (RF4442d)		Page 133 of 225