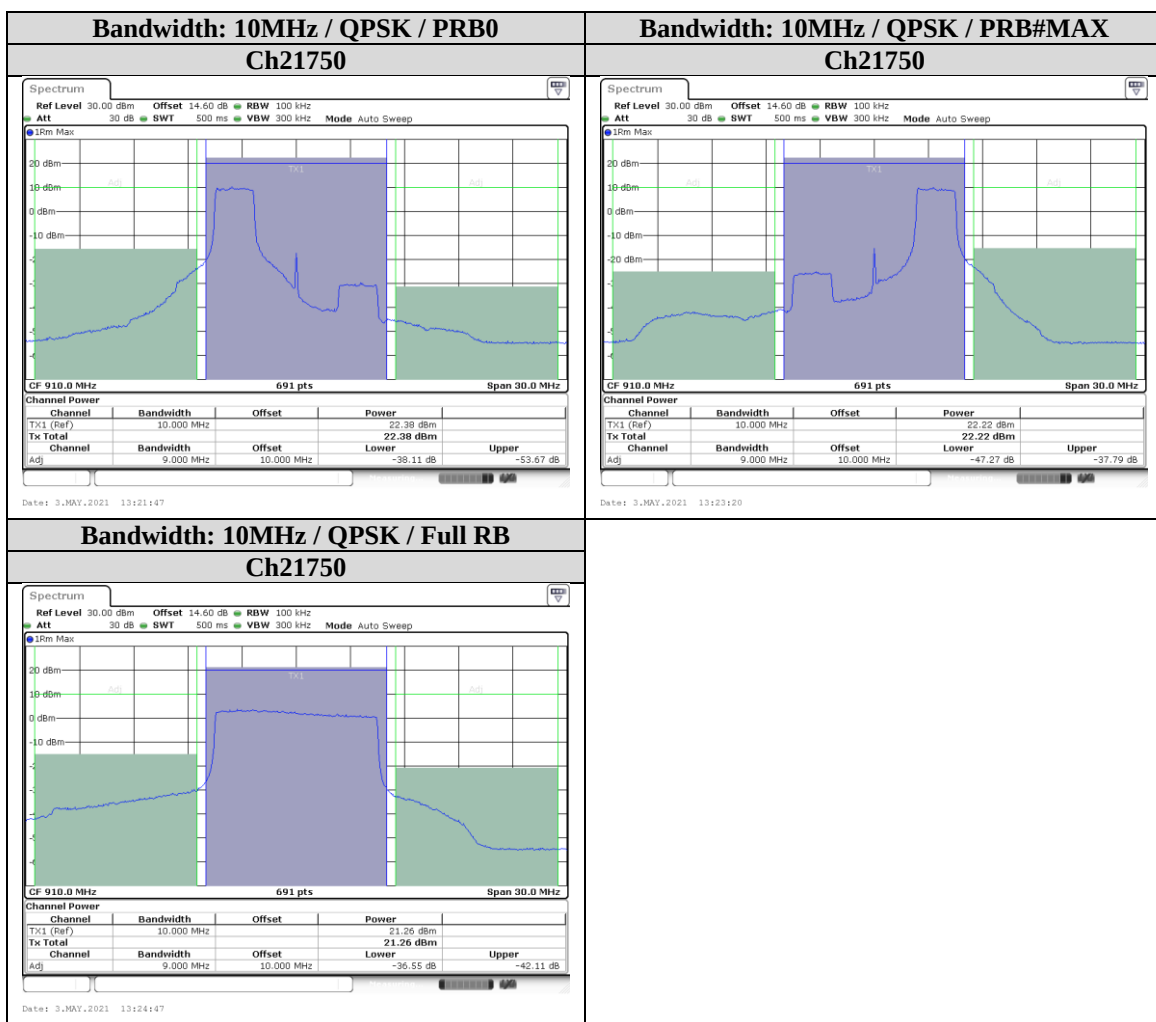




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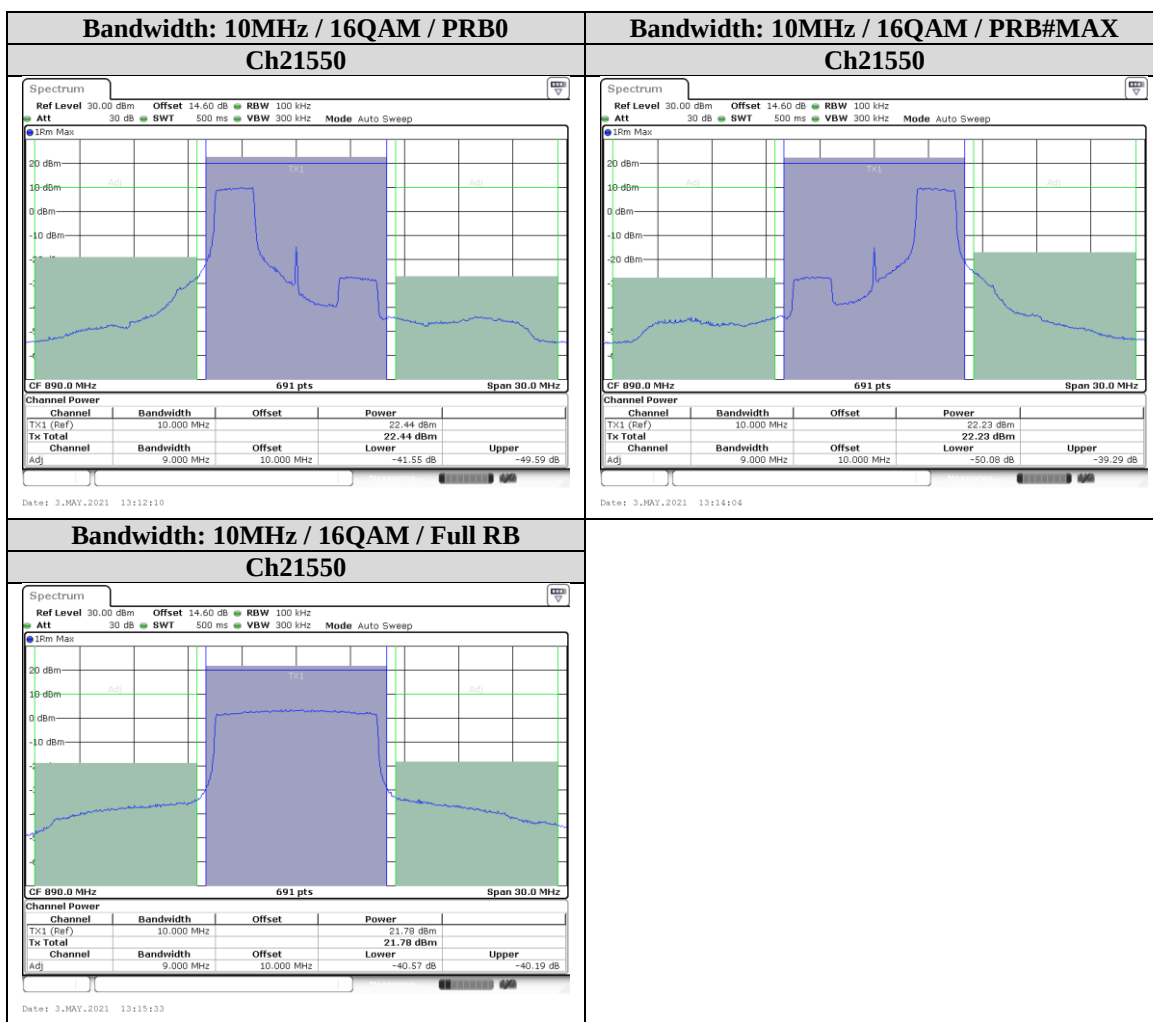
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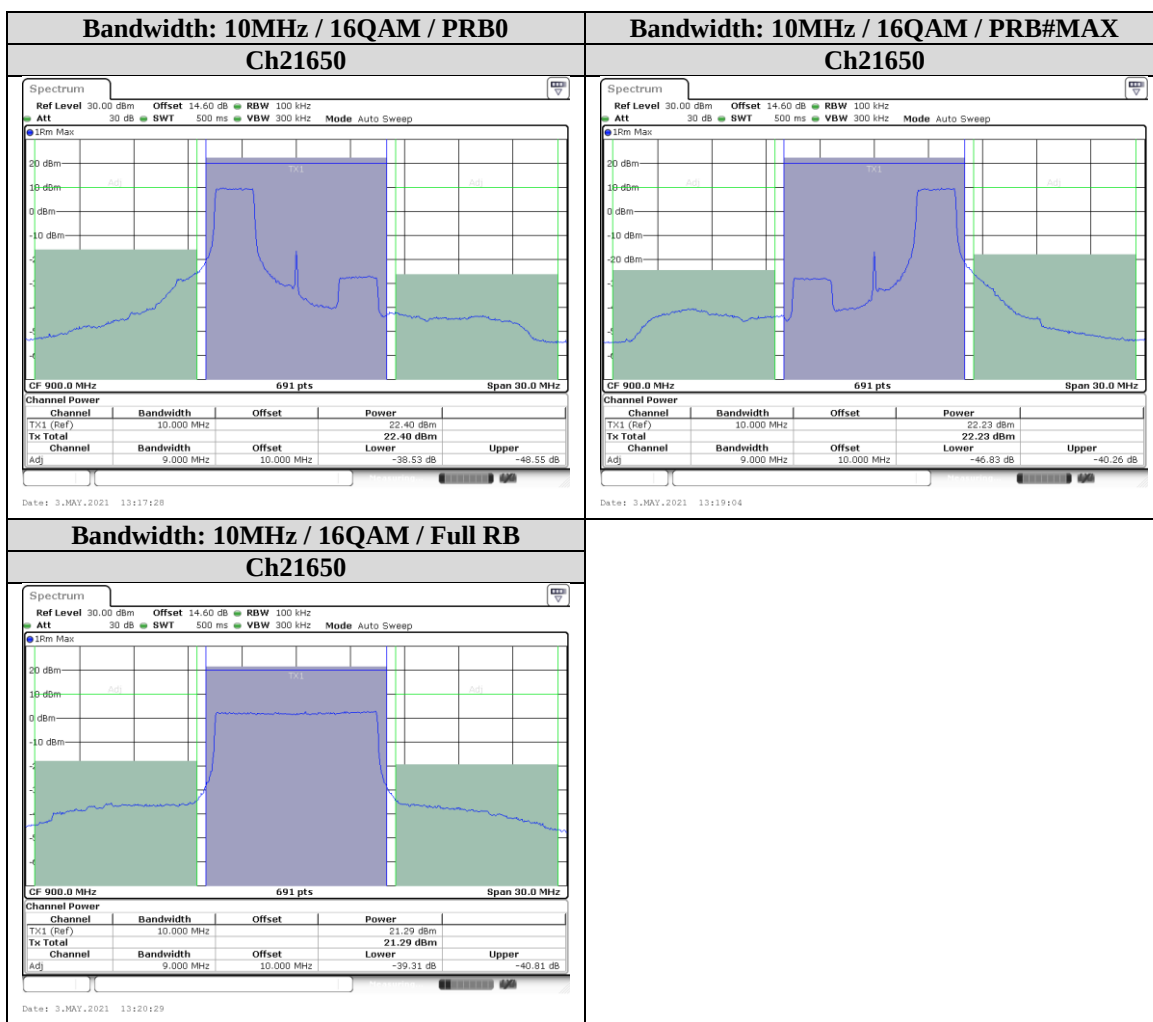
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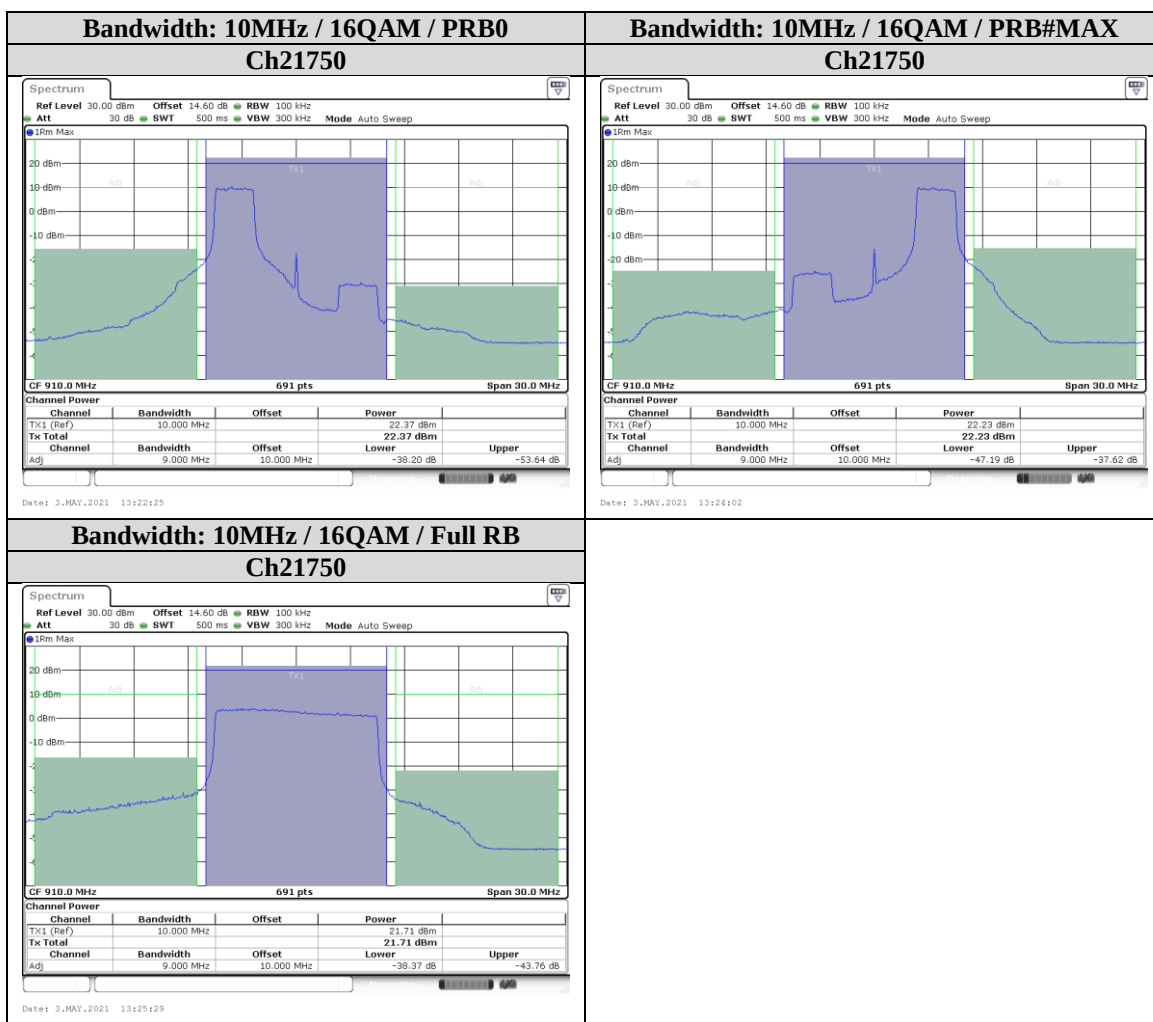
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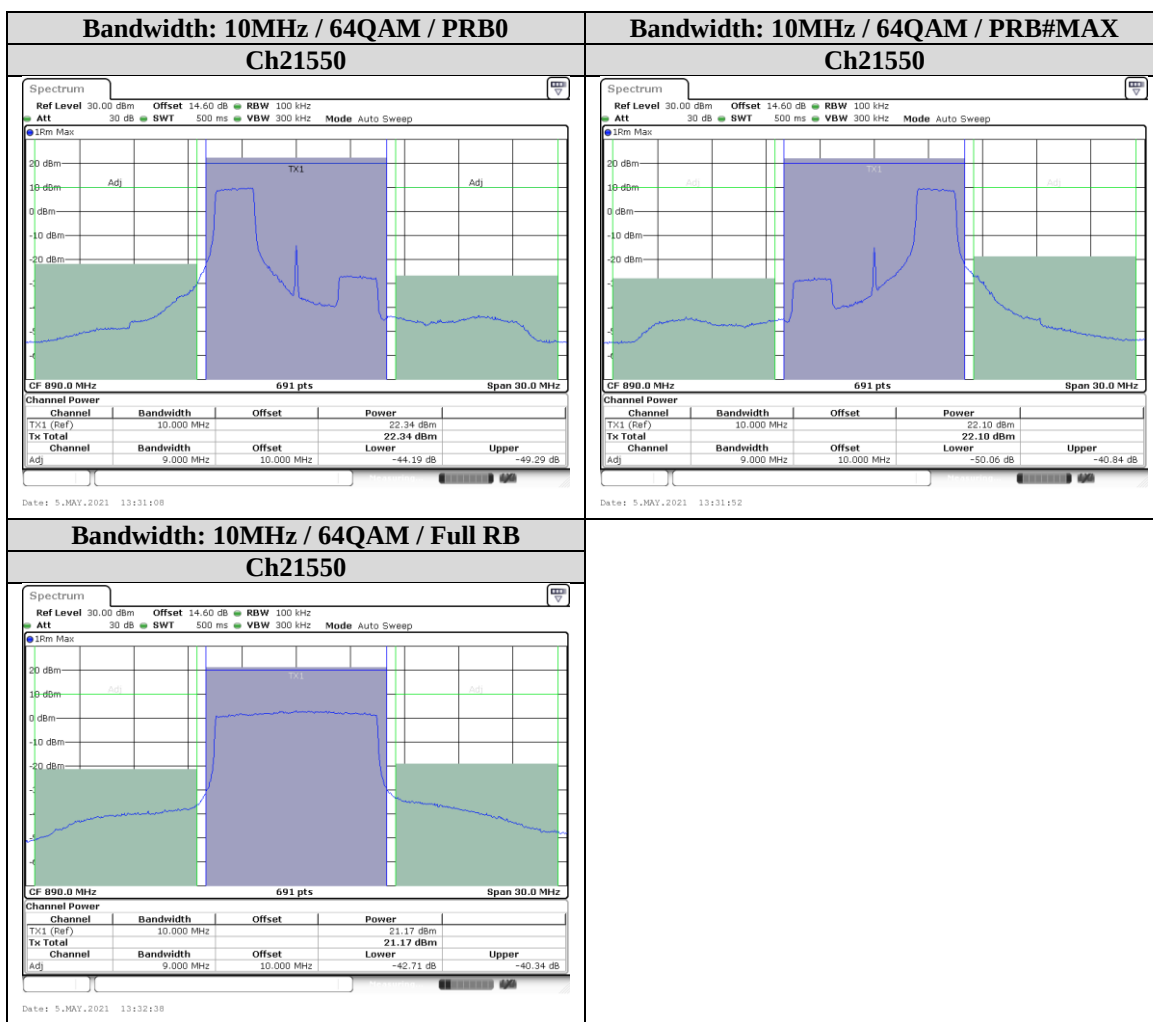
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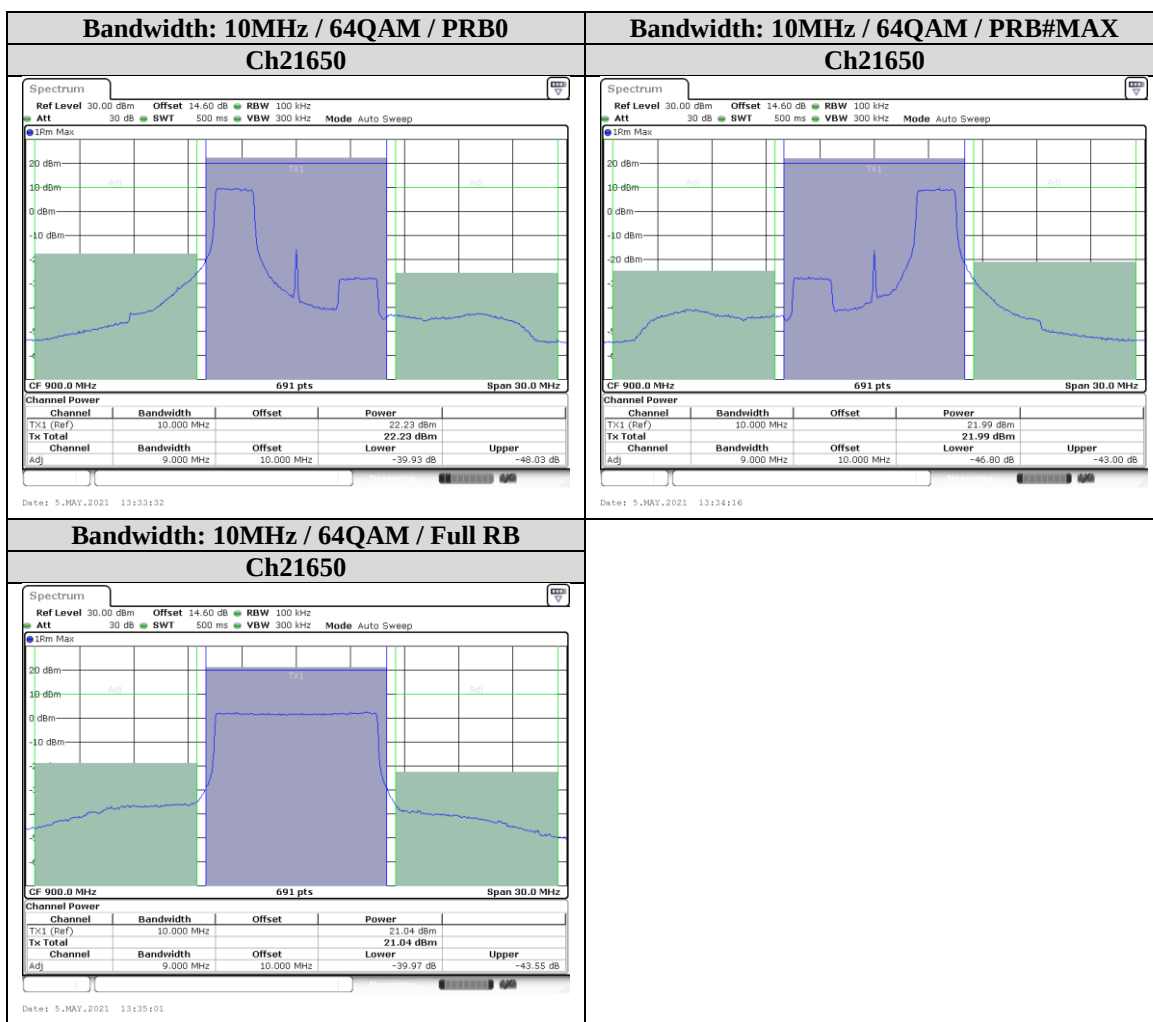
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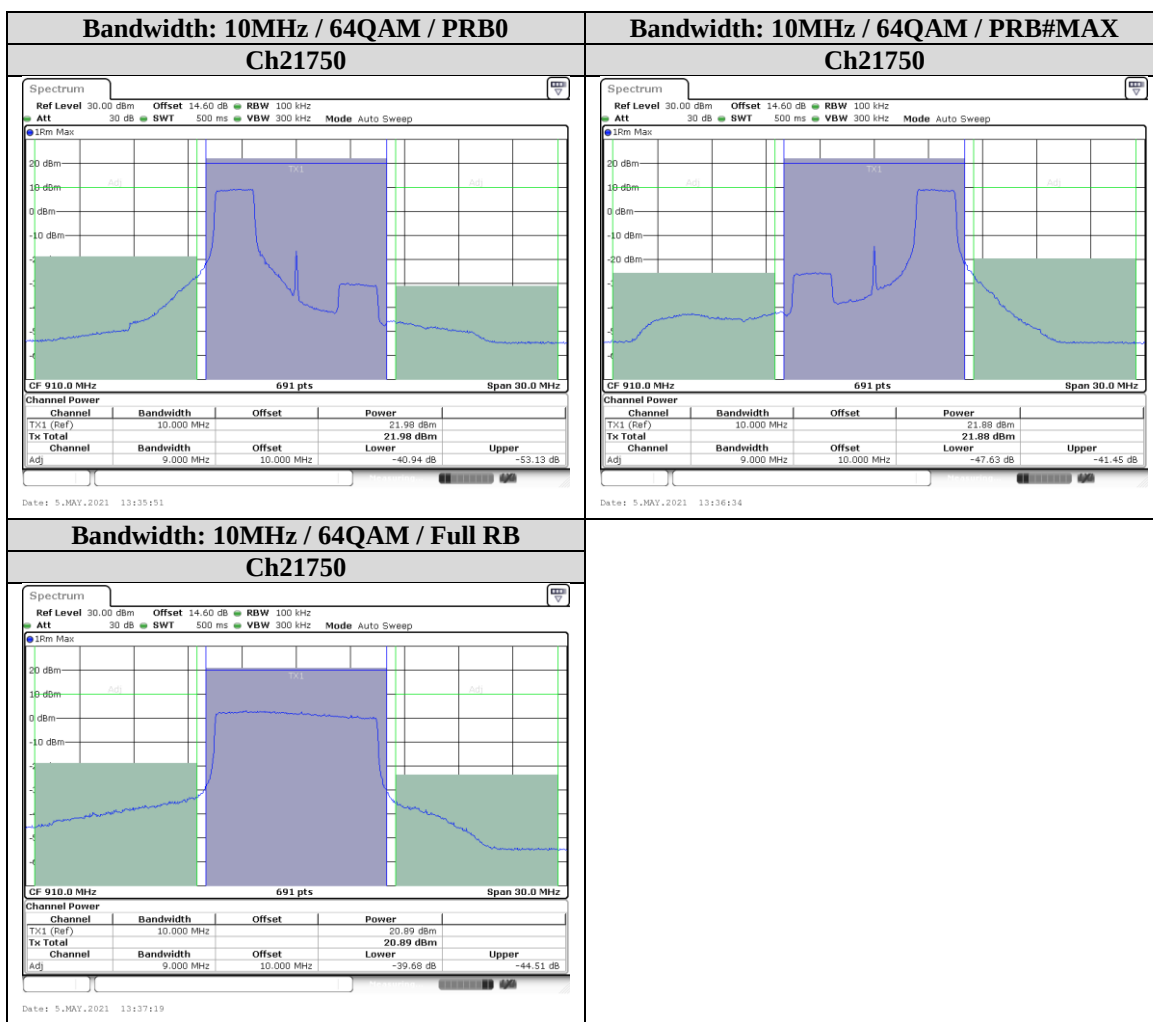
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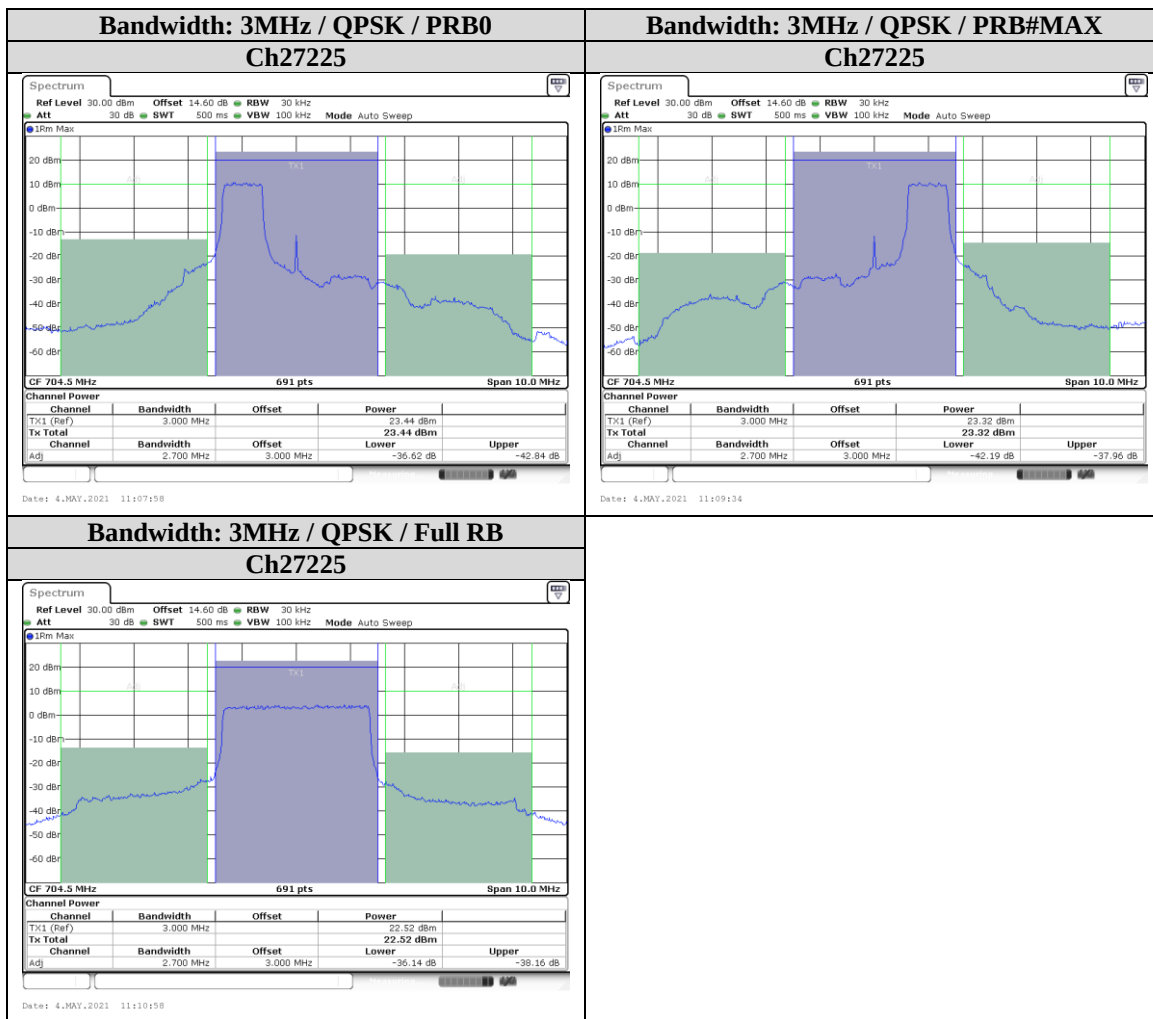


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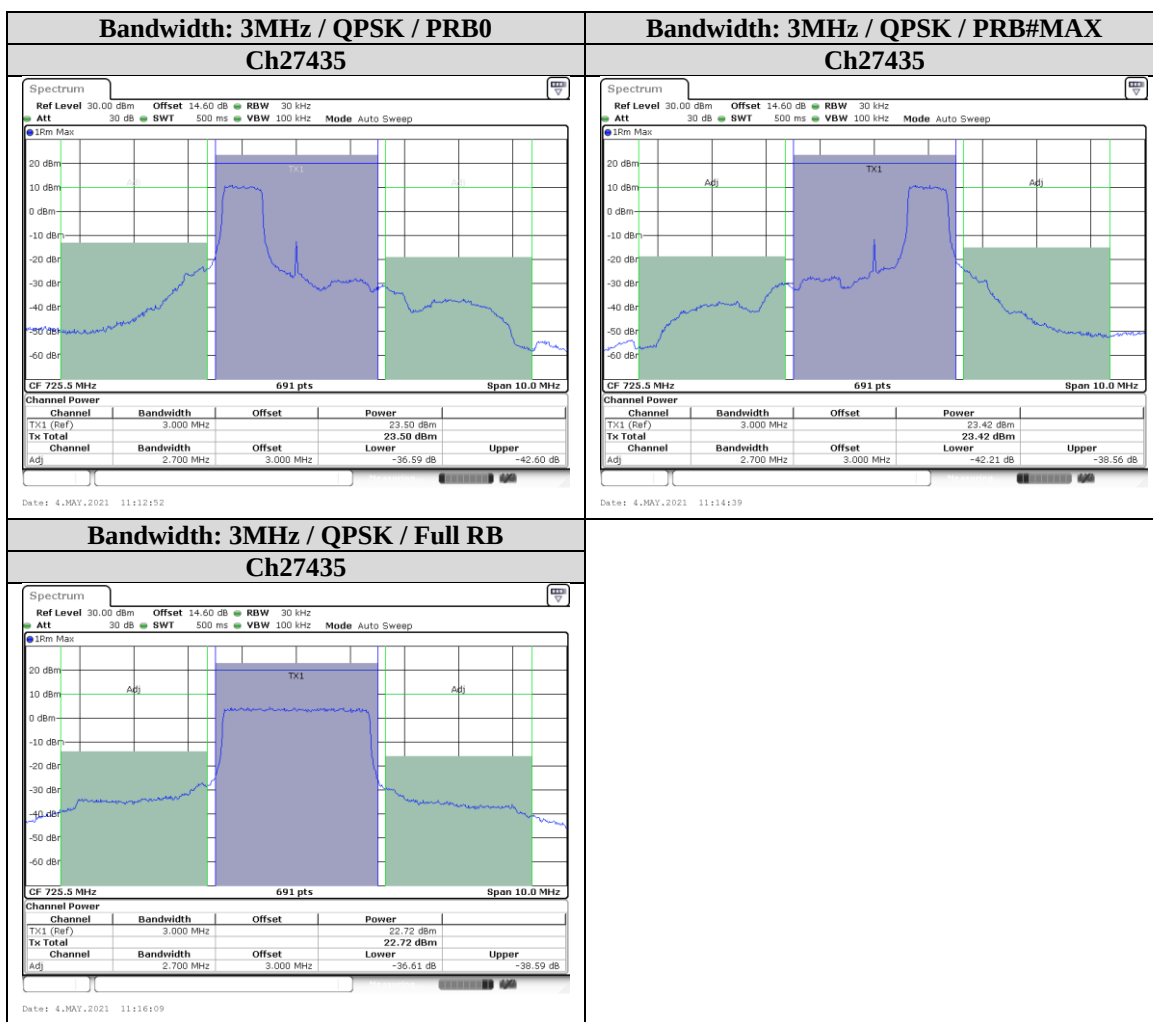
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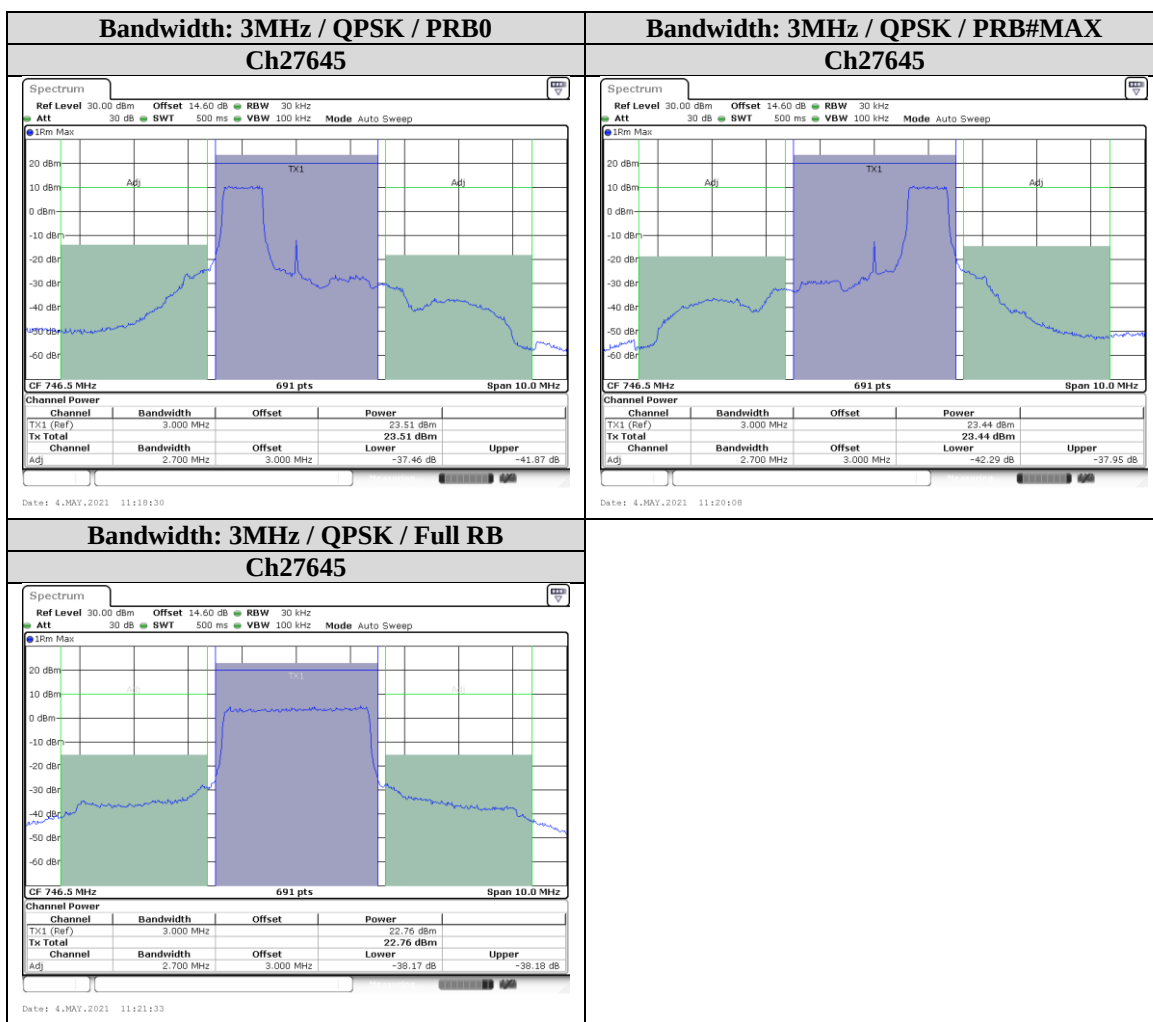
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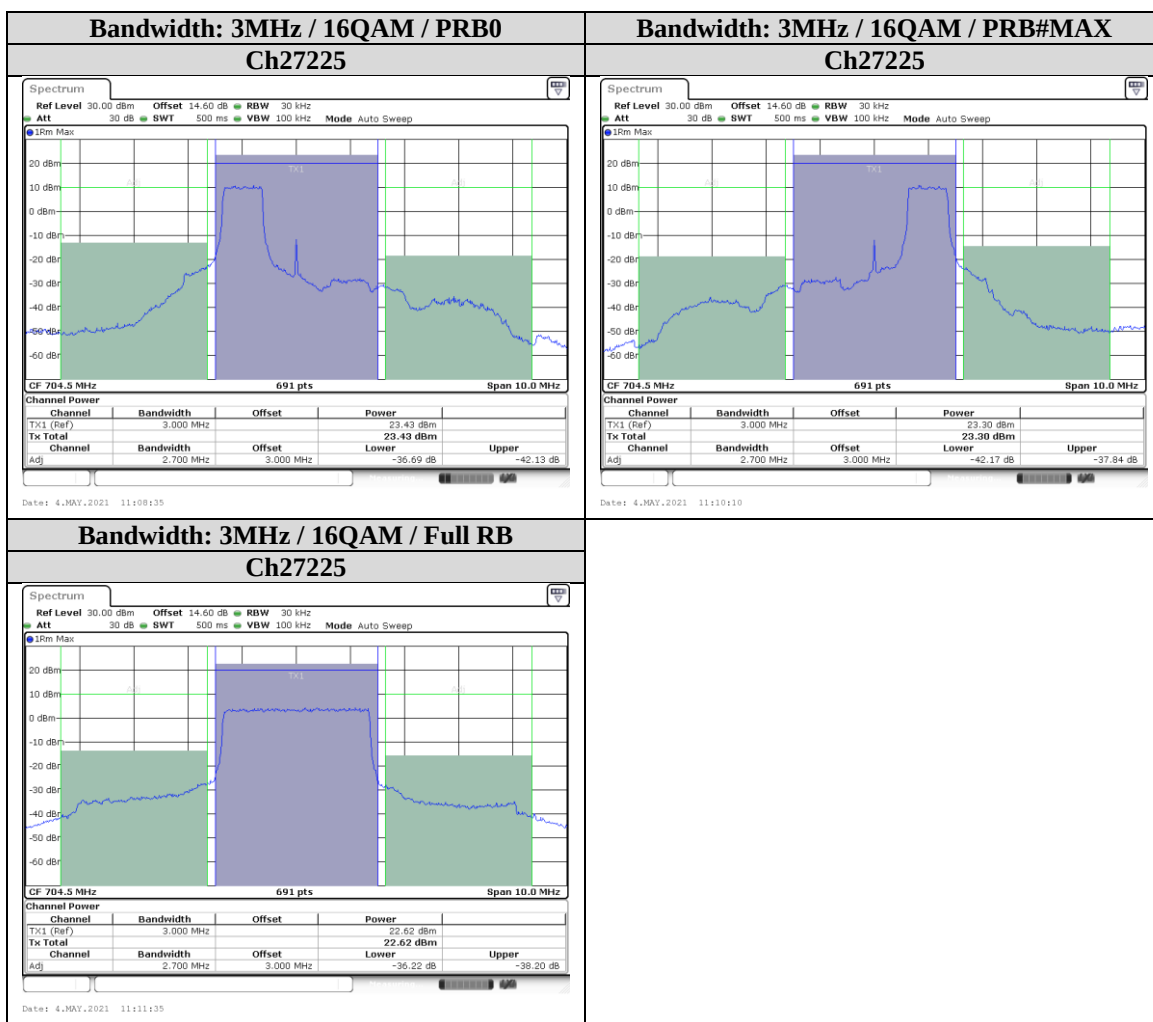
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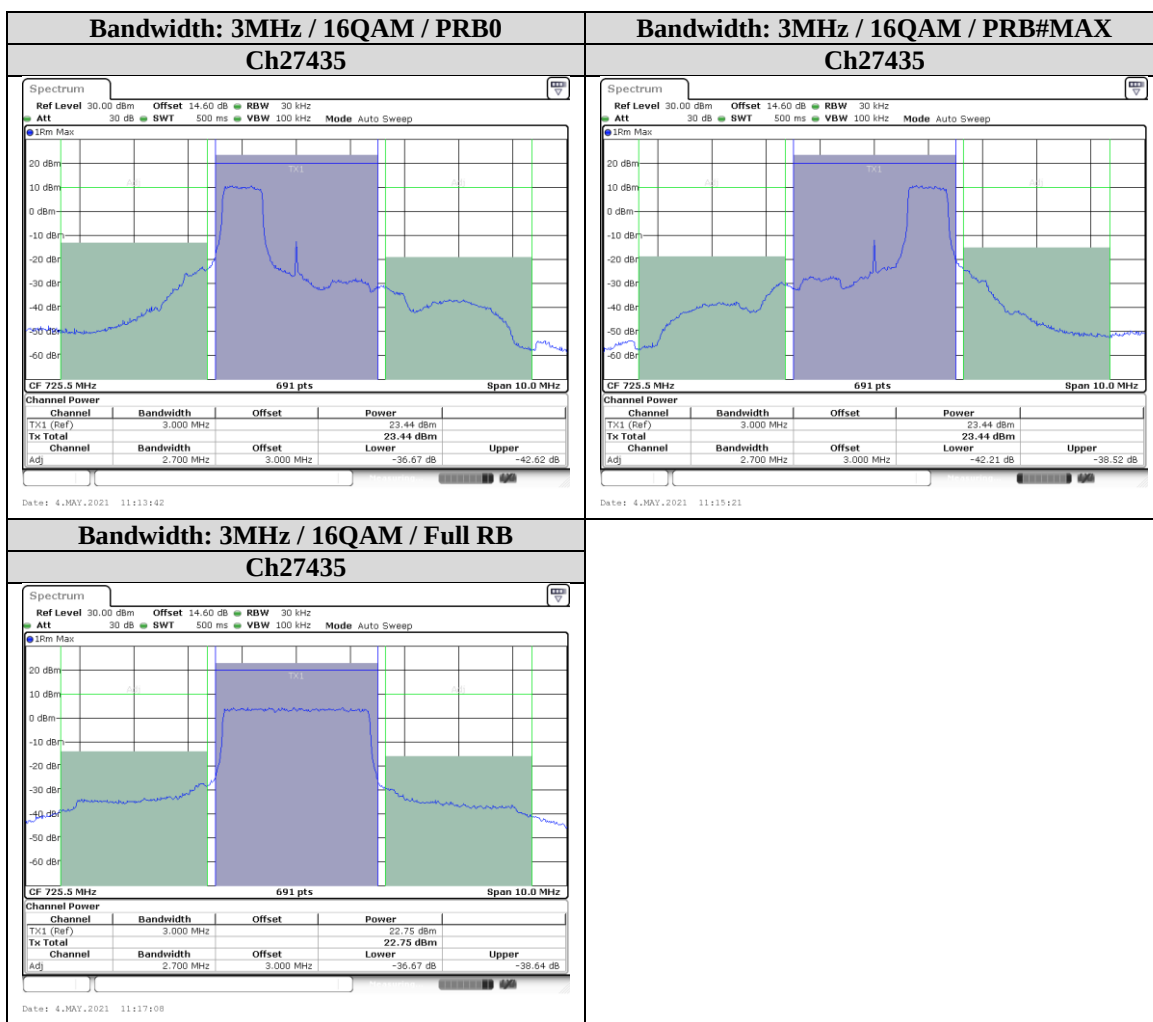
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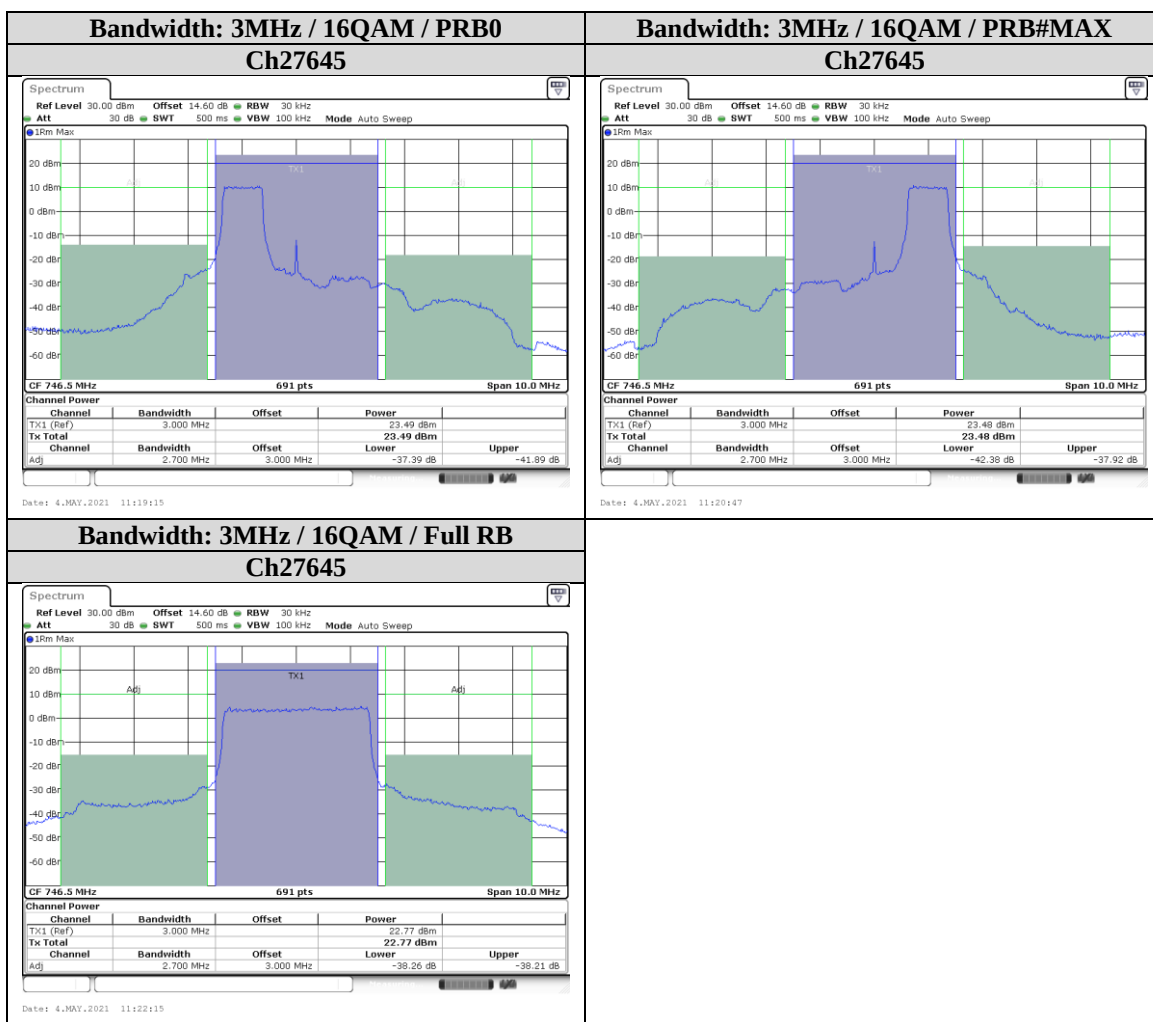
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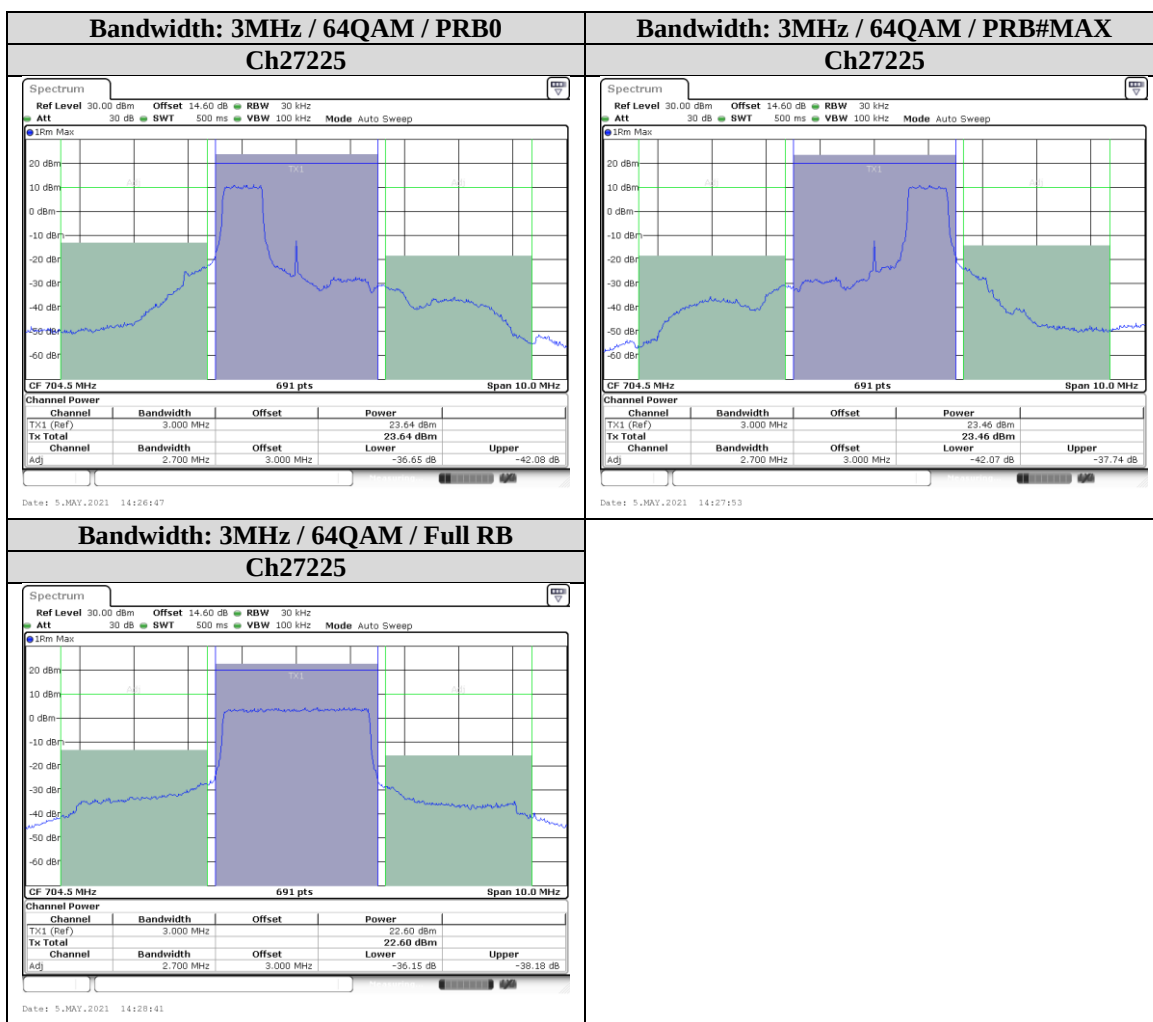
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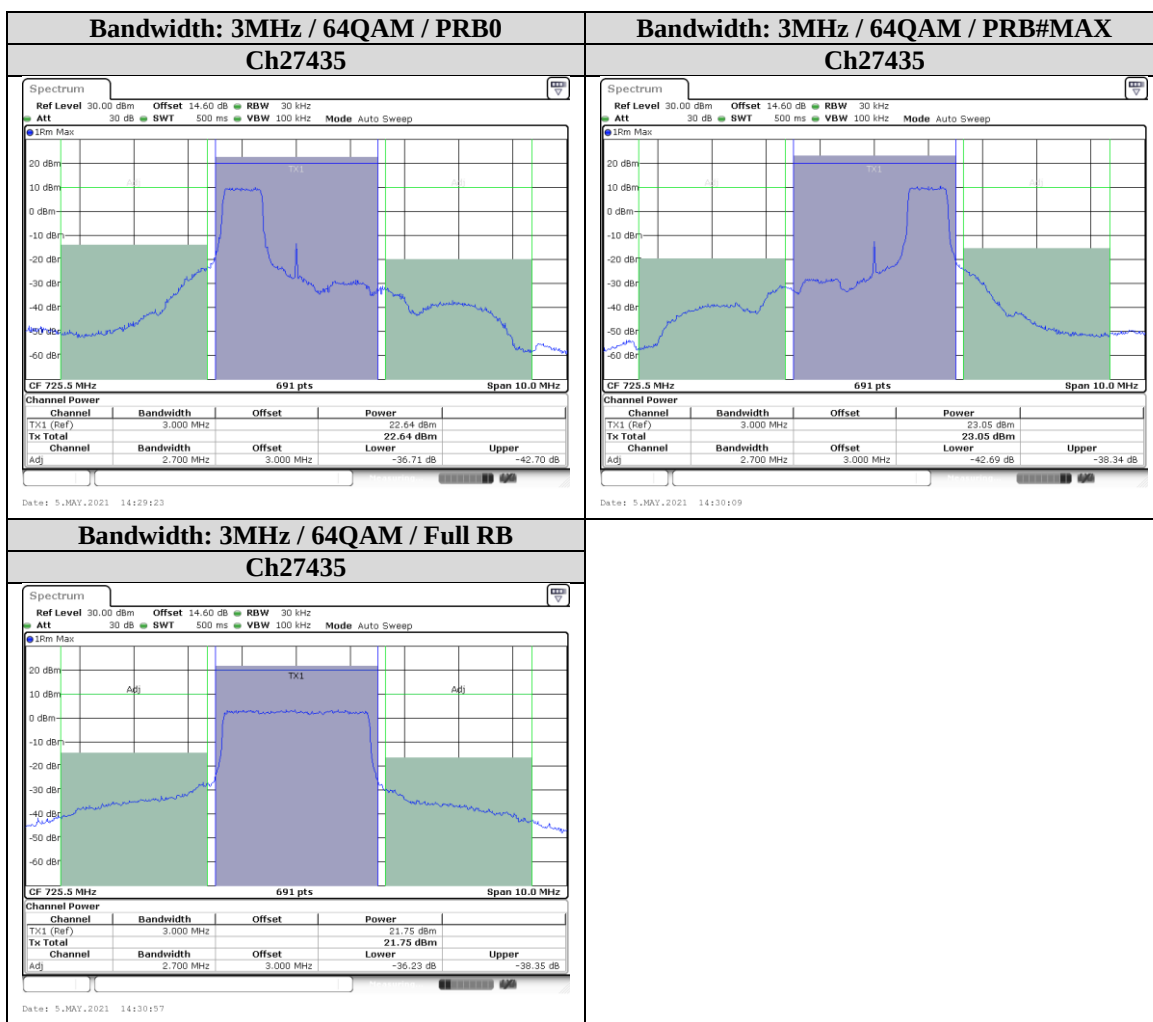
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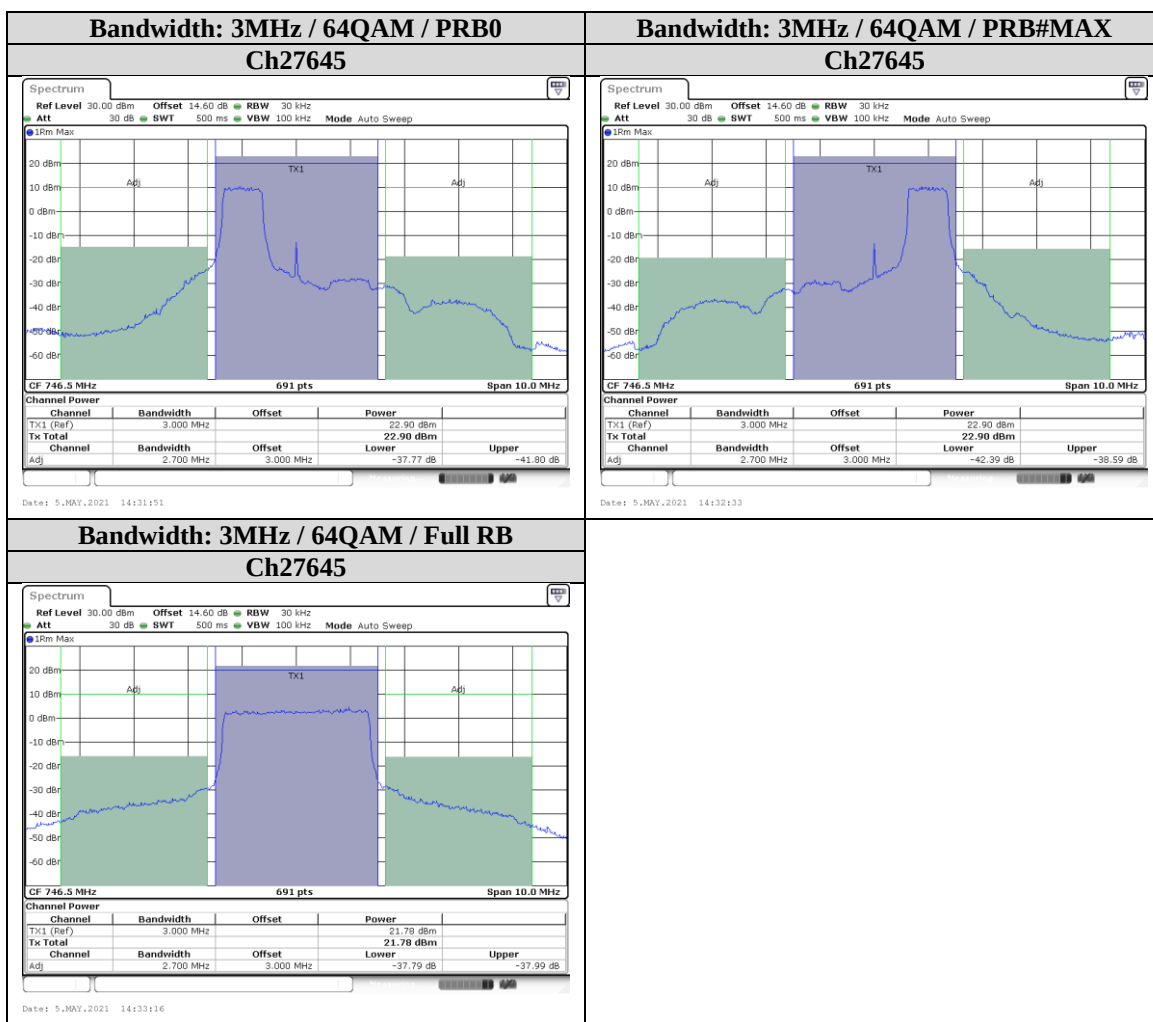
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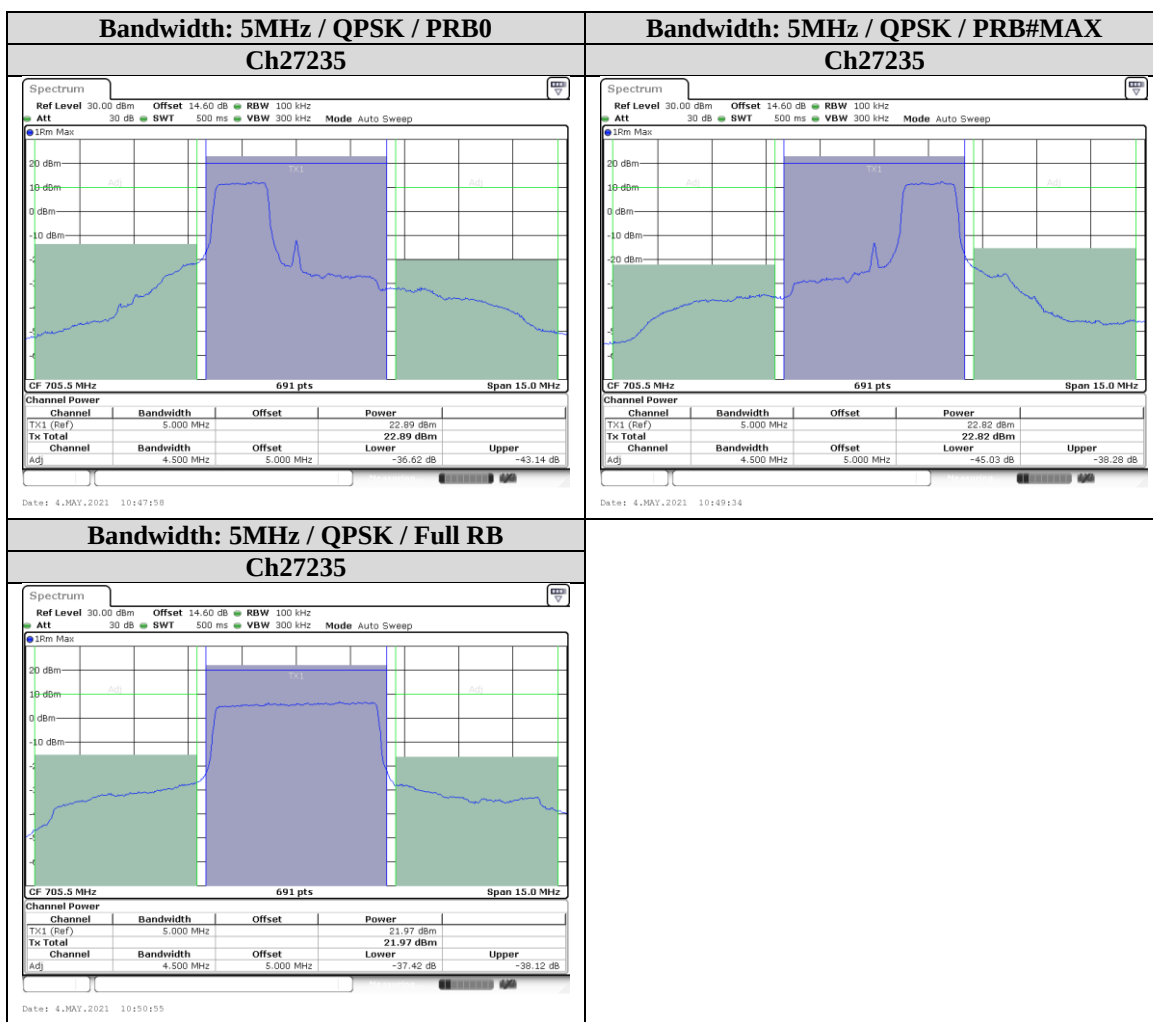
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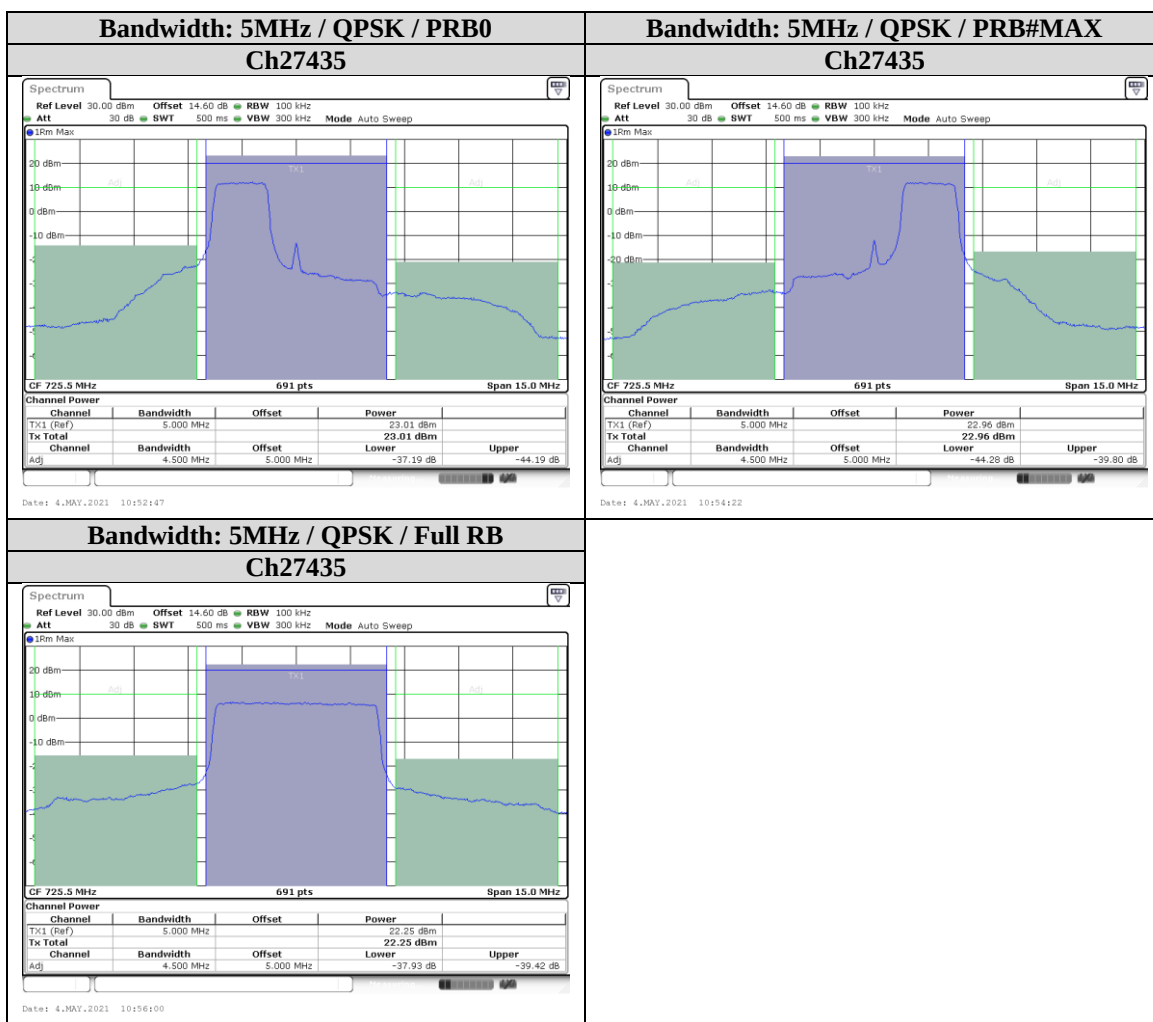
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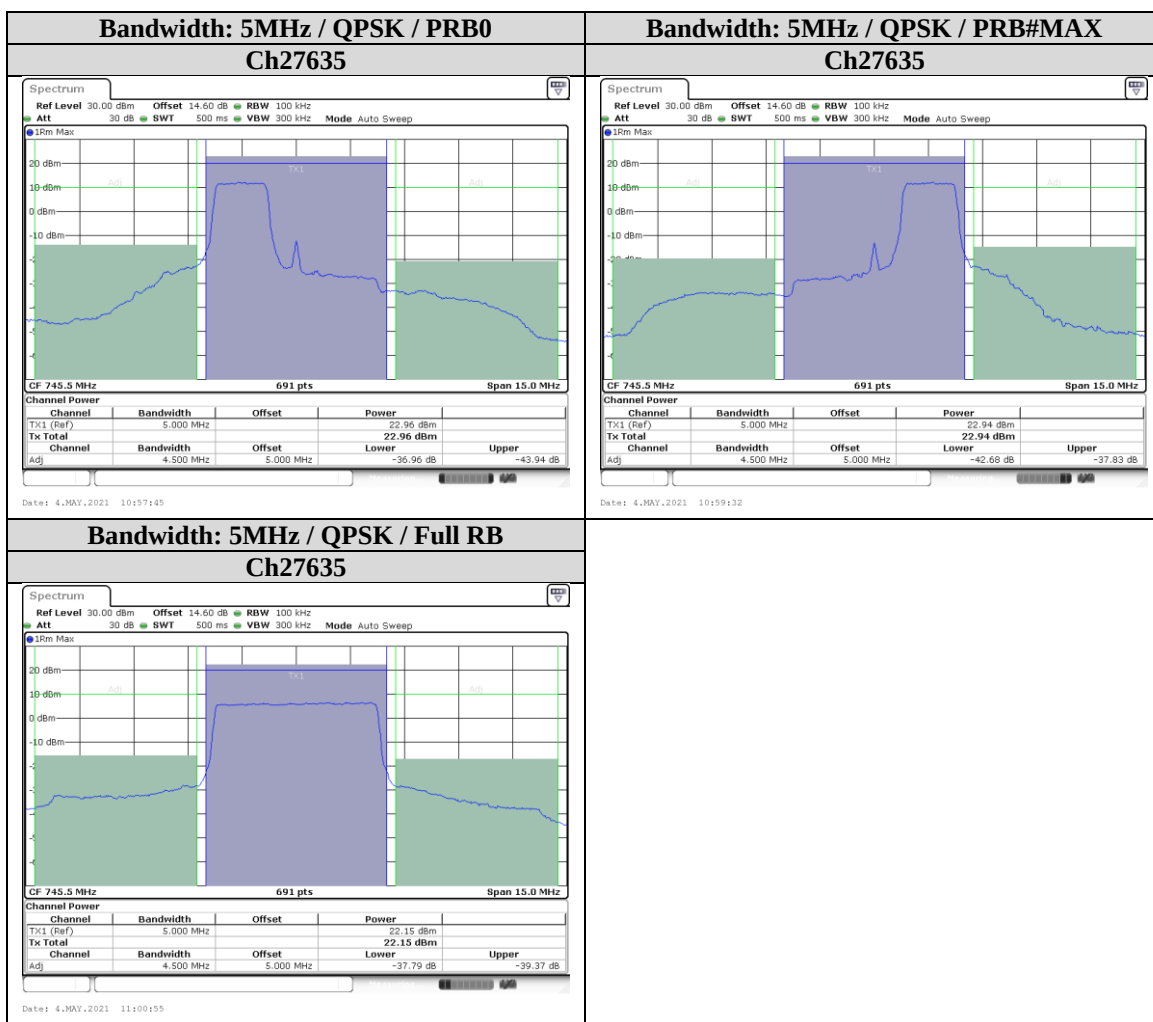
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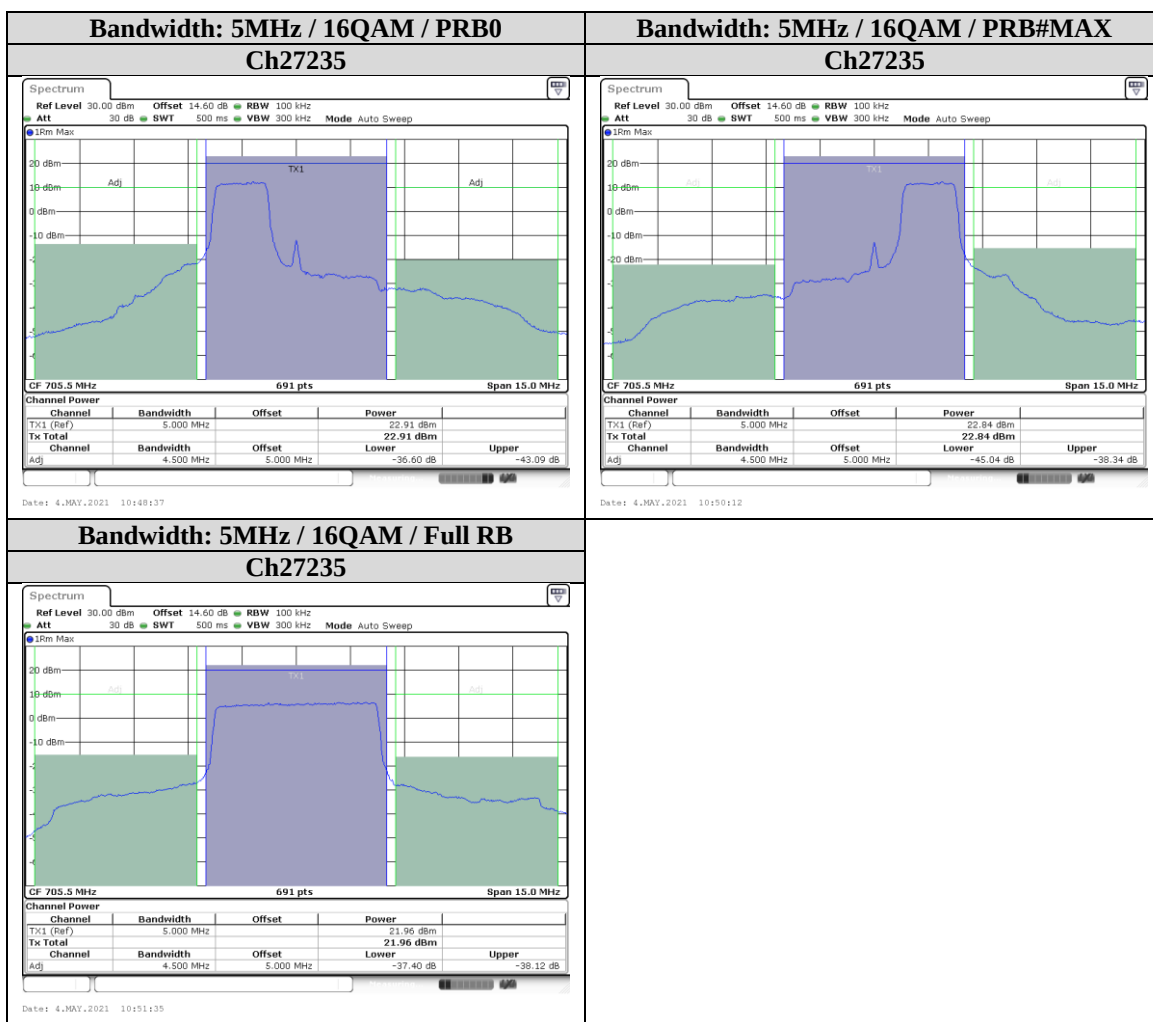
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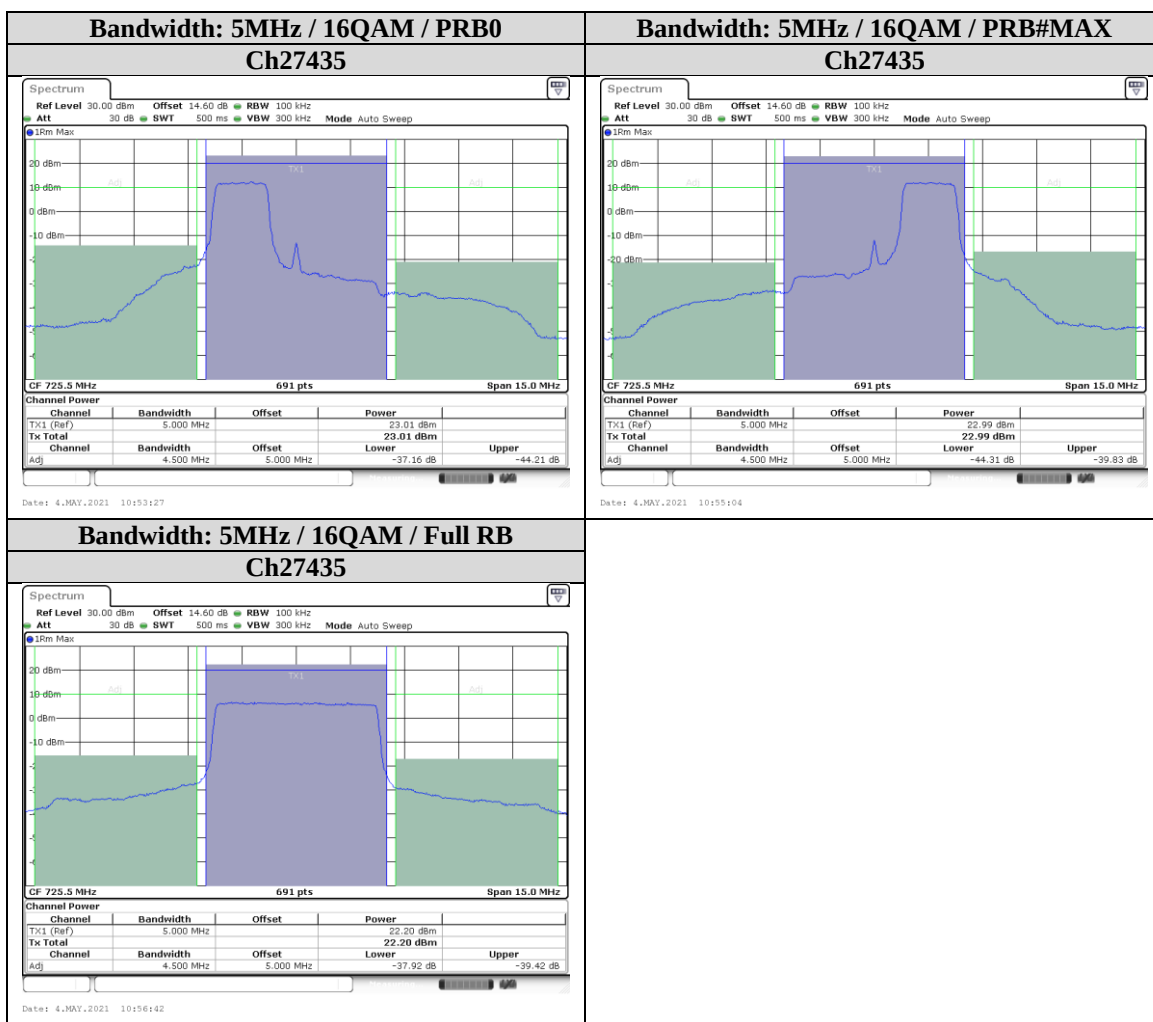
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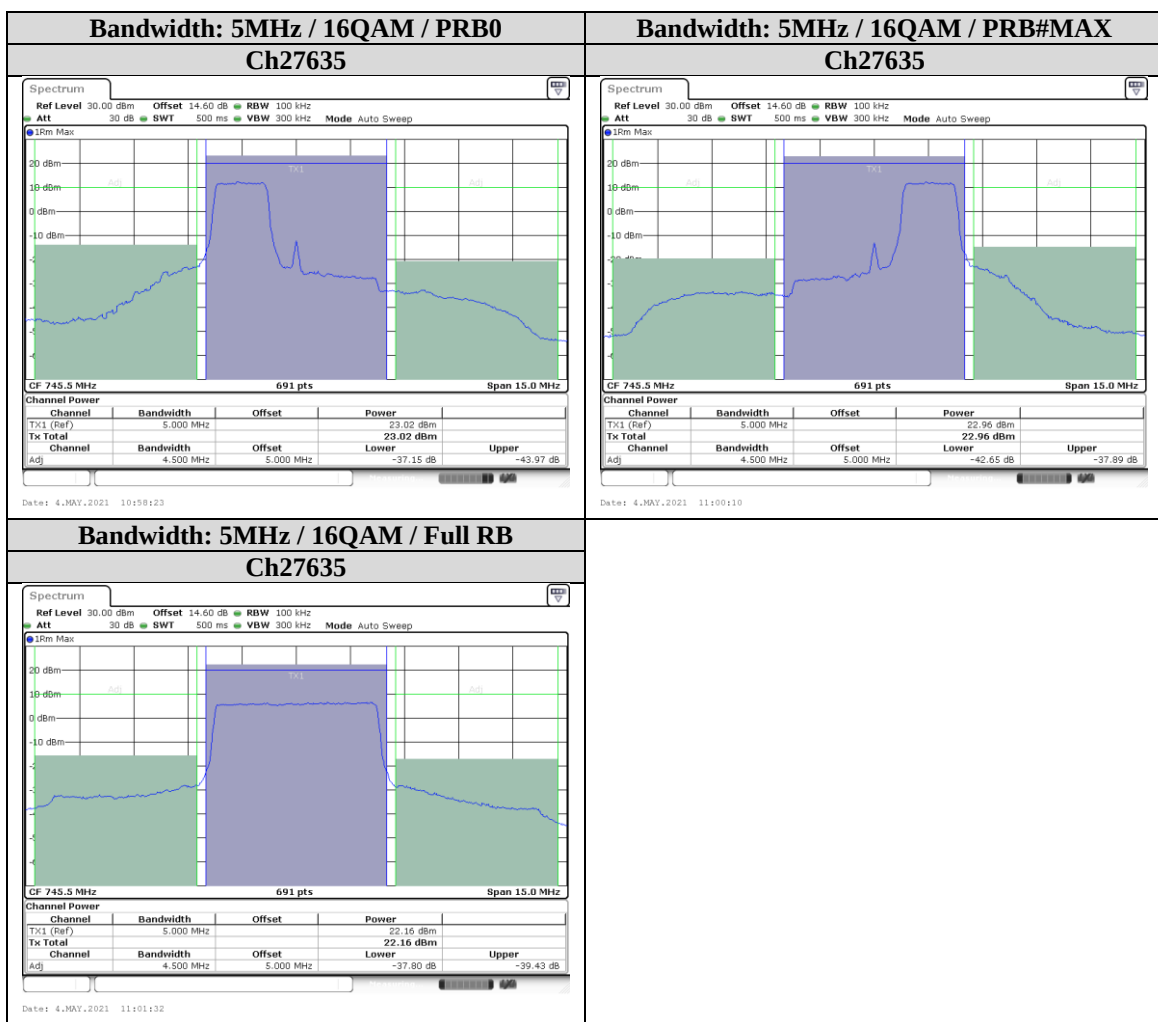
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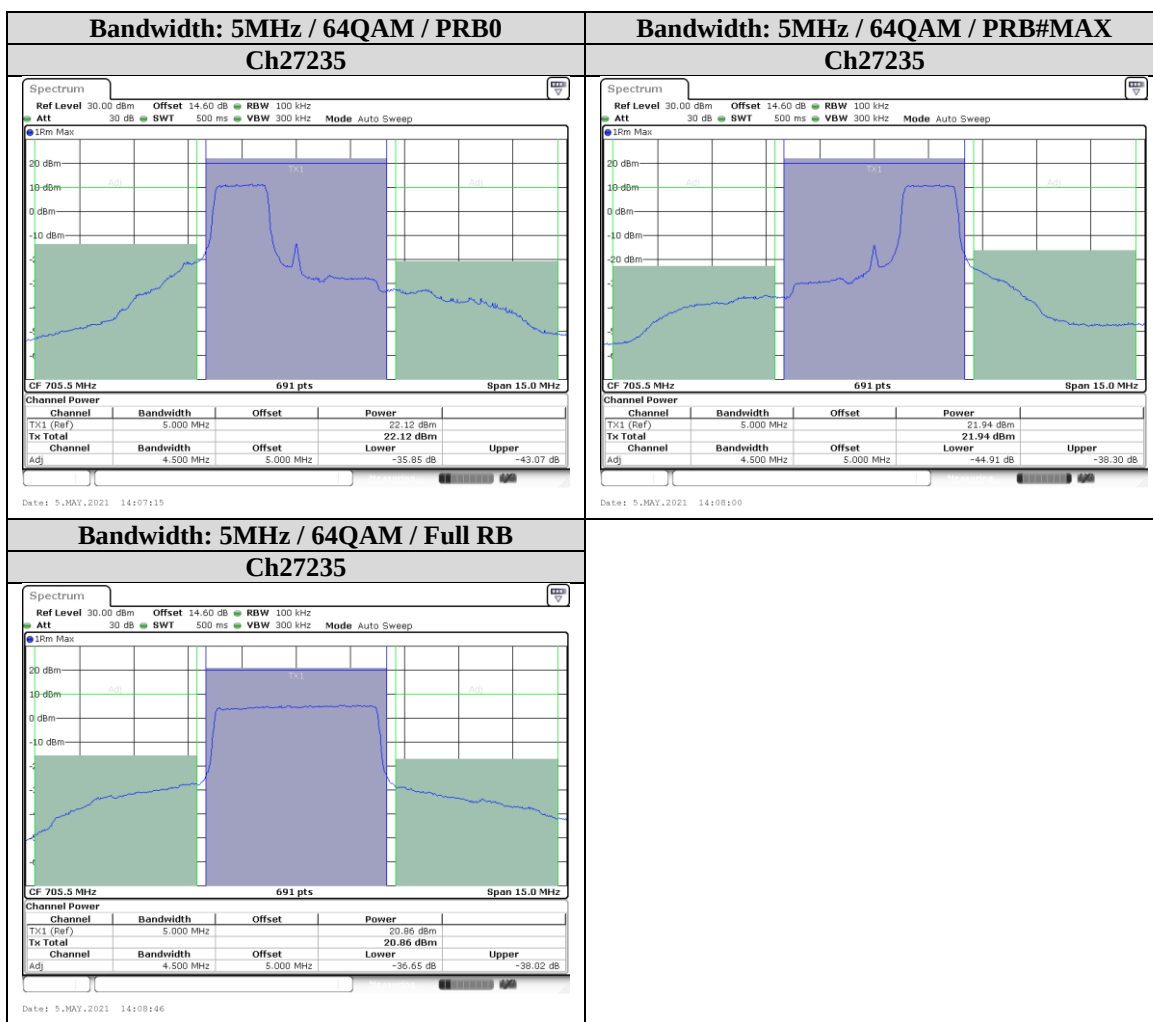
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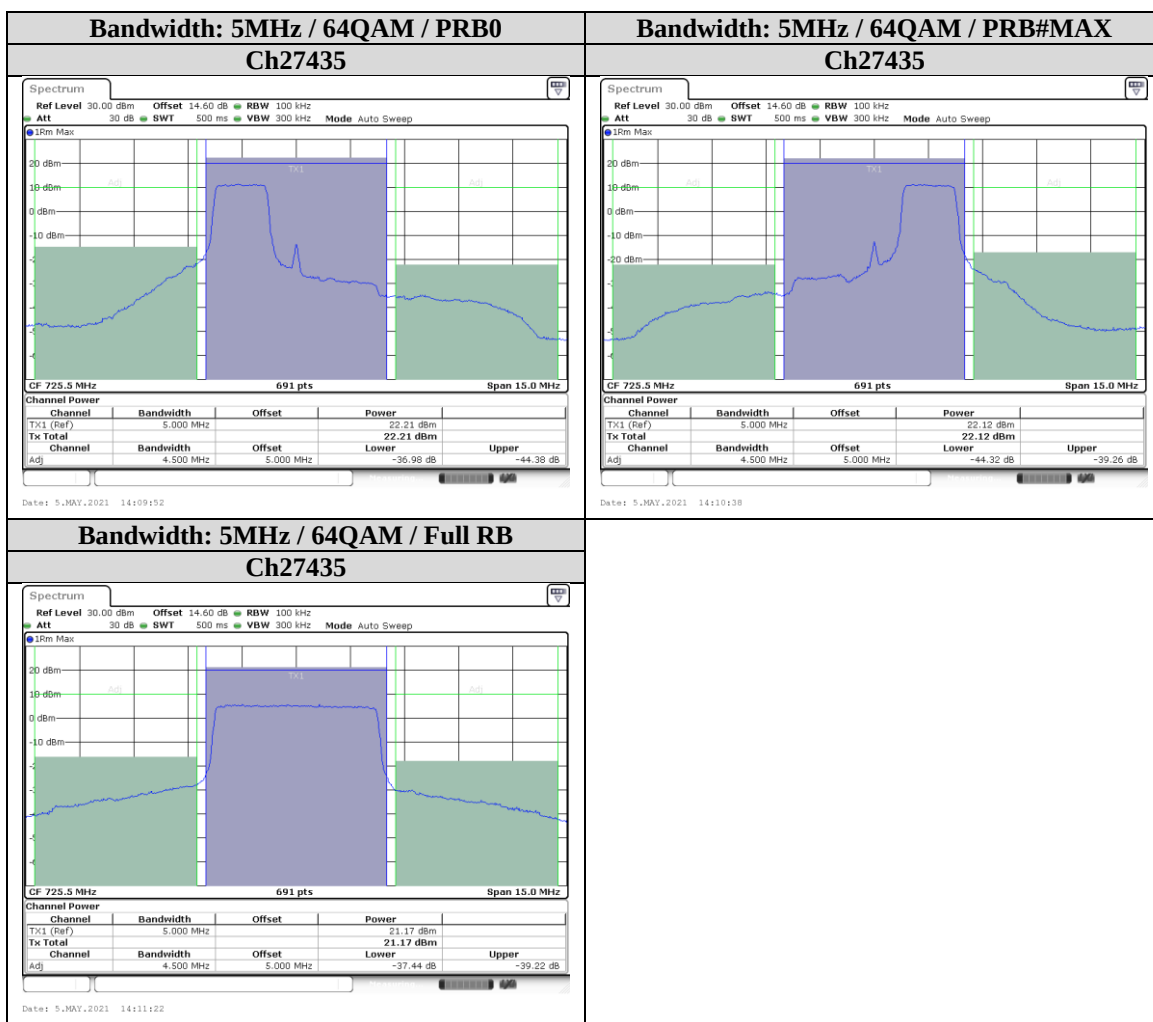
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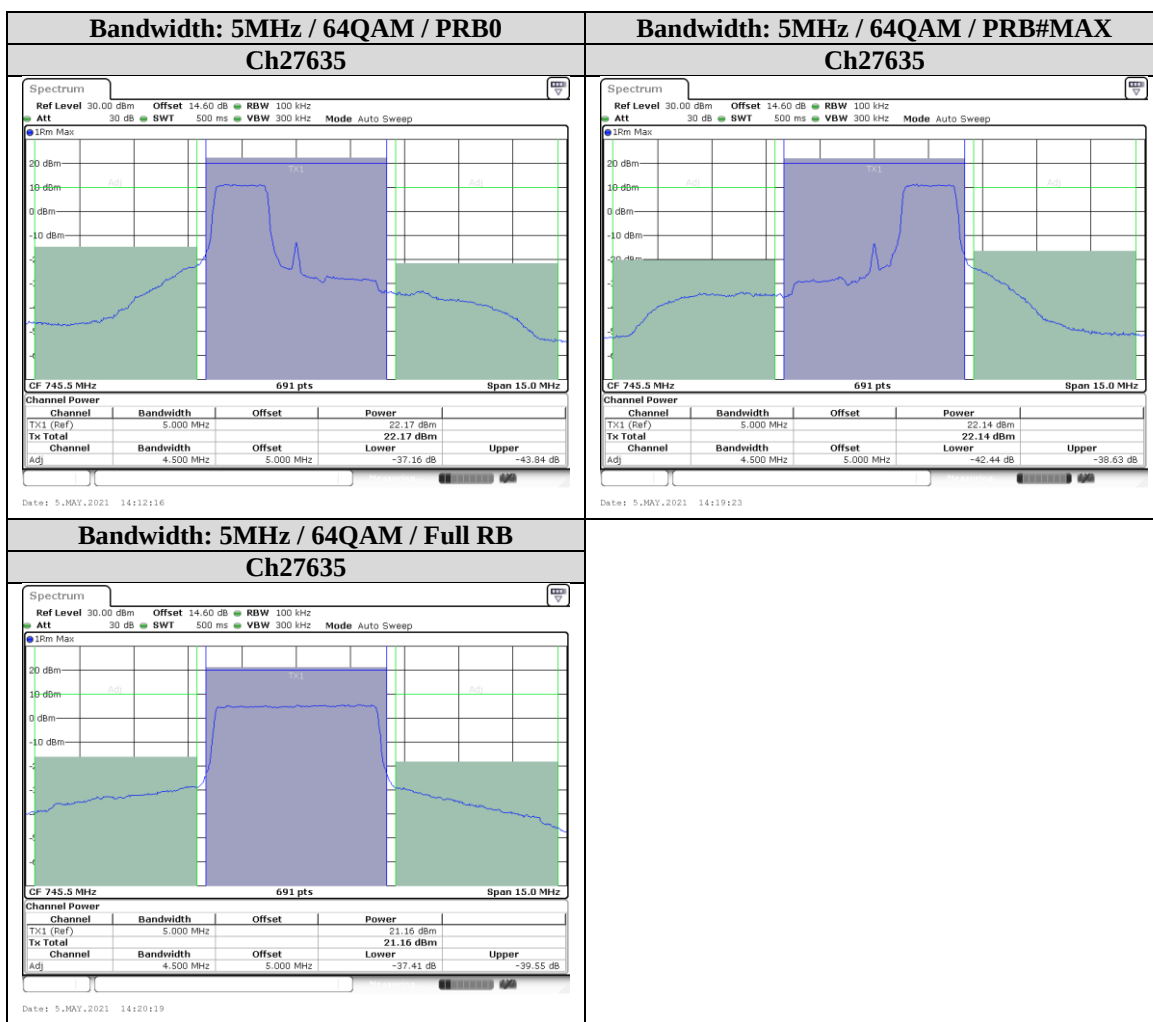
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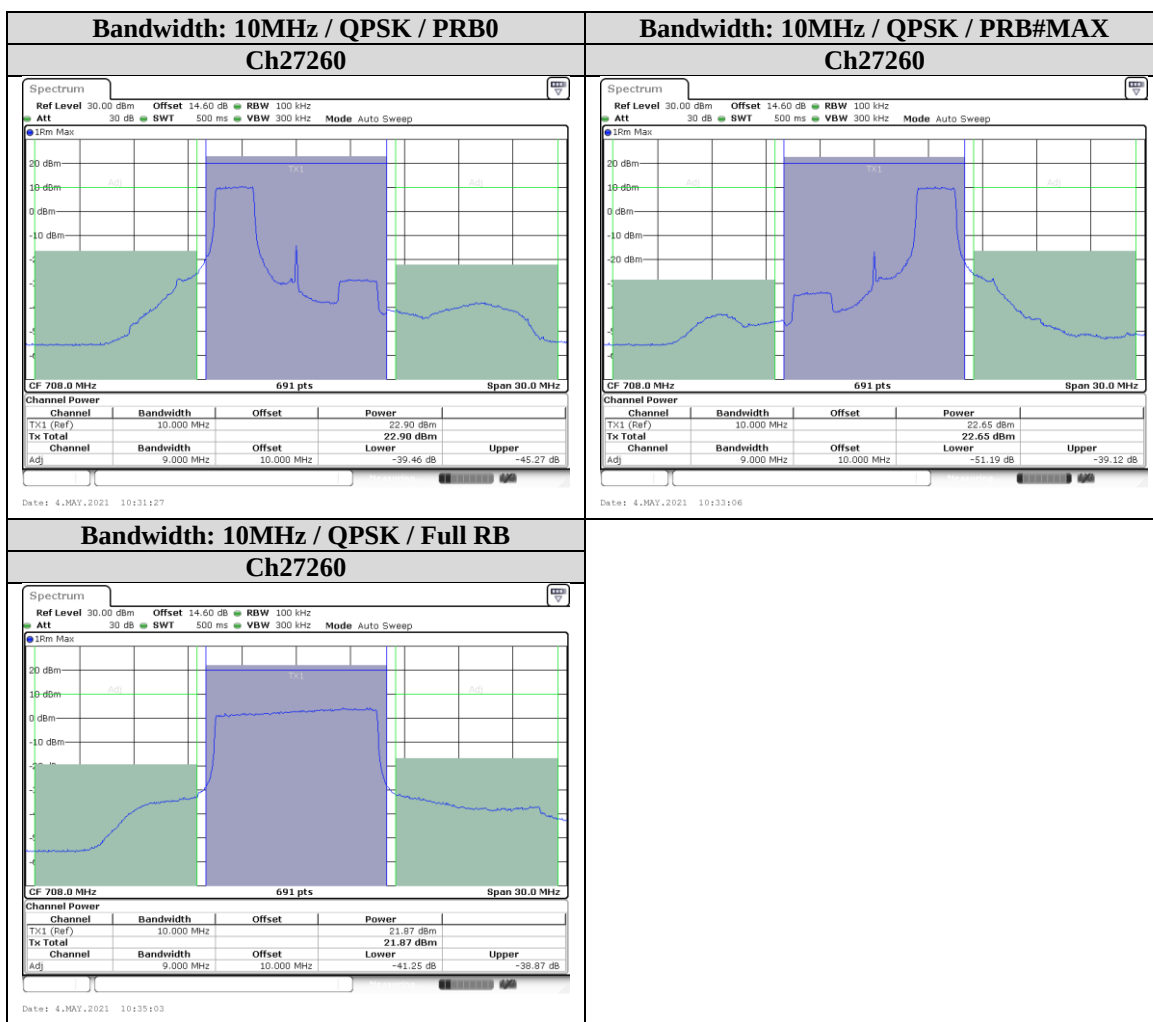
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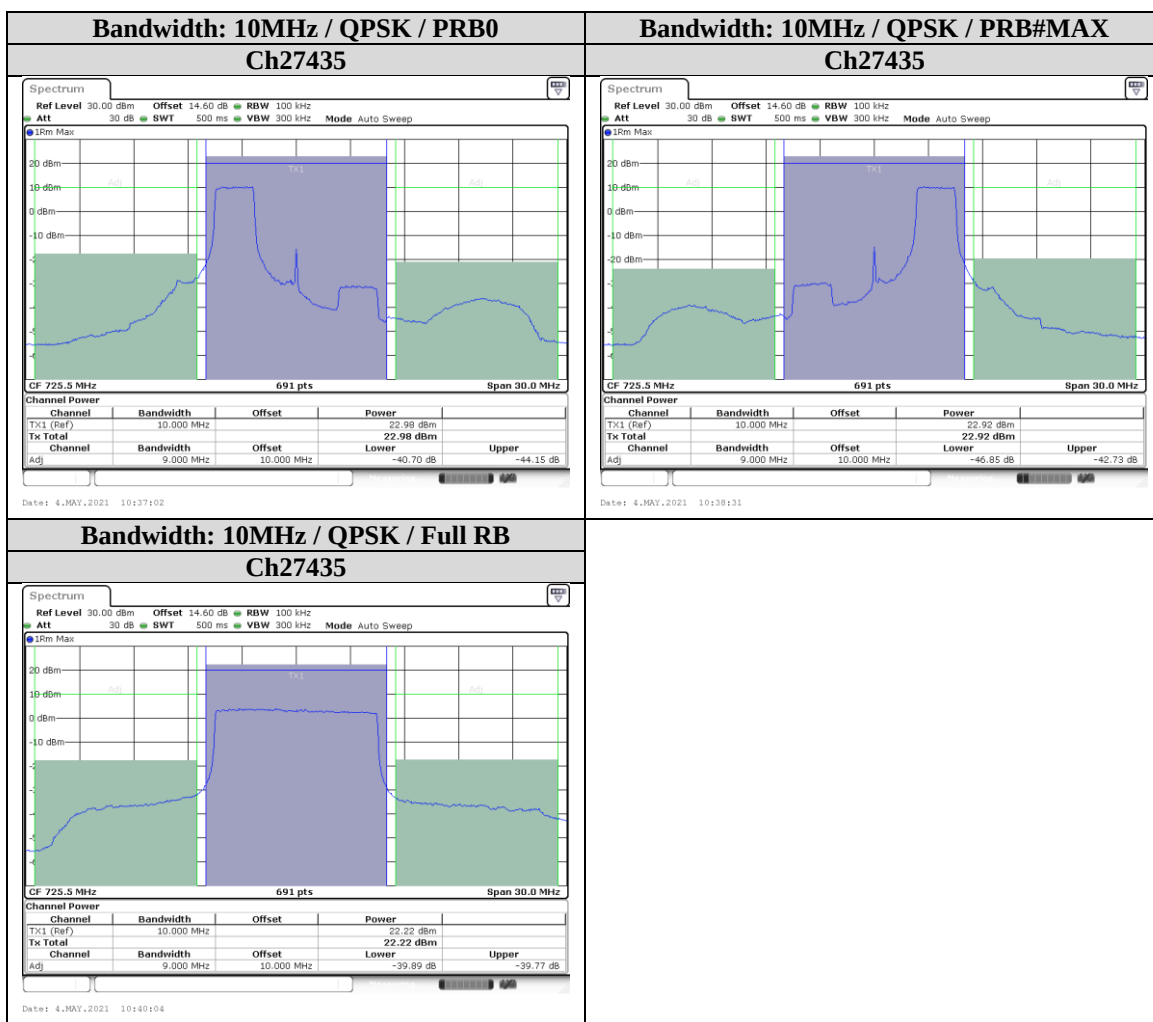
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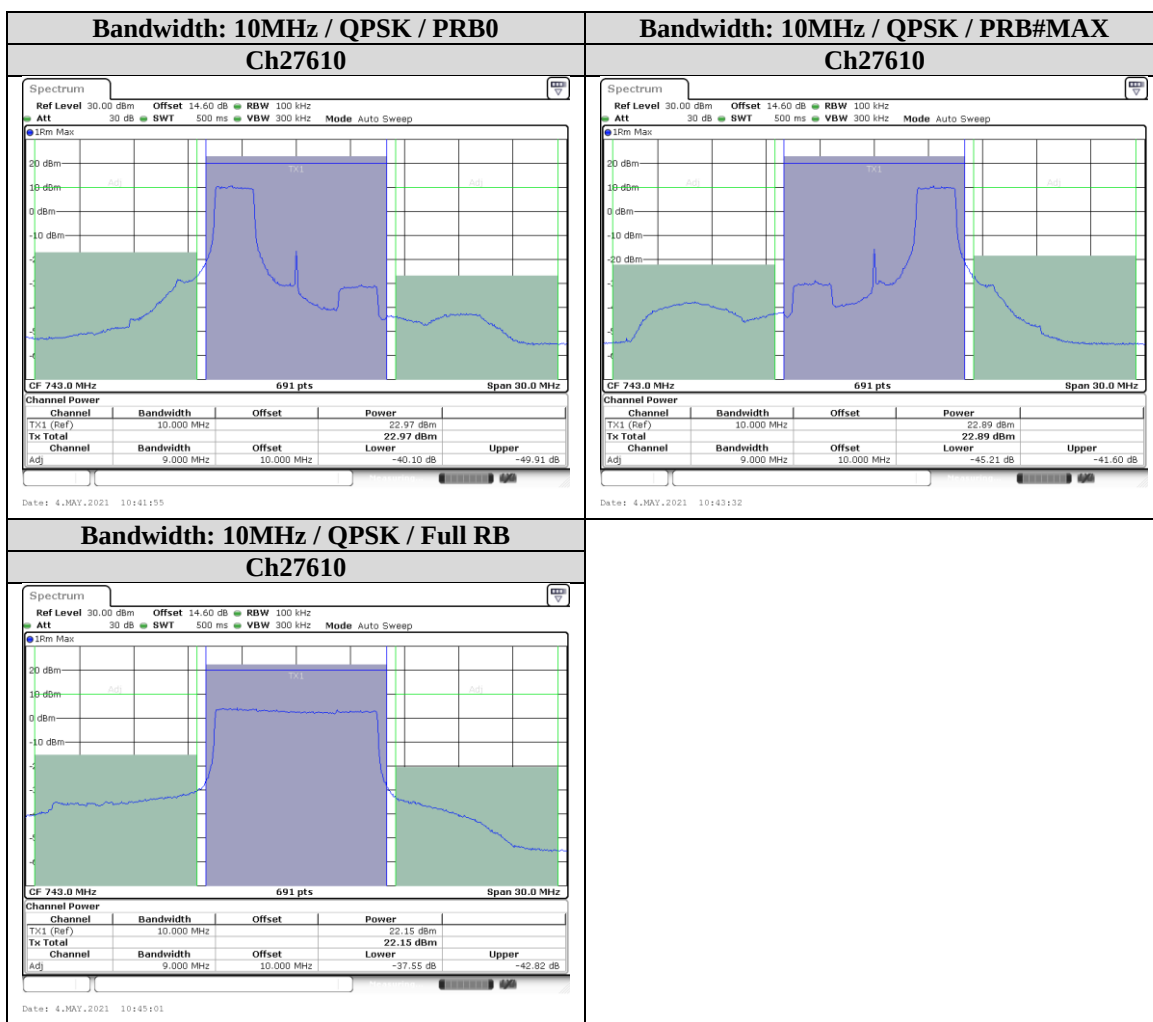
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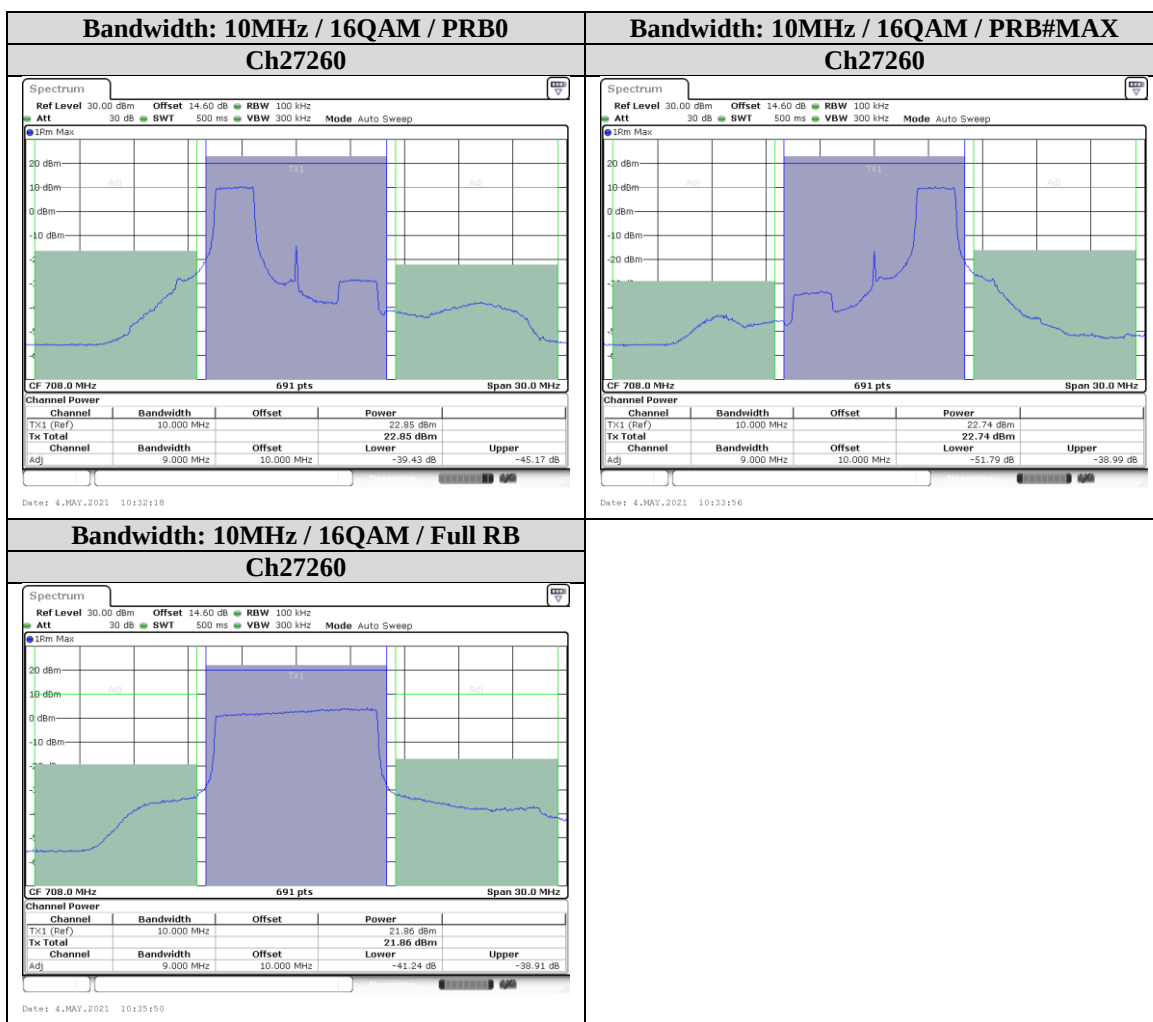
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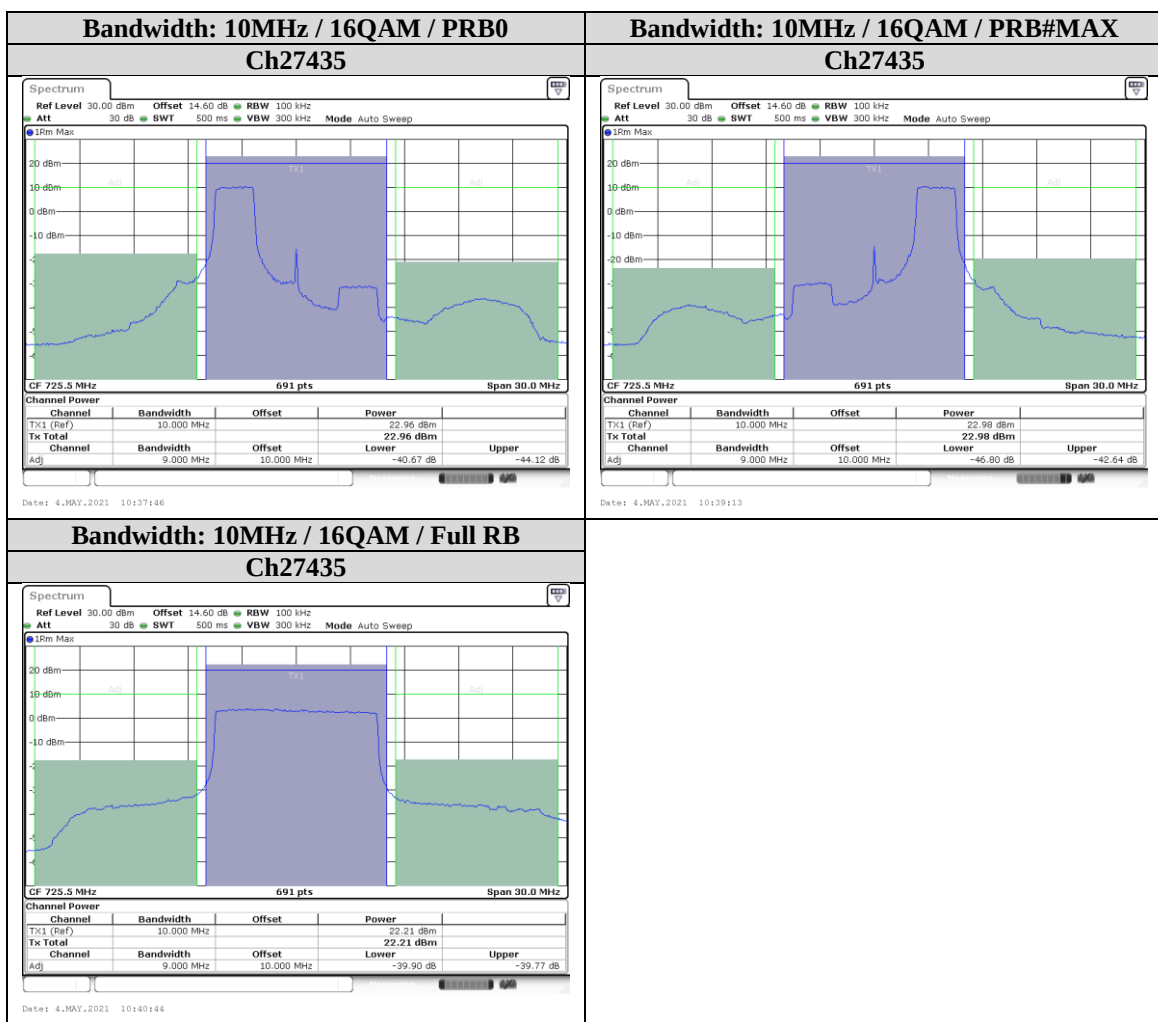
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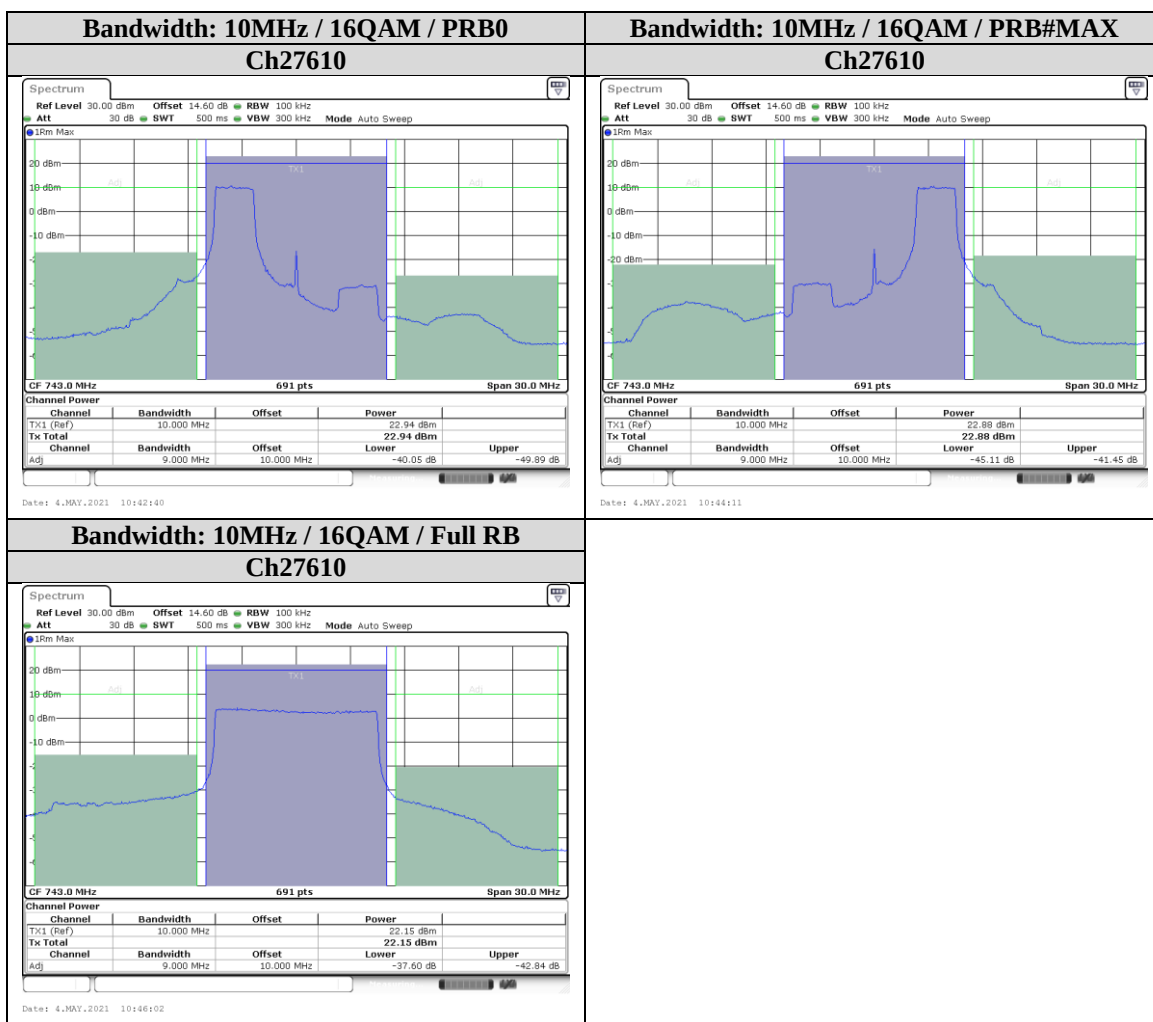
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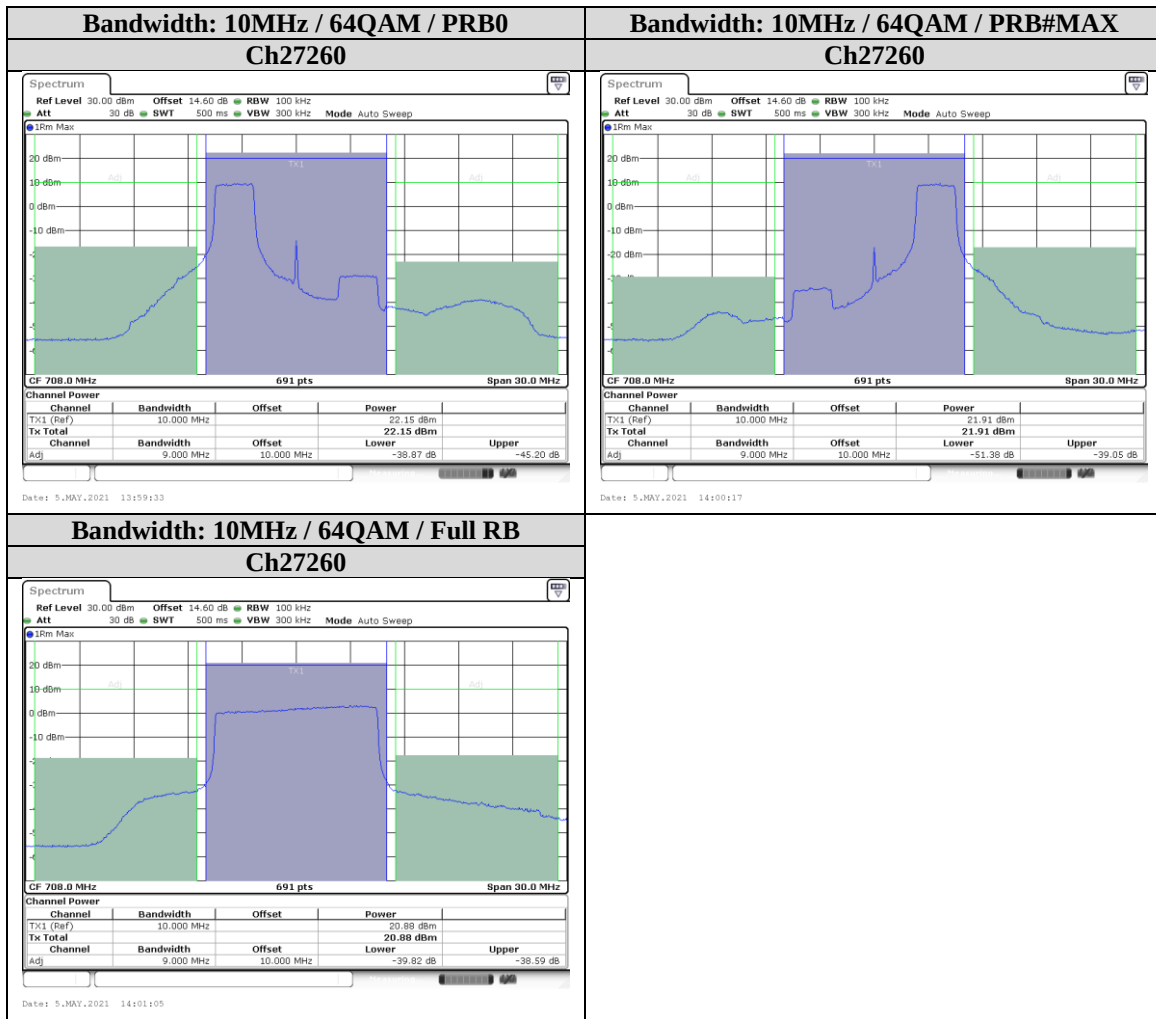
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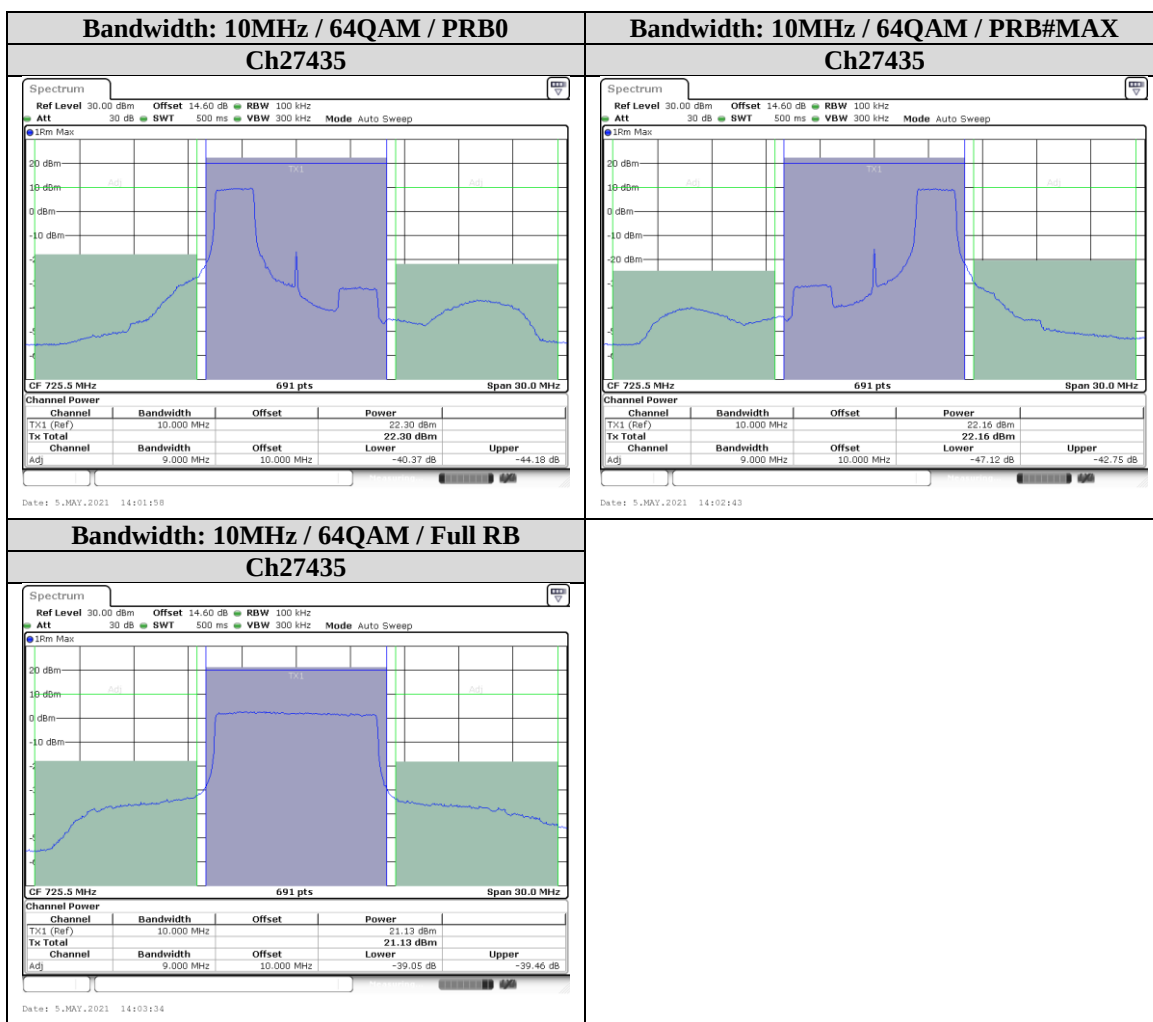
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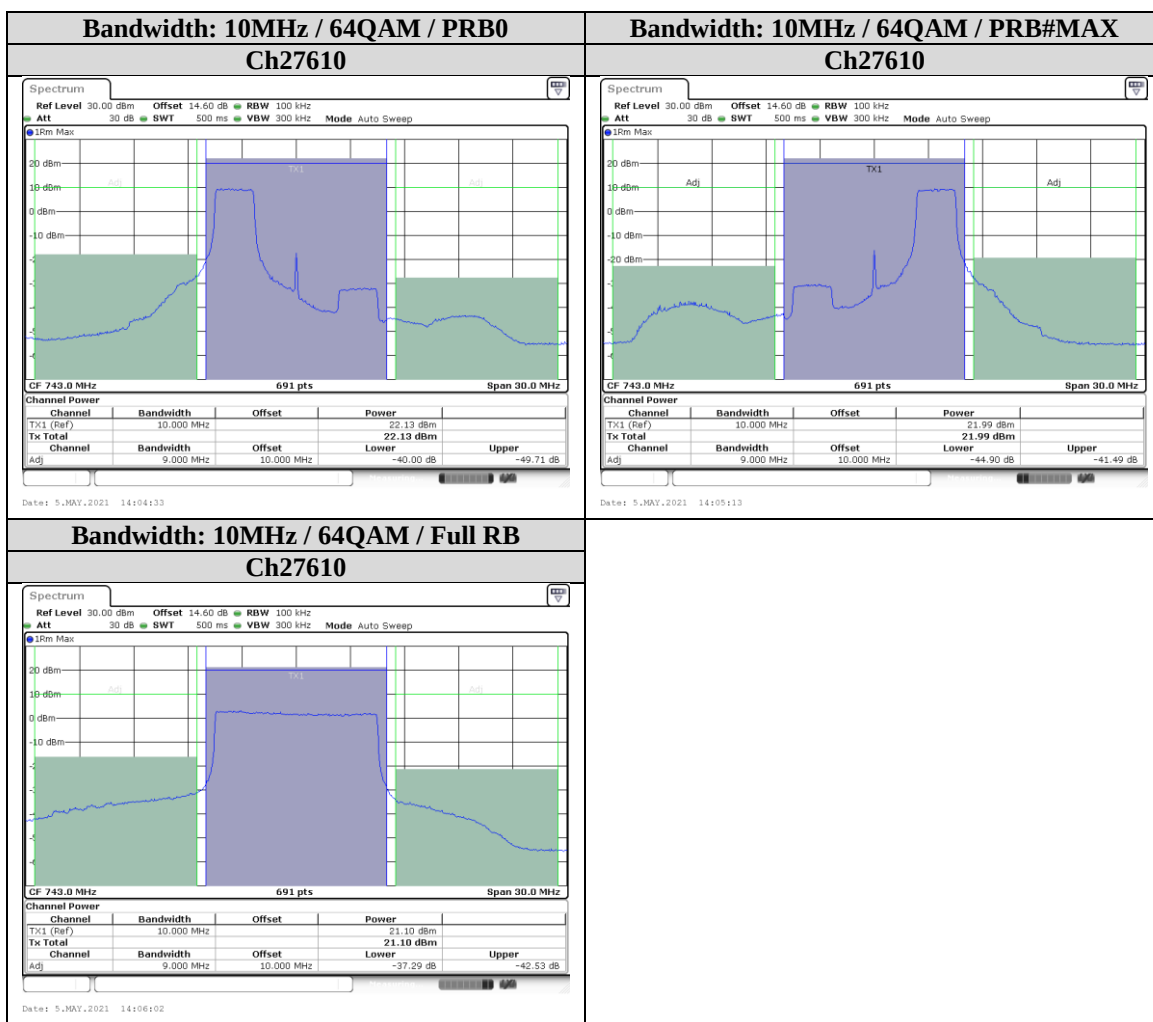
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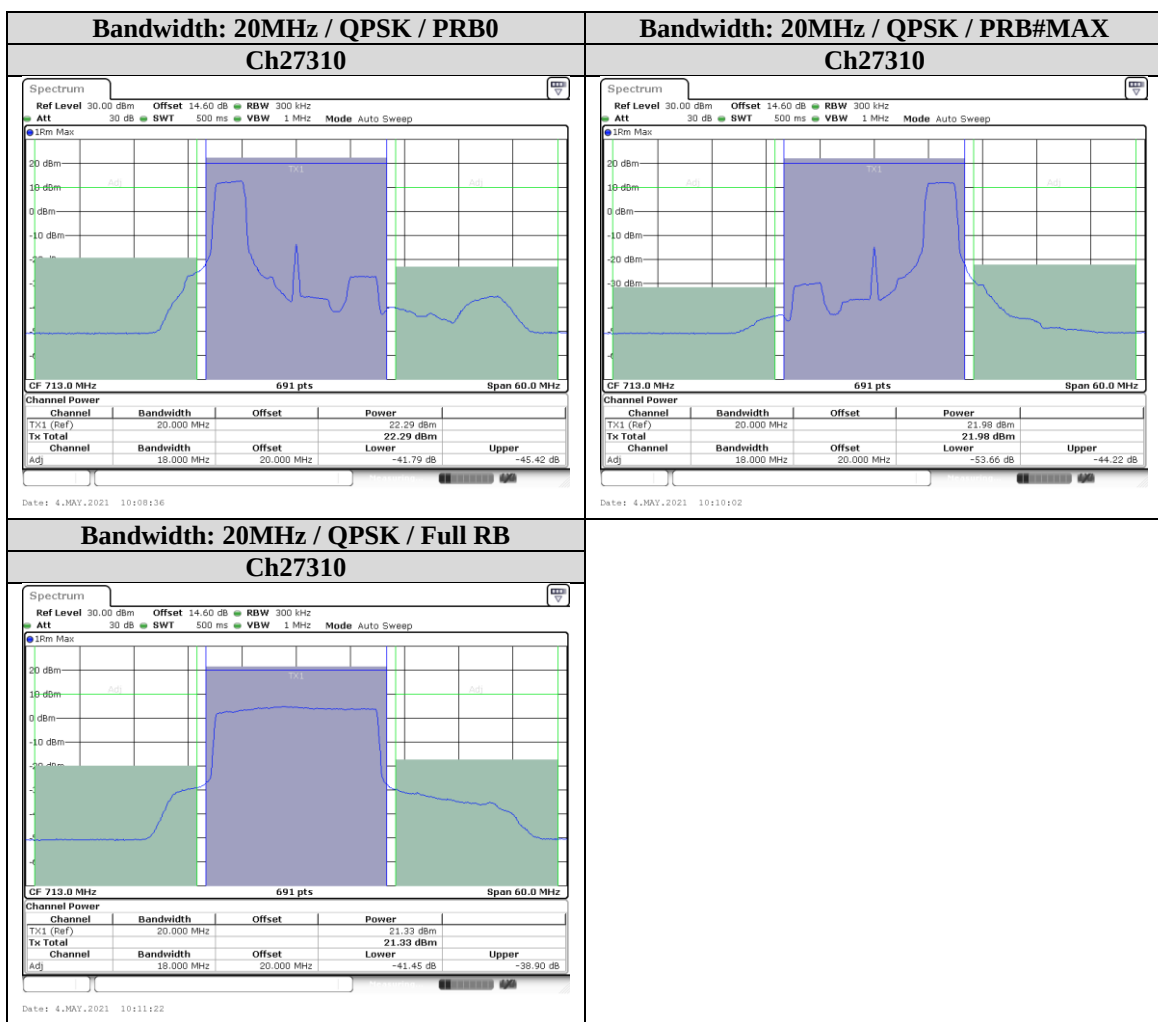
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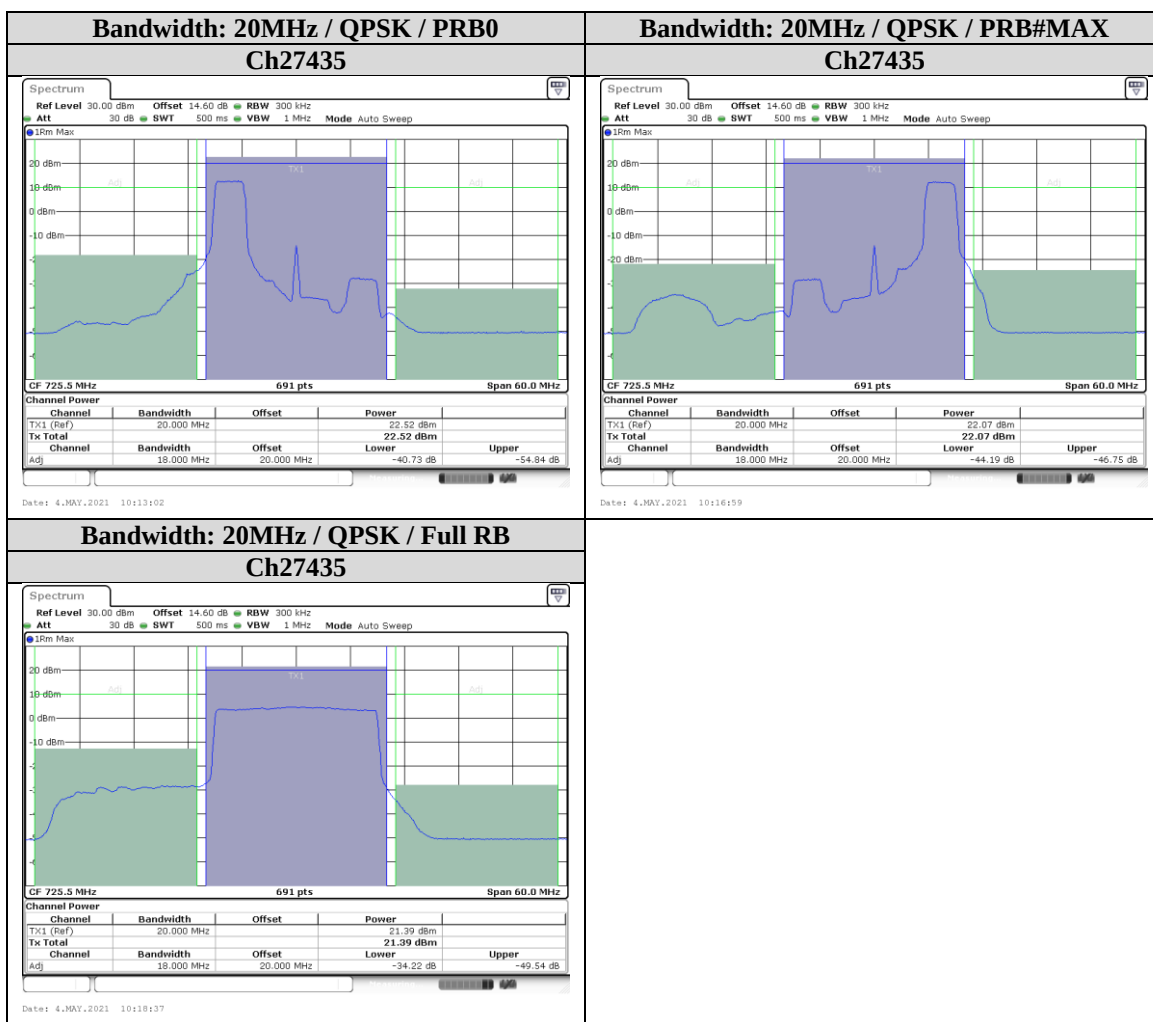
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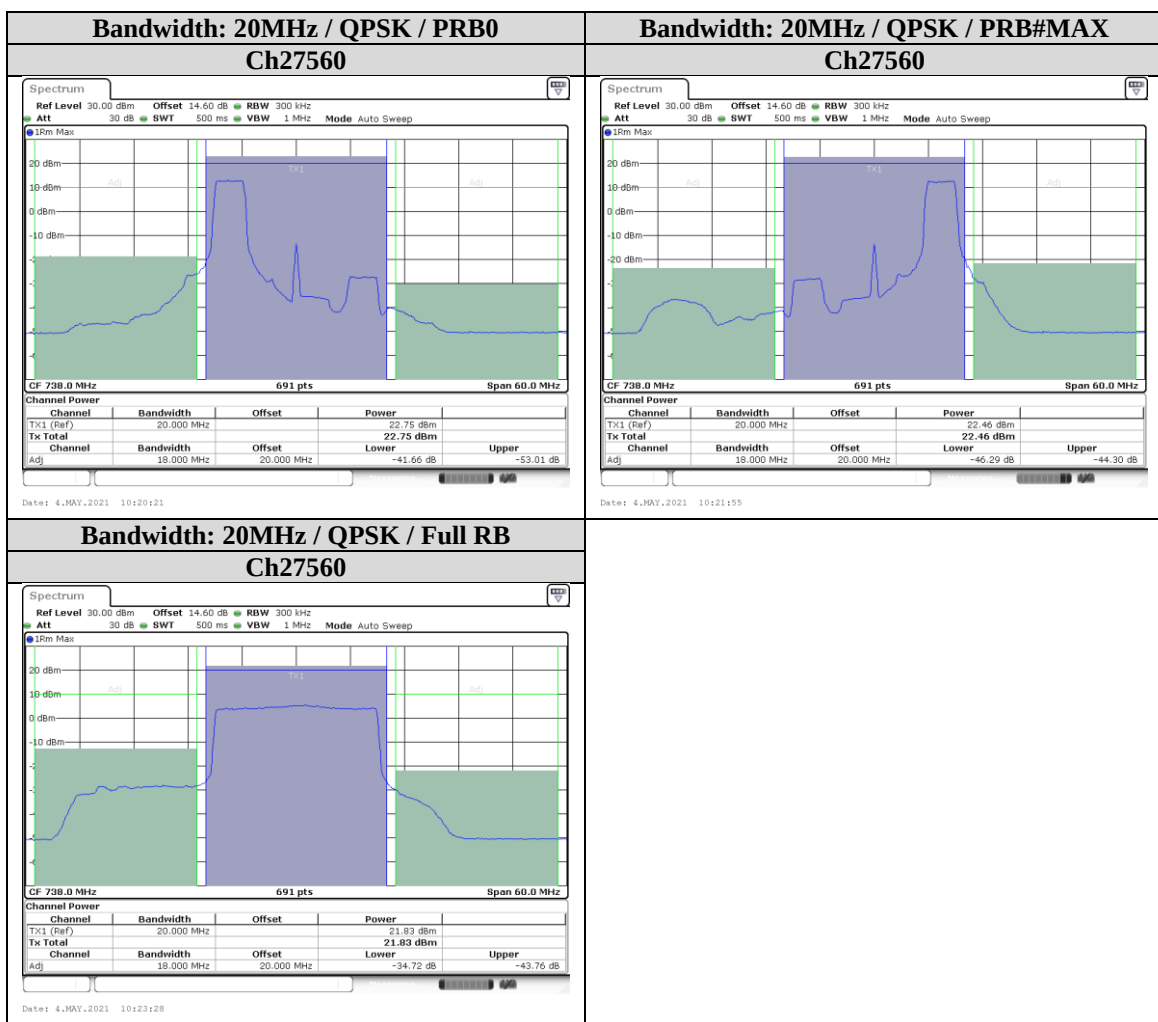
Doc No: 17-EM-F0943 / 4.0



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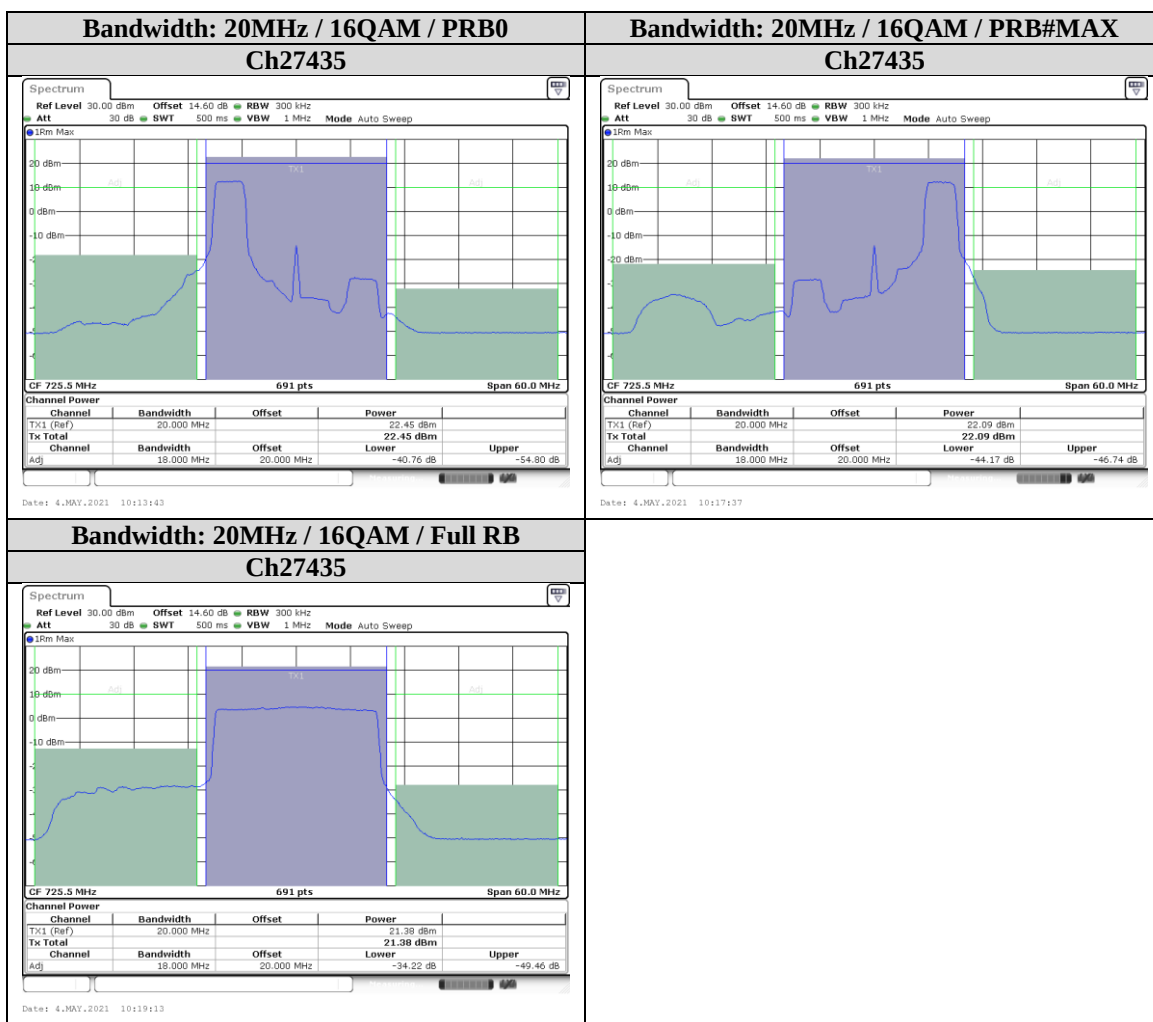
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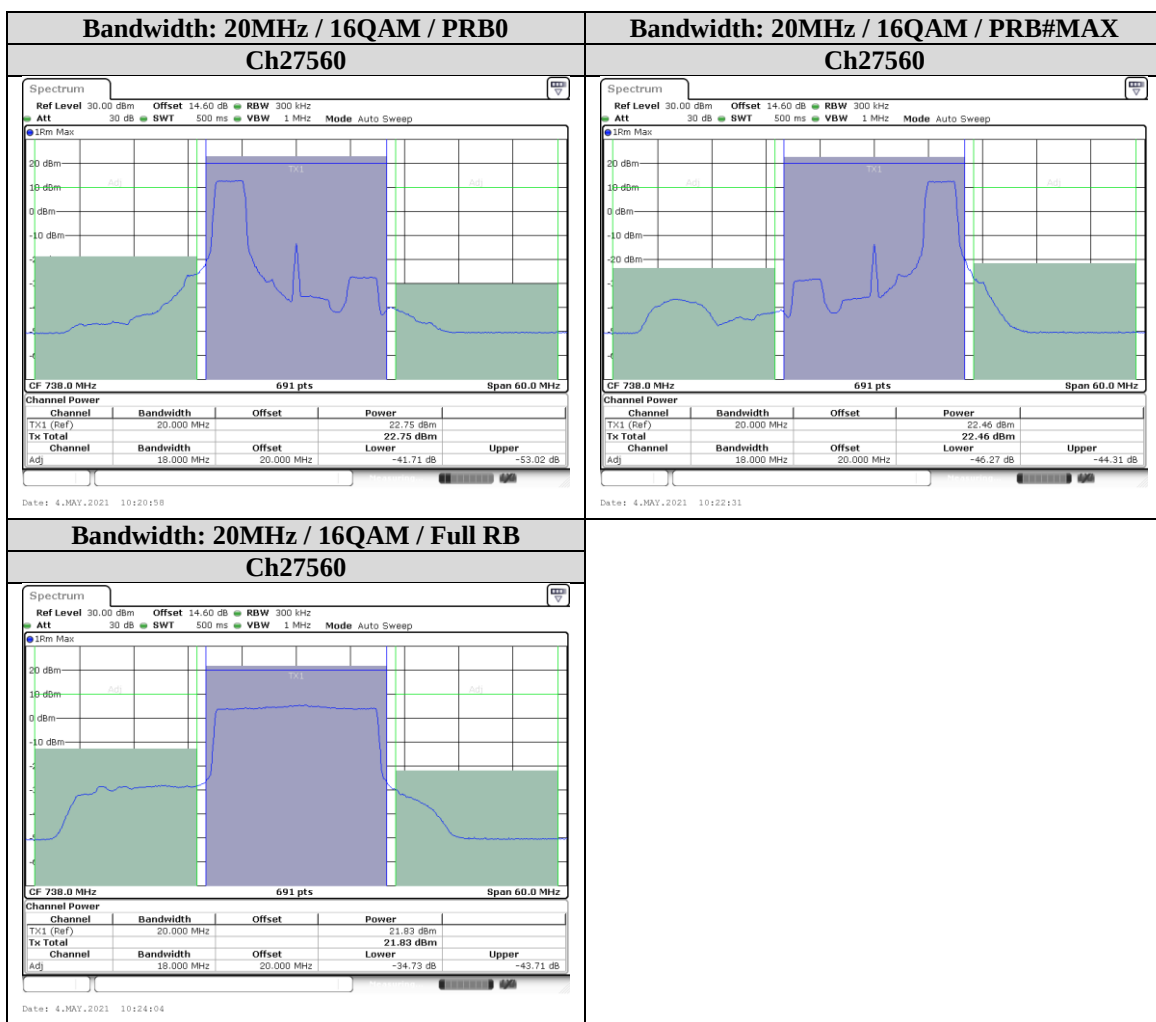
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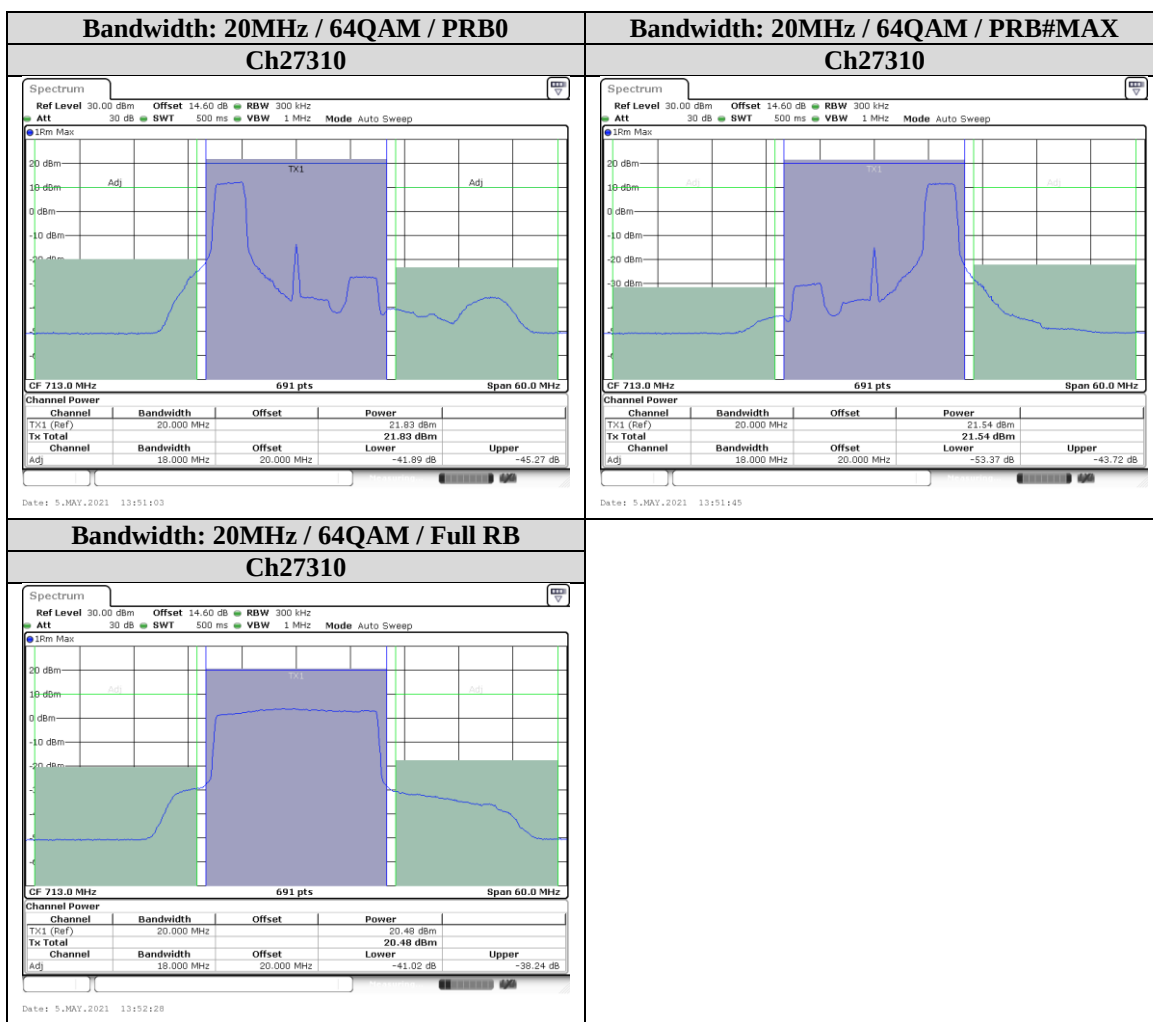
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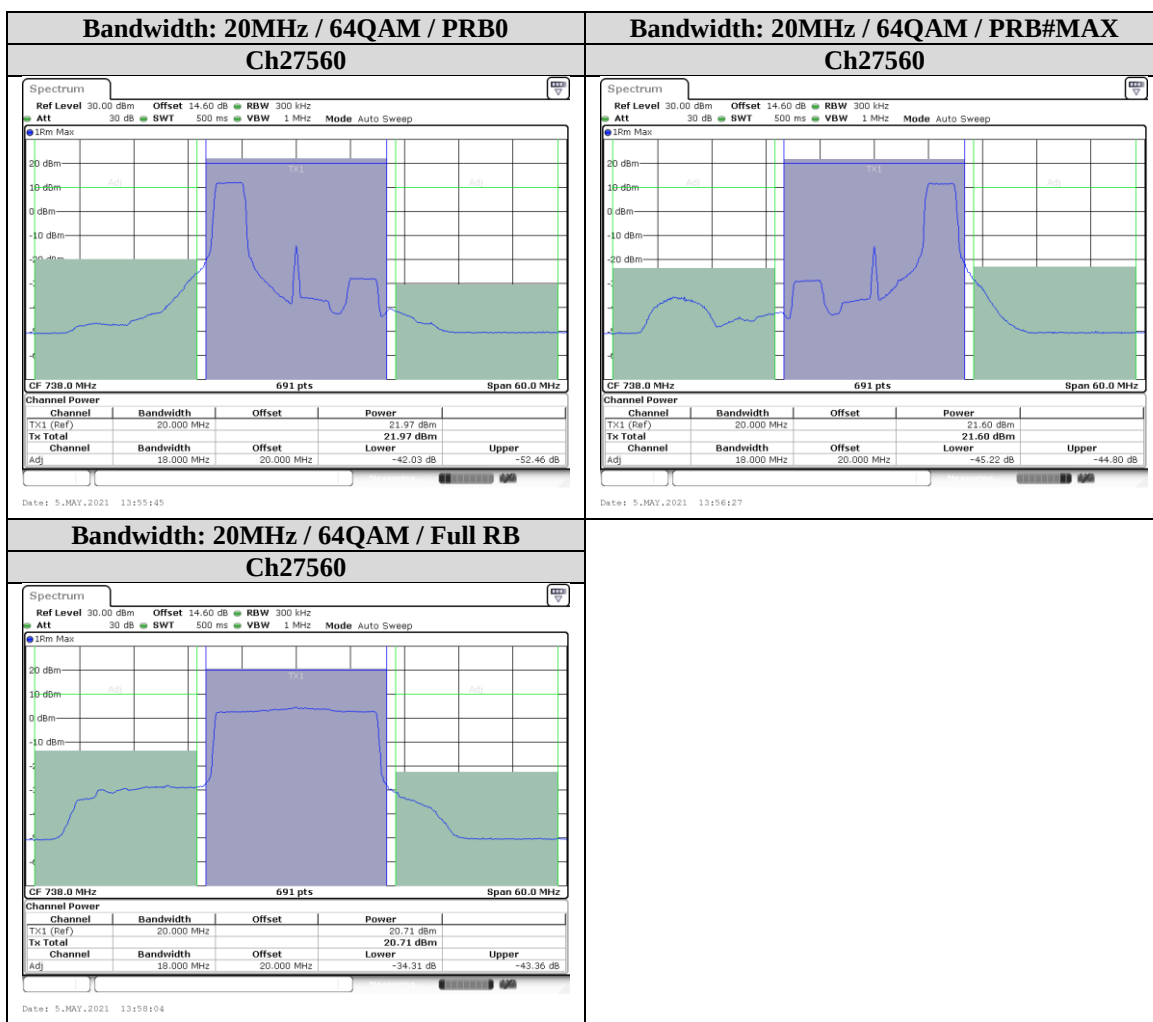
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7. 頻率容許差度

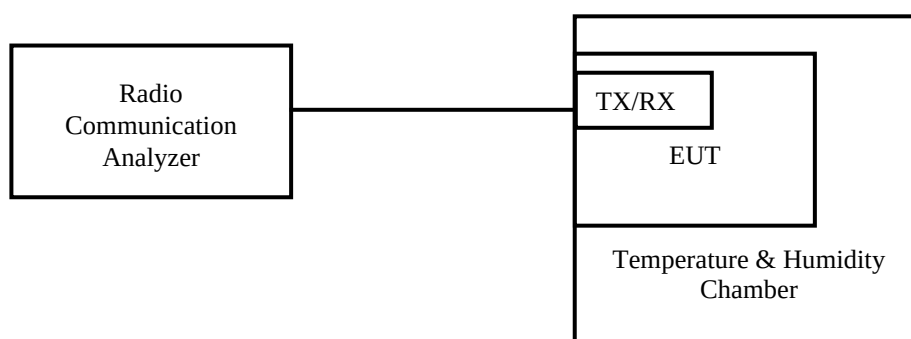
7.1 適用標準

- (1) 常態環境溫度範圍為+15°C至+50°C，濕度範圍為 25%至 75%；極端環境溫度範圍為-40°C至+50°C。
- (2) 依第(1)點測試環境條件，終端設備於常態環境常態電壓、低極端溫度低極端電壓、低極端溫度高極端電壓、高極端溫度低極端電壓、高極端溫度高極端電壓等五種測試環境下，分別進行頻率量測，經 0/2/5/10 分鐘量測結果，頻率應維持在頻道之主波頻率 0.1ppm 以內。

7.2 量測方法

- (1) 將未供電之受測物置於環境溫櫃中，供應受測物標稱之交流電源或使用全新或充電完全之電池。若可行，則將天線連接至受測物之天線輸出接頭。
- (2) 關閉受測物且置之於環境溫櫃中，設定至適用規範指定之最高溫度。對正常持續操作之裝置，當置於溫櫃中時可使受測物運作。
- (3) 使溫櫃之溫度有足夠時間達到穩定，當溫櫃內維持在一定溫度時，啟動受測物，並於開始時、以及啟動後第 2 分鐘、第 5 分鐘與第 10 分鐘測量受測物之操作頻率。在進行此測量之前須確定使溫櫃到達穩定。

7.3 量測配置





7.4 量測結果

LTE Band 1_ Bandwidth 20MHz

Frequency Error																	
溫度 (°C)	電壓 (V)	0 Minute				2 Minute				5 Minute				10 Minute			
		Low Channel		High Channel		Low Channel		High Channel		Low Channel		High Channel		Low Channel		High Channel	
		CH 18100		CH 18500		CH 18100		CH 18500		CH 18100		CH 18500		CH 18100		CH 18500	
		1930.00 MHz		1970.00 MHz		1930.00 MHz		1970.00 MHz		1930.00 MHz		1970.00 MHz		1930.00 MHz		1970.00 MHz	
		(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm
20	24.00	-2.1	-0.0011	-3.8	-0.0019	-2.2	-0.0011	-1.7	-0.0009	-1.4	-0.0007	-4.5	-0.0023	-3.7	-0.0019	-3.4	-0.0017
50	6.00	3.0	0.0016	4.1	0.0021	3.5	0.0018	2.7	0.0014	5.2	0.0027	3.8	0.0019	5.4	0.0028	3.6	0.0018
	32.00	-4.7	-0.0024	-5.8	-0.0029	-4.3	-0.0022	-5.4	-0.0028	-3.7	-0.0019	-4.5	-0.0023	-4.0	-0.0021	-4.6	-0.0023
-20	6.00	5.4	0.0028	4.4	0.0022	5.5	0.0029	6.1	0.0031	4.5	0.0023	3.7	0.0019	3.9	0.0020	5.0	0.0025
	32.00	-5.0	-0.0026	-5.1	-0.0026	-4.5	-0.0023	-3.3	-0.0017	-4.7	-0.0025	-5.6	-0.0028	-4.1	-0.0021	-5.1	-0.0026

註 1：製造商聲明待測物正常工作模式下典型工作電壓為 DC 24V，一般車用電池規格為 12V & 24V。法規定義高極端電壓為 $1.3 \times \text{nominal} = 24\text{Vdc} \times 1.3 = 31.2\text{Vdc}$ ，低極端電壓為 $0.85 \times \text{nominal} = 12\text{Vdc} \times 0.85 = 10.2\text{Vdc}$ ，關機電壓為 4.9Vdc。廠商宣告最大工作電壓範圍 6Vdc ~ 32Vdc，有符合法規要求之範圍。

註 2：製造商聲明待測物正常工作溫度範圍為 -40°C ~ 50°C。

**LTE Band 3_ Bandwidth 20MHz**

Frequency Error																	
溫度 (°C)	電壓 (V)	0 Minute				2 Minute				5 Minute				10 Minute			
		Low Channel		High Channel		Low Channel		High Channel		Low Channel		High Channel		Low Channel		High Channel	
		CH 19300		CH 19850		CH 19300		CH 19850		CH 19300		CH 19850		CH 19300		CH 19850	
		1720.00 MHz		1775.00 MHz		1720.00 MHz		1775.00 MHz		1720.00 MHz		1775.00 MHz		1720.00 MHz		1775.00 MHz	
		(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm
20	24.00	-4.0	-0.0023	-2.9	-0.0017	-3.7	-0.0021	-2.0	-0.0011	-4.4	-0.0026	-4.3	-0.0024	-3.0	-0.0017	-3.8	-0.0021
50	6.00	5.1	0.0029	4.0	0.0022	4.1	0.0024	4.3	0.0024	4.5	0.0026	4.0	0.0022	3.6	0.0021	5.7	0.0032
	32.00	-3.7	-0.0022	-4.8	-0.0027	-3.4	-0.0020	-3.3	-0.0019	-6.5	-0.0038	-4.2	-0.0024	-5.0	-0.0029	-4.2	-0.0024
-20	6.00	5.9	0.0034	5.9	0.0033	6.0	0.0035	4.5	0.0025	5.9	0.0034	3.7	0.0021	3.9	0.0023	6.3	0.0035
	32.00	-2.5	-0.0014	-5.0	-0.0028	-4.2	-0.0024	-3.9	-0.0022	-3.7	-0.0022	-3.4	-0.0019	-2.7	-0.0016	-3.2	-0.0018

註 1：製造商聲明待測物正常工作模式下典型工作電壓為 DC 24V，一般車用電池規格為 12V & 24V。法規定義高極端電壓為 $1.3 \times \text{nominal} = 24\text{Vdc} \times 1.3 = 31.2\text{Vdc}$ ，低極端電壓為 $0.85 \times \text{nominal} = 12\text{Vdc} \times 0.85 = 10.2\text{Vdc}$ ，關機電壓為 4.9Vdc。廠商宣告最大工作電壓範圍 6Vdc ~ 32Vdc，有符合法規要求之範圍。

註 2：製造商聲明待測物正常工作溫度範圍為 -40°C ~ 50°C。

**LTE Band 7_ Bandwidth 20MHz**

Frequency Error																	
溫度 (°C)	電壓 (V)	0 Minute				2 Minute				5 Minute				10 Minute			
		Low Channel		High Channel		Low Channel		High Channel		Low Channel		High Channel		Low Channel		High Channel	
		CH 20850		CH 21350		CH 20850		CH 21350		CH 20850		CH 21350		CH 20850		CH 21350	
		2510.00 MHz		2560.00 MHz		2510.00 MHz		2560.00 MHz		2510.00 MHz		2560.00 MHz		2510.00 MHz		2560.00 MHz	
		(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm
20	24.00	-3.3	-0.0013	-1.4	-0.0005	-1.8	-0.0007	-4.2	-0.0016	-1.5	-0.0006	-2.3	-0.0009	-1.5	-0.0006	-2.8	-0.0011
50	6.00	2.7	0.0011	4.8	0.0019	2.7	0.0011	4.6	0.0018	3.9	0.0015	2.6	0.0010	5.5	0.0022	4.6	0.0018
	32.00	-4.9	-0.0020	-6.2	-0.0024	-5.9	-0.0024	-5.1	-0.0020	-3.6	-0.0014	-4.2	-0.0017	-5.4	-0.0022	-6.0	-0.0023
-20	6.00	3.9	0.0016	5.0	0.0019	4.3	0.0017	4.0	0.0016	6.4	0.0026	6.1	0.0024	5.4	0.0022	4.7	0.0018
	32.00	-4.9	-0.0019	-5.1	-0.0020	-4.3	-0.0017	-3.6	-0.0014	-4.7	-0.0019	-4.5	-0.0018	-2.5	-0.0010	-5.5	-0.0021

註 1：製造商聲明待測物正常工作模式下典型工作電壓為 DC 24V，一般車用電池規格為 12V & 24V。法規定義高極端電壓為 $1.3 \times \text{nominal} = 24\text{Vdc} \times 1.3 = 31.2\text{Vdc}$ ，低極端電壓為 $0.85 \times \text{nominal} = 12\text{Vdc} \times 0.85 = 10.2\text{Vdc}$ ，關機電壓為 4.9Vdc。廠商宣告最大工作電壓範圍 6Vdc ~ 32Vdc，有符合法規要求之範圍。

註 2：製造商聲明待測物正常工作溫度範圍為 -40°C ~ 50°C。

**LTE Band 8_ Bandwidth 10MHz**

Frequency Error																	
溫度 (°C)	電壓 (V)	0 Minute				2 Minute				5 Minute				10 Minute			
		Low Channel		High Channel		Low Channel		High Channel		Low Channel		High Channel		Low Channel		High Channel	
		CH 21550		CH 21750		CH 21550		CH 21750		CH 21550		CH 21750		CH 21550		CH 21750	
		890.00 MHz		910.00 MHz		890.00 MHz		910.00 MHz		890.00 MHz		910.00 MHz		890.00 MHz		910.00 MHz	
		(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm
20	24.00	-2.7	-0.0030	-3.5	-0.0038	-4.4	-0.0049	-2.2	-0.0024	-2.1	-0.0023	-4.3	-0.0047	-1.5	-0.0017	-1.6	-0.0018
50	6.00	5.6	0.0062	5.4	0.0060	4.8	0.0053	3.8	0.0042	3.0	0.0033	5.1	0.0056	3.6	0.0040	3.2	0.0035
	32.00	-5.9	-0.0066	-5.8	-0.0064	-5.6	-0.0063	-6.5	-0.0071	-4.7	-0.0052	-5.5	-0.0060	-3.9	-0.0044	-6.3	-0.0069
-20	6.00	5.3	0.0060	4.4	0.0048	4.1	0.0047	4.8	0.0053	3.6	0.0041	6.0	0.0066	4.5	0.0050	6.2	0.0068
	32.00	-4.3	-0.0048	-3.6	-0.0040	-3.0	-0.0033	-4.7	-0.0052	-2.8	-0.0031	-4.8	-0.0052	-5.0	-0.0056	-3.3	-0.0036

註 1：製造商聲明待測物正常工作模式下典型工作電壓為 DC 24V，一般車用電池規格為 12V & 24V。法規定義高極端電壓為 $1.3 \times \text{nominal} = 24\text{Vdc} \times 1.3 = 31.2\text{Vdc}$ ，低極端電壓為 $0.85 \times \text{nominal} = 12\text{Vdc} \times 0.85 = 10.2\text{Vdc}$ ，關機電壓為 4.9Vdc。廠商宣告最大工作電壓範圍 6Vdc ~ 32Vdc，有符合法規要求之範圍。

註 2：製造商聲明待測物正常工作溫度範圍為 -40°C ~ 50°C。

**LTE Band 28_ Bandwidth 20MHz**

Frequency Error																	
溫度 (°C)	電壓 (V)	0 Minute				2 Minute				5 Minute				10 Minute			
		Low Channel		High Channel		Low Channel		High Channel		Low Channel		High Channel		Low Channel		High Channel	
		CH 27310		CH 27560		CH 27310		CH 27560		CH 27310		CH 27560		CH 27310		CH 27560	
		713.00 MHz		738.00 MHz		713.00 MHz		738.00 MHz		713.00 MHz		738.00 MHz		713.00 MHz		738.00 MHz	
		(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm	(Hz)	ppm
20	24.00	-3.4	-0.0048	-4.0	-0.0054	-4.5	-0.0063	-3.6	-0.0049	-2.3	-0.0032	-3.1	-0.0042	-3.3	-0.0047	-2.4	-0.0033
50	6.00	4.0	0.0057	2.5	0.0034	4.0	0.0057	5.4	0.0074	3.8	0.0053	3.7	0.0049	4.3	0.0060	5.6	0.0076
	32.00	-3.9	-0.0054	-4.2	-0.0056	-6.0	-0.0085	-4.5	-0.0061	-3.9	-0.0055	-3.6	-0.0049	-6.1	-0.0085	-5.7	-0.0077
-20	6.00	6.6	0.0093	6.5	0.0088	5.7	0.0079	4.7	0.0063	5.4	0.0076	4.6	0.0062	6.1	0.0085	3.7	0.0050
	32.00	-4.0	-0.0056	-3.5	-0.0047	-4.2	-0.0059	-4.9	-0.0066	-3.1	-0.0043	-5.2	-0.0070	-3.2	-0.0044	-2.7	-0.0037

註 1：製造商聲明待測物正常工作模式下典型工作電壓為 DC 24V，一般車用電池規格為 12V & 24V。法規定義高極端電壓為 $1.3 \times \text{nominal} = 24\text{Vdc} \times 1.3 = 31.2\text{Vdc}$ ，低極端電壓為 $0.85 \times \text{nominal} = 12\text{Vdc} \times 0.85 = 10.2\text{Vdc}$ ，關機電壓為 4.9Vdc。廠商宣告最大工作電壓範圍 6Vdc ~ 32Vdc，有符合法規要求之範圍。

註 2：製造商聲明待測物正常工作溫度範圍為 -40°C ~ 50°C。



8. 電波功率密度

8.1 適用標準

1. 本項測試適用於移動式行動臺設備。
2. 電波功率密度最大值：
 - (a) 700 MHz 頻段為 0.35 mW/cm²。
 - (b) 900 MHz 頻段為 0.45 mW/cm²。
 - (c) 1800 MHz 頻段為 0.9 mW/cm²。
 - (d) 2500 MHz 與 2600 MHz 頻段為 1.0 mW/cm²。

量測距離為 20 公分，或以設備廠商宣告設備天線與附近人體可活動範圍之距離。

8.2 量測方法

1. 以 3.4 節所測得的最大傳導輸出功率值再加上待測物天線的增益值(Gain)帶入下面公式換算出待測物所輻射的功率密度。
2. $P_d = (P_{out} * G) / (4 * \pi * r^2)$
where
Pd = power density in mW/cm²
Pout = output power to antenna in mW
G = gain of antenna in linear scale
Pi = 3.1416
R = distance between observation point and center of the radiator in cm.

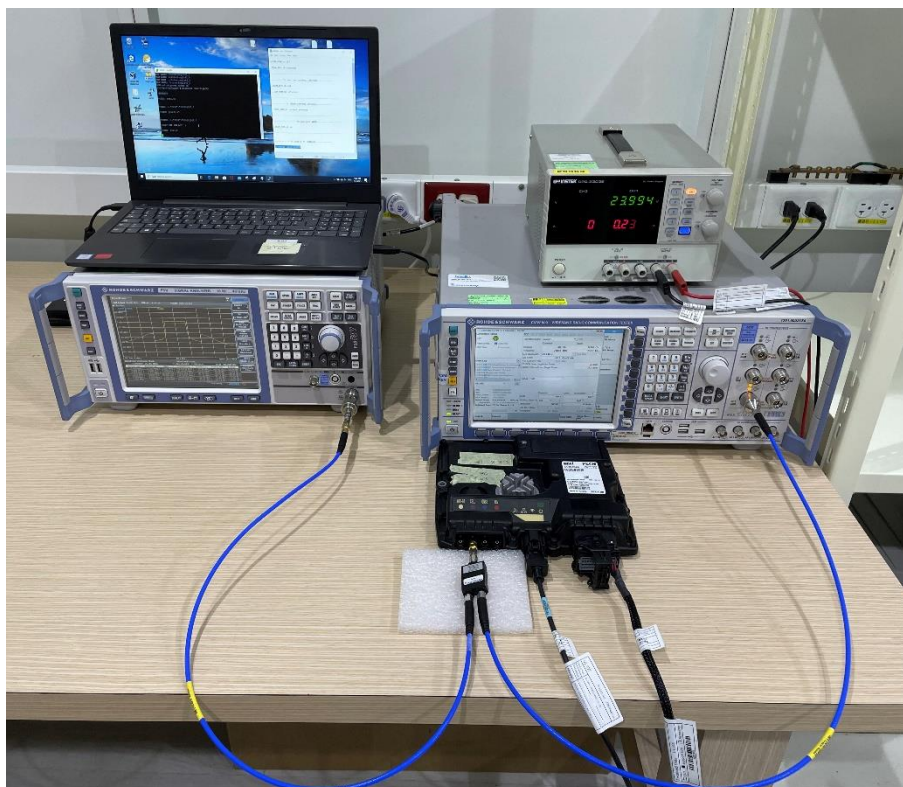
8.3 量測結果

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Pass / Fail
LTE Band 1	22.24	4.5	20	0.09391	1.0000	PASS
LTE Band 3	22.20	4.5	20	0.09305	0.9000	PASS
LTE Band 7	21.67	4	20	0.07341	1.0000	PASS
LTE Band 8	23.28	2	20	0.06710	0.4500	PASS
LTE Band 28	23.43	2	20	0.06946	0.3500	PASS



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附錄 I 測試配置照片



END OF REPORT

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