

NR n48 SA, Antenna 1

Test result for Test Sequence B

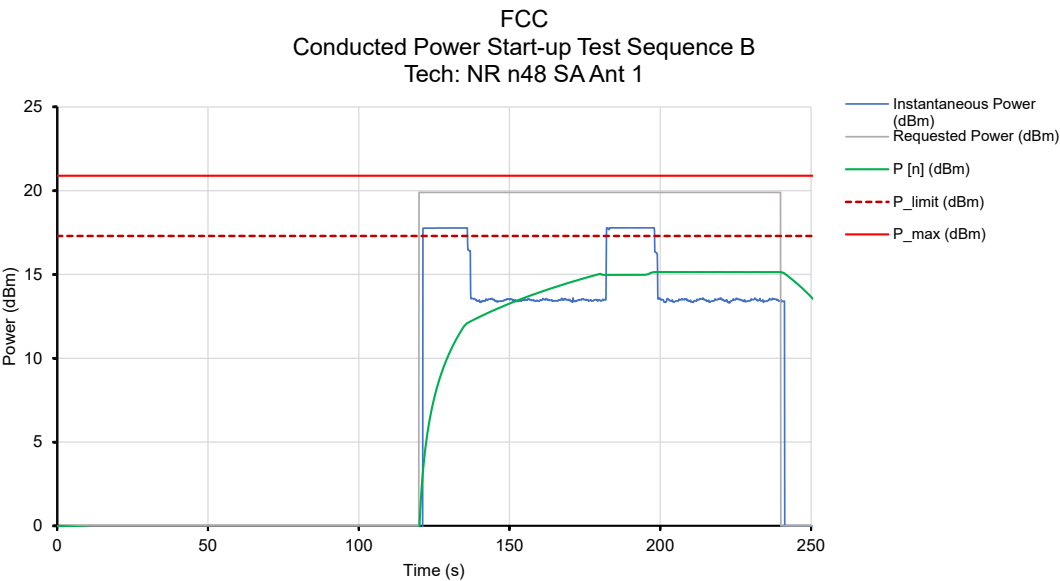


Figure 8-13: Time-averaged conducted TX power over time for Changes in Power case (NR n48 SA – Test Sequence B)

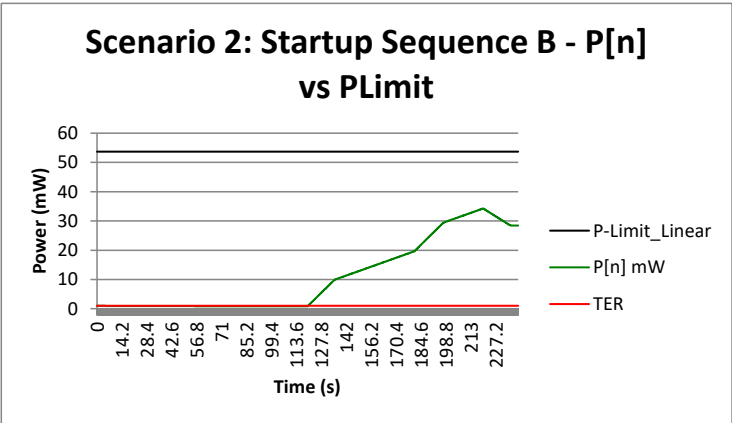


Figure 8-14: Time-averaged Power for Changes in Power case (NR n48 SA – Test Sequence B)

	mW
Plimit (Plimit,nom with uncertainty)	53.7 mW
Max P[n]	34.3 mW
Validation: $P[n] \leq P_{limit}$ for all n, that is for every time step associated with the test	

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8.2 Scenario 2: Antenna Switching

In this scenario, maximum TX power is requested by a call box for each RAT, and the antenna change at the EUT side is manually configured at a specific time instance. The test case for this scenario is relegated in Table 7-2, and the test procedure follows section 4.2.2. The measurement setup is shown in Figure 6-1.

This test aims to validate the TAS algorithm with antenna change during the test period for 4G LTE Band 12 to LTE Band 7. The corresponding detailed test procedure is described in section 4.2.2. Figure 8-15 demonstrates the DUT's instantaneous conducted TX power, the requested power over time, P_{limit} , and P_{max} . During the test period, the antenna change event is configured to switch at the time instance 120 seconds. The change is from Ant 3 to Ant 1 and maximum power is requested for the remainder of the test. It is observed in the figure that the rolling power average of the individual RAT is below its own P_{limit} . Figure 8-16 illustrates the corresponding normalized total rolling power average over time by using the equation listed in section 4.1. As seen in this figure, the total normalized rolling power average does not exceed the normalized P_{limit} .

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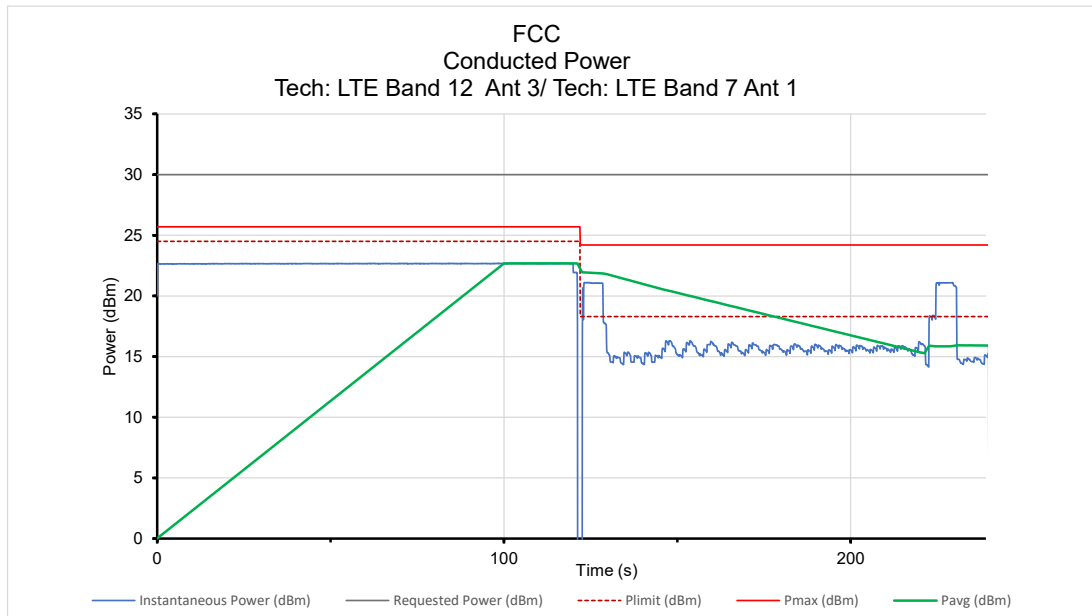


Figure 8-15: Time-averaged conducted TX power over time for Antenna Switch case (LTE Band 12 to LTE Band 7)

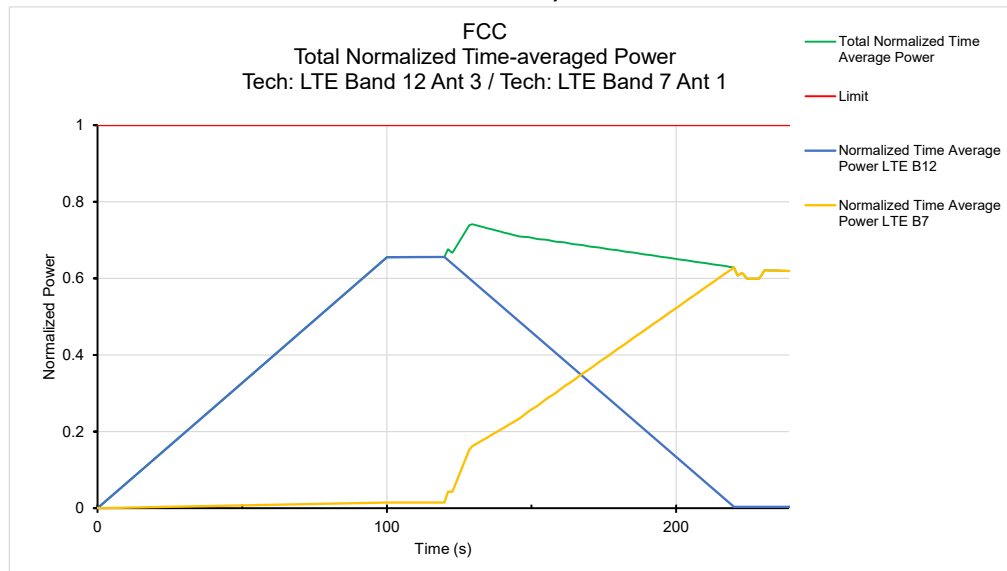


Figure 8-16: Normalized Time-averaged Power for Antenna Switch case (LTE Band 12 to LTE Band 7)

Normalized P_{limit}	1.000
Highest normalized P_{avg}	0.741
Validation result: Pass	

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8.3 Scenario 3: Change in Band/Frequency

In this scenario, maximum TX power is requested by a call box for each RAT, and the change in band is manually configured at a specific time instance. The test case covers change in band scenario between two frequencies. The test case for this scenario is relegated in Table 7-2, and the test procedure follows section 4.3.2. The measurement setup is shown in Figure 6-1.

This test aims to validate the TAS algorithm with band change from LTE Band 66 to LTE Band 25. The corresponding detailed test procedure is described in section 4.3.2. Figure 8-17 demonstrates the DUT’s instantaneous conducted TX power, the requested power over time, P_{limit} , and P_{max} . The hand-off is configured at the time instance of 120 seconds. It is observed in the figure that the rolling power average of the individual RAT is below its own P_{limit} . Figure 8-18 illustrates the corresponding normalized total rolling power average over time by using the equation listed in section 4.1. As seen in this figure, the total normalized rolling power average does not exceed the normalized P_{limit} .

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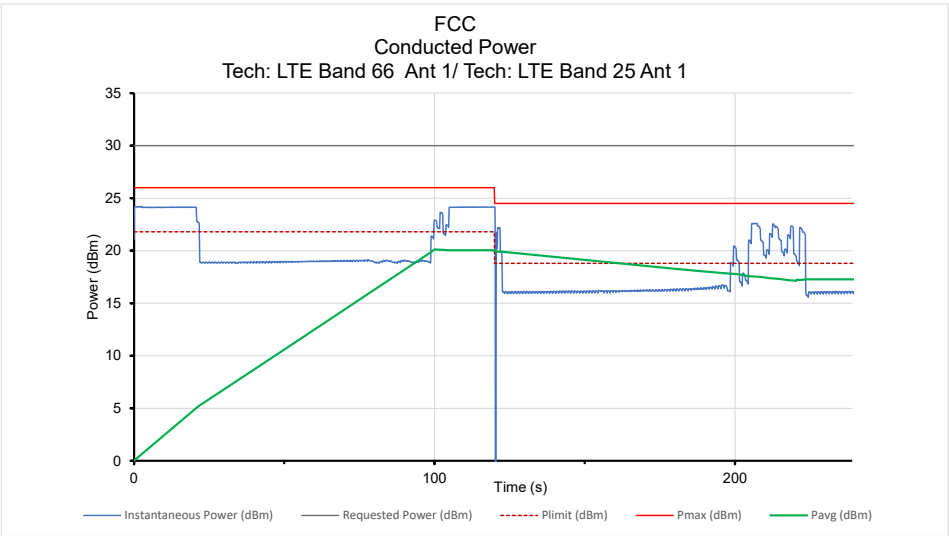


Figure 8-17: Time-averaged conducted TX power over time for Change in Band case (LTE Band 66 to LTE Band 25)

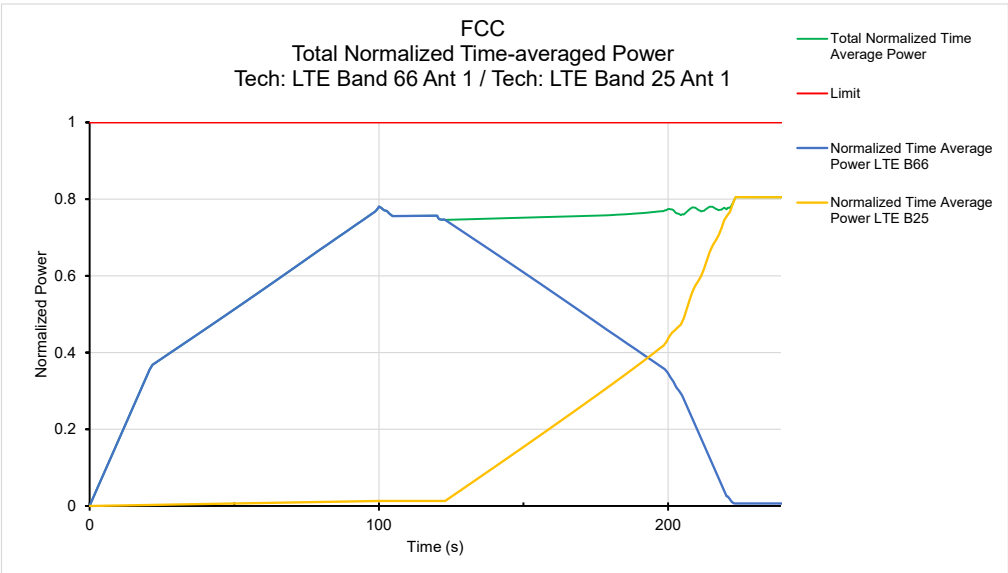


Figure 8-18: Normalized Time-averaged Power for Change in Band case (LTE Band 66 to LTE Band 25)

Normalized P_{limit}	1.000
Highest normalized P_{avg}	0.806
Validation result: Pass	

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8.4 Scenario 4: Change in Technology

In this scenario, maximum TX power is requested by a call box for each RAT, and the change in technology is manually configured at a specific time instance. The test case for this scenario is relegated in Table 7-2, and the test procedure follows section 4.4.2. The measurement setup is shown in Figure 6-1.

This test aims to validate the TAS algorithm with change in technology during the test period from 4G LTE Band 71 to WCDMA Band 4. The corresponding detailed test procedure is described in section 4.4.2. Figure 8-19 demonstrates the DUT's instantaneous conducted TX power, the requested power over time, P_{limit} , and P_{max} . The hand-off is configured at the time instance of 135 seconds. It is observed in the figure that the rolling power average of the individual RAT is below its own P_{limit} . Figure 8-20 illustrates the corresponding normalized total rolling power average over time by using the equation listed in section 4.1. As seen in this figure, the total normalized rolling power average does not exceed the normalized P_{limit} .

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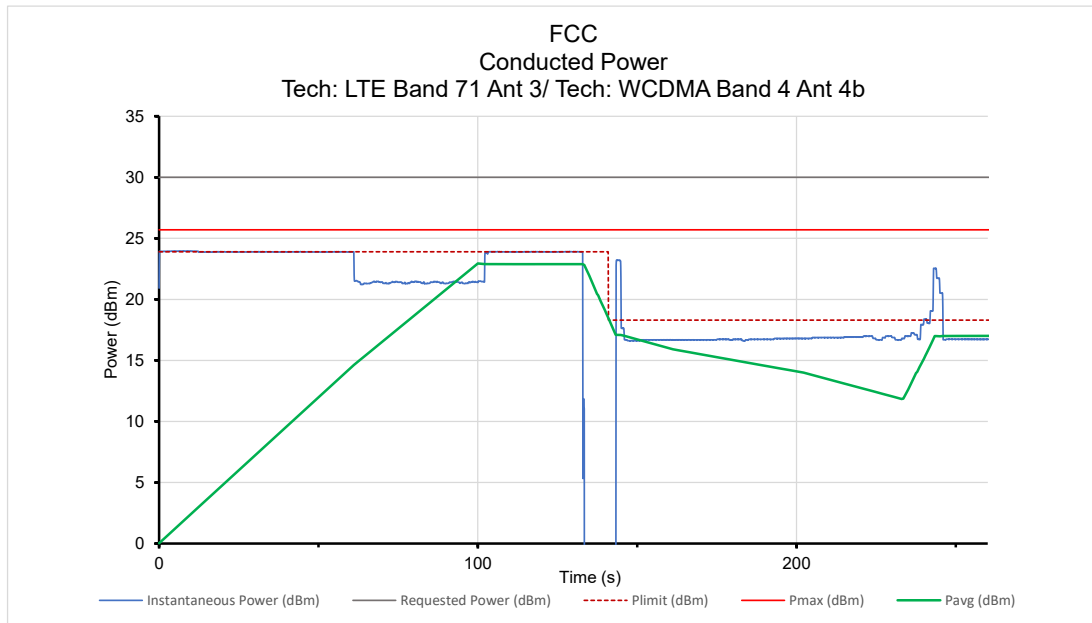


Figure 8-19: Time-averaged conducted TX power over time for Technology Hand-Off case (LTE Band 71 to WCDMA Band 4)

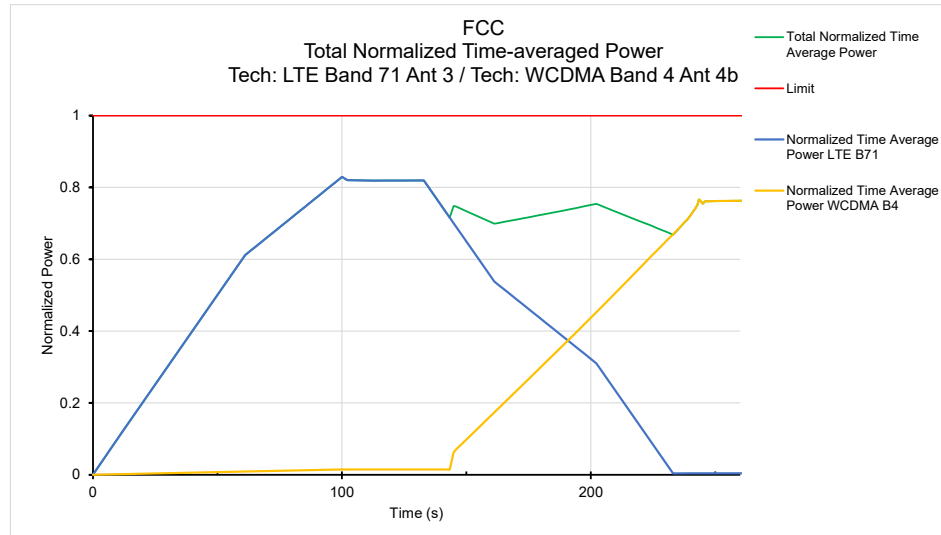


Figure 8-20: Normalized Time-averaged Power for Technology Hand-Off case (LTE Band 71 to WCDMA Band 4)

Normalized P_{limit}	1.000
Highest normalized P_{avg}	0.829
Validation result: Pass	

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8.5 Scenario 5: TDD/FDD Switch

In this scenario, maximum TX power is requested by a call box for each RAT, and FDD to TDD switching at the EUT side is manually configured at a specific time instance. The test case for this scenario is relegated in Table 7-2, and the test procedure follows section 4.5.2. The measurement setup is shown in Figure 6-1.

This test aims to validate the TAS algorithm with TDD to FDD switching during the test period from 4G LTE Band 66 to LTE Band 41 PC3. The corresponding detailed test procedure is described in section 4.5.2. Figure 8-21 demonstrates the DUT's instantaneous conducted TX power, the requested power over time, P_{limit} , and P_{max} . The hand-off is configured at the time instance of 120 seconds. It is observed in the figure that the rolling power average of the individual RAT is below its own P_{limit} . Figure 8-22 illustrates the corresponding normalized total rolling power average over time by using the equation listed in section 4.1. As seen in this figure, the total normalized rolling power average does not exceed the normalized P_{limit} .

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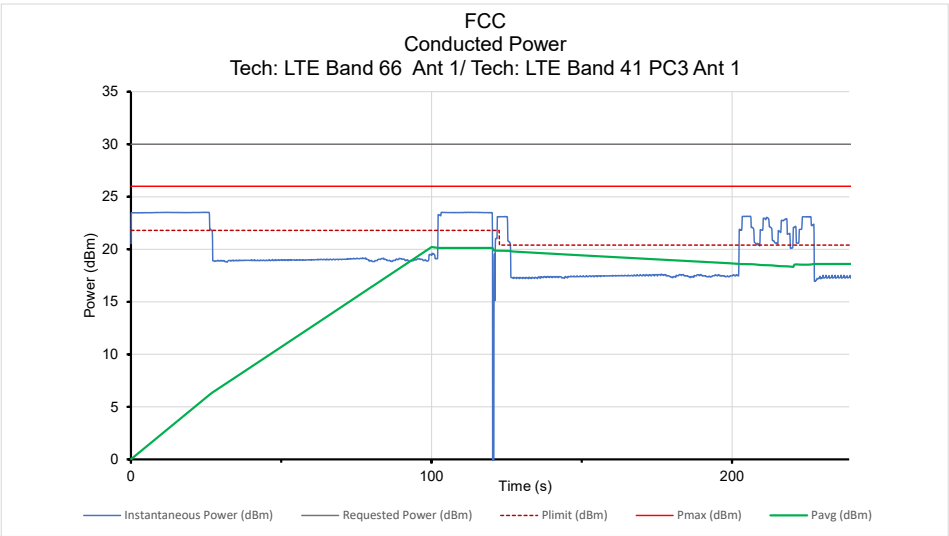


Figure 8-21: Time-averaged conducted TX power over time for TDD/FDD Switch case (LTE Band 66 to LTE B41A PC3)

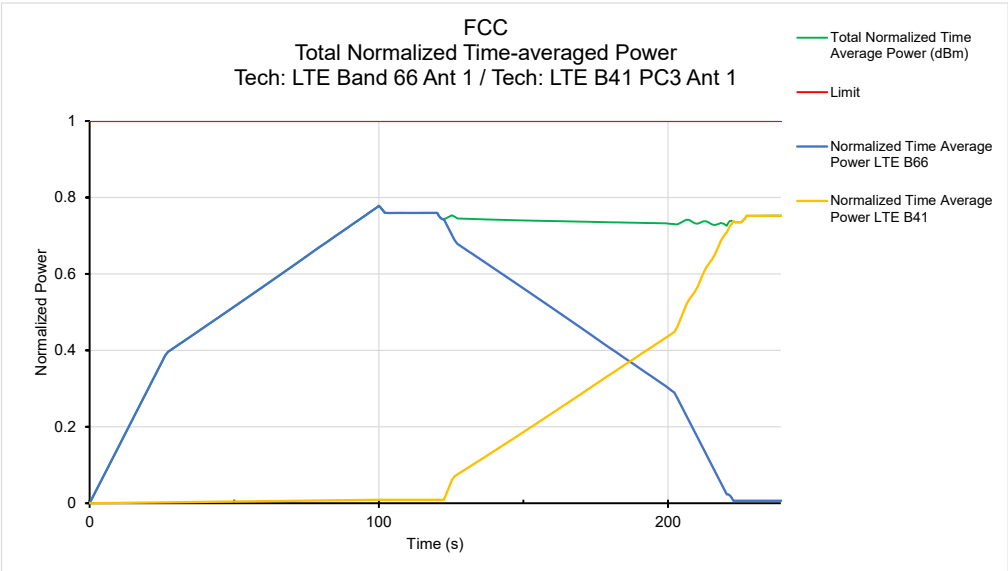


Figure 8-22: Normalized Time-averaged Power for TDD/FDD Switch case (LTE Band 66 to LTE B41A PC3)

Normalized P_{limit}	1.000
Highest normalized P_{avg}	0.778
Validation result: Pass	

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8.6 Scenario 6: Call Drop

In this scenario, maximum TX power is requested by a call box for each RAT, and call drop at the EUT side is manually configured at a specific time instance. The test case for this scenario is relegated in Table 7-2, and the test procedure follows section 4.6.2. The measurement setup is shown in Figure 6-1.

This test aims to validate the TA-SAR algorithm with call disconnection during the test period from 4G LTE Band 30. The corresponding detailed test procedure is described in section 4.6.2. Figure 8-23 demonstrates the DUT’s instantaneous conducted TX power, the requested power over time, P_{limit} , and P_{max} . The call disconnection is configured at the time instance of 125 seconds and is configured to re-establish connection after 10 seconds. It is observed in the figure that the rolling power average of the individual RAT is below its own P_{limit} . Figure 8-24 illustrates the corresponding calculated rolling power average over time by using the equation listed in section 4.1. As seen in this figure, the calculated rolling power average does not exceed the normalized P_{limit} .

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