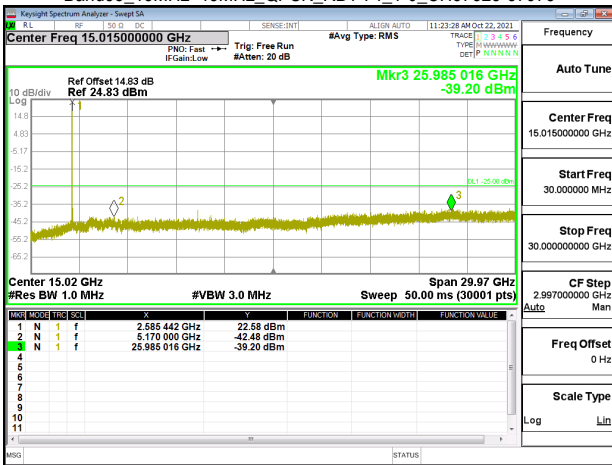
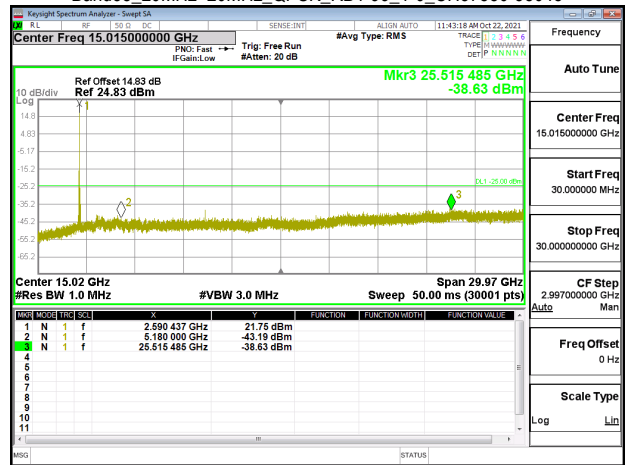


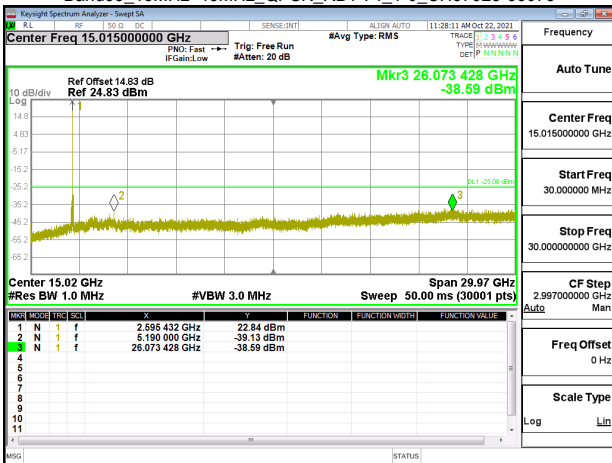
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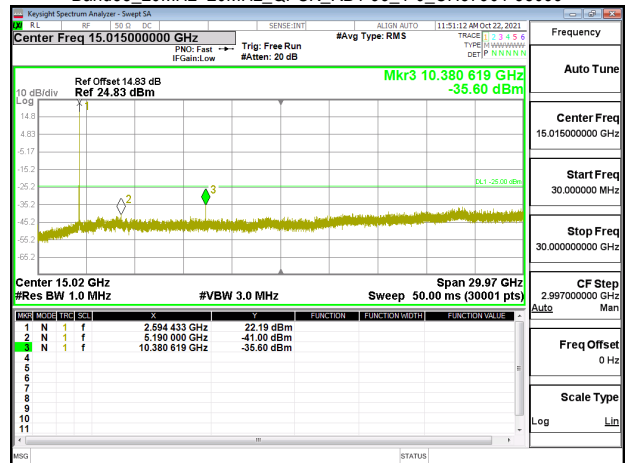
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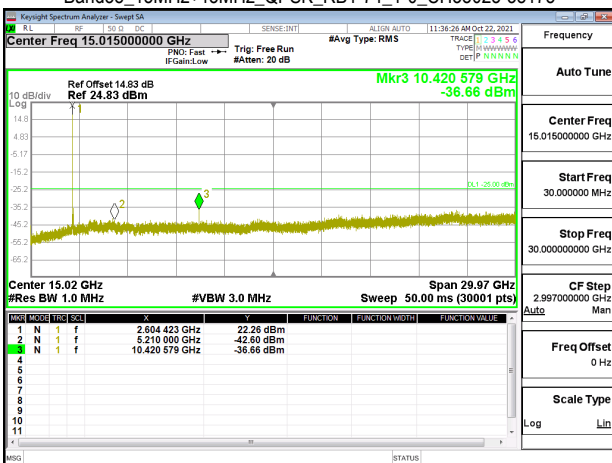
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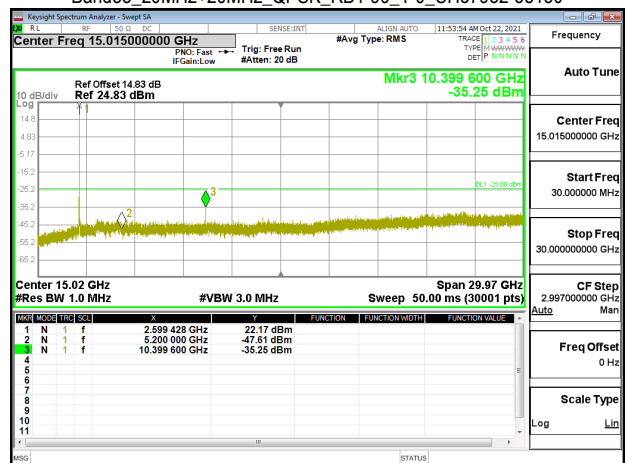
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Band38\_20MHz+20MHz\_QPSK\_RB1-99\_1-0\_CH37952-38150

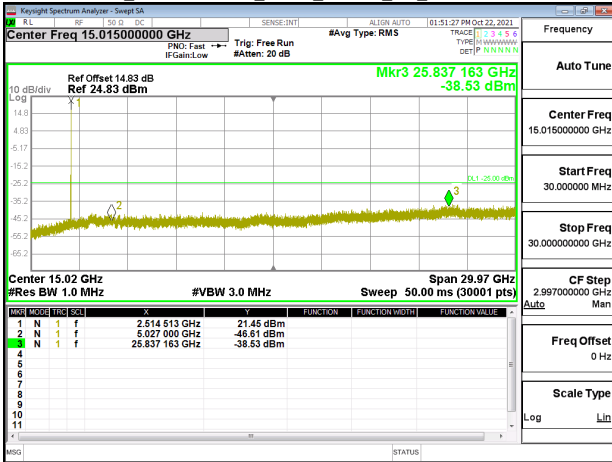


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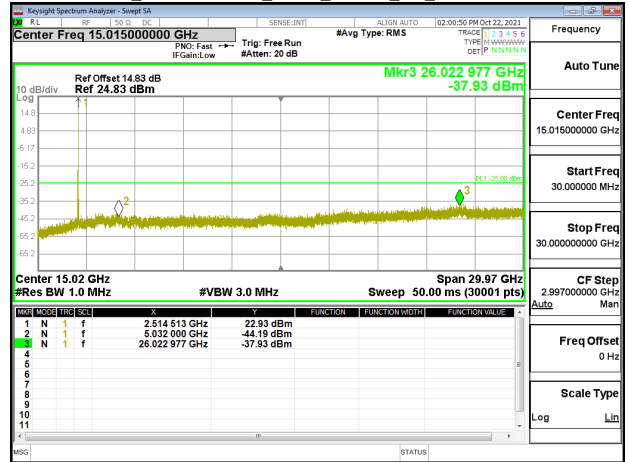
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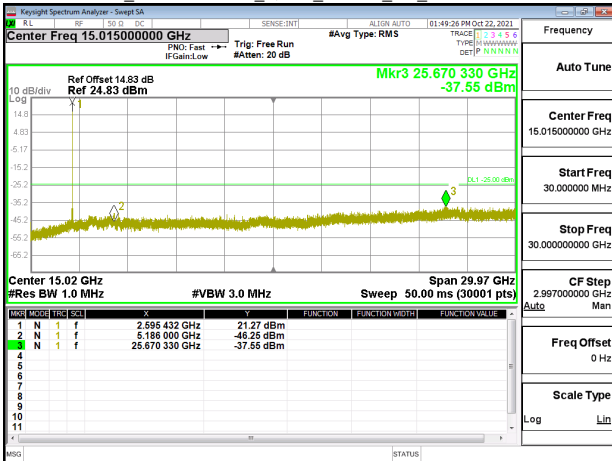
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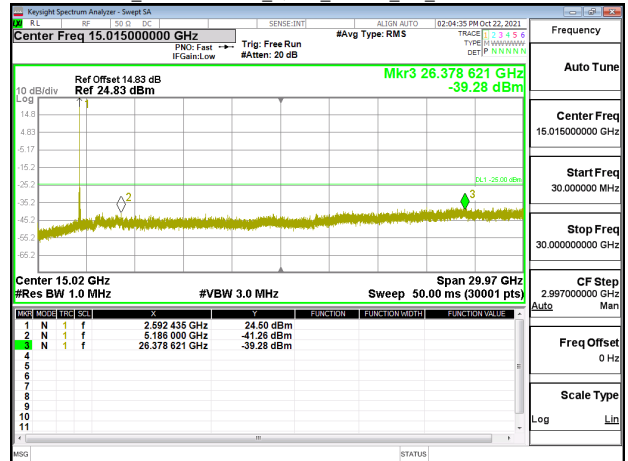
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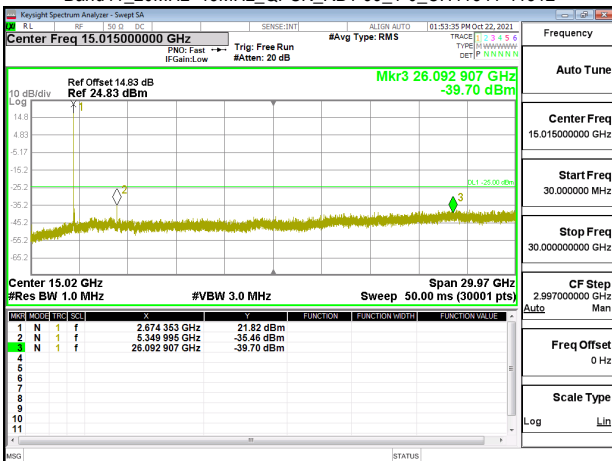
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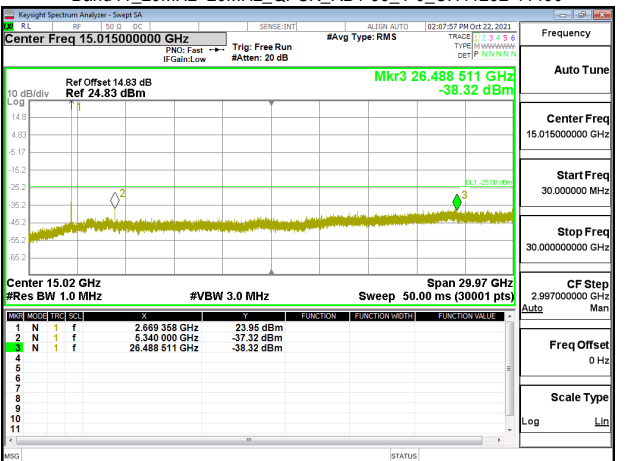
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Band41\_20MHz+15MHz\_QPSK\_RB1-99\_1-0\_CH41341-41512



Band41\_20MHz+20MHz\_QPSK\_RB1-99\_1-0\_CH41292-41490



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## 10 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

### 10.1 Standard Applicable

According to FCC §2.1053,  
**FCC §22.917(a), §27.53(h)**  
**RSS-132 §5.5, RSS-199 §4.5**

Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

#### **FCC §27.53(m) (4) (6)**

For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log(P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log(P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log(P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less than  $43 + 10 \log(P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log(P)$  dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). 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. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

#### **ISED RSS-132 §5.5**

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

- i. In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} P$  (watts).
- ii. After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least  $43 + 10 \log_{10} P$  (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

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**RSS-199 §4.5**

In the 1 MHz band immediately outside and adjacent to the channel edge, the unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth for base station and fixed subscriber equipment, and 2% for mobile subscriber equipment. Beyond the 1 MHz band, a resolution bandwidth of 1 MHz shall be used. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz, or 1% or 2% of the occupied bandwidth, as applicable.

Equipment shall comply with the following unwanted emission limits:

for base station and fixed subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least  $43 + 10 \log_{10} p$

for mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least:

$40 + 10 \log_{10} p$  from the channel edges to 5 MHz away

$43 + 10 \log_{10} p$  between 5 MHz and X MHz from the channel edges, and

$55 + 10 \log_{10} p$  at X MHz and beyond from the channel edges

In addition, the attenuation shall not be less than  $43 + 10 \log_{10} p$  on all frequencies between 2490.5 MHz and 2496 MHz, and  $55 + 10 \log_{10} p$  at or below 2490.5 MHz.

In (a) and (b), p is the transmitter power measured in watts and X is 6 MHz or the equipment occupied bandwidth, whichever is greater.

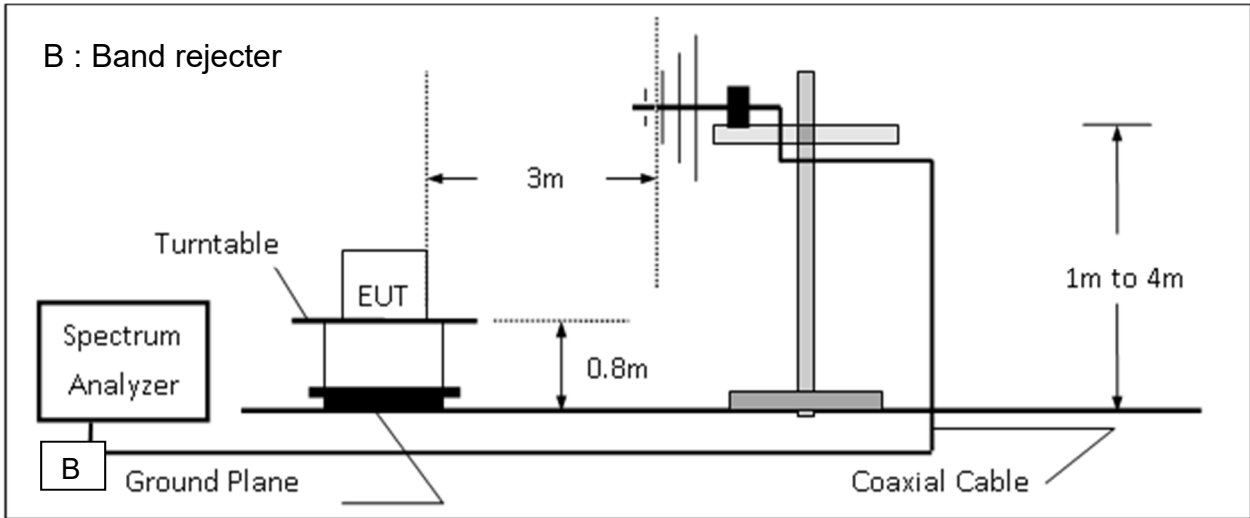
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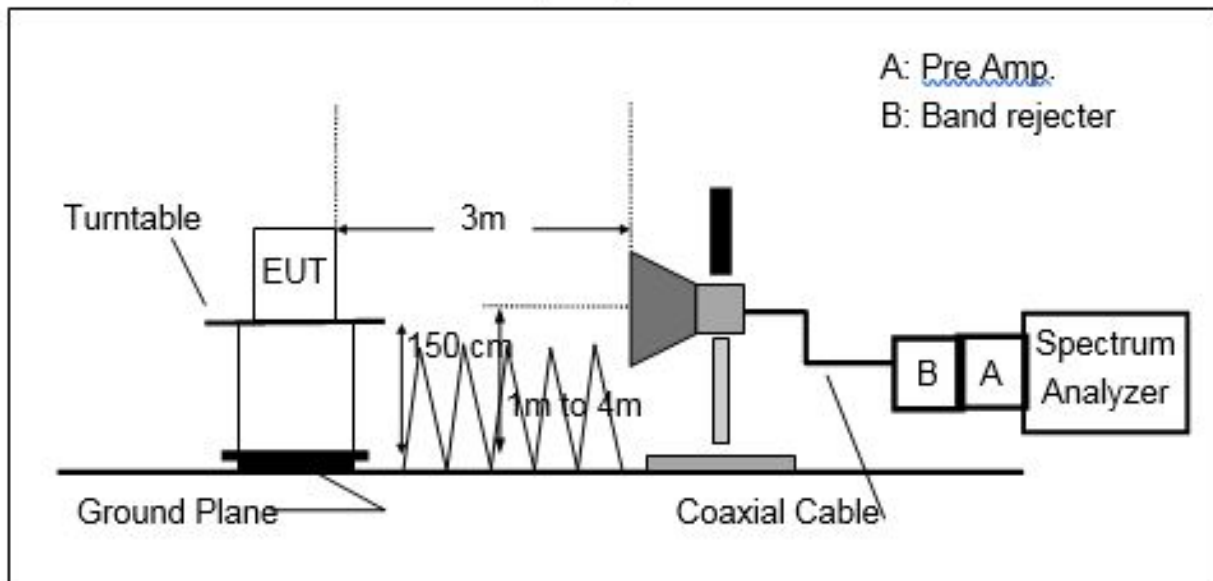
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## 10.2 EUT Setup

### Radiated Emission Test Set-Up, Frequency Below 1000MHz



### Radiated Emission Test Set-UP Frequency Over 1 GHz



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### 10.3 Measurement Procedure:

The EUT was placed on a non-conductive; the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequencies (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP (dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

EIRP (dBm) = SG Level(dBm) + Antenna Gain(dBi) + Cable Loss(dB)

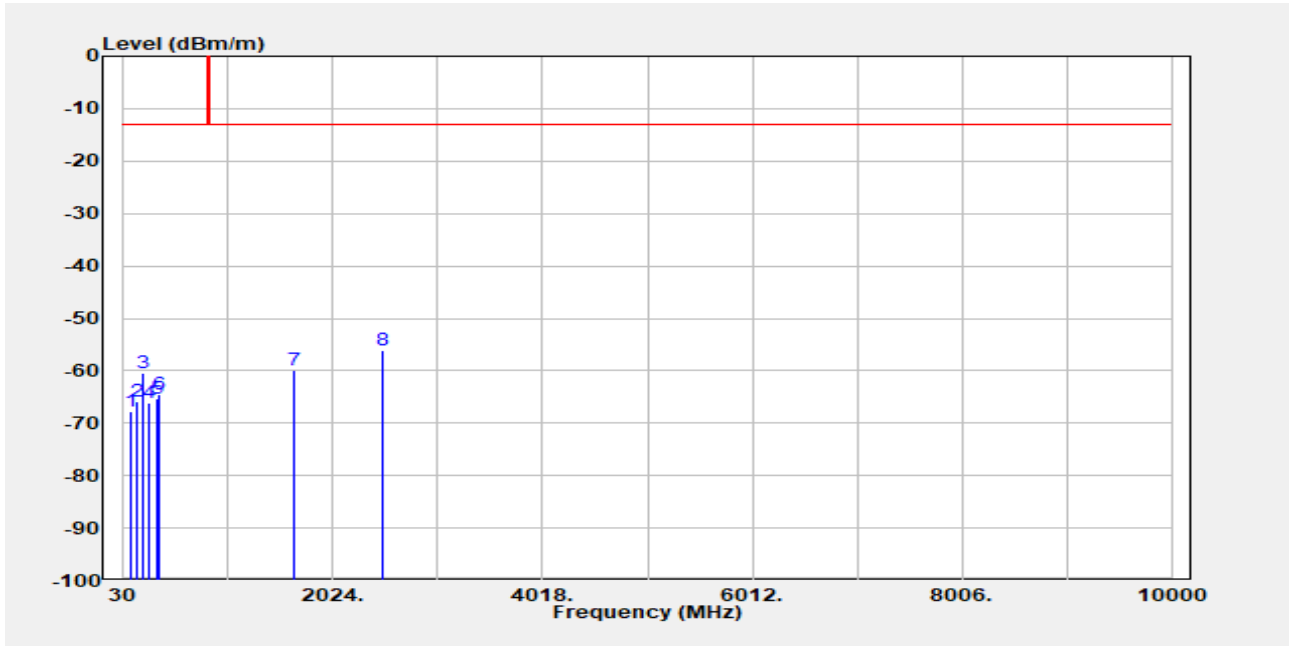
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**10.4 Measurement Result:**

Report Number	:ER/2021/A0030	Test Site	:SAC 1
Operation Mode	:ULCA 5C	Test Date	:2021-11-12
Test Mode	:Tx CH Low	Temp./Humi.	:23.8/53
EUT Pol	:H Plane	Antenna Pol.	:Vertical
Test Frequency	:826.8_834 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
101.13	-67.77	-65.88	-0.88	-1.02	-13.00	-54.77
149.63	-65.87	-63.10	-1.62	-1.15	-13.00	-52.87
222.38	-60.54	-64.06	5.03	-1.50	-13.00	-47.54
269.27	-66.11	-68.61	4.14	-1.64	-13.00	-53.11
348.48	-65.39	-67.90	4.52	-2.01	-13.00	-52.39
371.12	-64.49	-66.85	4.35	-1.99	-13.00	-51.49
1660.80	-59.91	-65.16	9.52	-4.27	-13.00	-46.91
2491.20	-56.07	-61.48	10.58	-5.18	-13.00	-43.07

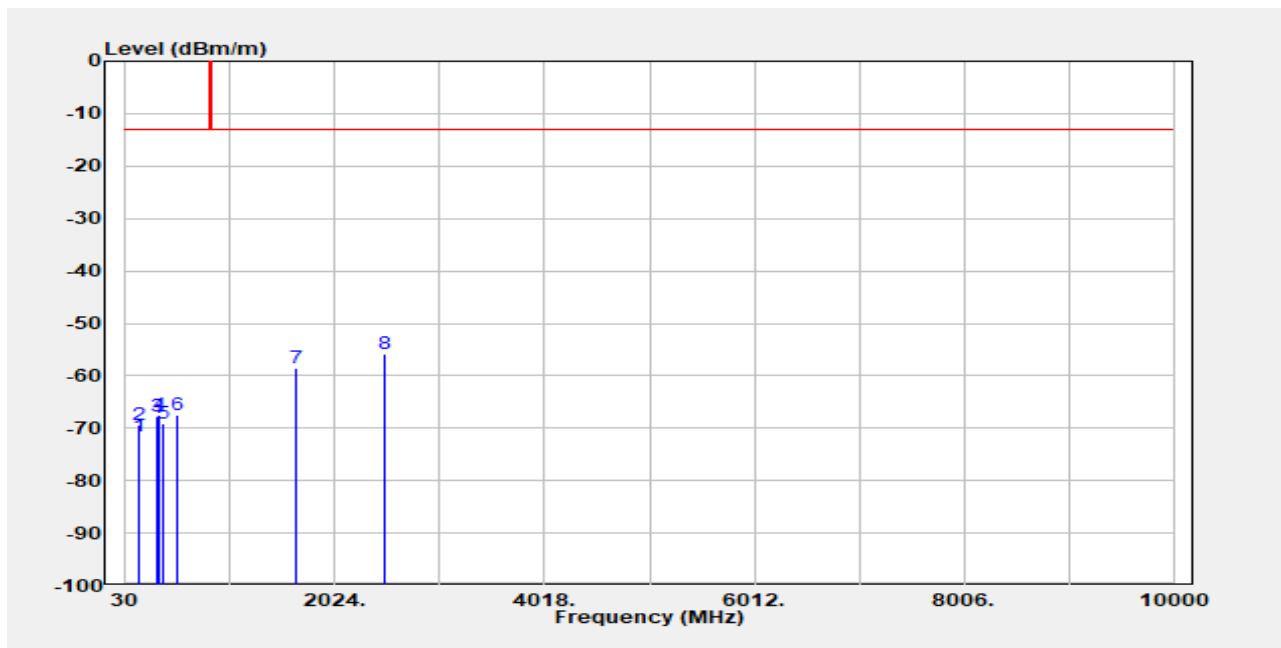
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 5C  
 Test Mode :Tx CH Low  
 EUT Pol :H Plane  
 Test Frequency :826.8\_834 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
149.63	-71.65	-68.88	-1.62	-1.15	-13.00	-58.65
164.18	-69.38	-67.24	-0.88	-1.26	-13.00	-56.38
335.55	-67.74	-70.13	4.28	-1.90	-13.00	-54.74
348.48	-67.39	-69.90	4.52	-2.01	-13.00	-54.39
388.90	-69.21	-71.57	4.40	-2.04	-13.00	-56.21
519.85	-67.61	-69.51	4.10	-2.20	-13.00	-54.61
1660.80	-58.52	-63.77	9.52	-4.27	-13.00	-45.52
2491.20	-55.73	-61.13	10.58	-5.18	-13.00	-42.73

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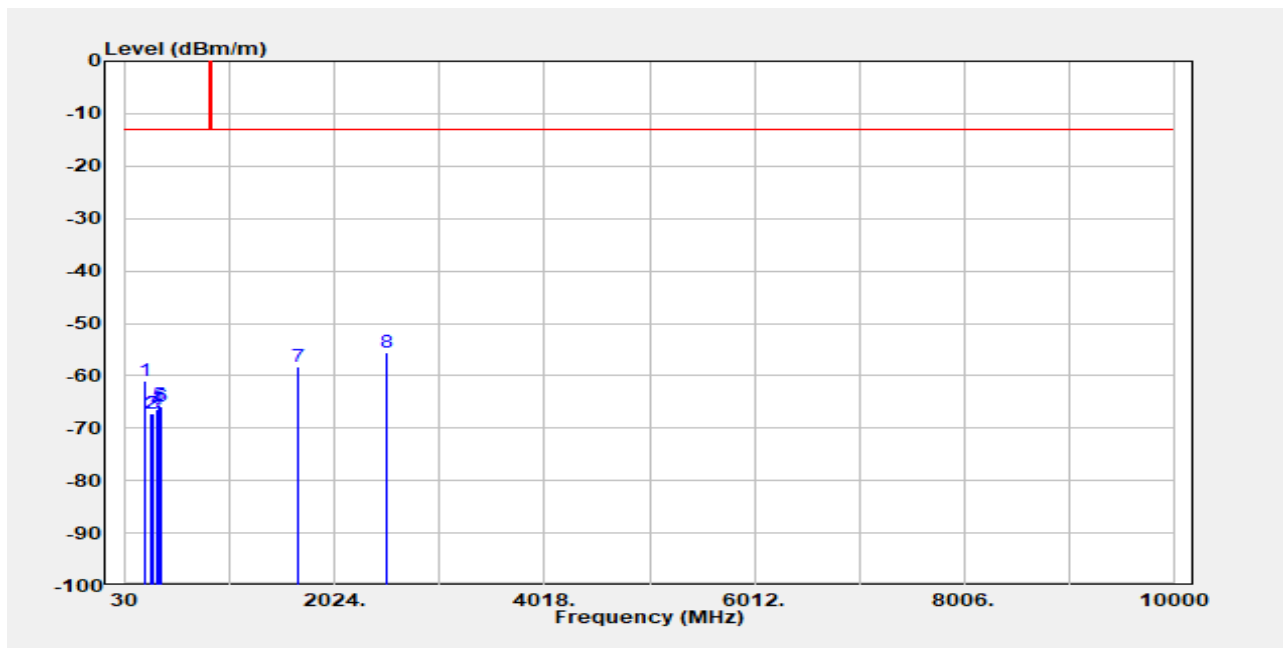
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 5C  
 Test Mode :Tx CH Mid  
 EUT Pol :H Plane  
 Test Frequency :831.8\_839 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
222.38	-60.96	-64.48	5.03	-1.50	-13.00	-47.96
269.27	-67.30	-69.80	4.14	-1.64	-13.00	-54.30
296.75	-67.19	-69.55	4.13	-1.77	-13.00	-54.19
335.55	-66.47	-68.85	4.28	-1.90	-13.00	-53.47
348.48	-65.64	-68.16	4.52	-2.01	-13.00	-52.64
371.12	-65.77	-68.13	4.35	-1.99	-13.00	-52.77
1670.80	-58.17	-63.42	9.54	-4.29	-13.00	-45.17
2506.20	-55.45	-60.87	10.61	-5.19	-13.00	-42.45

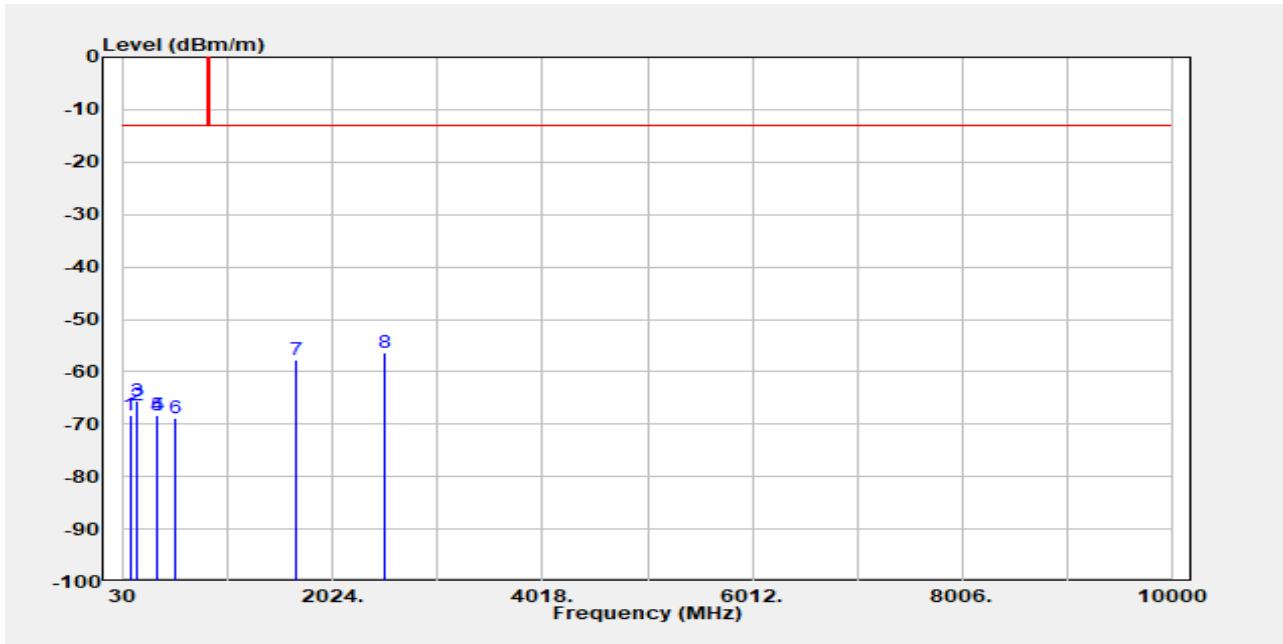
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 5C  
 Test Mode :Tx CH Mid  
 EUT Pol :H Plane  
 Test Frequency :831.8\_839 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-68.37	-66.96	-0.43	-0.98	-13.00	-55.37
149.63	-66.27	-63.50	-1.62	-1.15	-13.00	-53.27
164.18	-65.57	-63.44	-0.88	-1.26	-13.00	-52.57
342.02	-68.34	-70.78	4.36	-1.92	-13.00	-55.34
348.48	-68.22	-70.73	4.52	-2.01	-13.00	-55.22
519.85	-68.83	-70.73	4.10	-2.20	-13.00	-55.83
1670.80	-57.76	-63.02	9.54	-4.29	-13.00	-44.76
2506.20	-56.44	-61.86	10.61	-5.19	-13.00	-43.44

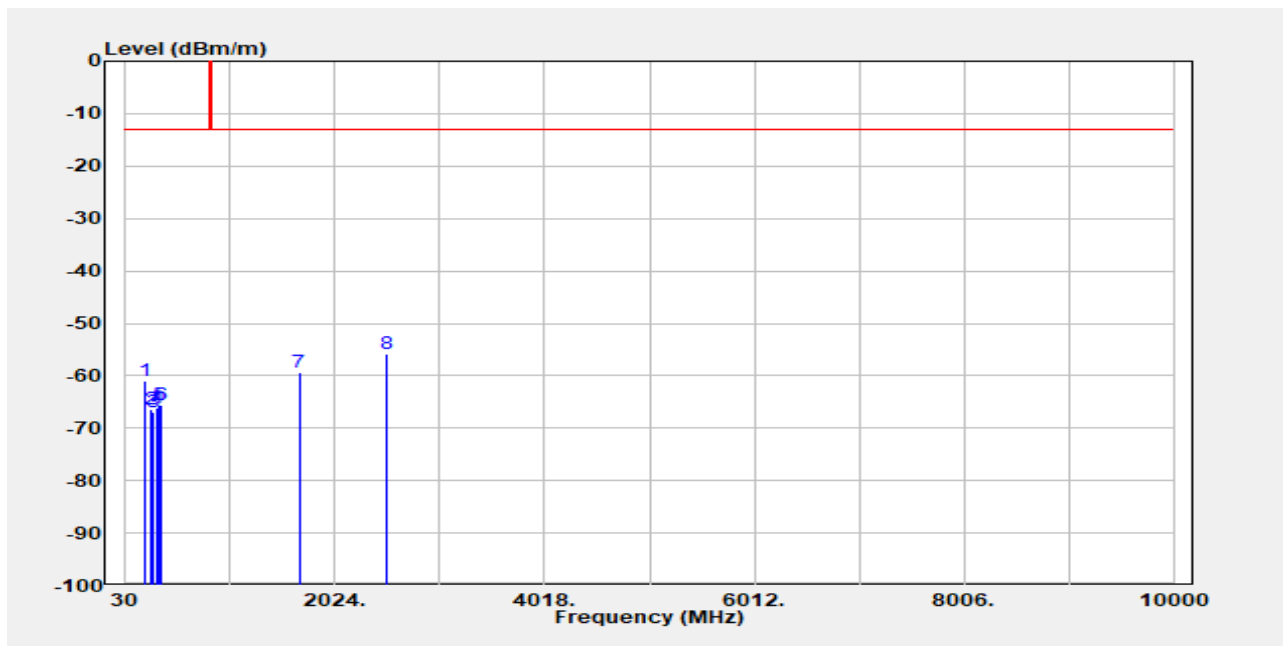
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 5C  
 Test Mode :Tx CH High  
 EUT Pol :H Plane  
 Test Frequency :836.8\_844 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
222.38	-60.86	-64.38	5.03	-1.50	-13.00	-47.86
269.27	-66.35	-68.85	4.14	-1.64	-13.00	-53.35
296.75	-66.96	-69.32	4.13	-1.77	-13.00	-53.96
335.55	-66.22	-68.60	4.28	-1.90	-13.00	-53.22
348.48	-65.45	-67.96	4.52	-2.01	-13.00	-52.45
371.12	-65.55	-67.91	4.35	-1.99	-13.00	-52.55
1680.80	-59.37	-64.63	9.56	-4.30	-13.00	-46.37
2521.20	-55.72	-61.15	10.64	-5.21	-13.00	-42.72

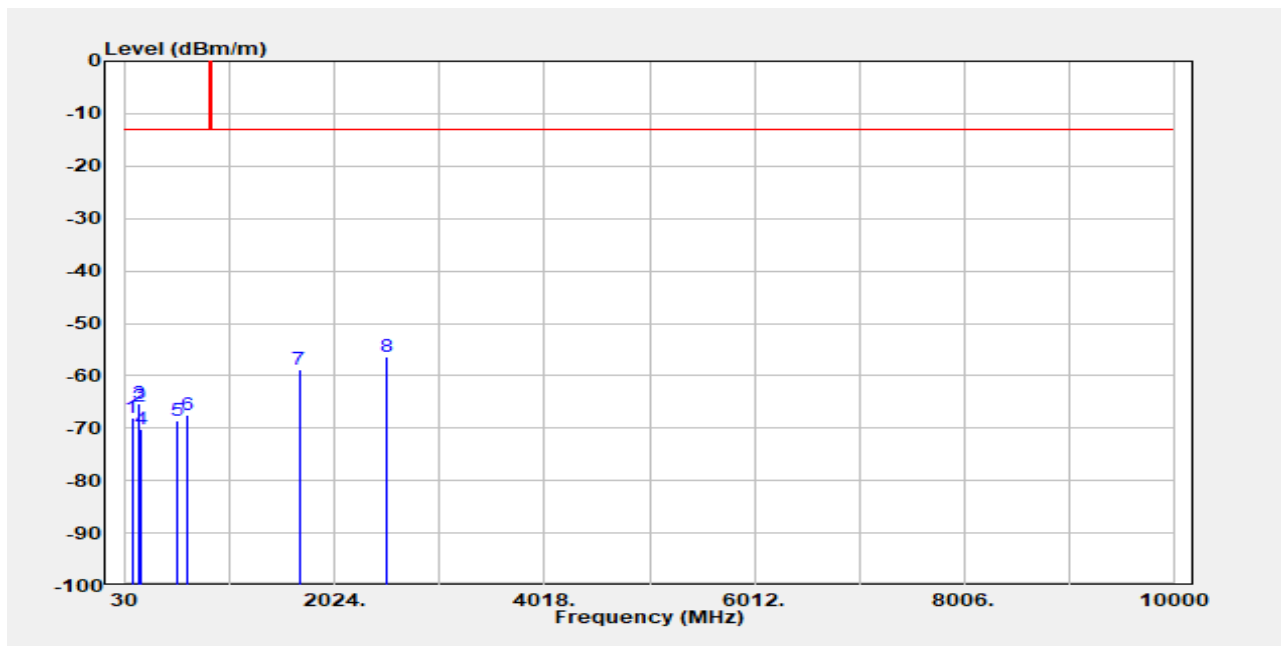
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 5C  
 Test Mode :Tx CH High  
 EUT Pol :H Plane  
 Test Frequency :836.8\_844 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-68.14	-66.73	-0.43	-0.98	-13.00	-55.14
149.63	-65.82	-63.05	-1.62	-1.15	-13.00	-52.82
164.18	-65.40	-63.26	-0.88	-1.26	-13.00	-52.40
181.97	-70.08	-70.57	1.87	-1.39	-13.00	-57.08
519.85	-68.68	-70.58	4.10	-2.20	-13.00	-55.68
610.38	-67.38	-68.37	3.48	-2.50	-13.00	-54.38
1680.80	-58.74	-64.00	9.56	-4.30	-13.00	-45.74
2521.20	-56.45	-61.88	10.64	-5.21	-13.00	-43.45

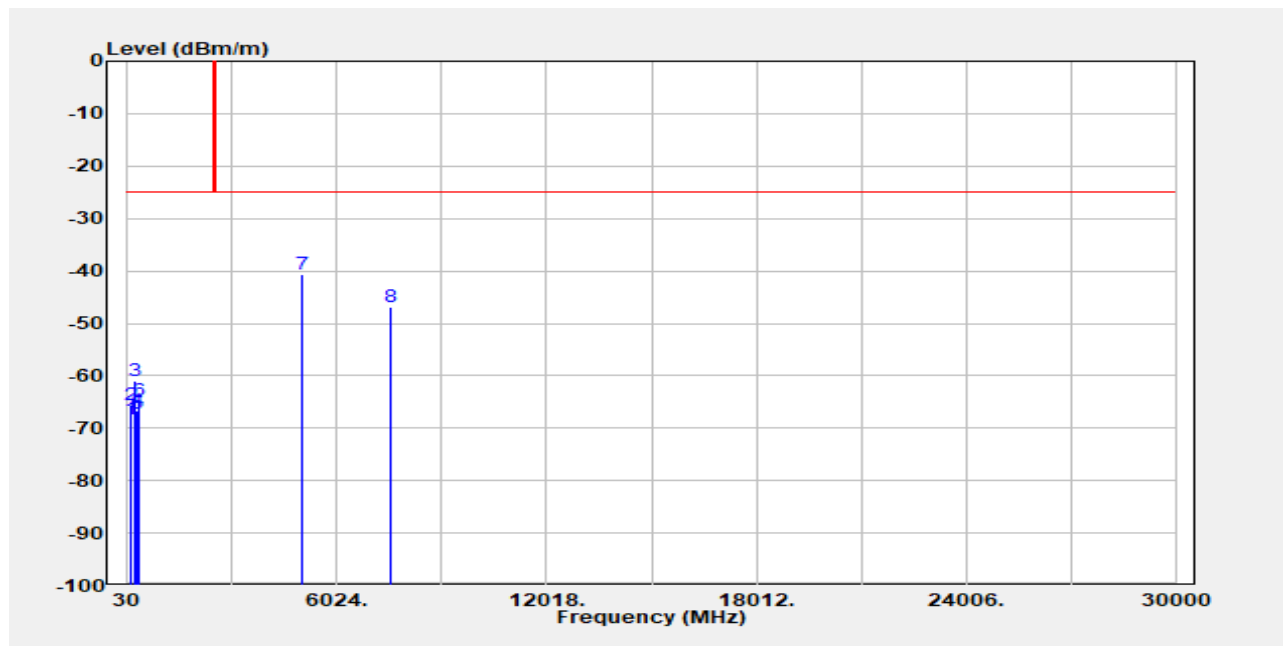
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 7C  
 Test Mode :Tx CH Low  
 EUT Pol :H Plane  
 Test Frequency :2510\_2524.4 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
107.60	-68.42	-65.95	-1.42	-1.04	-25.00	-43.42
149.63	-65.62	-62.85	-1.62	-1.15	-25.00	-40.62
222.38	-61.08	-64.60	5.03	-1.50	-25.00	-36.08
269.27	-66.57	-69.07	4.14	-1.64	-25.00	-41.57
296.75	-67.22	-69.58	4.13	-1.77	-25.00	-42.22
371.12	-64.89	-67.24	4.35	-1.99	-25.00	-39.89
5034.40	-40.78	-45.39	12.22	-7.62	-25.00	-15.77
7551.60	-46.81	-48.52	11.10	-9.39	-25.00	-21.80

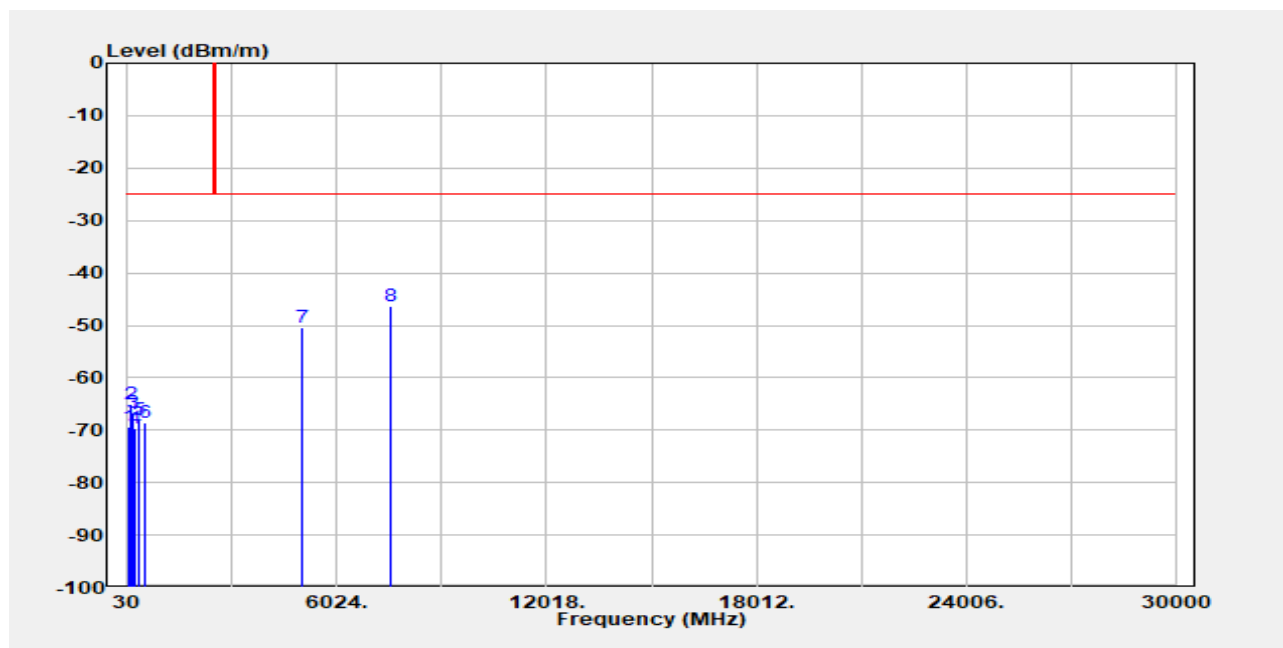
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 7C  
 Test Mode :Tx CH Low  
 EUT Pol :H Plane  
 Test Frequency :2510\_2524.4 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-69.40	-67.99	-0.43	-0.98	-25.00	-44.40
149.63	-65.14	-62.38	-1.62	-1.15	-25.00	-40.14
164.18	-66.78	-64.65	-0.88	-1.26	-25.00	-41.78
240.17	-69.68	-72.45	4.38	-1.61	-25.00	-44.68
345.25	-67.99	-70.47	4.44	-1.97	-25.00	-42.99
519.85	-68.50	-70.40	4.10	-2.20	-25.00	-43.50
5034.40	-50.47	-55.08	12.22	-7.62	-25.00	-25.46
7551.60	-46.41	-48.12	11.10	-9.39	-25.00	-21.40

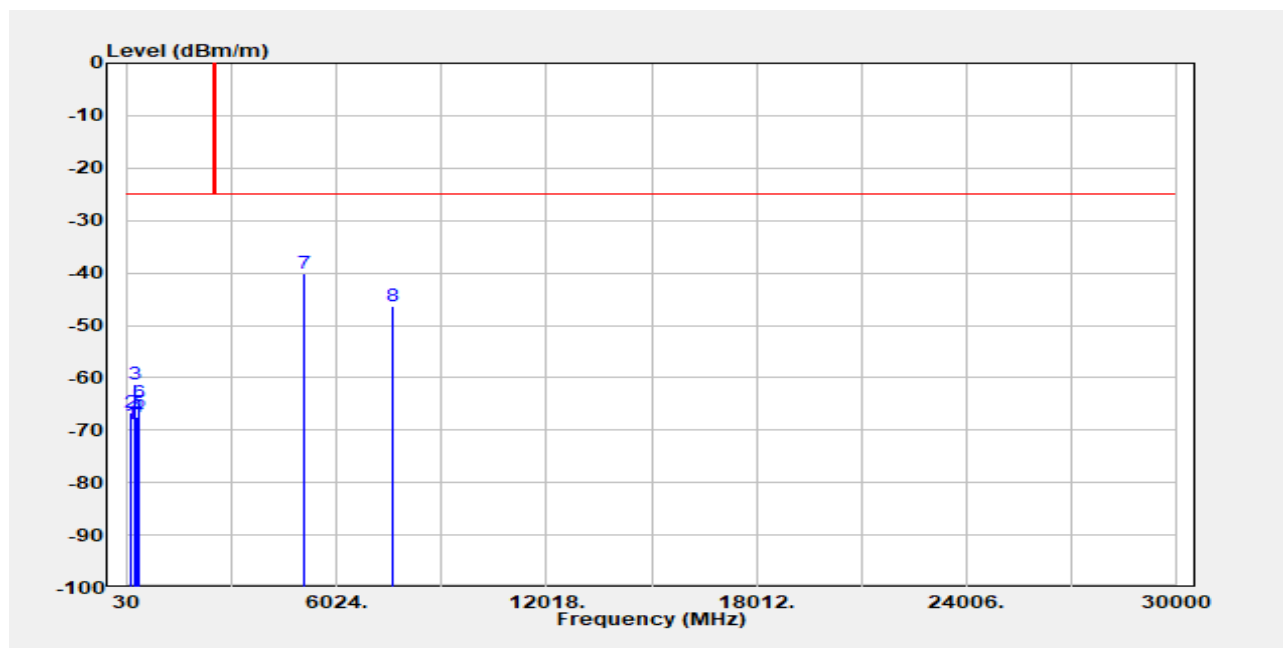
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 7C  
 Test Mode :Tx CH Mid  
 EUT Pol :H Plane  
 Test Frequency :2530.1\_2544.5 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
107.60	-68.76	-66.29	-1.42	-1.04	-25.00	-43.76
149.63	-66.53	-63.76	-1.62	-1.15	-25.00	-41.53
222.38	-61.17	-64.70	5.03	-1.50	-25.00	-36.17
269.27	-67.59	-70.09	4.14	-1.64	-25.00	-42.59
335.55	-66.62	-69.00	4.28	-1.90	-25.00	-41.62
371.12	-64.75	-67.10	4.35	-1.99	-25.00	-39.75
5074.60	-40.04	-44.29	12.10	-7.85	-25.00	-15.03
7611.90	-46.43	-48.01	11.22	-9.64	-25.00	-21.42

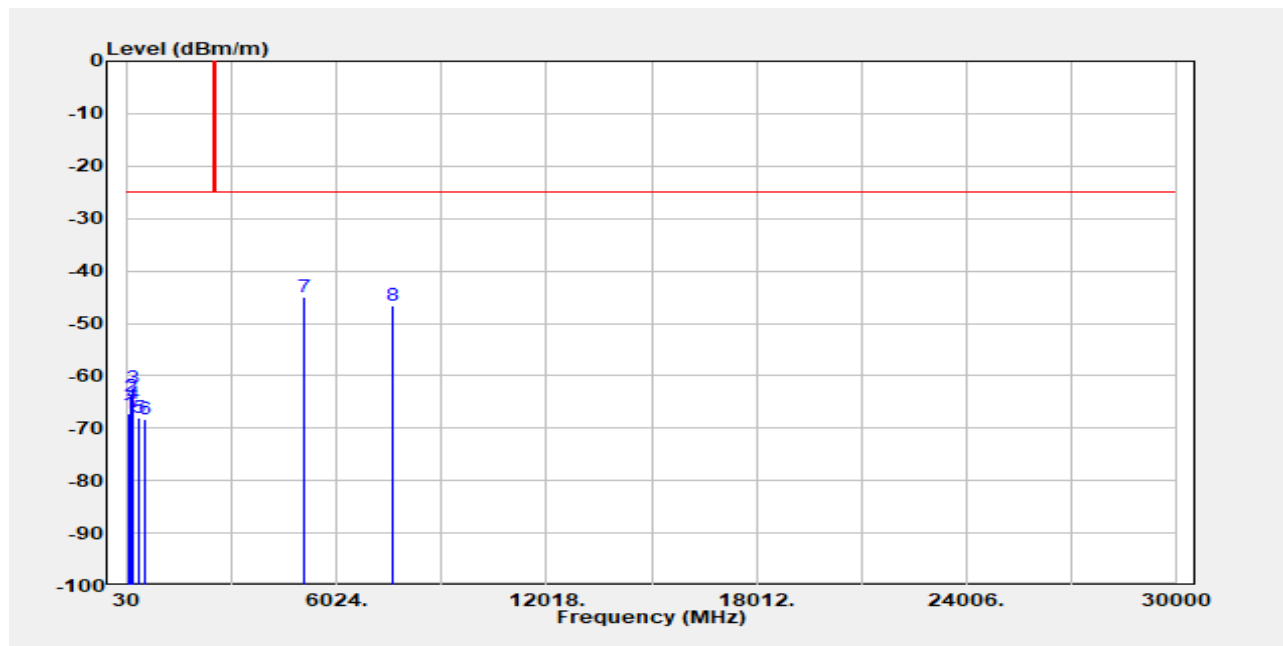
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 7C  
 Test Mode :Tx CH Mid  
 EUT Pol :H Plane  
 Test Frequency :2530.1\_2544.5 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-67.26	-65.85	-0.43	-0.98	-25.00	-42.26
149.63	-64.06	-61.29	-1.62	-1.15	-25.00	-39.06
164.18	-62.46	-60.32	-0.88	-1.26	-25.00	-37.46
181.97	-65.34	-65.83	1.87	-1.39	-25.00	-40.34
345.25	-67.98	-70.45	4.44	-1.97	-25.00	-42.98
519.85	-68.22	-70.12	4.10	-2.20	-25.00	-43.22
5074.60	-44.86	-49.11	12.10	-7.85	-25.00	-19.85
7611.90	-46.67	-48.25	11.22	-9.64	-25.00	-21.66

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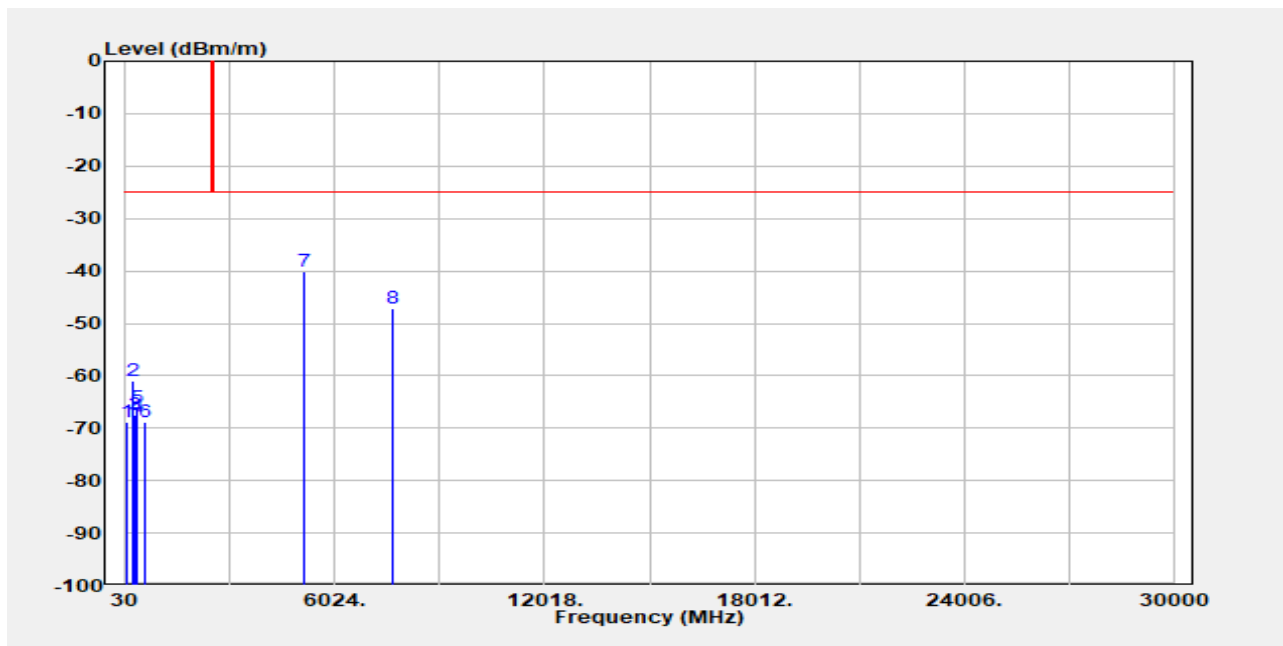
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 7C  
 Test Mode :Tx CH High  
 EUT Pol :H Plane  
 Test Frequency :2550.1\_2564.5 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-68.76	-67.35	-0.43	-0.98	-25.00	-43.76
222.38	-61.03	-64.56	5.03	-1.50	-25.00	-36.03
269.27	-67.37	-69.87	4.14	-1.64	-25.00	-42.37
335.55	-67.72	-70.10	4.28	-1.90	-25.00	-42.72
371.12	-66.02	-68.37	4.35	-1.99	-25.00	-41.02
610.38	-68.85	-69.84	3.48	-2.50	-25.00	-43.85
5114.60	-39.98	-44.10	12.10	-7.98	-25.00	-14.97
7671.90	-47.14	-48.67	11.39	-9.85	-25.00	-22.13

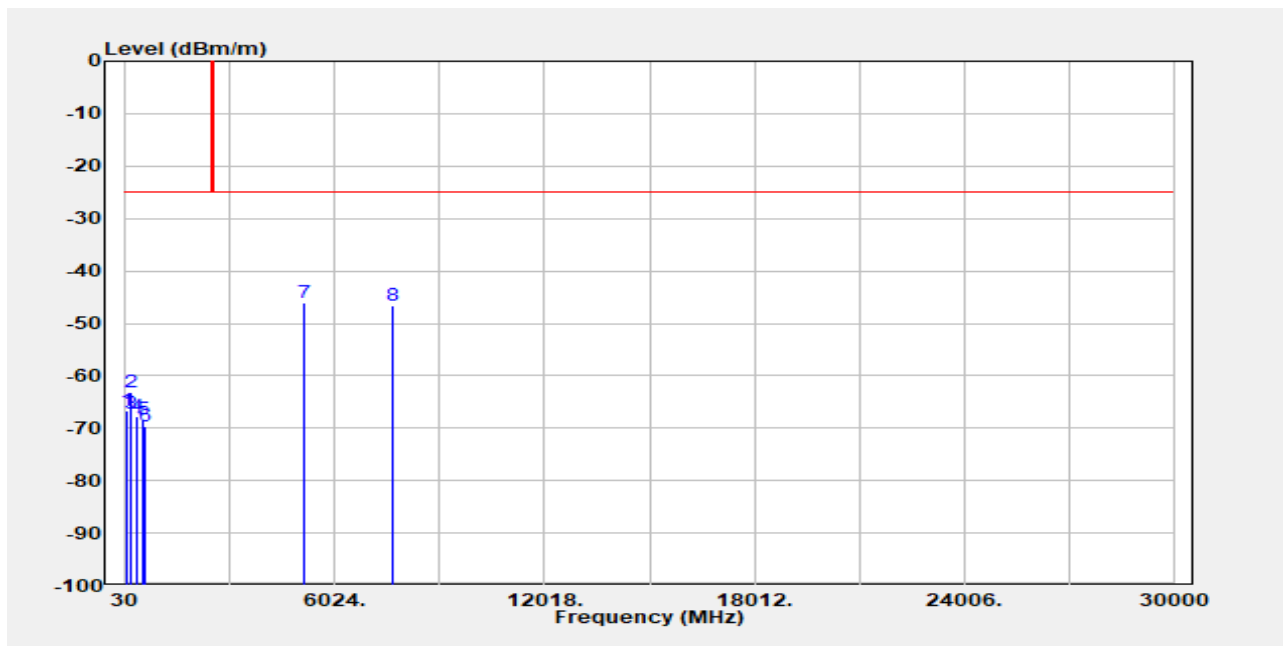
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 7C  
 Test Mode :Tx CH High  
 EUT Pol :H Plane  
 Test Frequency :2550.1\_2564.5 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-66.54	-65.13	-0.43	-0.98	-25.00	-41.54
164.18	-63.21	-61.08	-0.88	-1.26	-25.00	-38.21
191.67	-67.16	-69.22	3.50	-1.43	-25.00	-42.16
345.25	-67.70	-70.18	4.44	-1.97	-25.00	-42.70
519.85	-68.43	-70.33	4.10	-2.20	-25.00	-43.43
610.38	-69.52	-70.51	3.48	-2.50	-25.00	-44.52
5114.60	-45.95	-50.07	12.10	-7.98	-25.00	-20.94
7671.90	-46.61	-48.14	11.39	-9.85	-25.00	-21.60

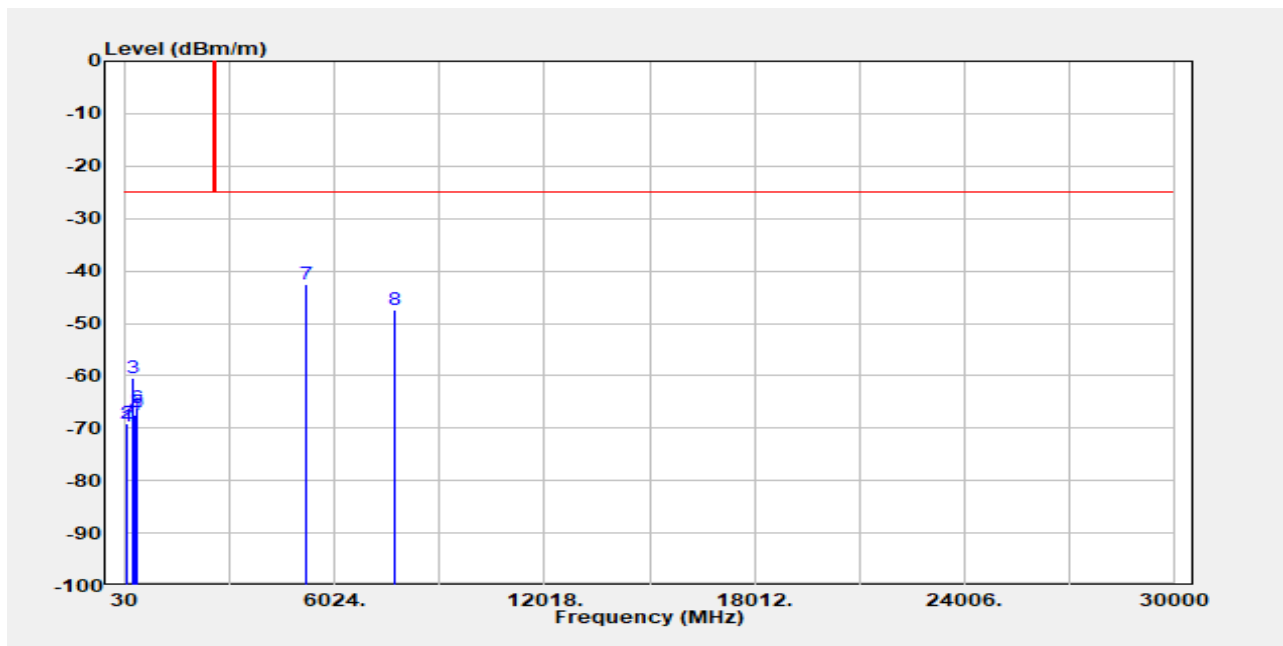
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 38C  
 Test Mode :Tx CH Low  
 EUT Pol :H Plane  
 Test Frequency :2577.5\_2592.5 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
62.33	-69.60	-60.01	-8.83	-0.76	-25.00	-44.60
89.82	-68.99	-67.58	-0.43	-0.98	-25.00	-43.99
222.38	-60.47	-63.99	5.03	-1.50	-25.00	-35.47
269.27	-67.52	-70.01	4.14	-1.64	-25.00	-42.52
335.55	-66.81	-69.19	4.28	-1.90	-25.00	-41.81
371.12	-66.24	-68.60	4.35	-1.99	-25.00	-41.24
5170.00	-42.45	-46.76	12.22	-7.91	-25.00	-17.44
7755.00	-47.55	-48.74	11.50	-10.31	-25.00	-22.54

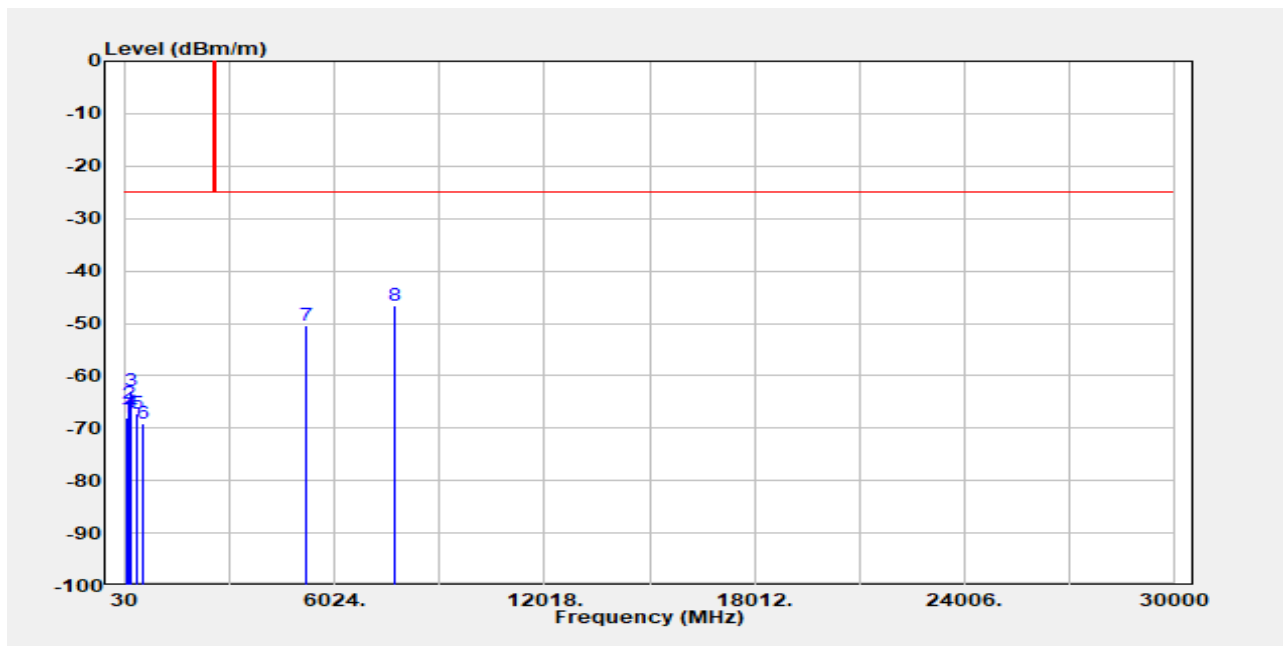
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 38C  
 Test Mode :Tx CH Low  
 EUT Pol :H Plane  
 Test Frequency :2577.5\_2592.5 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-68.14	-66.73	-0.43	-0.98	-25.00	-43.14
149.63	-65.23	-62.46	-1.62	-1.15	-25.00	-40.23
164.18	-62.99	-60.86	-0.88	-1.26	-25.00	-37.99
191.67	-66.82	-68.89	3.50	-1.43	-25.00	-41.82
345.25	-67.19	-69.67	4.44	-1.97	-25.00	-42.19
519.85	-68.98	-70.88	4.10	-2.20	-25.00	-43.98
5170.00	-50.30	-54.61	12.22	-7.91	-25.00	-25.29
7755.00	-46.70	-47.88	11.50	-10.31	-25.00	-21.69

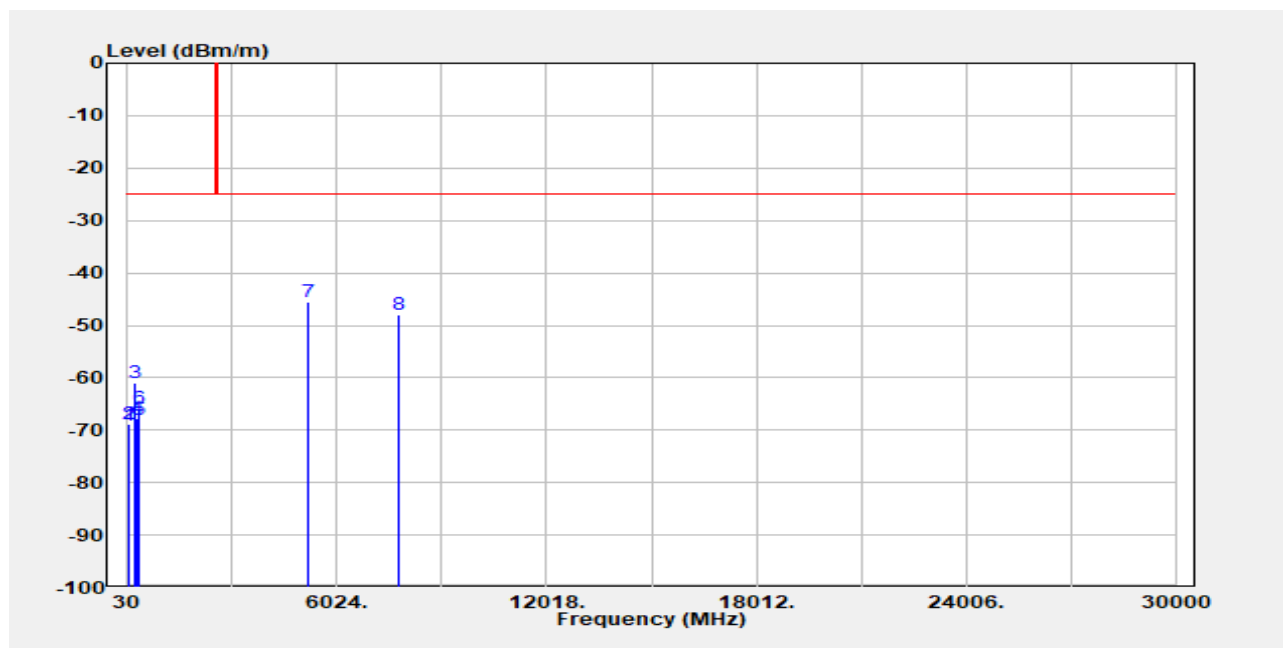
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 38C  
 Test Mode :Tx CH Mid  
 EUT Pol :H Plane  
 Test Frequency :2587.5\_2602.5 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
62.33	-69.07	-59.49	-8.83	-0.76	-25.00	-44.07
89.82	-68.73	-67.32	-0.43	-0.98	-25.00	-43.73
222.38	-60.92	-64.45	5.03	-1.50	-25.00	-35.92
269.27	-67.67	-70.17	4.14	-1.64	-25.00	-42.67
348.48	-68.04	-70.55	4.52	-2.01	-25.00	-43.04
371.12	-65.85	-68.21	4.35	-1.99	-25.00	-40.85
5190.00	-45.57	-50.02	12.34	-7.89	-25.00	-20.56
7785.00	-47.92	-48.90	11.50	-10.51	-25.00	-22.91

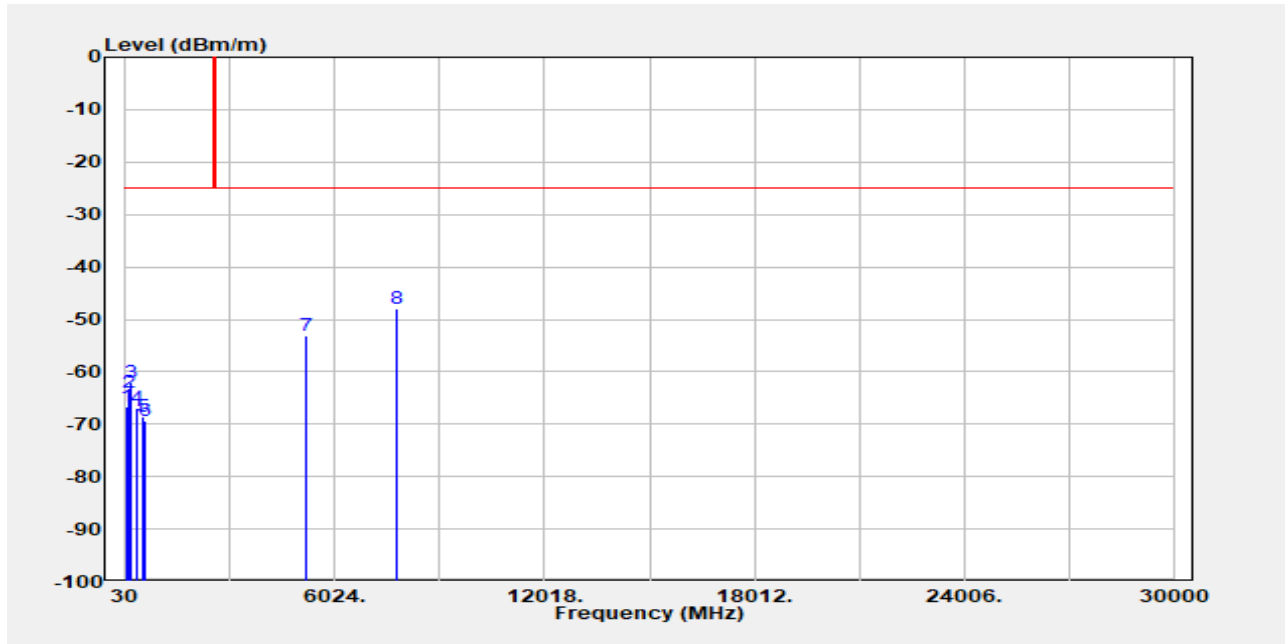
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 38C  
 Test Mode :Tx CH Mid  
 EUT Pol :H Plane  
 Test Frequency :2587.5\_2602.5 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-66.72	-65.31	-0.43	-0.98	-25.00	-41.72
149.63	-64.04	-61.27	-1.62	-1.15	-25.00	-39.04
164.18	-62.14	-60.01	-0.88	-1.26	-25.00	-37.14
332.32	-66.98	-69.33	4.26	-1.91	-25.00	-41.98
519.85	-68.52	-70.42	4.10	-2.20	-25.00	-43.52
610.38	-69.46	-70.45	3.48	-2.50	-25.00	-44.46
5190.00	-53.16	-57.61	12.34	-7.89	-25.00	-28.15
7785.00	-47.85	-48.84	11.50	-10.51	-25.00	-22.84

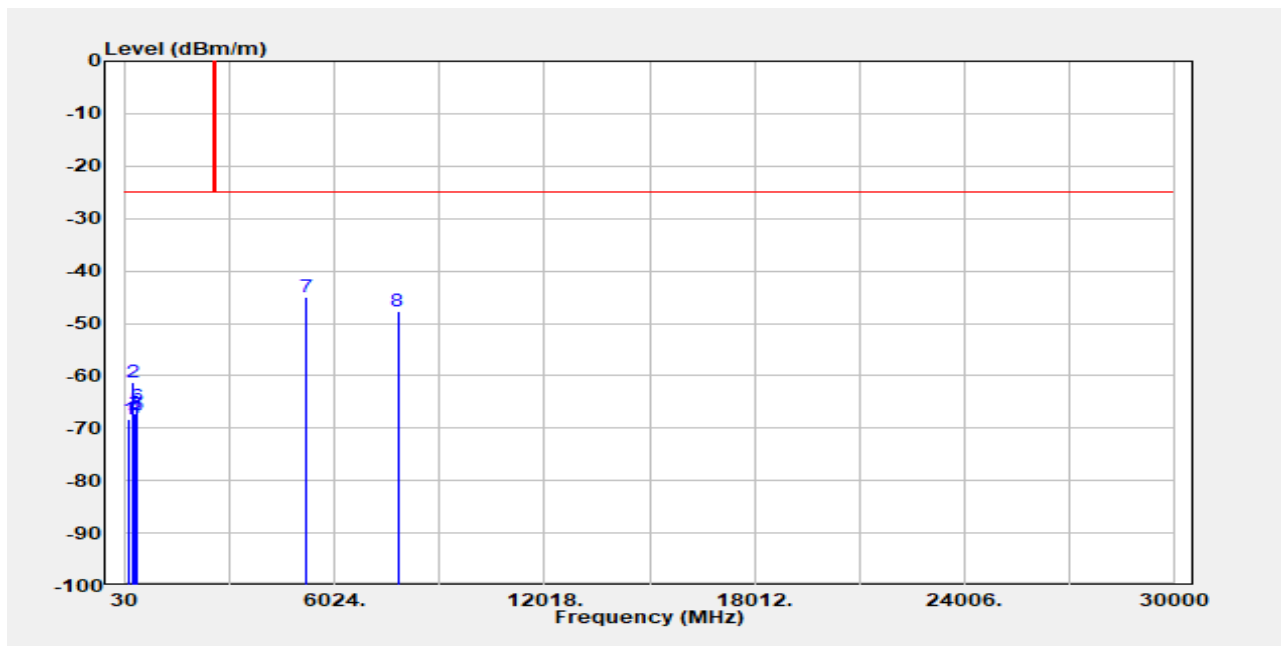
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 38C  
 Test Mode :Tx CH High  
 EUT Pol :H Plane  
 Test Frequency :2597.5\_2612.5 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
101.13	-68.23	-66.34	-0.88	-1.02	-25.00	-43.23
222.38	-61.13	-64.66	5.03	-1.50	-25.00	-36.13
269.27	-67.25	-69.75	4.14	-1.64	-25.00	-42.25
296.75	-68.03	-70.39	4.13	-1.77	-25.00	-43.03
335.55	-67.42	-69.80	4.28	-1.90	-25.00	-42.42
371.12	-65.84	-68.20	4.35	-1.99	-25.00	-40.84
5210.00	-44.97	-49.54	12.48	-7.91	-25.00	-19.96
7815.00	-47.81	-48.64	11.44	-10.61	-25.00	-22.80

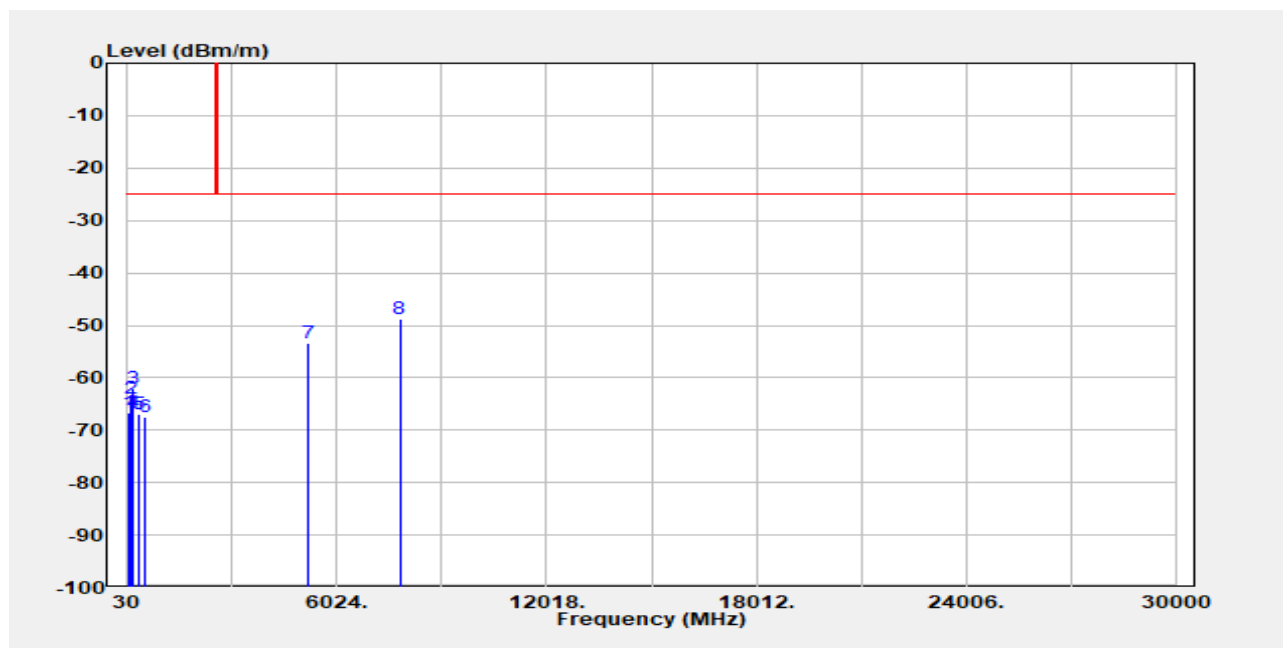
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 38C  
 Test Mode :Tx CH High  
 EUT Pol :H Plane  
 Test Frequency :2597.5\_2612.5 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-66.72	-65.31	-0.43	-0.98	-25.00	-41.72
149.63	-64.04	-61.27	-1.62	-1.15	-25.00	-39.04
164.18	-62.14	-60.01	-0.88	-1.26	-25.00	-37.14
181.97	-66.57	-67.06	1.87	-1.39	-25.00	-41.57
332.32	-66.98	-69.33	4.26	-1.91	-25.00	-41.98
519.85	-67.56	-69.46	4.10	-2.20	-25.00	-42.56
5210.00	-53.33	-57.90	12.48	-7.91	-25.00	-28.32
7815.00	-48.75	-49.58	11.44	-10.61	-25.00	-23.74

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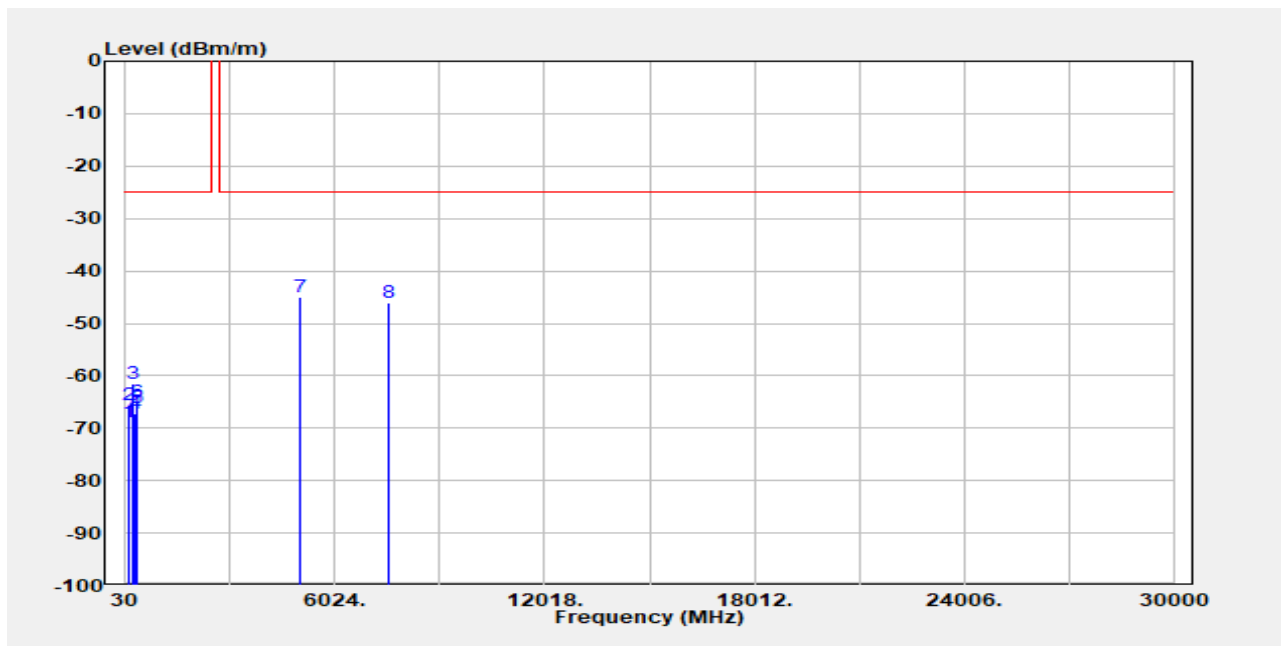
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 41C  
 Test Mode :Tx CH Low  
 EUT Pol :H Plane  
 Test Frequency :2506\_2523.1 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
107.60	-68.71	-66.24	-1.42	-1.04	-25.00	-43.71
149.63	-65.48	-62.71	-1.62	-1.15	-25.00	-40.48
222.38	-61.48	-65.01	5.03	-1.50	-25.00	-36.48
269.27	-67.24	-69.74	4.14	-1.64	-25.00	-42.24
335.55	-66.08	-68.46	4.28	-1.90	-25.00	-41.08
371.12	-65.13	-67.48	4.35	-1.99	-25.00	-40.13
5029.10	-44.98	-49.66	12.27	-7.59	-25.00	-19.97
7543.65	-46.03	-47.76	11.09	-9.36	-25.00	-21.02

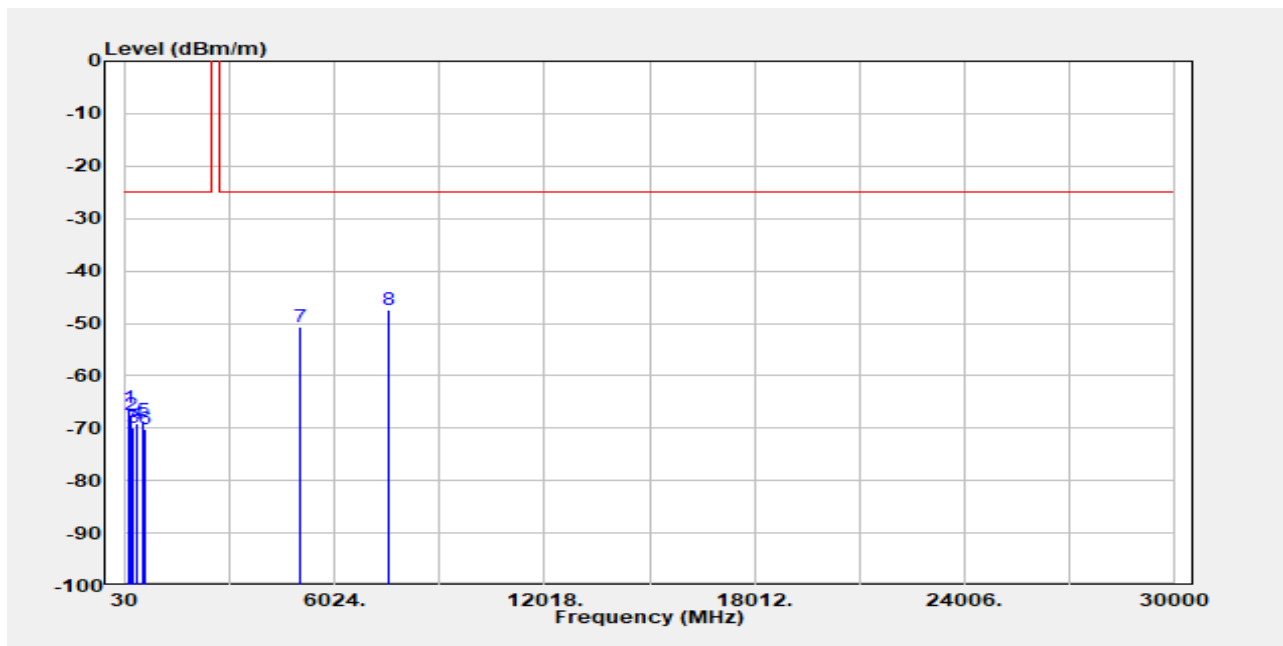
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 41C  
 Test Mode :Tx CH Low  
 EUT Pol :H Plane  
 Test Frequency :2506\_2523.1 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
149.63	-66.19	-63.42	-1.62	-1.15	-25.00	-41.19
164.18	-67.57	-65.43	-0.88	-1.26	-25.00	-42.57
240.17	-69.86	-72.63	4.38	-1.61	-25.00	-44.86
345.25	-69.18	-71.66	4.44	-1.97	-25.00	-44.18
519.85	-68.66	-70.56	4.10	-2.20	-25.00	-43.66
610.38	-70.31	-71.30	3.48	-2.50	-25.00	-45.31
5029.10	-50.81	-55.49	12.27	-7.59	-25.00	-25.80
7543.65	-47.42	-49.14	11.09	-9.36	-25.00	-22.41

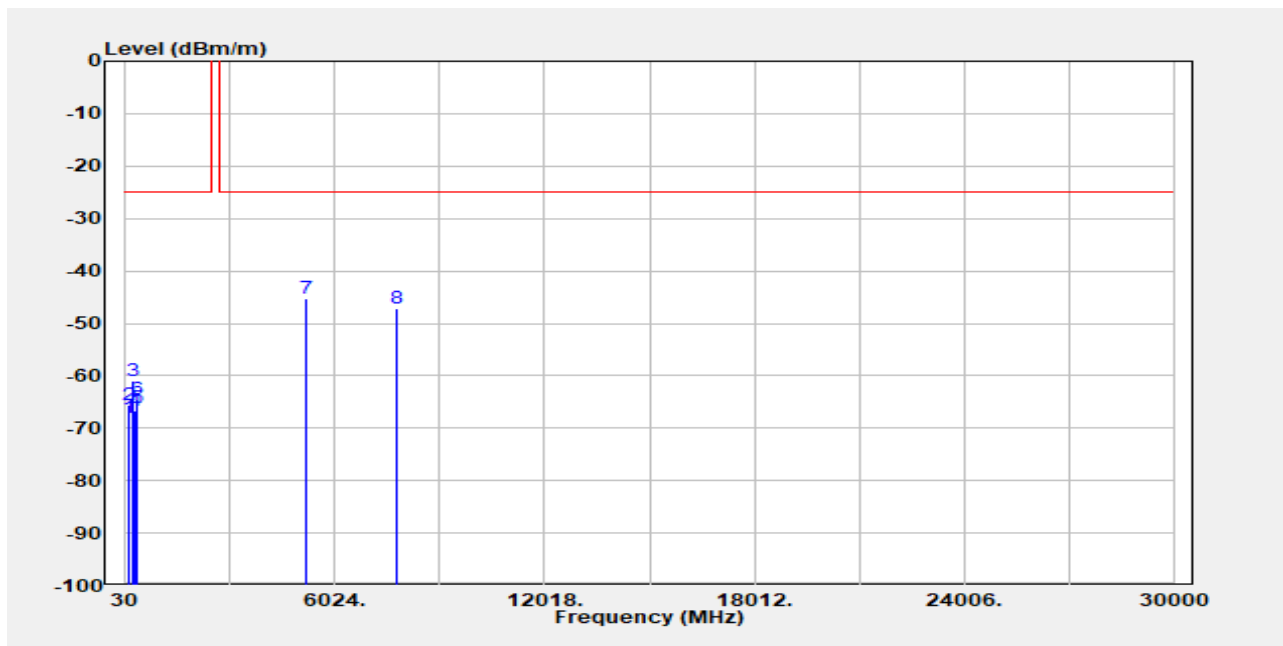
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 41C  
 Test Mode :Tx CH Mid  
 EUT Pol :H Plane  
 Test Frequency :2585.6\_2602.7 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
107.60	-68.12	-65.66	-1.42	-1.04	-25.00	-43.12
149.63	-65.48	-62.71	-1.62	-1.15	-25.00	-40.48
222.38	-60.92	-64.44	5.03	-1.50	-25.00	-35.92
269.27	-66.79	-69.29	4.14	-1.64	-25.00	-41.79
335.55	-66.08	-68.46	4.28	-1.90	-25.00	-41.08
371.12	-64.46	-66.82	4.35	-1.99	-25.00	-39.46
5188.30	-45.30	-49.74	12.33	-7.89	-25.00	-20.29
7782.45	-47.04	-48.05	11.50	-10.50	-25.00	-22.03

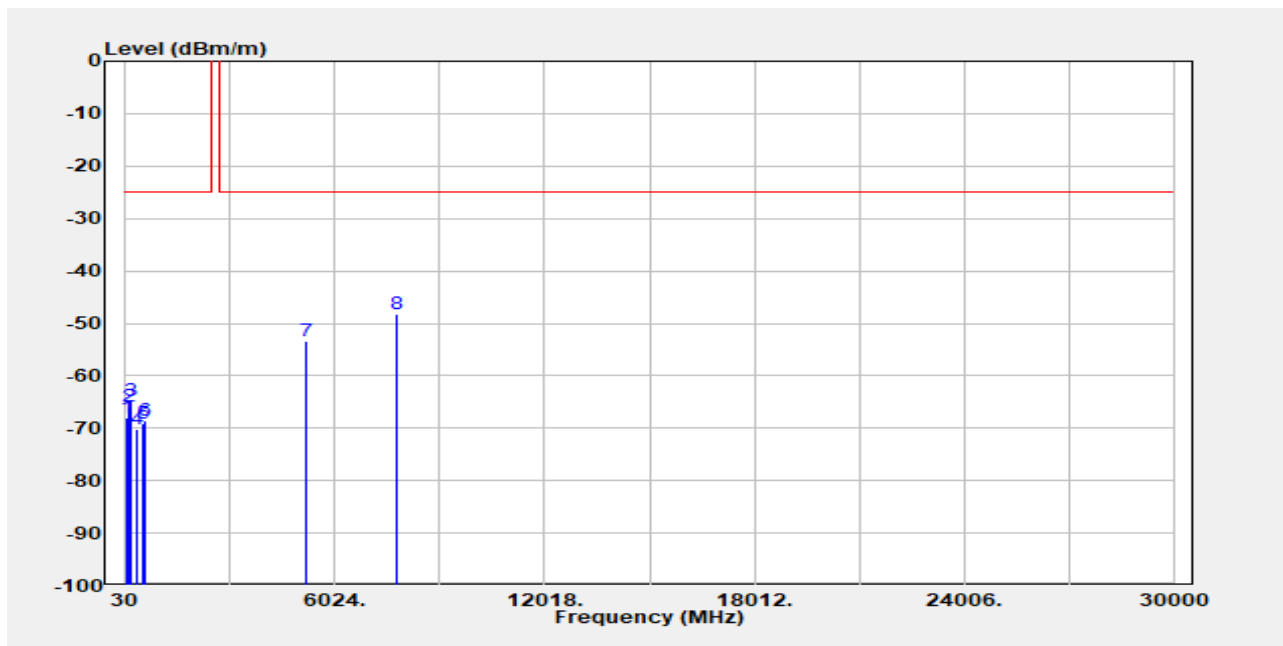
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 41C  
 Test Mode :Tx CH Mid  
 EUT Pol :H Plane  
 Test Frequency :2585.6\_2602.7 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-68.13	-66.72	-0.43	-0.98	-25.00	-43.13
149.63	-65.97	-63.20	-1.62	-1.15	-25.00	-40.97
164.18	-64.90	-62.77	-0.88	-1.26	-25.00	-39.90
335.55	-70.25	-72.63	4.28	-1.90	-25.00	-45.25
519.85	-69.18	-71.08	4.10	-2.20	-25.00	-44.18
610.38	-68.59	-69.57	3.48	-2.50	-25.00	-43.59
5188.30	-53.38	-57.82	12.33	-7.89	-25.00	-28.37
7782.45	-48.33	-49.33	11.50	-10.50	-25.00	-23.32

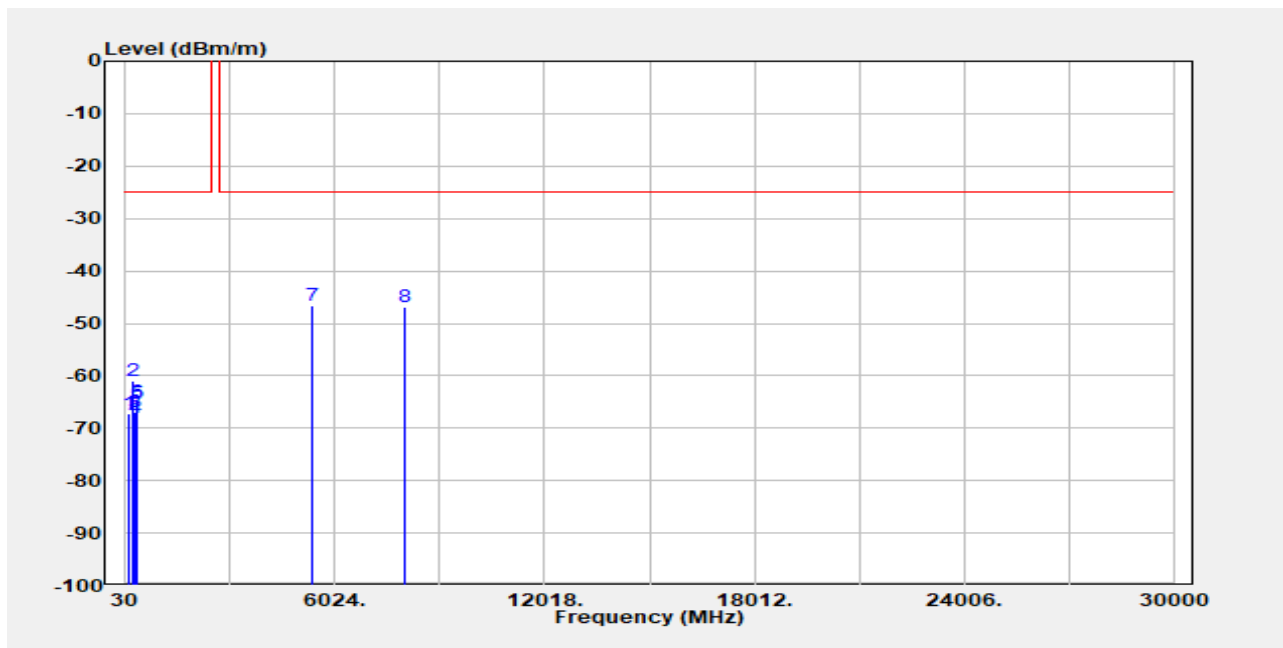
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 41C  
 Test Mode :Tx CH High  
 EUT Pol :H Plane  
 Test Frequency :2665.1\_2682.2 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Vertical  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
149.63	-67.27	-64.51	-1.62	-1.15	-25.00	-42.27
222.38	-61.05	-64.58	5.03	-1.50	-25.00	-36.05
269.27	-66.84	-69.34	4.14	-1.64	-25.00	-41.84
296.75	-68.01	-70.37	4.13	-1.77	-25.00	-43.01
335.55	-65.35	-67.73	4.28	-1.90	-25.00	-40.35
371.12	-65.16	-67.52	4.35	-1.99	-25.00	-40.16
5347.30	-46.63	-50.93	13.00	-8.71	-25.00	-21.62
8020.95	-46.89	-47.07	11.00	-10.82	-25.00	-21.88

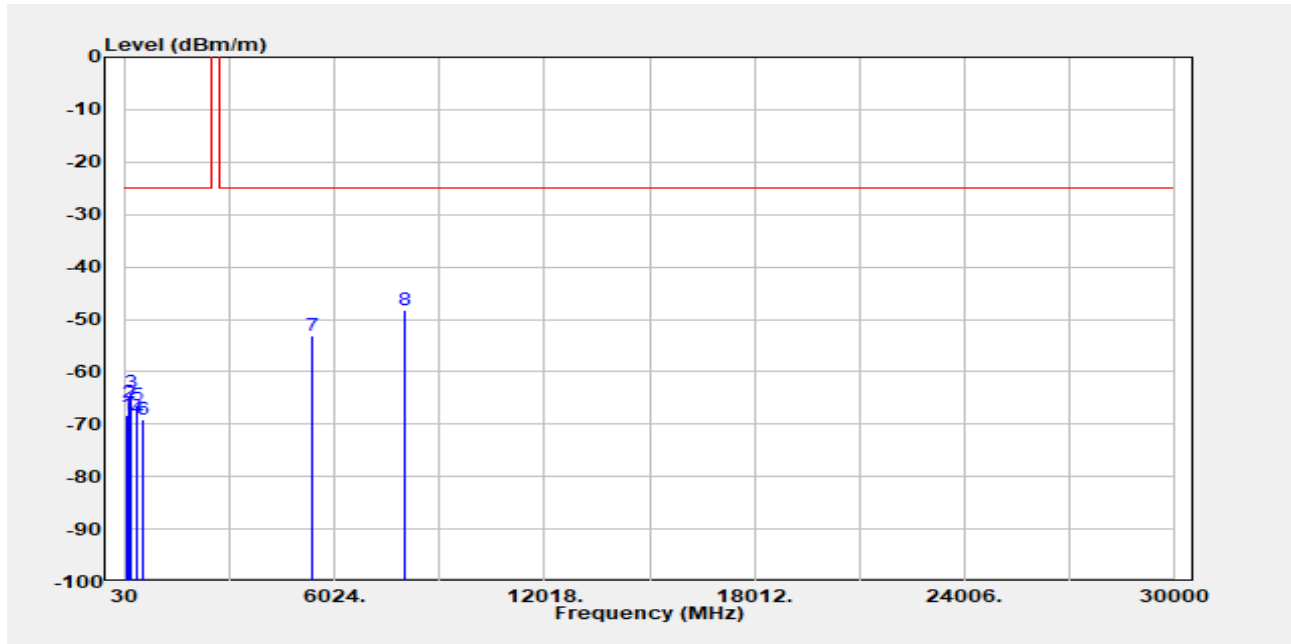
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Report Number :ER/2021/A0030  
 Operation Mode :ULCA 41C  
 Test Mode :Tx CH High  
 EUT Pol :H Plane  
 Test Frequency :2665.1\_2682.2 MHz

Test Site :SAC 1  
 Test Date :2021-11-12  
 Temp./Humi. :23.8/53  
 Antenna Pol. :Horizontal  
 Engineer :GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-68.36	-66.95	-0.43	-0.98	-25.00	-43.36
149.63	-65.85	-63.09	-1.62	-1.15	-25.00	-40.85
164.18	-63.94	-61.81	-0.88	-1.26	-25.00	-38.94
335.55	-68.96	-71.34	4.28	-1.90	-25.00	-43.96
348.48	-66.48	-68.99	4.52	-2.01	-25.00	-41.48
519.85	-69.12	-71.02	4.10	-2.20	-25.00	-44.12
5347.30	-53.23	-57.53	13.00	-8.71	-25.00	-28.22
8020.95	-48.11	-48.29	11.00	-10.82	-25.00	-23.10

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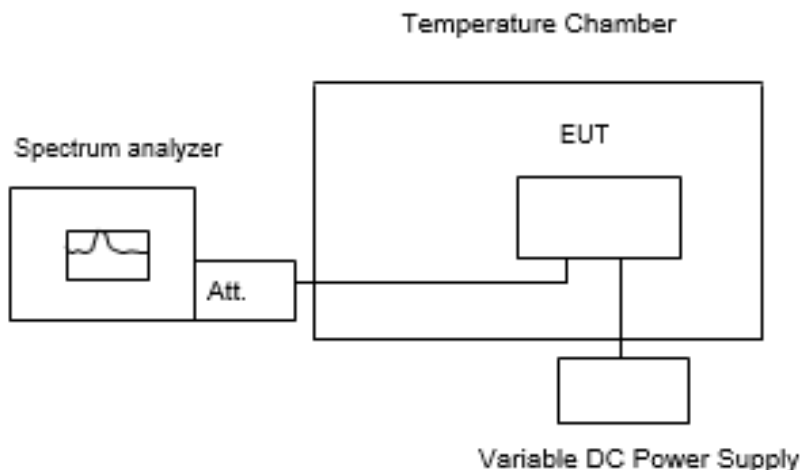
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## 11 FREQUENCY STABILITY MEASUREMENT

### 11.1 Standard Applicabl

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

### 11.2 Test Set-up



**Note:** Measurement setup for testing on Antenna connector

### 11.3 Measurement Procedure

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Set chamber temperature to 25°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint as declared by the manufacturer, record the maximum frequency change.

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11.4 Measurement Result

Reference Freq.:	LTE CAB5: Mid Channel (MHz)		836.5
	Channel Bandwidth:		10MHz+10MHz
Power Supply Vdc	Temp. (°C)	Frequency (MHz)	Frequency Error (ppm)
<b>Freq. ERROR vs. VOLTAGE</b>			
3.795	25	836.499991	-0.0108
3.3	25	836.499993	-0.0084
2.805	25	836.500006	0.0072
2.4	25	836.499996	-0.0011
(End Point)			
<b>Freq. ERROR vs. Temp.</b>			
3.3	-30	836.500005	5.0000
3.3	-20	836.500002	2.0000
3.3	-10	836.499991	-9.0000
3.3	0	836.500001	1.0000
3.3	10	836.499998	-2.0000
3.3	20	836.500007	7.0000
3.3	30	836.500010	10.0000
3.3	40	836.500008	8.0000
3.3	50	836.499995	-5.0000

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Reference Freq.:	LTE CAB7: Mid Channel (MHz)		2535
	Channel Bandwidth:		20MHz+20MHz
Power Supply Vdc	Temp. (°C)	Frequency (MHz)	Frequency Error (ppm)
<b>Freq. ERROR vs. VOLTAGE</b>			
3.795	25	2534.999995	-0.0020
3.3	25	2535.000011	0.0043
2.805	25	2534.999996	-0.0016
2.4	25	2535.000009	0.0036
(End Point)			
<b>Freq. ERROR vs. Temp.</b>			
3.3	-30	2534.999996	-4.0000
3.3	-20	2535.000007	7.0000
3.3	-10	2534.999990	-10.0000
3.3	0	2535.000002	2.0000
3.3	10	2534.999995	-5.0000
3.3	20	2534.999992	-8.0000
3.3	30	2534.999999	-1.0000
3.3	40	2534.999995	-5.0000
3.3	50	2534.999993	-7.0000

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Reference Freq.:	LTE CAB38: Mid Channel (MHz)		2595
	Channel Bandwidth:		20MHz+20MHz
Power Supply Vdc	Temp. (°C)	Frequency (MHz)	Frequency Error (ppm)
<b>Freq. ERROR vs. VOLTAGE</b>			
3.795	25	2595.000009	0.0035
3.3	25	2594.999993	-0.0027
2.805	25	2594.999992	-0.0031
2.4	25	2595.000003	0.0012
(End Point)			
<b>Freq. ERROR vs. Temp.</b>			
3.3	-30	2595.000011	11.0000
3.3	-20	2595.000007	7.0000
3.3	-10	2595.000003	3.0000
3.3	0	2595.000008	8.0000
3.3	10	2594.999991	-9.0000
3.3	20	2595.000002	2.0000
3.3	30	2594.999989	-11.0000
3.3	40	2595.000003	3.0000
3.3	50	2594.999996	-4.0000

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Reference Freq.:	LTE CAB41: Mid Channel (MHz)		2593
	Channel Bandwidth:		20MHz+20MHz
Power Supply Vdc	Temp. (°C)	Frequency (MHz)	Frequency Error (ppm)
<b>Freq. ERROR vs. VOLTAGE</b>			
3.795	25	2592.999993	-0.0027
3.3	25	2593.000010	0.0039
2.805	25	2593.000006	0.0023
2.4	25	2593.000008	0.0031
(End Point)			
<b>Freq. ERROR vs. Temp.</b>			
3.3	-30	2592.999991	-9.0000
3.3	-20	2593.000011	11.0000
3.3	-10	2593.000008	8.0000
3.3	0	2592.999997	-3.0000
3.3	10	2593.000006	6.0000
3.3	20	2593.000010	10.0000
3.3	30	2592.999993	-7.0000
3.3	40	2592.999992	-8.0000
3.3	50	2592.999989	-11.0000

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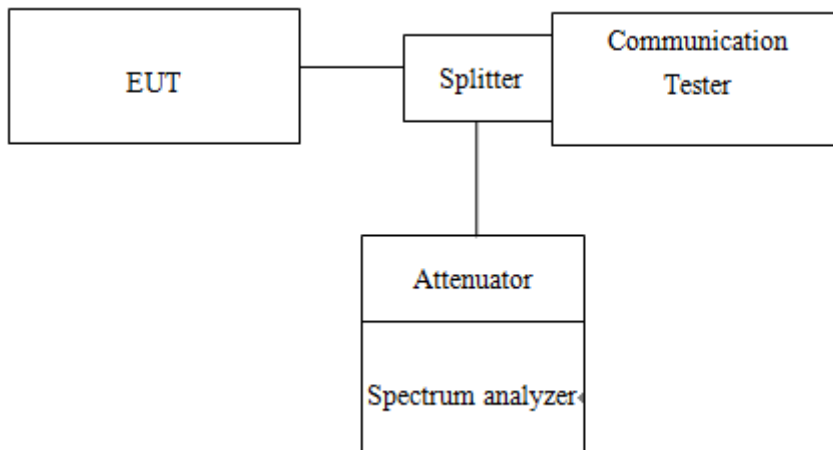
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## 12 PEAK TO AVERAGE RATIO

### 12.1 Standard Applicable

The peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

### 12.2 Test SET-UP



### 12.3 Measurement Procedure

1. KDB 971168 D01 is employed as the following procedure is proper adjusted accordingly:
2. Set resolution/measurement bandwidth  $\geq$  signal's occupied bandwidth; & internal = 1ms
3. Set the number of counts to a value that stabilizes the measured CCDF curve.

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## 12.4 Measurement Result

### LTE BAND 5

Band	Bandwidth	RB Allocation/RB Offset	Frequency (MHz)	PAPR (dB)	
				64QAM	Limit
LTE BAND 5	5MHz + 10MHz	25/0 + 50/0	836.5	7.46	13
LTE BAND 5	10MHz + 5MHz	50/0 + 25/0	836.5	7.63	13
LTE BAND 5	10MHz + 10MHz	50/0 + 50/0	836.5	6.38	13

### LTE BAND 7

Band	Bandwidth	RB Allocation/RB Offset	Frequency (MHz)	PAPR (dB)	
				64QAM	Limit
LTE BAND 7	10MHz + 20MHz	50/0 + 100/0	2535.0	7.19	13
LTE BAND 7	20MHz + 10MHz	100/0 + 50/0	2535.0	7.14	13
LTE BAND 7	15MHz + 15MHz	75/0 + 75/0	2535.0	6.94	13
LTE BAND 7	15MHz + 20MHz	75/0 + 100/0	2535.0	8.04	13
LTE BAND 7	20MHz + 15MHz	100/0 + 75/0	2535.0	7.980	13
LTE BAND 7	20MHz + 20MHz	100/0 + 100/0	2535.0	7.260	13

### LTE BAND 38

Band	Bandwidth	RB Allocation/RB Offset	Frequency (MHz)	PAPR (dB)	
				64QAM	Limit
LTE BAND 38	15MHz + 15MHz	75/0 + 75/0	2595.0	10.61	13
LTE BAND 38	20MHz + 20MHz	100/0 + 100/0	2595.0	10.16	13

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**LTE BAND 41**

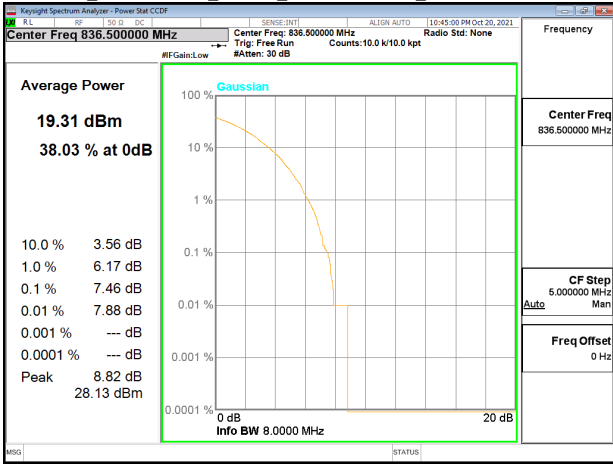
Band	Bandwidth	RB Allocation/RB Offset	Frequency (MHz)	PAPR (dB)	
				64QAM	Limit
LTE BAND 41	5MHz + 20MHz	25/0 + 100/0	2593.0	<b>11.860</b>	<b>13</b>
LTE BAND 41	20MHz + 5MHz	100/0 + 25/0	2593.0	<b>11.300</b>	<b>13</b>
LTE BAND 41	10MHz + 20MHz	50/0 + 100/0	2593.0	<b>7.250</b>	<b>13</b>
LTE BAND 41	20MHz + 10MHz	100/0 + 50/0	2593.0	<b>11.580</b>	<b>13</b>
LTE BAND 41	15MHz + 15MHz	75/0 + 75/0	2593.0	<b>11.720</b>	<b>13</b>
LTE BAND 41	15MHz + 20MHz	75/0 + 100/0	2593.0	<b>8.040</b>	<b>13</b>
LTE BAND 41	20MHz + 15MHz	100/0 + 75/0	2593.0	<b>8.040</b>	<b>13</b>
LTE BAND 41	20MHz + 20MHz	100/0 + 100/0	2593.0	<b>10.600</b>	<b>13</b>

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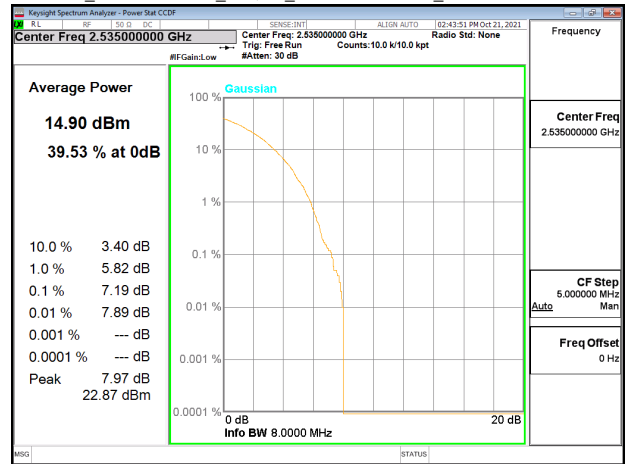
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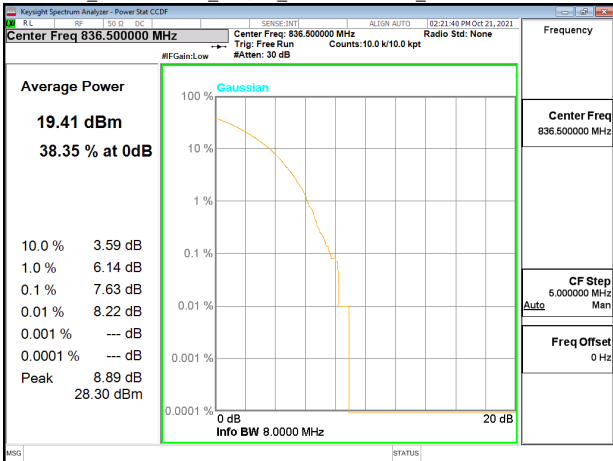
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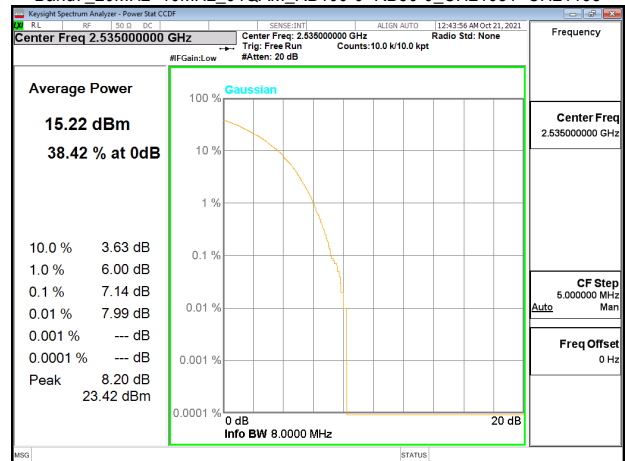
Band7\_10MHz+20MHz\_64QAM\_RB50-0+RB100-0\_CH21006+CH21150



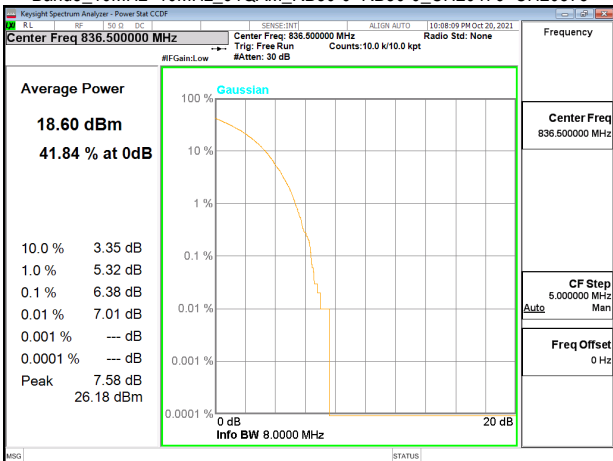
Band5\_10MHz+5MHz\_64QAM\_RB50-0+RB25-0\_CH20500+CH20572



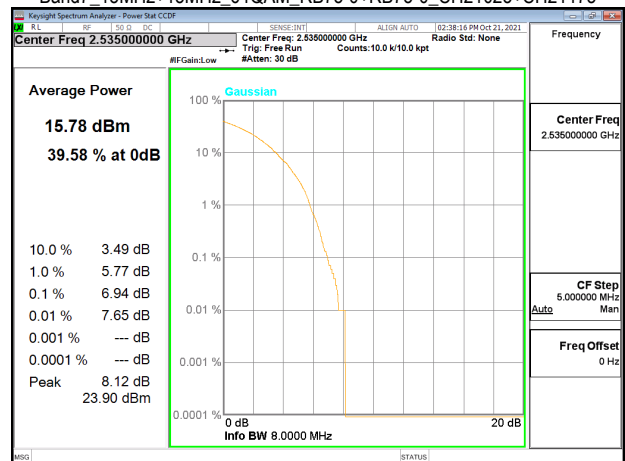
Band7\_20MHz+10MHz\_64QAM\_RB100-0+RB50-0\_CH21051+CH21195



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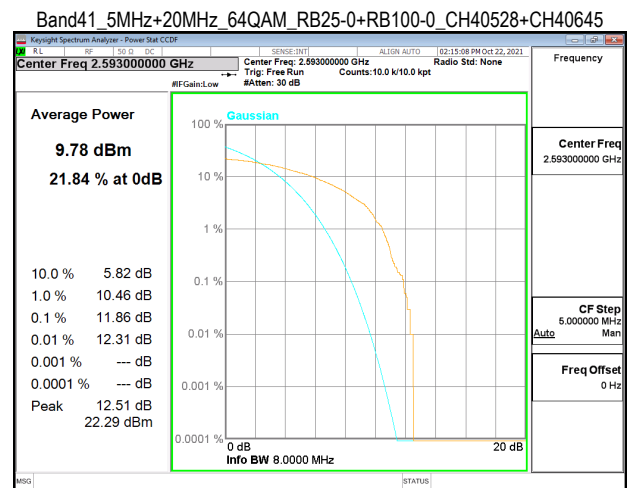
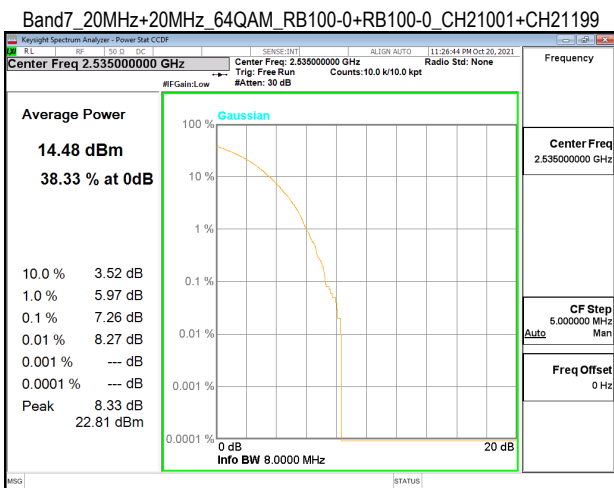
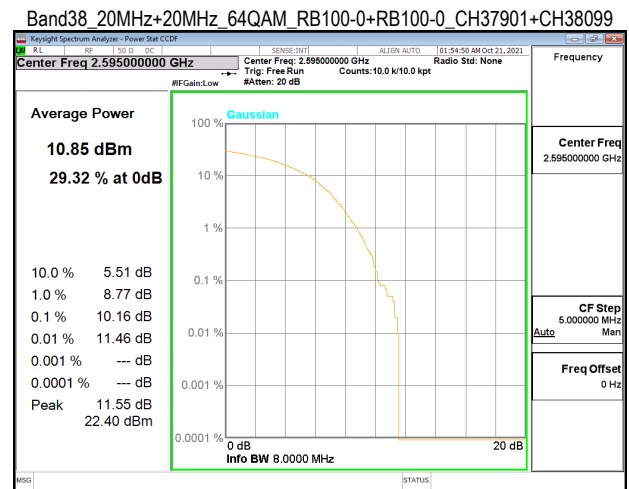
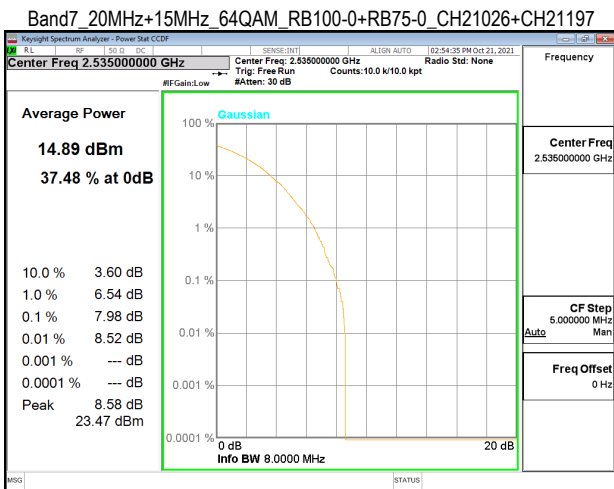
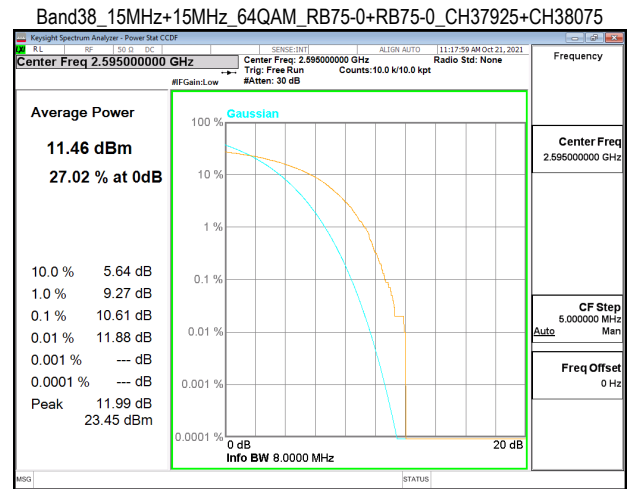
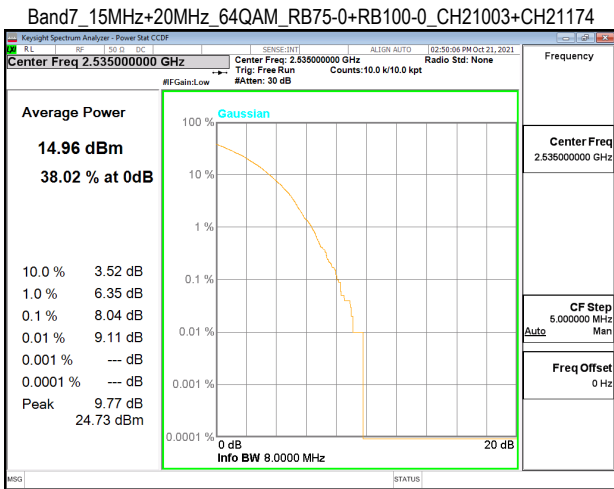
Band7\_15MHz+15MHz\_64QAM\_RB75-0+RB75-0\_CH21025+CH21195



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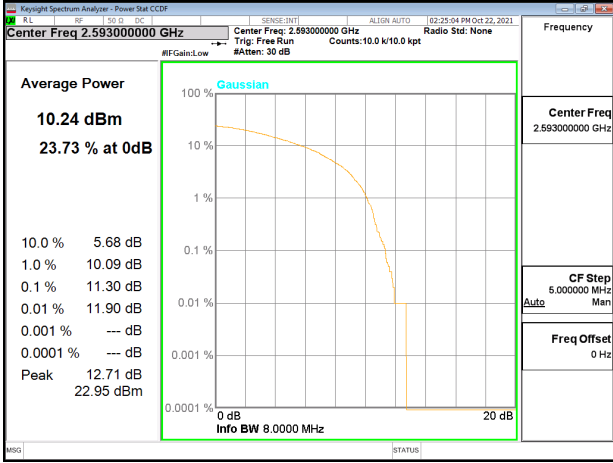
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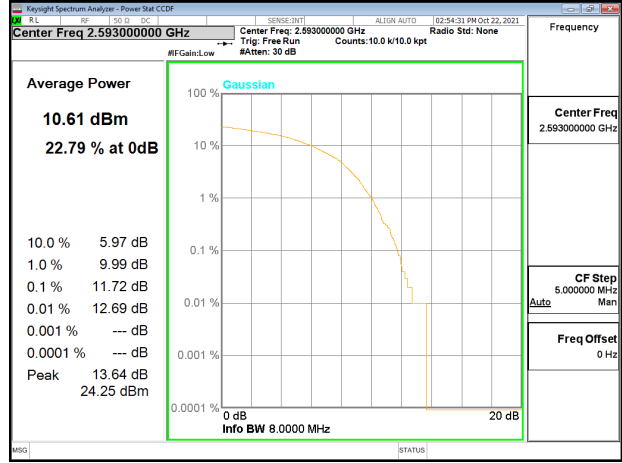
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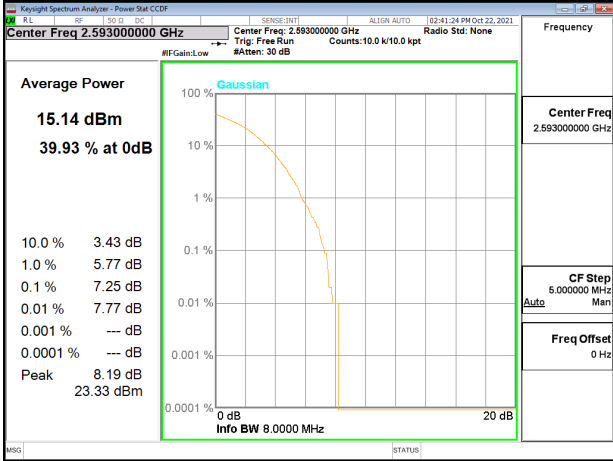
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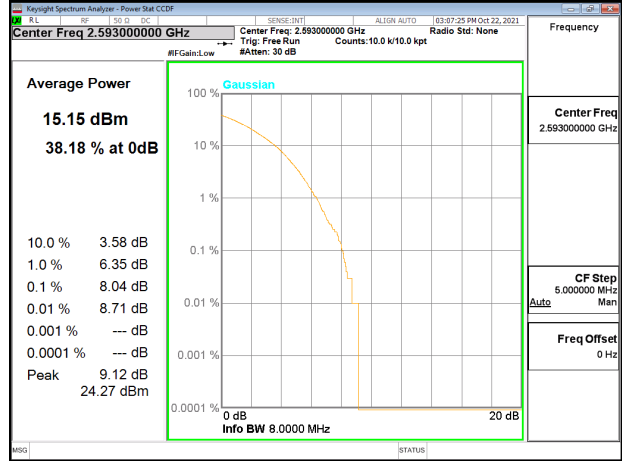
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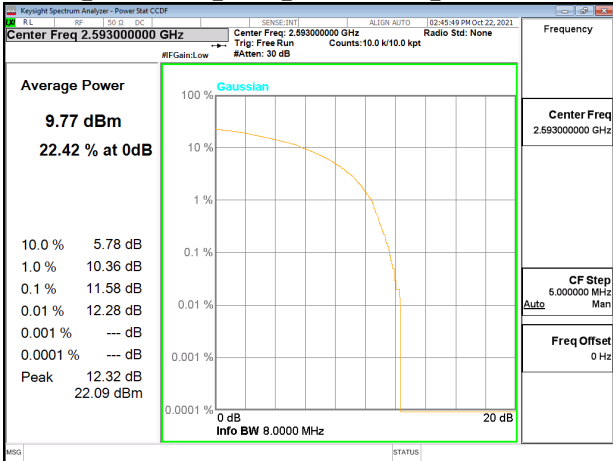
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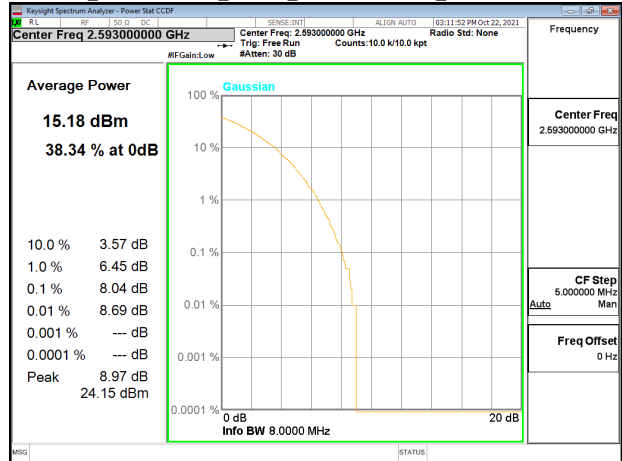
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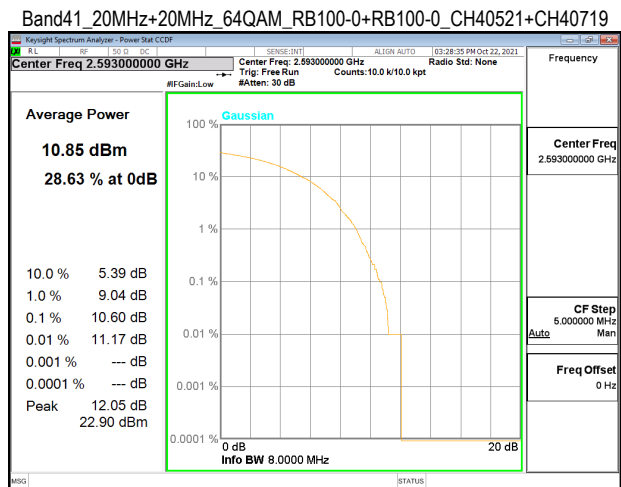
Band41\_20MHz+15MHz\_64QAM\_RB100-0+RB75-0\_CH40546+CH40717



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~ End of Report ~

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