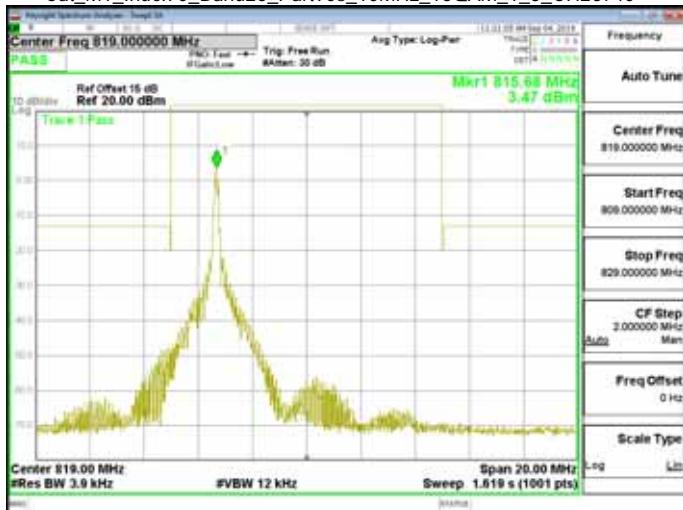
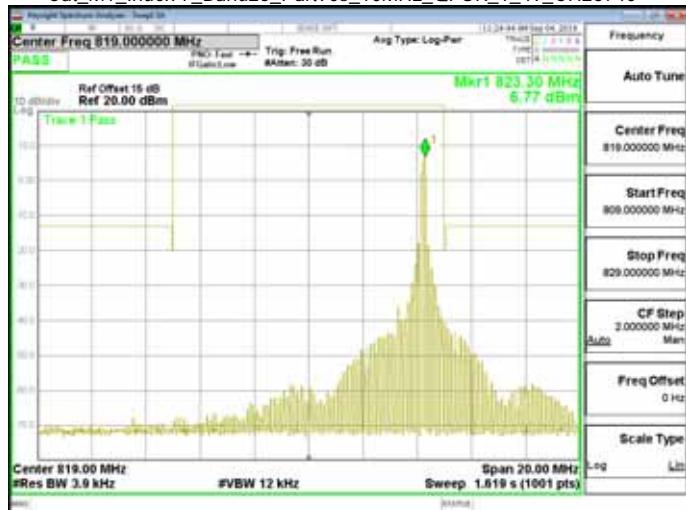


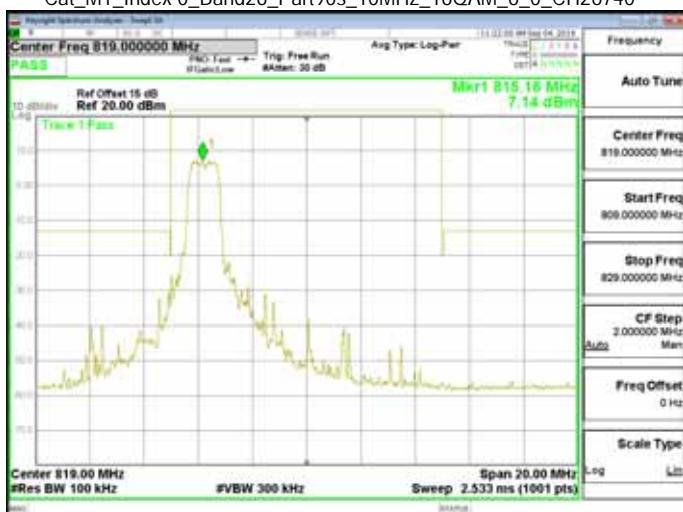
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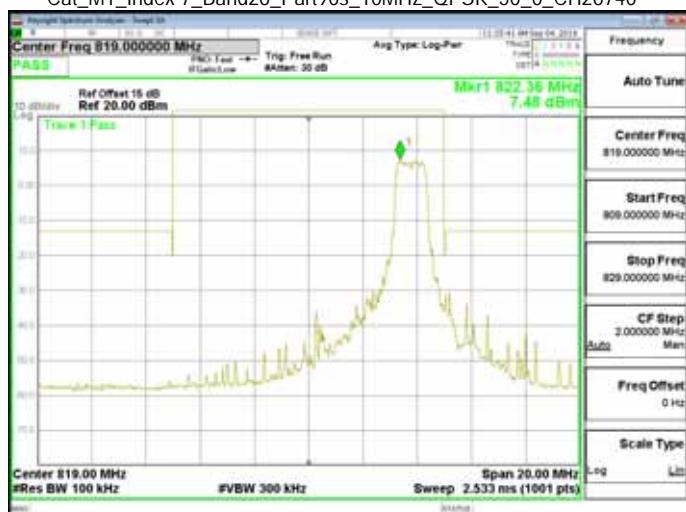
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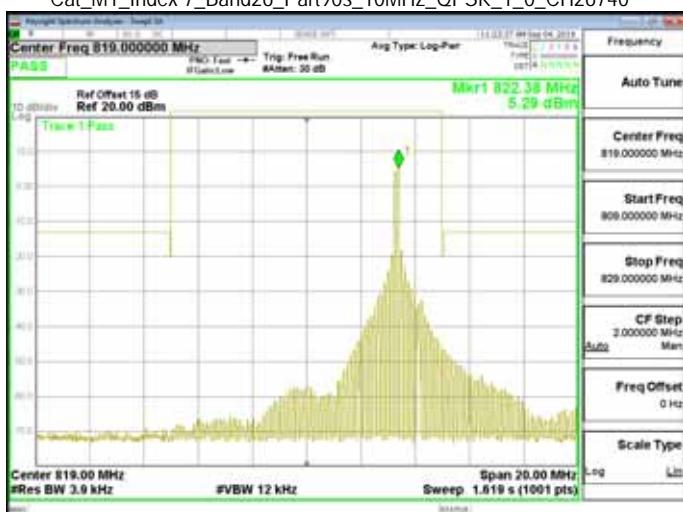
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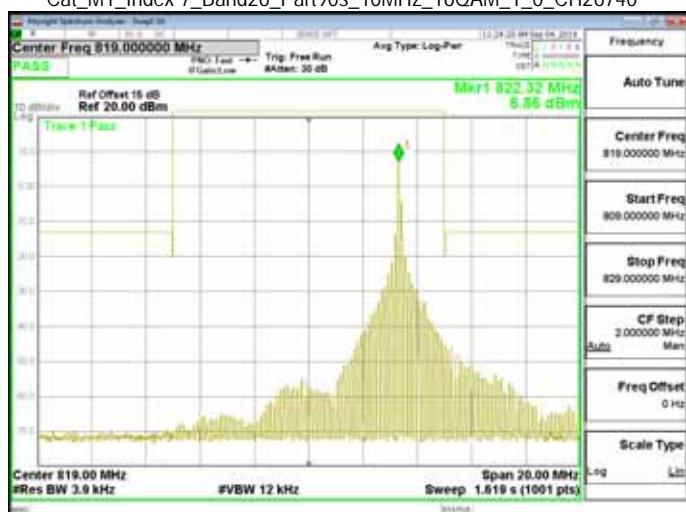
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Cat_M1_Index_7_Band26_Part90s_10MHz_QPSK_1_0_CH26740



Cat_M1_Index_7_Band26_Part90s_10MHz_16QAM_1_0_CH26740



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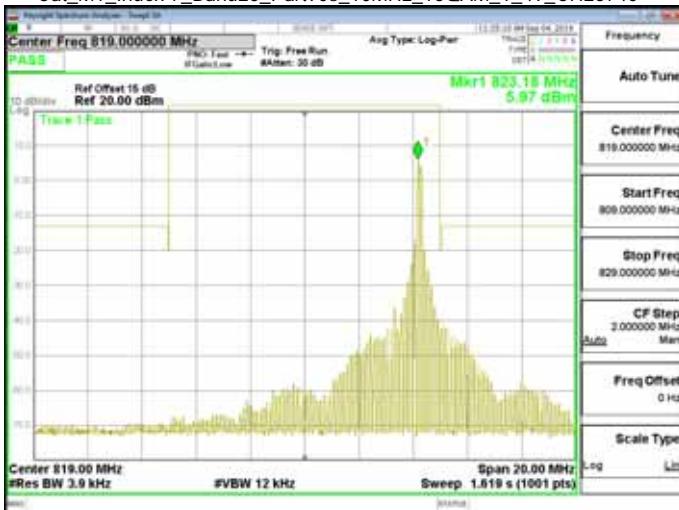
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Cat_M1_Index 7_Band26_Part90s_10MHz_16QAM_1_49_CH26740



Cat_M1_Index 7_Band26_Part90s_10MHz_16QAM_50_0_CH26740



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9 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

9.1 Standard Applicable

According to FCC §2.1053,

FCC §22.917(a), §24.238(a), §27.53(h)

RSS-130 §4.7, RSS-132 §5.5, RSS-139 §6.5, RSS-139 §6.6

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(c) for B13

For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least $43 + 10 \log(P)$ dB (-13dBm)

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than $65 + 10 \log(P)$ dB in a 6.25 kHz band segment, for mobile and portable stations;

FCC §27.53 (f) for B13

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. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

FCC §27.53(c) (5) & FCC §27.53(g) for B12, 13

Compliance for operations in the 600 MHz, 698-746 MHz, 746-758 MHz and the 776-788 MHz band with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

RSS-130 §4.7.1 for B12, 13

Compliance for operations in the 617-652 MHz, 663-698 MHz, 698-756 MHz and the 777-787 MHz band, the unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least $43 + 10 \log_{10} p$ (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.

RSS-130 §4.7.2 for B13

In addition to the limit outlined in section 4.7.1 above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:

the power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:

76 + 10 $\log_{10} p$ (watts), dB, for base and fixed equipment and
65 + 10 $\log_{10} p$ (watts), dB, for mobile and portable equipment

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the e.i.r.p. in the band 1559-1610 MHz shall not exceed -70 dBW/MHz for wideband signal and -80 dBW for discrete emission with bandwidth less than 700 Hz.

FCC §27.53(h)(3) for B4

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

§90.691 Emission mask requirements for EA-based systems for B26

(a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \text{ Log}_{10}(f/6.1)$ decibels or $50 + 10 \text{ Log}_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \text{ Log}_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

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Table 2 — Unwanted Emissions for Mobile, Portable and Low-Power Fixed Subscriber Equipment

Frequency (MHz)	Attenuation (dB)
<2200	$43 + 10 \log_{10}(p)$
2200 - 2288	$70 + 10 \log_{10}(p)$
2288 - 2292	$67 + 10 \log_{10}(p)$
2292 - 2296	$61 + 10 \log_{10}(p)$
2296 - 2300	$55 + 10 \log_{10}(p)$
2300 - 2305	$43 + 10 \log_{10}(p)$
2305 - 2320	$43 + 10 \log_{10}(p)$ ^{Note}
2320 - 2324	$55 + 10 \log_{10}(p)$
2324 - 2328	$61 + 10 \log_{10}(p)$
2328 - 2337	$67 + 10 \log_{10}(p)$
2337 - 2341	$61 + 10 \log_{10}(p)$
2341 - 2345	$55 + 10 \log_{10}(p)$
2345 - 2360	$43 + 10 \log_{10}(p)$ ^{Note}
2360 - 2365	$43 + 10 \log_{10}(p)$
2365 - 2395	$70 + 10 \log_{10}(p)$
>2395	$43 + 10 \log_{10}(p)$

Note: Measured at the edges of the highest and lowest frequency range(s) in which the equipment is designed to operate. See Section 1.2 for the permitted frequency ranges for various equipment types.

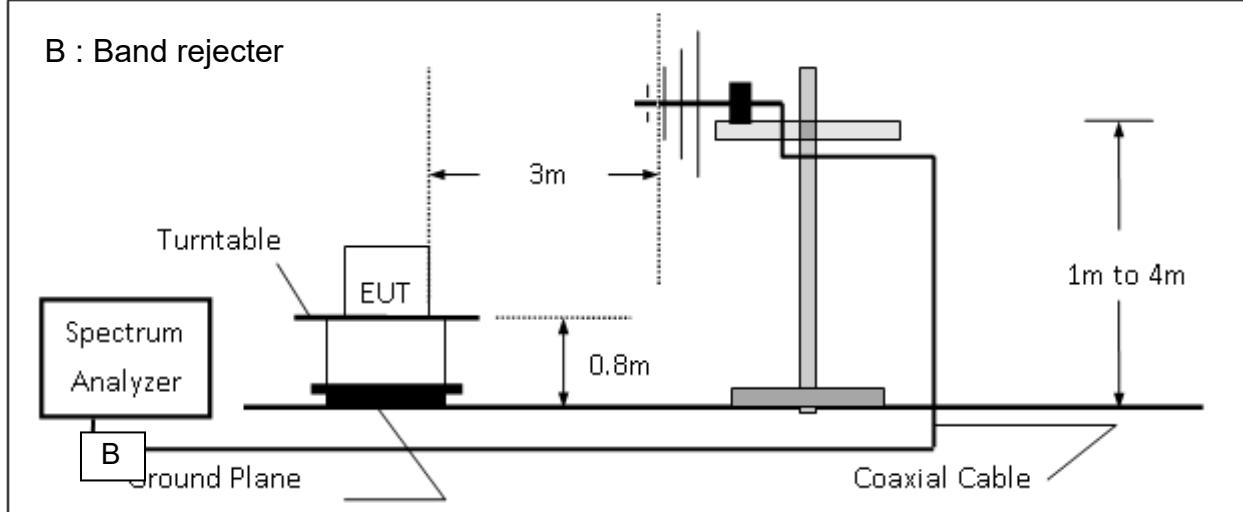
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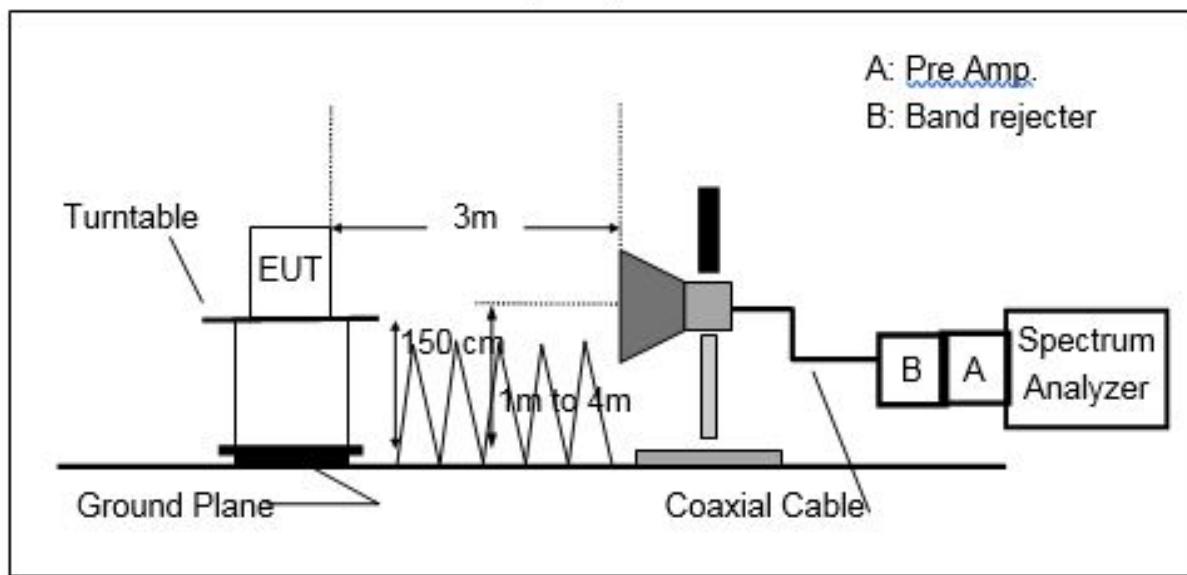
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9.2 EUT Setup

Radiated Emission Test Set-Up, Frequency Below 1000MHz



Radiated Emission Test Set-UP Frequency Over 1 GHz



9.3 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.

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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.

$$\text{ERP (dBm)} = \text{SG Level(dBm)} + \text{Antenna Gain(dBd)} + \text{Cable Loss(dB)}$$

$$\text{EIRP (dBm)} = \text{SG Level(dBm)} + \text{Antenna Gain(dBi)} + \text{Cable Loss(dB)}$$

9.4 Measurement Equipment Used:

ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Bi-log Antenna	SCHWAZBECK	VULB9168	378	01/04/2019	01/03/2020
Horn Antenna	Schwarzbeck	BBHA9120D	603	04/24/2019	04/23/2020
Horn Antenna	Schwarzbeck	BBHA9170	184	12/27/2018	12/26/2019
Horn Antenna	Schwarzbeck	BBHA9170	185	08/07/2019	08/06/2020
Horn Antenna	Schwarzbeck	BBHA9120D	D803	12/24/2018	12/23/2019
Bi-log Antenna	TESEO	CBL 6112D	35242 & AT-N0555	01/10/2019	01/09/2020
PXA Spectrum Analyzer	Agilent	N9030A	MY53120760	04/22/2019	04/21/2020
Pre-Amplifier	EMC Instruments	EMC184045B	980135	01/02/2019	01/01/2020
Pre-Amplifier	EMC Instruments	EMC051825	980152	01/02/2019	01/01/2020
Pre-Amplifier	HP	8447D	2944A09469	01/02/2019	01/01/2020
Filter 800-1000	Micro-Tronics	EWT	M1	01/02/2019	01/01/2020
Filter 1700-2000	Micro-Tronics	EWT	M3	01/02/2019	01/01/2020
1GHz High Pass Filter	Micro-Tronics	HPM50108	32	01/02/2019	01/01/2020
2GHz High Pass Filter	Micro-Tronics	HPM50110	36	01/02/2019	01/01/2020
Coaxial Cable	Huber Suhner	succoflex 102	MY2622/2	01/02/2019	01/02/2020
Coaxial Cable	Huber Suhner	succoflex 104A	800086/4a	01/02/2019	01/02/2020
Coaxial Cable	Huber Suhner	EMC 104-SM-SM-2000	160123	01/02/2019	01/02/2020

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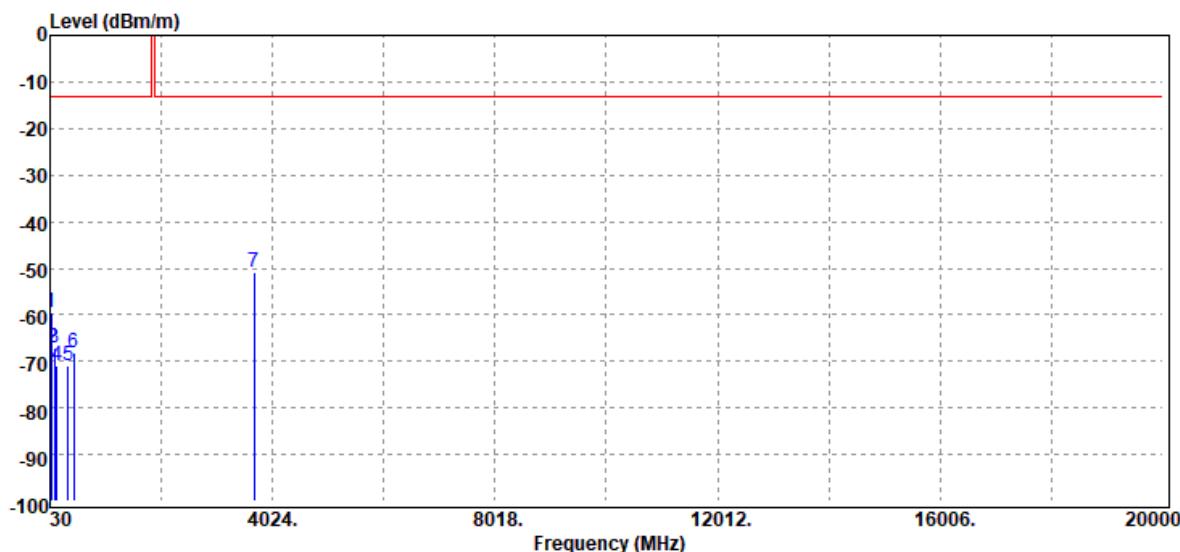
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9.5 Measurement Result:

Radiated Spurious Emission Measurement Result: NB_IOT-Band 2 (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-06
Operation Mode	:NB_IOT B2 15kHz QPSK 1 0	Temp./Humi.	:26.3/69
Test Mode	:Tx CH Low	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:1850.1 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
44.55	-59.50	-40.52	-18.31	-0.67	-13.00	-46.50
62.01	-67.00	-51.56	-14.69	-0.75	-13.00	-54.00
104.69	-66.97	-59.29	-6.68	-1.00	-13.00	-53.97
146.40	-71.07	-61.96	-7.93	-1.18	-13.00	-58.07
358.83	-70.80	-67.35	-1.52	-1.93	-13.00	-57.80
462.62	-68.19	-64.47	-1.53	-2.19	-13.00	-55.19
3700.20	-50.98	-57.45	12.40	-5.93	-13.00	-37.98

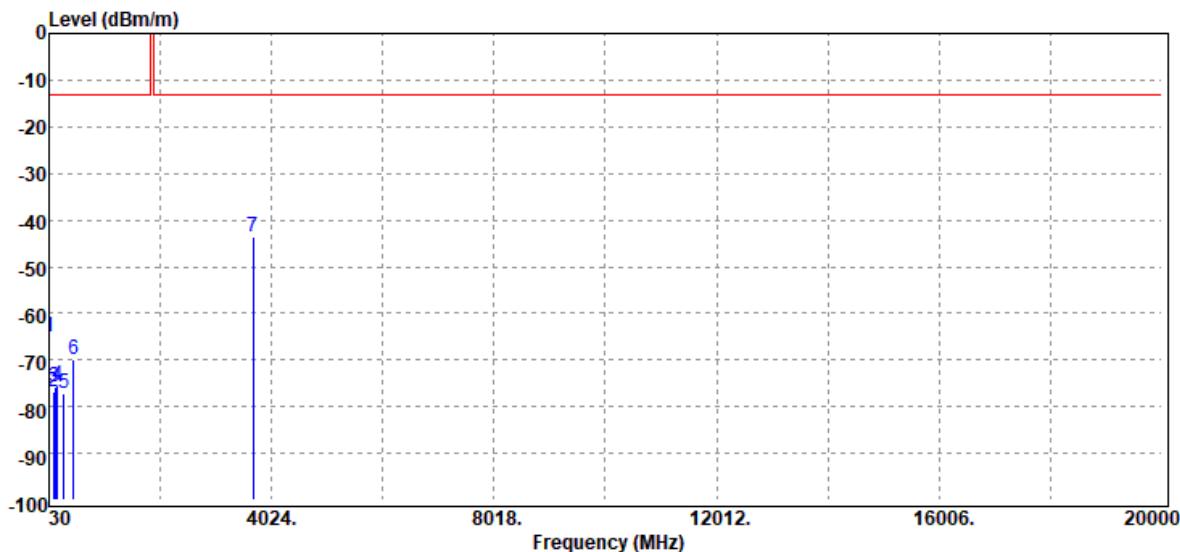
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Report Number :ER-2019-80104
 Operation Mode :NB_IOT B2 15kHz QPSK 1 0
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :1850.1 MHz

Test Date :2019-09-06
 Temp./Humi. :26.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-64.95	-45.17	-19.15	-0.63	-13.00	-51.95
104.69	-76.93	-69.25	-6.68	-1.00	-13.00	-63.93
142.52	-75.76	-66.69	-7.91	-1.16	-13.00	-62.76
184.23	-75.30	-70.48	-3.53	-1.29	-13.00	-62.30
302.57	-77.08	-73.75	-1.67	-1.66	-13.00	-64.08
463.59	-69.96	-66.24	-1.52	-2.20	-13.00	-56.96
3700.20	-43.69	-50.16	12.40	-5.93	-13.00	-30.69

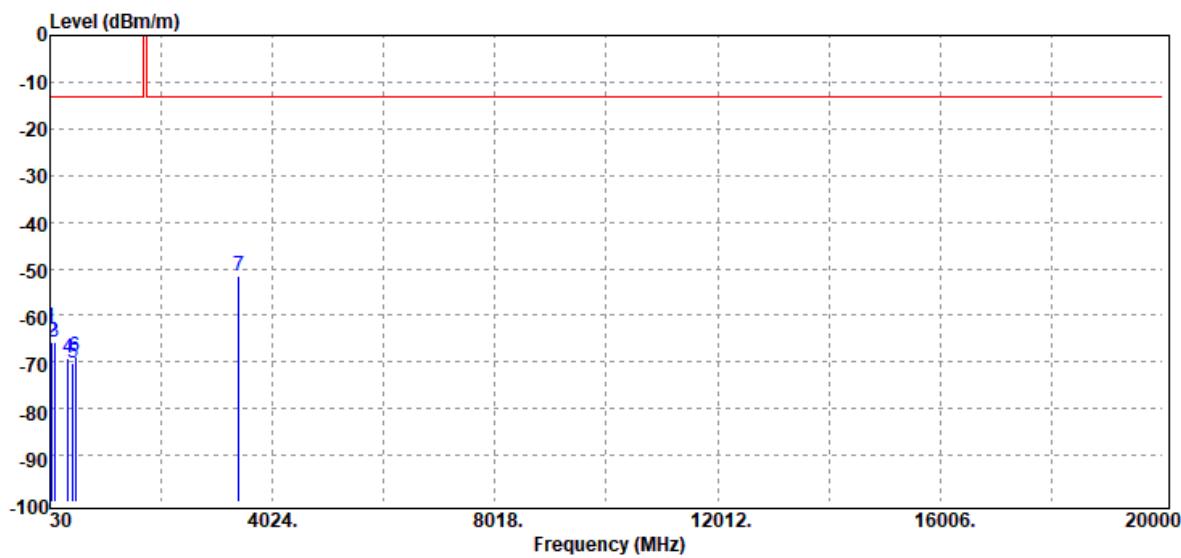
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Radiated Spurious Emission Measurement Result: NB_IOT-Band 4 (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-06
Operation Mode	:NB_IOT B4 15kHz QPSK 1 11	Temp./Humi.	:26.3/69
Test Mode	:Tx CH Low	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:1710.1 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
36.79	-62.51	-42.64	-19.25	-0.62	-13.00	-49.51
62.01	-65.88	-50.44	-14.69	-0.75	-13.00	-52.88
104.69	-65.57	-57.89	-6.68	-1.00	-13.00	-52.57
356.89	-69.07	-65.62	-1.53	-1.92	-13.00	-56.07
441.28	-70.28	-66.69	-1.74	-1.85	-13.00	-57.28
479.11	-68.76	-65.07	-1.44	-2.25	-13.00	-55.76
3420.20	-51.62	-58.22	12.40	-5.80	-13.00	-38.62

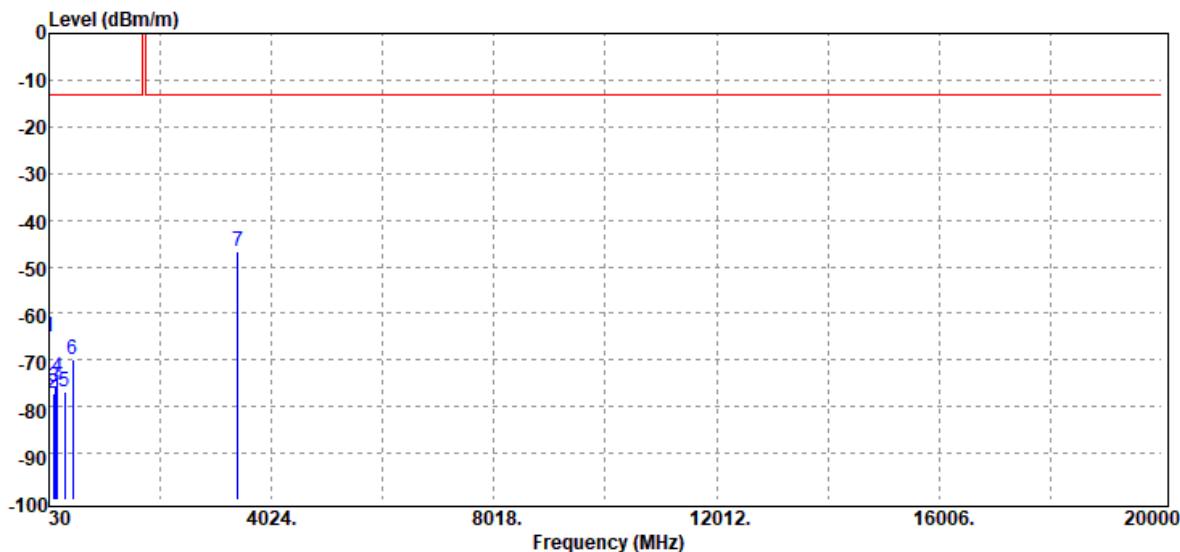
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Report Number :ER-2019-80104
 Operation Mode :NB_IOT B4 15kHz QPSK 1 11
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :1710.1 MHz

Test Date :2019-09-06
 Temp./Humi. :26.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-65.20	-45.42	-19.15	-0.63	-13.00	-52.20
104.69	-77.10	-69.42	-6.68	-1.00	-13.00	-64.10
142.52	-75.61	-66.54	-7.91	-1.16	-13.00	-62.61
183.26	-73.70	-68.77	-3.65	-1.28	-13.00	-60.70
306.45	-76.71	-73.41	-1.67	-1.63	-13.00	-63.71
459.71	-69.87	-66.13	-1.58	-2.16	-13.00	-56.87
3420.20	-46.56	-53.16	12.40	-5.80	-13.00	-33.56

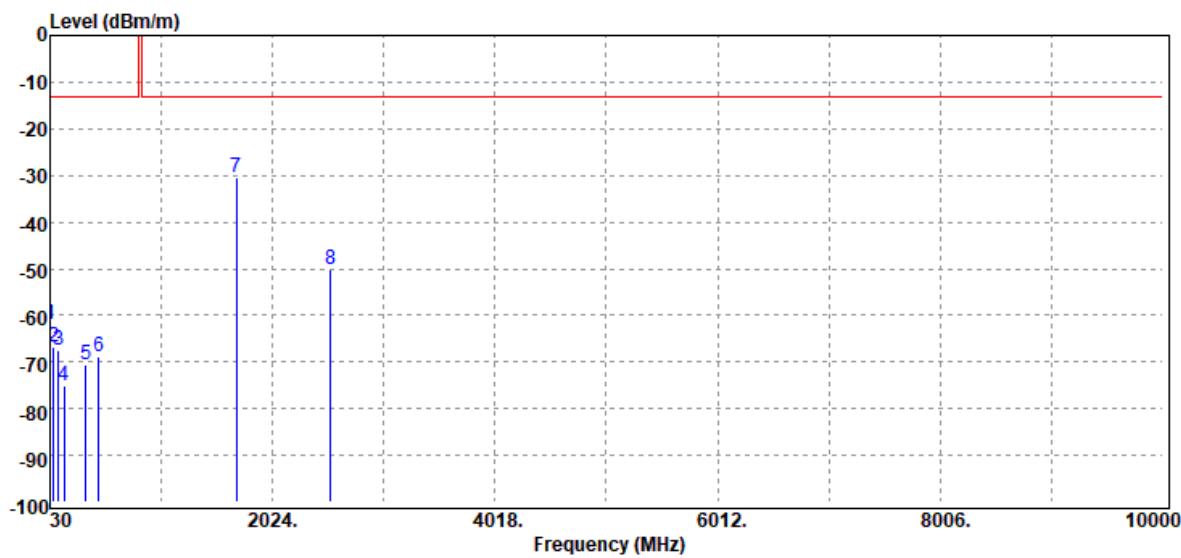
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Radiated Spurious Emission Measurement Result: NB_IOT-Band 5 (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-06
Operation Mode	:NB_IOT B5 15kHz BPSK 1 11	Temp./Humi.	:26.3/69
Test Mode	:Tx CH High	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:848.9 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-61.94	-41.76	-19.57	-0.61	-13.00	-48.94
62.01	-66.69	-51.25	-14.69	-0.75	-13.00	-53.69
104.69	-67.39	-59.71	-6.68	-1.00	-13.00	-54.39
155.13	-75.04	-66.43	-7.32	-1.29	-13.00	-62.04
353.01	-70.66	-67.24	-1.51	-1.91	-13.00	-57.66
464.56	-69.01	-65.30	-1.50	-2.21	-13.00	-56.01
1697.80	-30.45	-36.08	9.68	-4.05	-13.00	-17.45
2545.70	-50.14	-55.84	10.68	-4.98	-13.00	-37.14

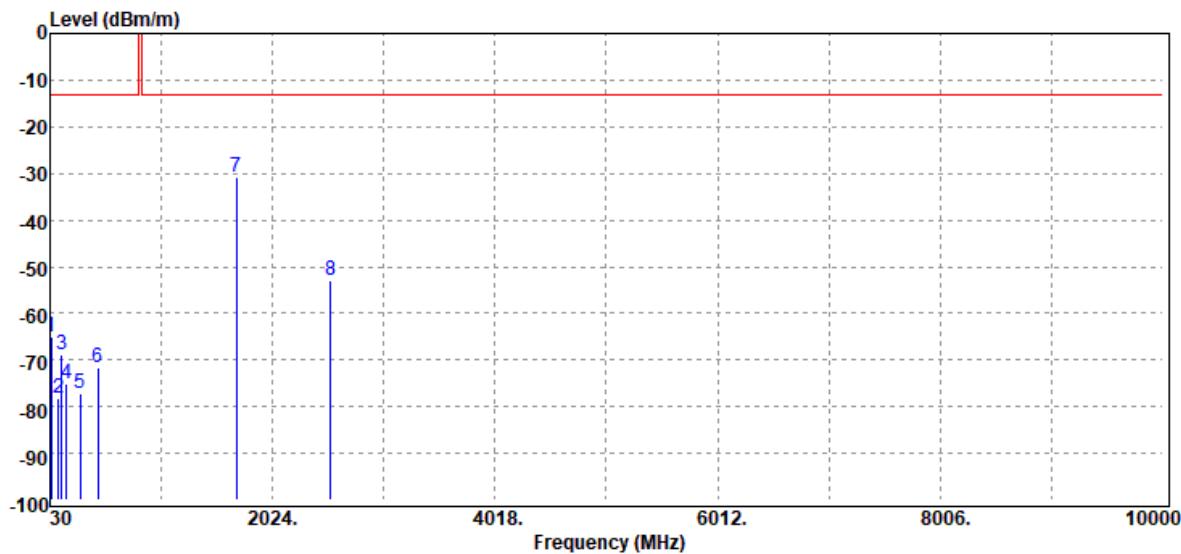
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Report Number :ER-2019-80104
 Operation Mode :NB_IOT B5 15kHz BPSK 1 11
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :848.9 MHz

Test Date :2019-09-06
 Temp./Humi. :26.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-64.90	-45.12	-19.15	-0.63	-13.00	-51.90
104.69	-78.32	-70.64	-6.68	-1.00	-13.00	-65.32
131.85	-69.01	-60.48	-7.42	-1.11	-13.00	-56.01
181.32	-75.14	-69.94	-3.94	-1.26	-13.00	-62.14
303.54	-77.09	-73.77	-1.66	-1.66	-13.00	-64.09
462.62	-71.57	-67.85	-1.53	-2.19	-13.00	-58.57
1697.80	-30.89	-36.52	9.68	-4.05	-13.00	-17.89
2545.70	-52.79	-58.49	10.68	-4.98	-13.00	-39.79

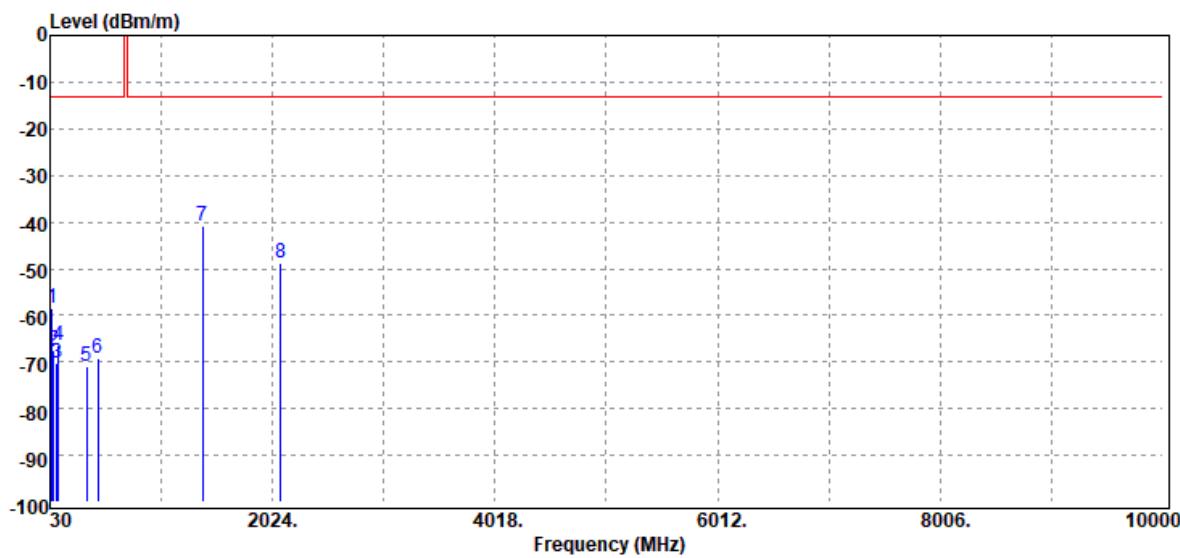
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Radiated Spurious Emission Measurement Result: NB_IOT-Band 12 (The Worst Case)

Report Number :ER-2019-80104 Test Date :2019-09-06
Operation Mode :NB_IOT B12 15kHz BPSK 1 11 Temp./Humi. :26.3/69
Test Mode :Tx CH Low Antenna Pol. :VERTICAL
EUT Pol :H Plane Engineer. : Nick
Test Channel :699.1 MHz



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
44.55	-58.64	-39.66	-18.31	-0.67	-13.00	-45.64
62.01	-67.49	-52.05	-14.69	-0.75	-13.00	-54.49
89.17	-70.29	-63.26	-6.12	-0.91	-13.00	-57.29
104.69	-66.27	-58.59	-6.68	-1.00	-13.00	-53.27
355.92	-70.96	-67.51	-1.53	-1.92	-13.00	-57.96
460.68	-69.32	-65.57	-1.57	-2.18	-13.00	-56.32
1398.20	-40.97	-45.17	7.89	-3.69	-13.00	-27.97
2097.30	-48.76	-54.06	9.82	-4.52	-13.00	-35.76

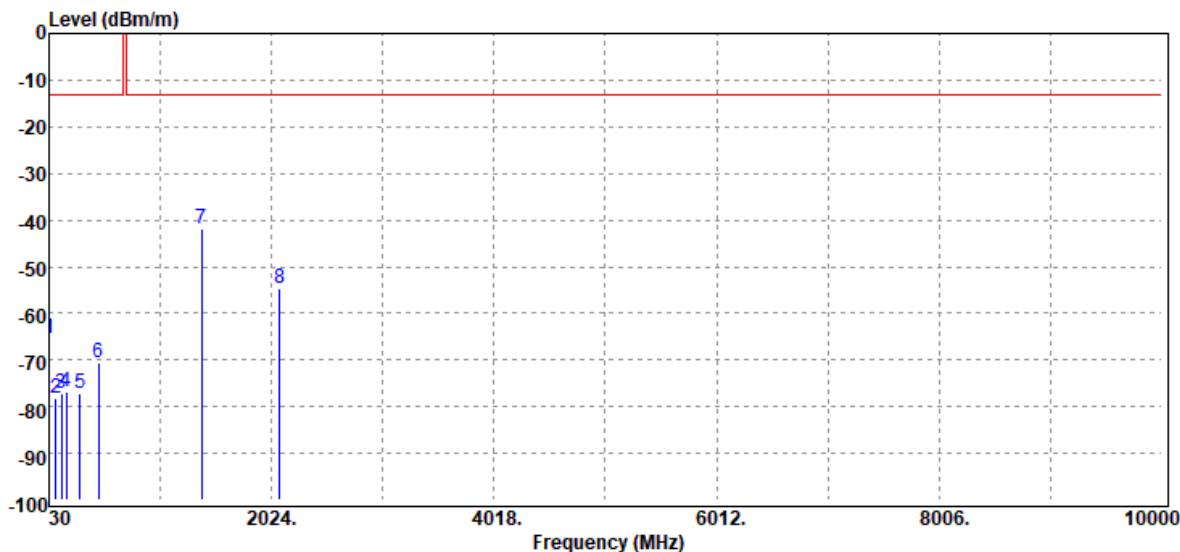
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Report Number :ER-2019-80104
 Operation Mode :NB_IOT B12 15kHz BPSK 1 11
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :699.1 MHz

Test Date :2019-09-06
 Temp./Humi. :26.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-65.28	-45.10	-19.57	-0.61	-13.00	-52.28
94.02	-78.08	-71.46	-5.68	-0.94	-13.00	-65.08
142.52	-77.07	-68.00	-7.91	-1.16	-13.00	-64.07
184.23	-76.67	-71.85	-3.53	-1.29	-13.00	-63.67
305.48	-77.20	-73.90	-1.66	-1.64	-13.00	-64.20
473.29	-70.66	-66.89	-1.51	-2.26	-13.00	-57.66
1398.20	-41.75	-45.95	7.89	-3.69	-13.00	-28.75
2097.30	-54.62	-59.92	9.82	-4.52	-13.00	-41.62

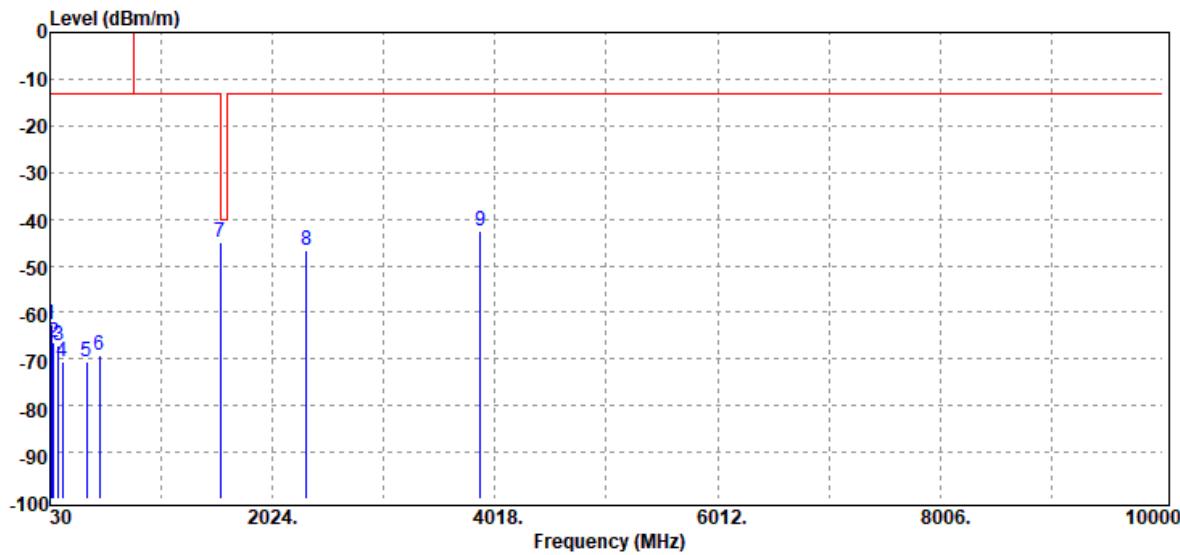
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Radiated Spurious Emission Measurement Result: NB_IOT-Band 13 (The Worst Case)

Report Number :ER-2019-80104 Test Date :2019-09-06
Operation Mode :NB_IOT B13 3.75kHz BPSK 1 0 Temp./Humi. :26.3/69
Test Mode :Tx CH Low Antenna Pol. :VERTICAL
EUT Pol :H Plane Engineer. : Nick
Test Channel :777.1 MHz



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-62.71	-42.94	-19.13	-0.64	-13.00	-49.71
62.01	-66.57	-51.13	-14.69	-0.75	-13.00	-53.57
104.69	-66.97	-59.29	-6.68	-1.00	-13.00	-53.97
142.52	-70.72	-61.65	-7.91	-1.16	-13.00	-57.72
354.95	-70.52	-67.07	-1.54	-1.91	-13.00	-57.52
477.17	-69.15	-65.43	-1.47	-2.25	-13.00	-56.15
1554.20	-45.02	-50.25	9.11	-3.88	-13.00	-32.02
2331.30	-46.75	-51.46	9.49	-4.78	-13.00	-33.75
3885.50	-42.55	-48.53	12.20	-6.22	-13.00	-29.55

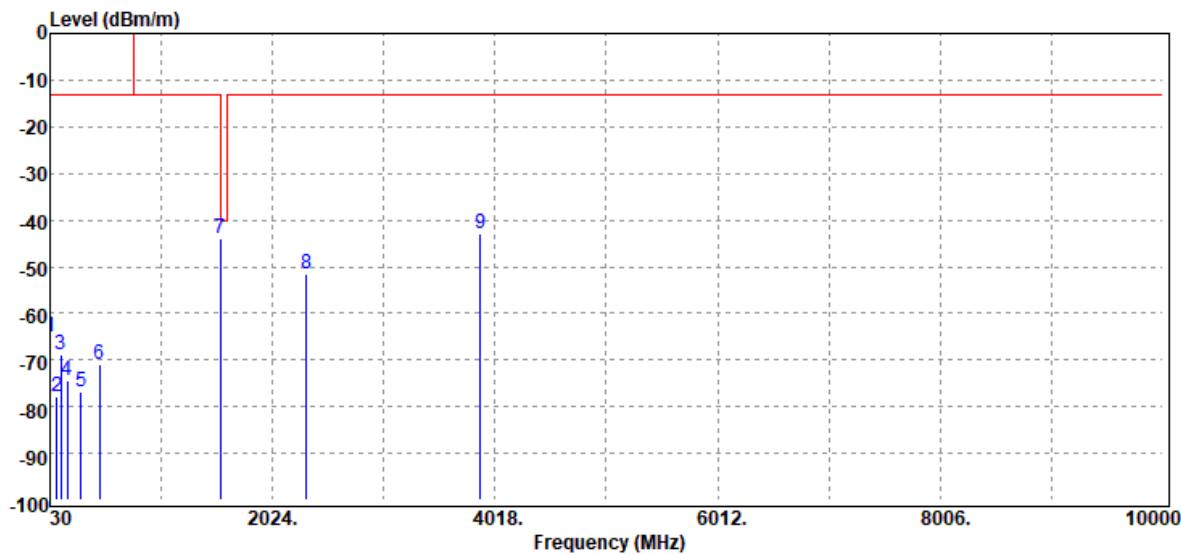
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Report Number :ER-2019-80104
 Operation Mode :NB_IOT B13 3.75kHz BPSK 10
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :777.1 MHz

Test Date :2019-09-06
 Temp./Humi. :26.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-65.18	-45.00	-19.57	-0.61	-13.00	-52.18
92.08	-77.90	-71.31	-5.66	-0.93	-13.00	-64.90
128.94	-68.75	-60.43	-7.23	-1.09	-13.00	-55.75
184.23	-74.37	-69.55	-3.53	-1.29	-13.00	-61.37
306.45	-76.92	-73.62	-1.67	-1.63	-13.00	-63.92
477.17	-70.77	-67.05	-1.47	-2.25	-13.00	-57.77
1554.20	-43.99	-49.22	9.11	-3.88	-13.00	-30.99
2331.30	-51.64	-56.35	9.49	-4.78	-13.00	-38.64
3885.50	-42.83	-48.81	12.20	-6.22	-13.00	-29.83

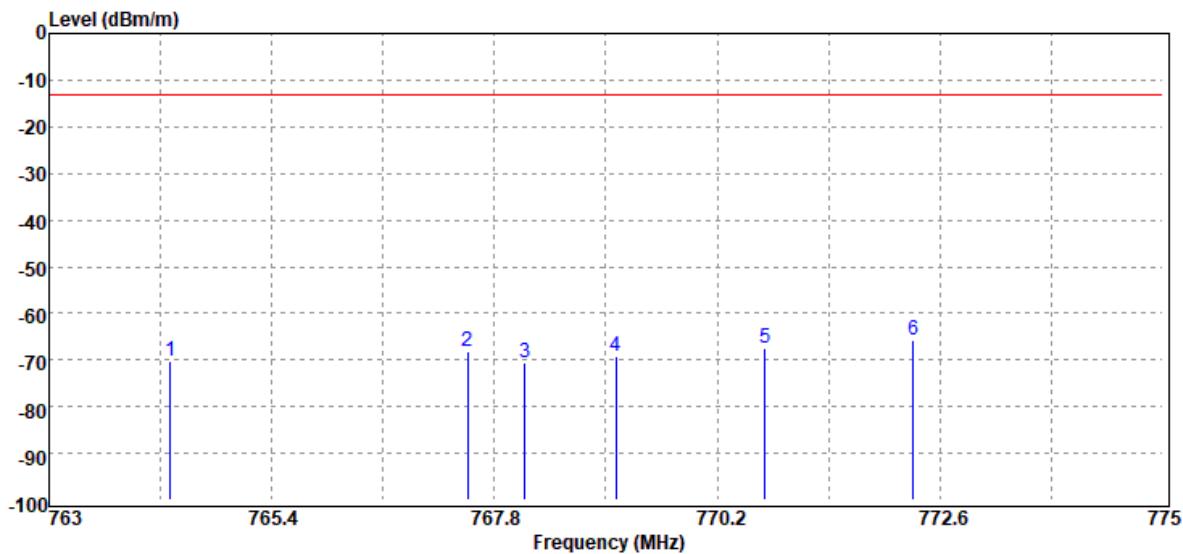
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Radiated Spurious Emission Measurement Result: LTE-Band 13 (763~775MHz) (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-06
Operation Mode	:NB_IOT B13 3.75kHz BPSK 10	Temp./Humi.	:26.3/69
Test Mode	:Tx CH Low	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:777.1 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
764.31	-70.11	-65.72	-1.78	-2.61	-13.00	-57.11
767.51	-68.20	-63.87	-1.74	-2.59	-13.00	-55.20
768.12	-70.61	-66.29	-1.73	-2.59	-13.00	-57.61
769.11	-69.34	-65.04	-1.72	-2.58	-13.00	-56.34
770.72	-67.38	-63.07	-1.72	-2.59	-13.00	-54.38
772.31	-65.79	-61.46	-1.73	-2.60	-13.00	-52.79

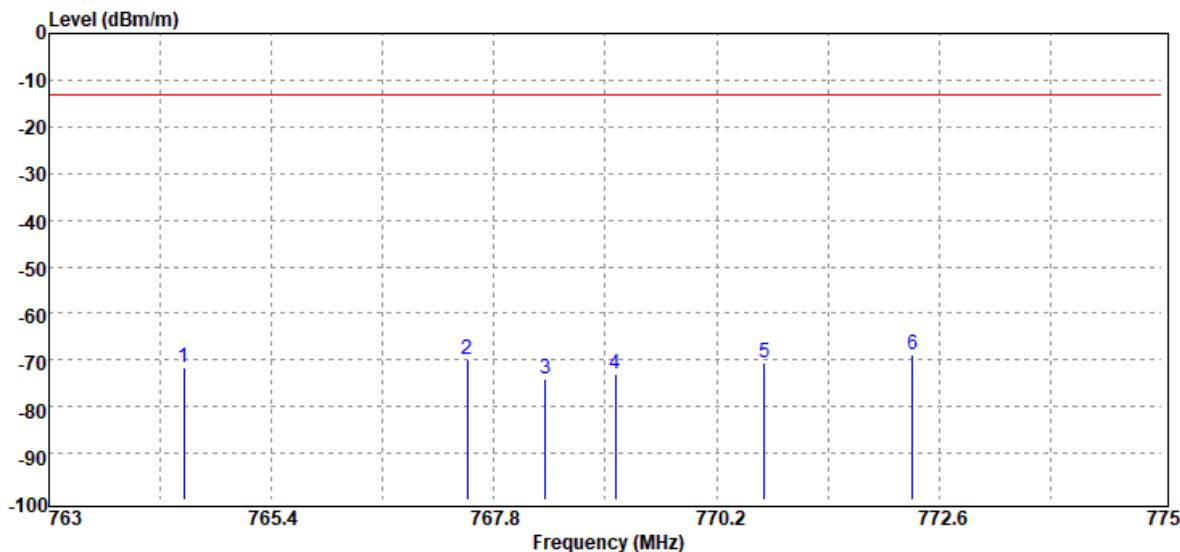
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Report Number :ER-2019-80104
 Operation Mode :NB_IOT B13 3.75kHz BPSK 10
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :777.1 MHz

Test Date :2019-09-06
 Temp./Humi. :26.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
764.45	-71.53	-67.14	-1.78	-2.61	-13.00	-58.53
767.51	-70.02	-65.69	-1.74	-2.59	-13.00	-57.02
768.35	-74.05	-69.73	-1.73	-2.59	-13.00	-61.05
769.11	-73.17	-68.87	-1.72	-2.58	-13.00	-60.17
770.72	-70.56	-66.25	-1.72	-2.59	-13.00	-57.56
772.31	-68.86	-64.53	-1.73	-2.60	-13.00	-55.86

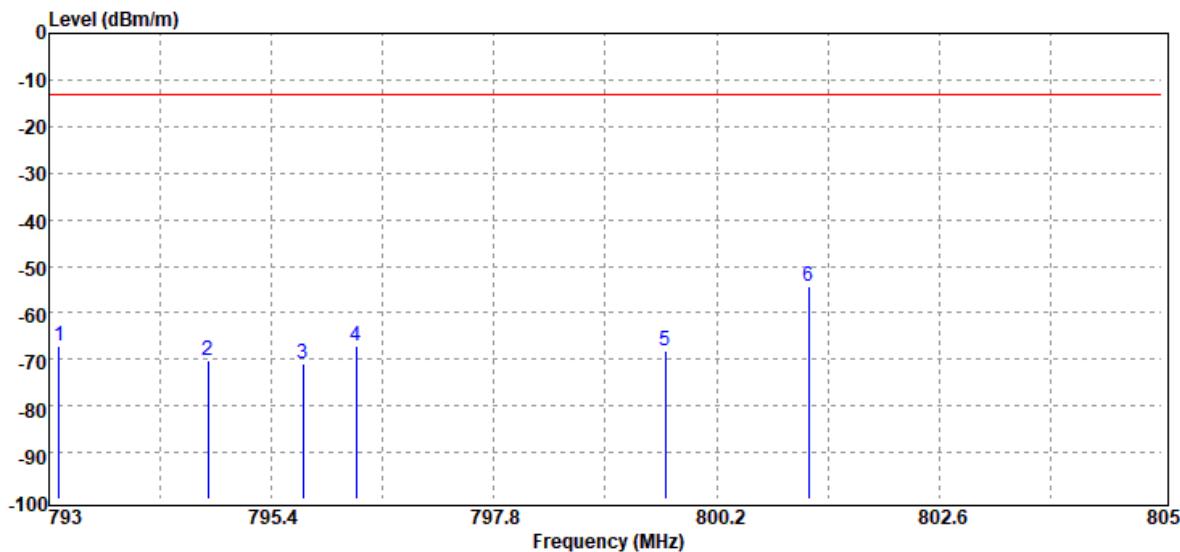
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Radiated Spurious Emission Measurement Result: LTE-Band 13 (793~805MHz) (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-06
Operation Mode	:NB_IOT B13 3.75kHz BPSK 10	Temp./Humi.	:26.3/69
Test Mode	:Tx CH Low	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:777.1 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
793.11	-67.03	-62.34	-1.65	-3.04	-13.00	-54.03
794.72	-70.17	-65.48	-1.63	-3.06	-13.00	-57.17
795.74	-70.91	-66.21	-1.62	-3.08	-13.00	-57.91
796.31	-67.11	-62.40	-1.62	-3.09	-13.00	-54.11
799.65	-68.05	-63.32	-1.58	-3.15	-13.00	-55.05
801.20	-54.32	-49.57	-1.59	-3.16	-13.00	-41.32

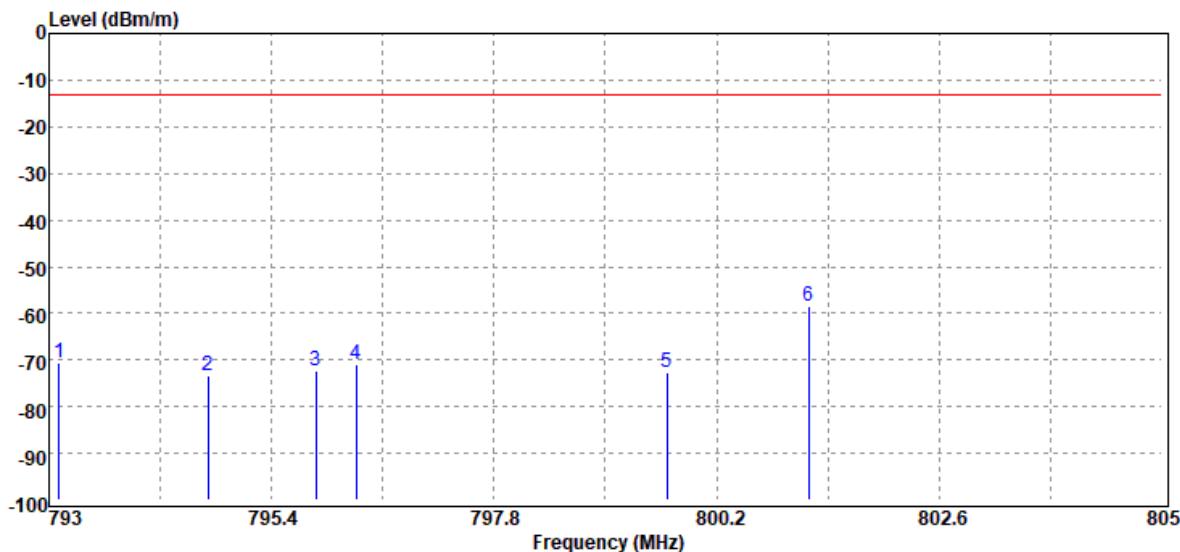
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Report Number :ER-2019-80104
 Operation Mode :NB_IOT B13 3.75kHz BPSK 10
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :777.1 MHz

Test Date :2019-09-06
 Temp./Humi. :26.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
793.11	-70.49	-65.80	-1.65	-3.04	-13.00	-57.49
794.72	-73.32	-68.63	-1.63	-3.06	-13.00	-60.32
795.88	-72.45	-67.75	-1.62	-3.08	-13.00	-59.45
796.31	-70.99	-66.28	-1.62	-3.09	-13.00	-57.99
799.66	-72.75	-68.02	-1.58	-3.15	-13.00	-59.75
801.20	-58.44	-53.69	-1.59	-3.16	-13.00	-45.44

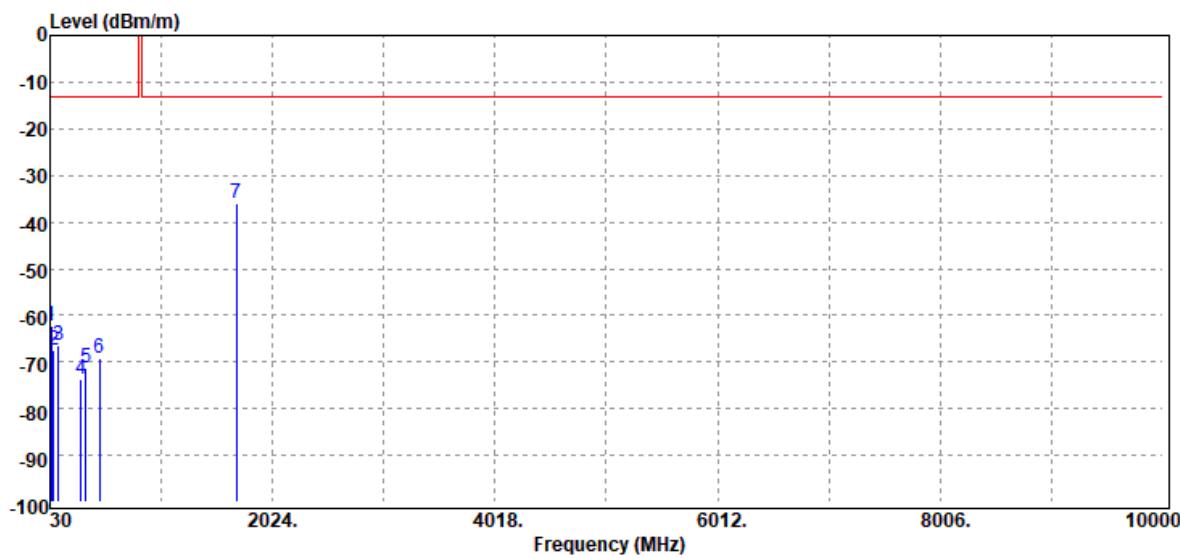
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Radiated Spurious Emission Measurement Result: NB_IOT-Band 26 (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-06
Operation Mode	:NB_IOT B26 15kHz BPSK 1 11	Temp./Humi.	:26.3/69
Test Mode	:Tx CH High	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:848.9 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-62.21	-42.44	-19.13	-0.64	-13.00	-49.21
62.01	-67.38	-51.94	-14.69	-0.75	-13.00	-54.38
104.69	-66.58	-58.90	-6.68	-1.00	-13.00	-53.58
305.48	-73.72	-70.42	-1.66	-1.64	-13.00	-60.72
353.01	-71.40	-67.98	-1.51	-1.91	-13.00	-58.40
477.17	-69.05	-65.33	-1.47	-2.25	-13.00	-56.05
1697.80	-35.93	-41.56	9.68	-4.05	-13.00	-22.93

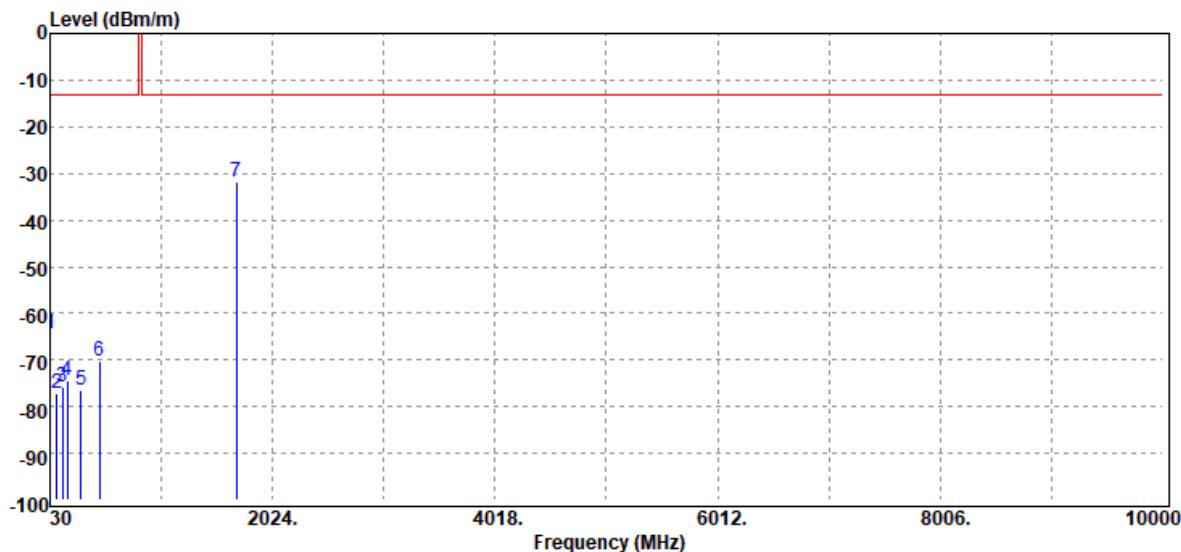
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Report Number :ER-2019-80104
 Operation Mode :NB_IOT B26 15kHz BPSK 1 11
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :848.9 MHz

Test Date :2019-09-06
 Temp./Humi. :26.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-64.32	-44.14	-19.57	-0.61	-13.00	-51.32
93.05	-77.24	-70.64	-5.67	-0.93	-13.00	-64.24
141.55	-75.74	-66.67	-7.92	-1.15	-13.00	-62.74
185.20	-74.47	-69.70	-3.47	-1.30	-13.00	-61.47
307.42	-76.53	-73.23	-1.68	-1.62	-13.00	-63.53
477.17	-70.15	-66.43	-1.47	-2.25	-13.00	-57.15
1697.80	-31.92	-37.55	9.68	-4.05	-13.00	-18.92

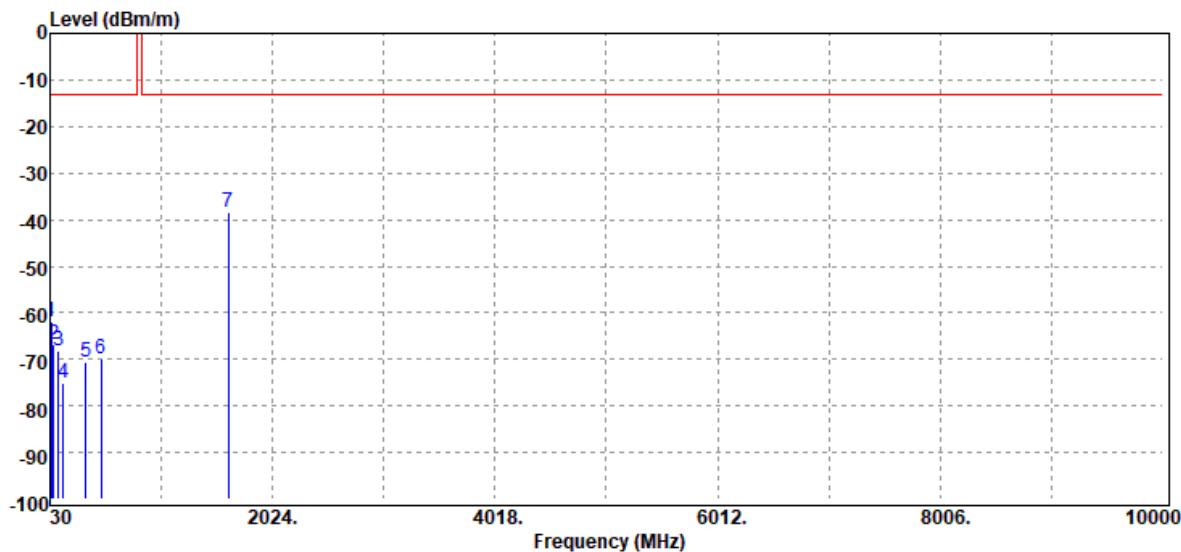
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Radiated Spurious Emission Measurement Result: NB_IOT-Band 26(Part 90)
 (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-06
Operation Mode	:NB_IOT B26 15kHz BPSK 1 11	Temp./Humi.	:26.3/69
Test Mode	:Tx CH Low	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:814.1 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
43.58	-61.96	-42.69	-18.60	-0.67	-13.00	-48.96
62.01	-66.64	-51.20	-14.69	-0.75	-13.00	-53.64
104.69	-68.33	-60.65	-6.68	-1.00	-13.00	-55.33
146.40	-75.03	-65.92	-7.93	-1.18	-13.00	-62.03
353.01	-70.71	-67.29	-1.51	-1.91	-13.00	-57.71
485.90	-69.87	-66.12	-1.53	-2.22	-13.00	-56.87
1628.20	-38.29	-43.56	9.26	-3.99	-13.00	-25.29

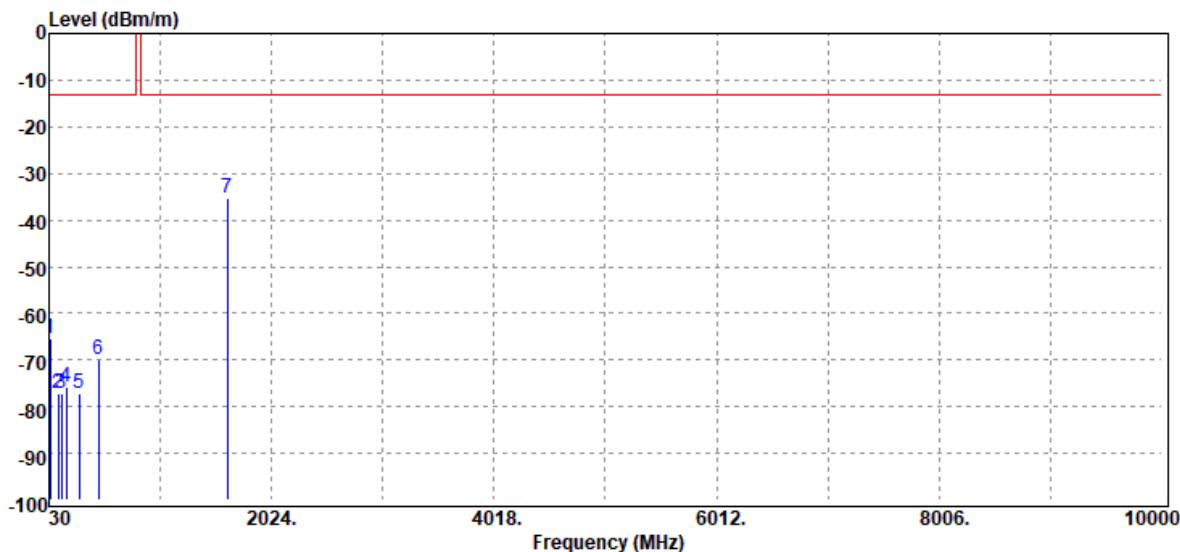
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Report Number :ER-2019-80104
 Operation Mode :NB_IOT B26 15kHz BPSK 1 11
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :814.1 MHz

Test Date :2019-09-06
 Temp./Humi. :26.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-65.49	-45.71	-19.15	-0.63	-13.00	-52.49
116.33	-77.30	-69.15	-7.13	-1.02	-13.00	-64.30
142.52	-77.16	-68.09	-7.91	-1.16	-13.00	-64.16
183.26	-75.75	-70.82	-3.65	-1.28	-13.00	-62.75
302.57	-77.19	-73.86	-1.67	-1.66	-13.00	-64.19
475.23	-69.88	-66.12	-1.51	-2.25	-13.00	-56.88
1628.20	-35.41	-40.68	9.26	-3.99	-13.00	-22.41

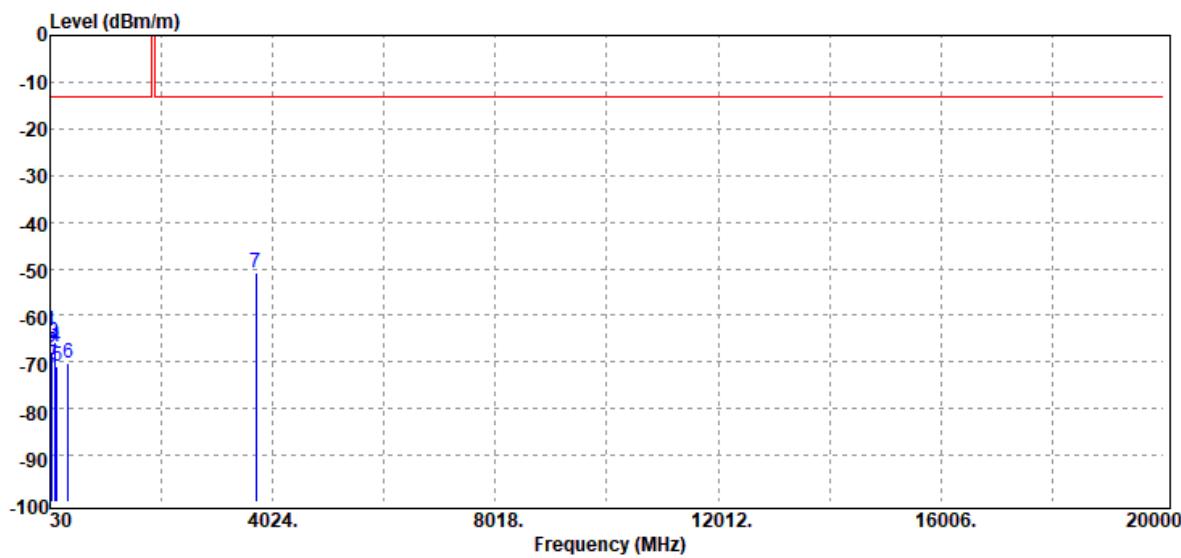
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Radiated Spurious Emission Measurement Result: CAT_M1_Band 2 (The Worst Case)

Report Number :ER-2019-80104 Test Date :2019-09-09
Operation Mode :Cat_M1 B2 15MHz 16QAM 1 5 Temp./Humi. :24.3/69
Test Mode :Tx CH Low Antenna Pol. :VERTICAL
EUT Pol :H Plane Engineer. : Nick
Test Channel :1857.5 MHz



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-63.16	-43.39	-19.13	-0.64	-13.00	-50.16
61.04	-67.95	-52.19	-15.02	-0.74	-13.00	-54.95
104.69	-65.79	-58.11	-6.68	-1.00	-13.00	-52.79
126.03	-66.71	-58.51	-7.13	-1.07	-13.00	-53.71
147.37	-71.08	-62.02	-7.87	-1.19	-13.00	-58.08
357.86	-70.32	-66.88	-1.52	-1.92	-13.00	-57.32
3715.00	-51.01	-57.43	12.37	-5.95	-13.00	-38.01

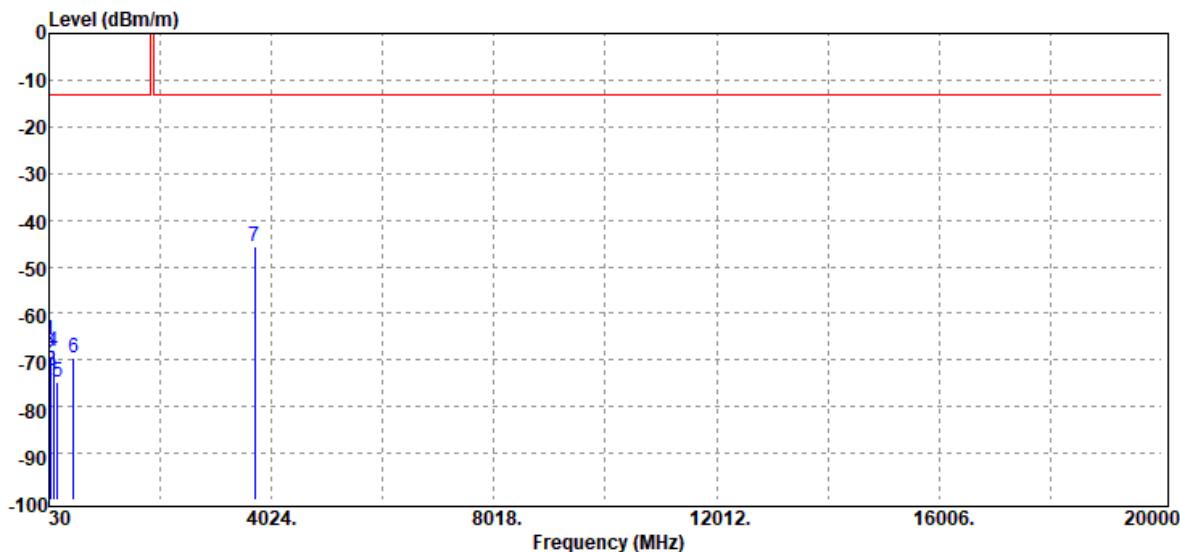
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B2 15MHz 16QAM 1 5
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :1857.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-65.84	-45.66	-19.57	-0.61	-13.00	-52.84
46.49	-69.50	-50.84	-17.99	-0.67	-13.00	-56.50
62.98	-72.19	-57.17	-14.26	-0.76	-13.00	-59.19
104.69	-68.17	-60.49	-6.68	-1.00	-13.00	-55.17
184.23	-74.81	-69.99	-3.53	-1.29	-13.00	-61.81
477.17	-69.71	-65.99	-1.47	-2.25	-13.00	-56.71
3715.00	-45.77	-52.19	12.37	-5.95	-13.00	-32.77

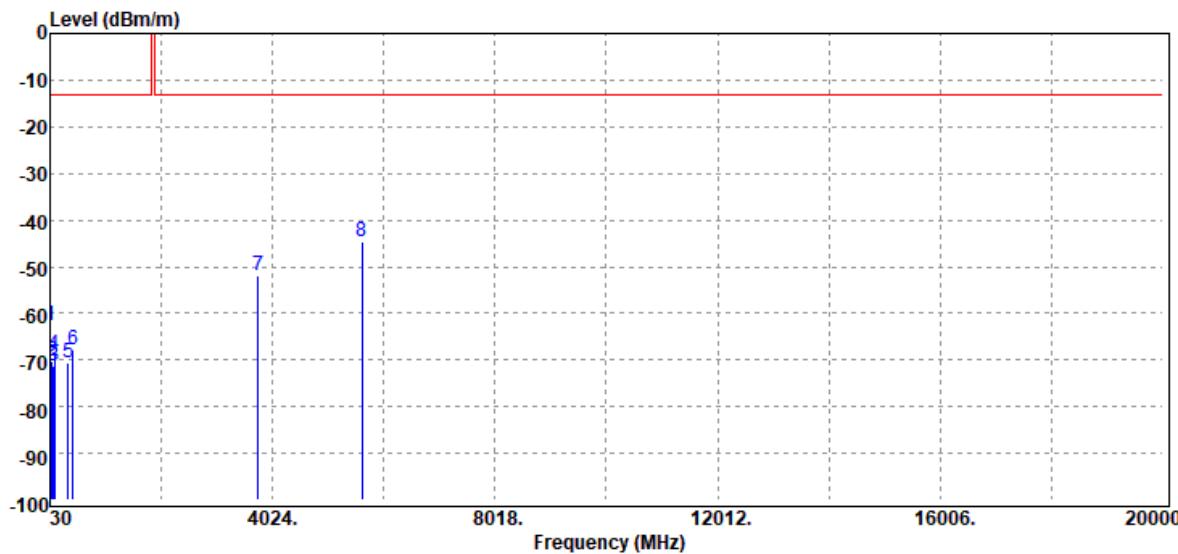
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B2 15MHz 16QAM 1 5
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :1880.0 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-62.57	-42.79	-19.15	-0.63	-13.00	-49.57
62.98	-70.08	-55.06	-14.26	-0.76	-13.00	-57.08
90.14	-71.45	-64.61	-5.93	-0.91	-13.00	-58.45
107.60	-68.70	-60.83	-6.86	-1.01	-13.00	-55.70
355.92	-70.56	-67.11	-1.53	-1.92	-13.00	-57.56
445.16	-67.95	-64.36	-1.67	-1.92	-13.00	-54.95
3760.00	-51.84	-58.12	12.30	-6.02	-13.00	-38.84
5627.00	-44.77	-50.53	13.21	-7.45	-13.00	-31.77

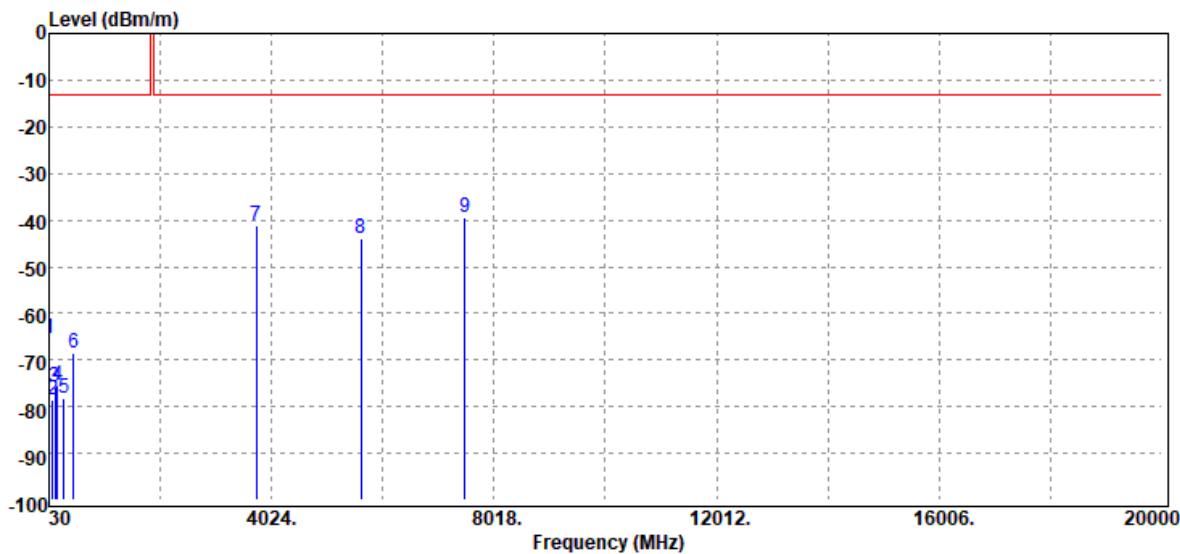
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B2 15MHz 16QAM 1 5
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :1880.0 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-65.56	-45.78	-19.15	-0.63	-13.00	-52.56
93.05	-78.39	-71.79	-5.67	-0.93	-13.00	-65.39
141.55	-75.72	-66.65	-7.92	-1.15	-13.00	-62.72
182.29	-75.39	-70.32	-3.80	-1.27	-13.00	-62.39
301.60	-78.23	-74.88	-1.68	-1.67	-13.00	-65.23
463.59	-68.41	-64.69	-1.52	-2.20	-13.00	-55.41
3751.00	-41.15	-47.45	12.30	-6.00	-13.00	-28.15
5627.00	-44.11	-49.87	13.21	-7.45	-13.00	-31.11
7496.00	-39.42	-41.46	10.69	-8.65	-13.00	-26.42

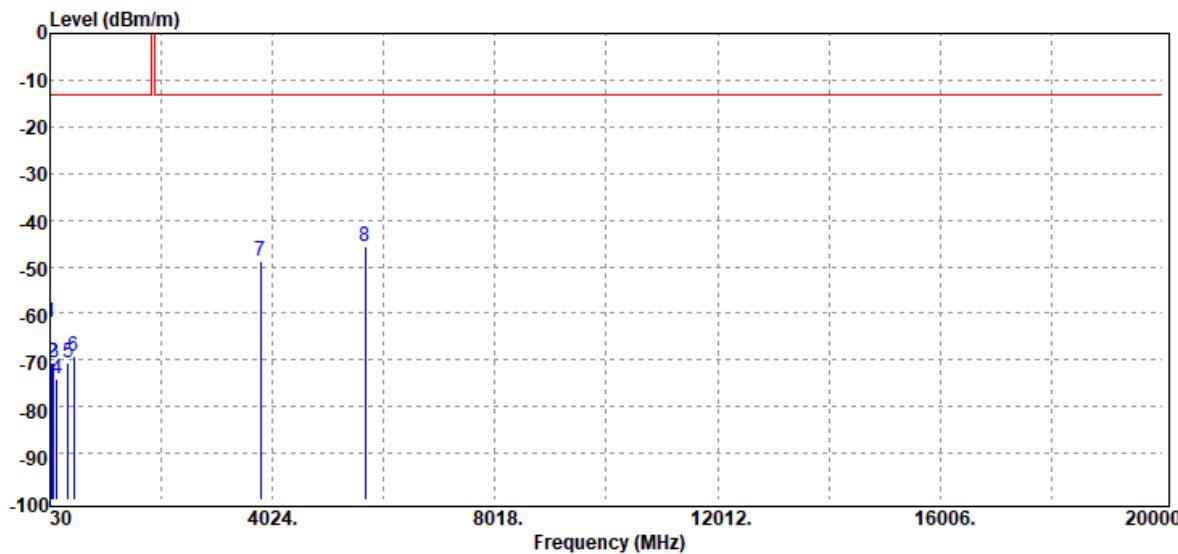
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B2 15MHz 16QAM 1 5
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :1902.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
36.79	-62.06	-42.19	-19.25	-0.62	-13.00	-49.06
62.01	-70.45	-55.01	-14.69	-0.75	-13.00	-57.45
101.78	-70.74	-63.32	-6.44	-0.98	-13.00	-57.74
159.98	-73.89	-65.56	-6.96	-1.37	-13.00	-60.89
358.83	-70.57	-67.12	-1.52	-1.93	-13.00	-57.57
451.95	-69.32	-65.63	-1.64	-2.05	-13.00	-56.32
3815.00	-48.69	-54.86	12.27	-6.10	-13.00	-35.69
5690.00	-45.84	-51.33	13.06	-7.57	-13.00	-32.84

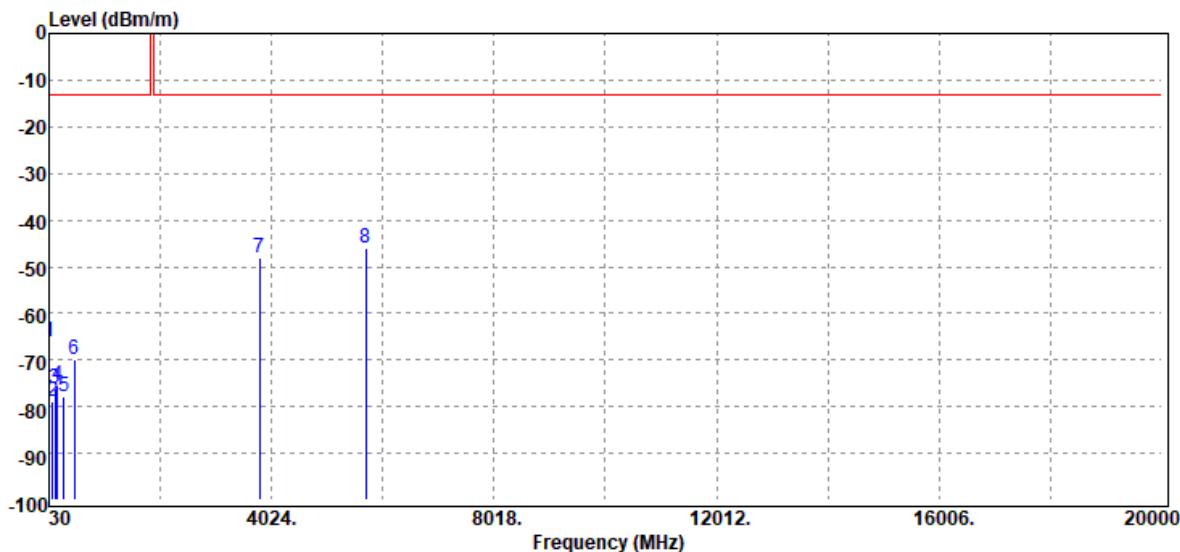
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B2 15MHz 16QAM 1 5
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :1902.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-65.98	-45.80	-19.57	-0.61	-13.00	-52.98
94.02	-78.85	-72.23	-5.68	-0.94	-13.00	-65.85
140.58	-76.05	-67.01	-7.90	-1.14	-13.00	-63.05
184.23	-75.39	-70.57	-3.53	-1.29	-13.00	-62.39
300.63	-77.87	-74.50	-1.69	-1.68	-13.00	-64.87
479.11	-69.91	-66.22	-1.44	-2.25	-13.00	-56.91
3815.00	-48.16	-54.33	12.27	-6.10	-13.00	-35.16
5722.50	-46.03	-51.39	12.95	-7.59	-13.00	-33.03

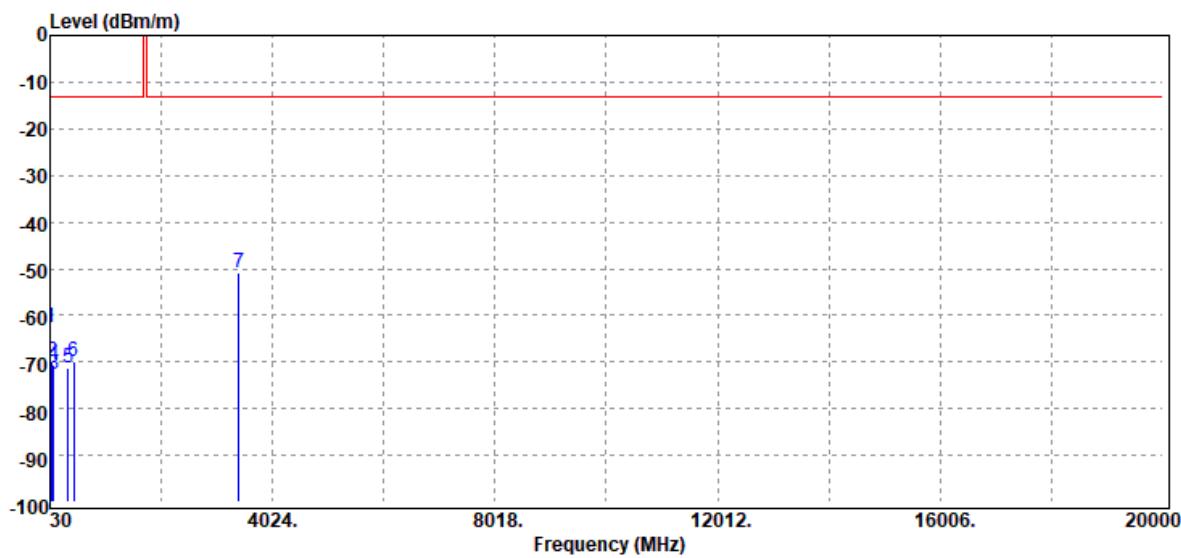
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Radiated Spurious Emission Measurement Result: CAT_M1_Band 4 (The Worst Case)

Report Number :ER-2019-80104 Test Date :2019-09-09
Operation Mode :Cat_M1 B4 5MHz 16QAM 1 5 Temp./Humi. :24.3/69
Test Mode :Tx CH Low Antenna Pol. :VERTICAL
EUT Pol :H Plane Engineer. : Nick
Test Channel :1712.5 MHz



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-62.48	-42.71	-19.13	-0.64	-13.00	-49.48
62.01	-69.99	-54.55	-14.69	-0.75	-13.00	-56.99
89.17	-72.81	-65.78	-6.12	-0.91	-13.00	-59.81
100.81	-70.72	-63.43	-6.31	-0.98	-13.00	-57.72
360.77	-71.41	-67.96	-1.52	-1.93	-13.00	-58.41
458.74	-70.02	-66.29	-1.58	-2.15	-13.00	-57.02
3425.00	-50.97	-57.57	12.40	-5.80	-13.00	-37.97

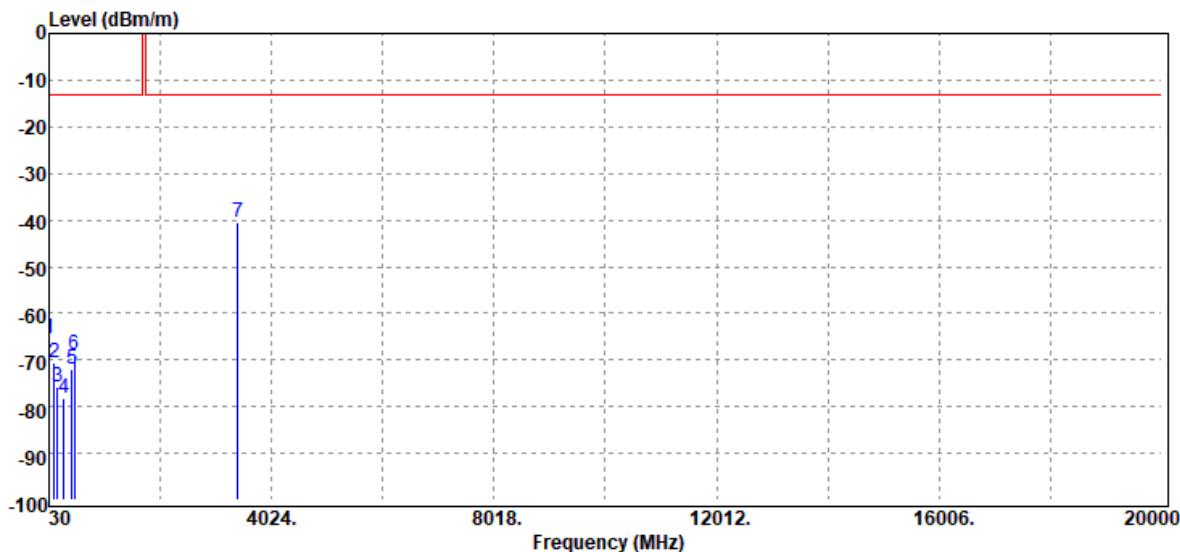
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B4 5MHz 16QAM 1 5
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :1712.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-65.41	-45.63	-19.15	-0.63	-13.00	-52.41
127.97	-70.73	-62.44	-7.20	-1.09	-13.00	-57.73
175.50	-75.92	-69.65	-5.00	-1.27	-13.00	-62.92
302.57	-78.13	-74.80	-1.67	-1.66	-13.00	-65.13
438.37	-72.08	-68.51	-1.74	-1.83	-13.00	-59.08
485.90	-68.96	-65.21	-1.53	-2.22	-13.00	-55.96
3425.00	-40.59	-47.19	12.40	-5.80	-13.00	-27.59

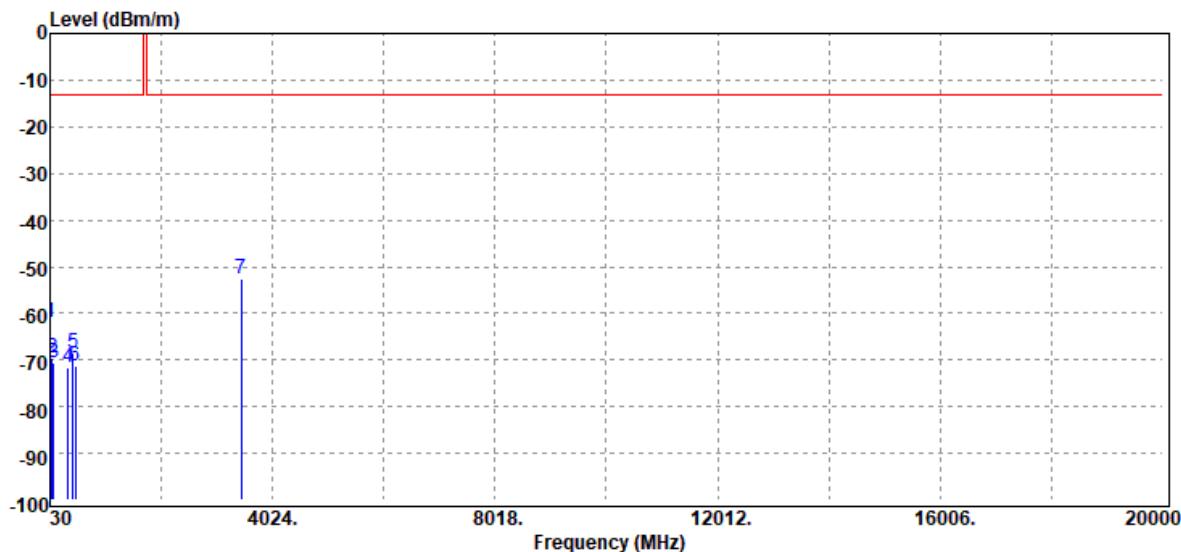
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B4 5MHz 16QAM 1 5
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :1732.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-61.94	-42.17	-19.13	-0.64	-13.00	-48.94
62.98	-69.64	-54.62	-14.26	-0.76	-13.00	-56.64
100.81	-70.47	-63.18	-6.31	-0.98	-13.00	-57.47
356.89	-71.58	-68.13	-1.53	-1.92	-13.00	-58.58
437.40	-68.65	-65.10	-1.72	-1.83	-13.00	-55.65
484.93	-71.19	-67.43	-1.53	-2.23	-13.00	-58.19
3465.00	-52.45	-59.07	12.37	-5.75	-13.00	-39.45

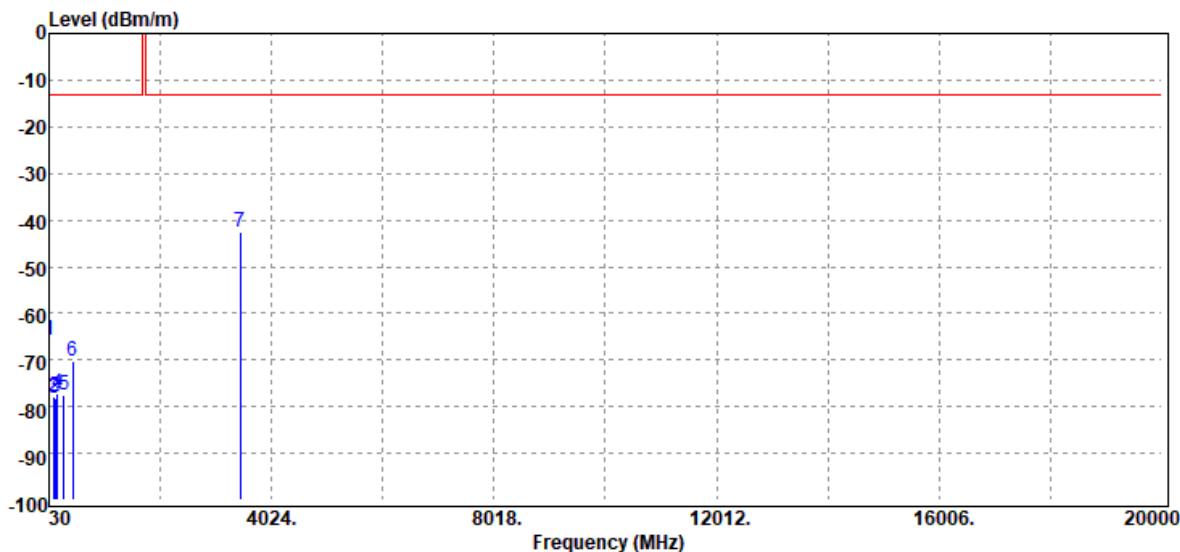
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B4 5MHz 16QAM 1 5
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :1732.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-65.67	-45.49	-19.57	-0.61	-13.00	-52.67
126.03	-77.96	-69.76	-7.13	-1.07	-13.00	-64.96
142.52	-78.08	-69.01	-7.91	-1.16	-13.00	-65.08
177.44	-77.23	-71.36	-4.61	-1.26	-13.00	-64.23
299.66	-77.47	-74.08	-1.70	-1.69	-13.00	-64.47
462.62	-70.10	-66.38	-1.53	-2.19	-13.00	-57.10
3465.00	-42.47	-49.09	12.37	-5.75	-13.00	-29.47

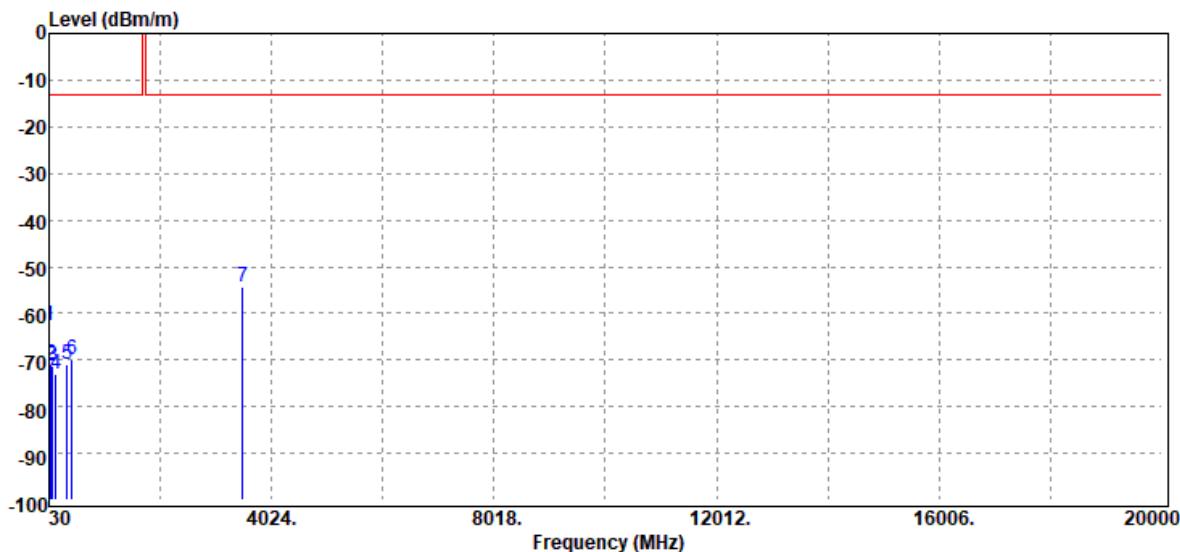
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B4 5MHz 16QAM 1 5
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :1752.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-62.63	-42.86	-19.13	-0.64	-13.00	-49.63
62.98	-70.83	-55.81	-14.26	-0.76	-13.00	-57.83
101.78	-71.19	-63.77	-6.44	-0.98	-13.00	-58.19
147.37	-72.93	-63.87	-7.87	-1.19	-13.00	-59.93
360.77	-70.98	-67.53	-1.52	-1.93	-13.00	-57.98
444.19	-69.94	-66.35	-1.69	-1.90	-13.00	-56.94
3505.00	-54.47	-61.03	12.28	-5.72	-13.00	-41.47

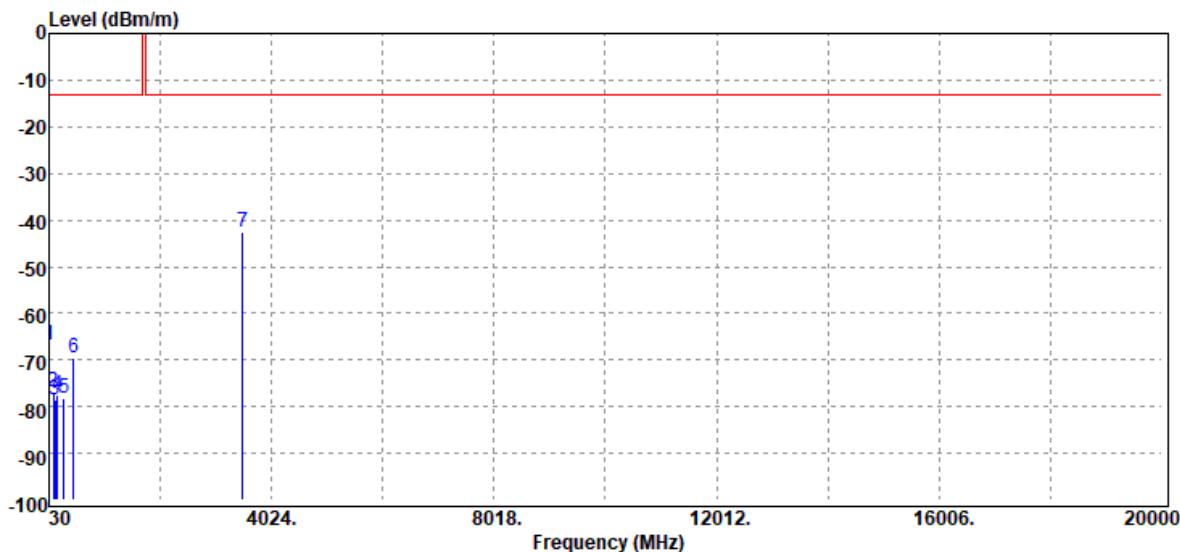
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B4 5MHz 16QAM 1 5
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :1752.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-66.70	-46.52	-19.57	-0.61	-13.00	-53.70
107.60	-76.70	-68.83	-6.86	-1.01	-13.00	-63.70
141.55	-78.47	-69.40	-7.92	-1.15	-13.00	-65.47
182.29	-77.47	-72.40	-3.80	-1.27	-13.00	-64.47
302.57	-78.23	-74.90	-1.67	-1.66	-13.00	-65.23
465.53	-69.48	-65.77	-1.49	-2.22	-13.00	-56.48
3505.00	-42.66	-49.22	12.28	-5.72	-13.00	-29.66

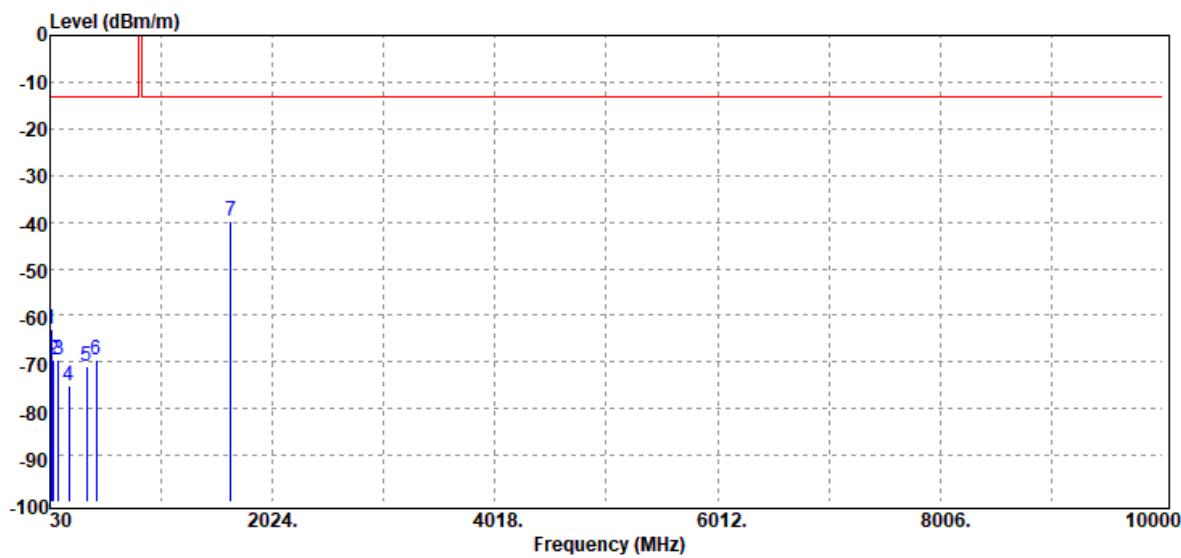
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Radiated Spurious Emission Measurement Result: CAT_M1_Band 5 (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-09
Operation Mode	:Cat_M1_B5 5MHz 16QAM 1 0	Temp./Humi.	:24.3/69
Test Mode	:Tx CH Low	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:826.5 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-62.91	-43.14	-19.13	-0.64	-13.00	-49.91
62.01	-69.70	-54.26	-14.69	-0.75	-13.00	-56.70
103.72	-69.61	-62.05	-6.57	-0.99	-13.00	-56.61
197.81	-75.23	-71.51	-2.34	-1.38	-13.00	-62.23
361.74	-70.84	-67.38	-1.54	-1.92	-13.00	-57.84
444.19	-69.68	-66.09	-1.69	-1.90	-13.00	-56.68
1653.00	-39.65	-44.96	9.32	-4.01	-13.00	-26.65

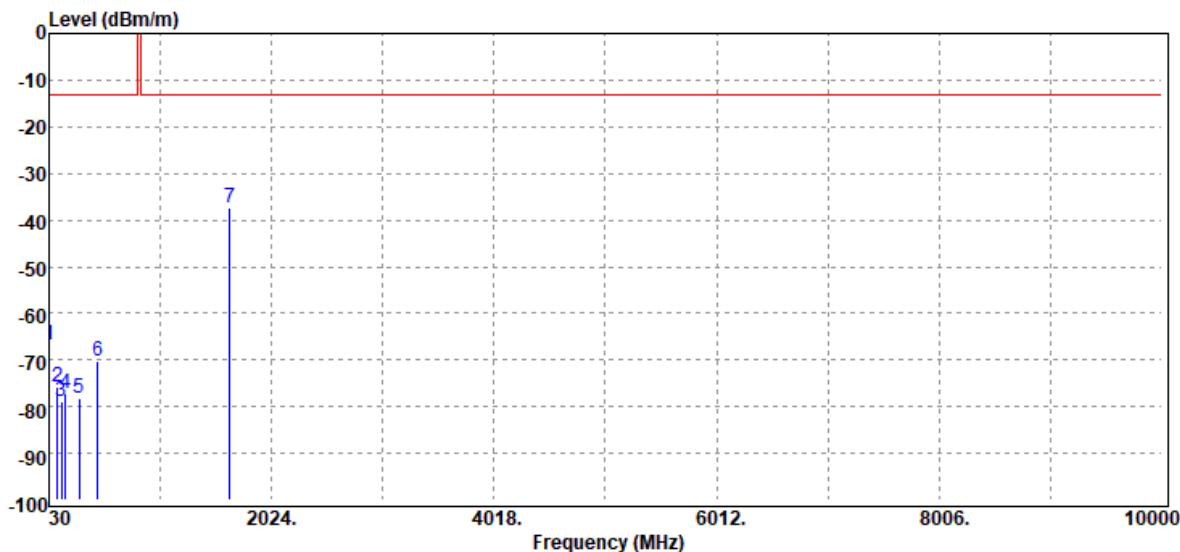
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B5 5MHz 16QAM 1 0
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :826.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-66.83	-46.65	-19.57	-0.61	-13.00	-53.83
107.60	-75.91	-68.04	-6.86	-1.01	-13.00	-62.91
140.58	-78.83	-69.79	-7.90	-1.14	-13.00	-65.83
175.50	-77.22	-70.95	-5.00	-1.27	-13.00	-64.22
301.60	-78.11	-74.76	-1.68	-1.67	-13.00	-65.11
465.53	-70.10	-66.39	-1.49	-2.22	-13.00	-57.10
1653.00	-37.26	-42.57	9.32	-4.01	-13.00	-24.26

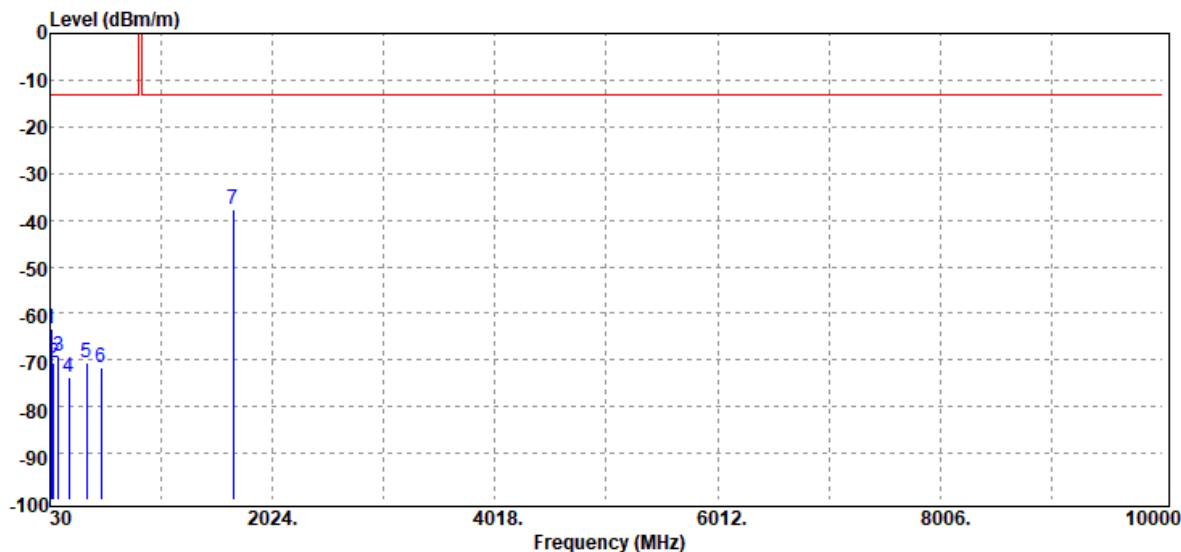
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B5 5MHz 16QAM 1 0
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :836.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-63.39	-43.62	-19.13	-0.64	-13.00	-50.39
62.98	-70.61	-55.59	-14.26	-0.76	-13.00	-57.61
104.69	-69.04	-61.36	-6.68	-1.00	-13.00	-56.04
197.81	-73.69	-69.97	-2.34	-1.38	-13.00	-60.69
357.86	-70.55	-67.11	-1.52	-1.92	-13.00	-57.55
485.90	-71.57	-67.82	-1.53	-2.22	-13.00	-58.57
1673.00	-37.67	-43.13	9.49	-4.03	-13.00	-24.67

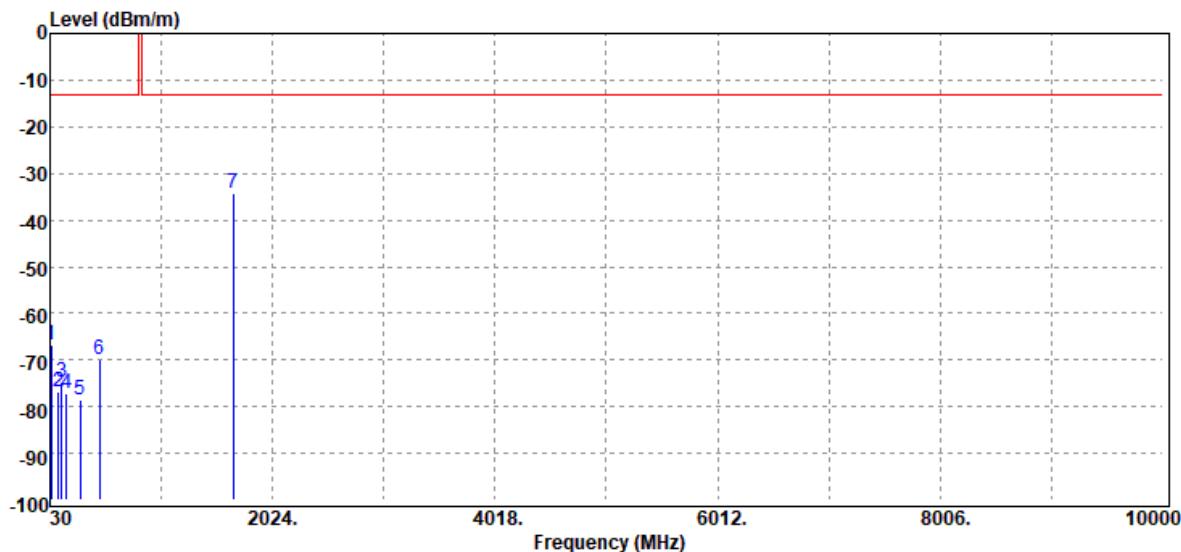
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B5 5MHz 16QAM 1 0
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :836.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-66.82	-47.04	-19.15	-0.63	-13.00	-53.82
108.57	-76.73	-68.77	-6.94	-1.02	-13.00	-63.73
132.82	-74.58	-66.02	-7.45	-1.11	-13.00	-61.58
177.44	-77.08	-71.21	-4.61	-1.26	-13.00	-64.08
303.54	-78.48	-75.16	-1.66	-1.66	-13.00	-65.48
477.17	-70.03	-66.31	-1.47	-2.25	-13.00	-57.03
1673.00	-34.21	-39.67	9.49	-4.03	-13.00	-21.21

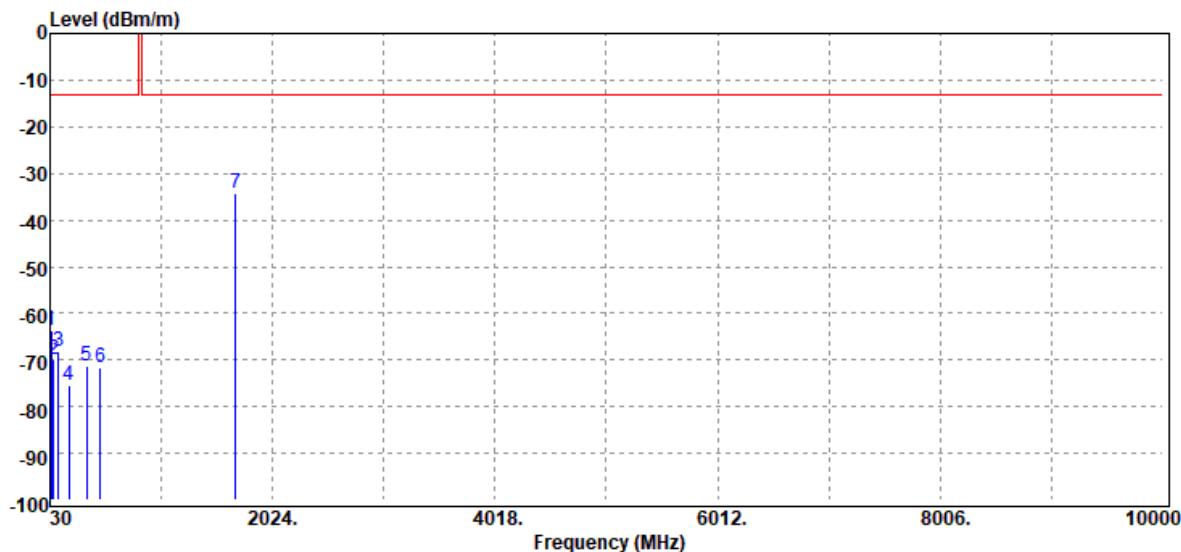
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B5 5MHz 16QAM 1 0
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :846.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-63.75	-43.98	-19.13	-0.64	-13.00	-50.75
62.98	-69.85	-54.83	-14.26	-0.76	-13.00	-56.85
107.60	-68.12	-60.25	-6.86	-1.01	-13.00	-55.12
196.84	-75.36	-71.52	-2.46	-1.38	-13.00	-62.36
357.86	-71.38	-67.94	-1.52	-1.92	-13.00	-58.38
479.11	-71.55	-67.86	-1.44	-2.25	-13.00	-58.55
1693.00	-34.25	-39.84	9.64	-4.05	-13.00	-21.25

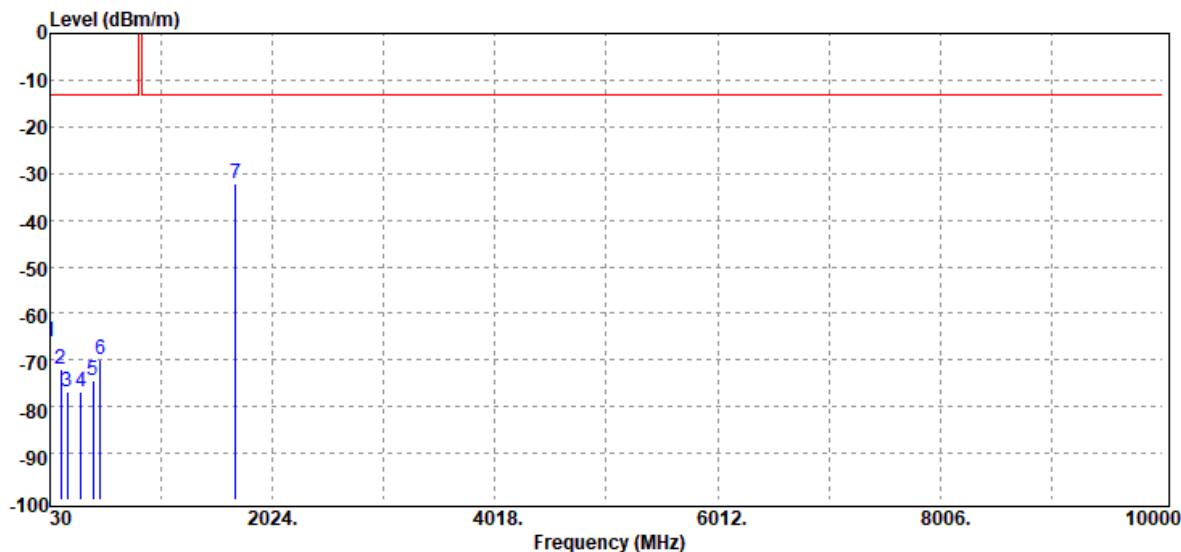
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B5 5MHz 16QAM 1 0
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :846.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
33.88	-65.94	-45.21	-20.15	-0.58	-13.00	-52.94
129.91	-72.06	-63.70	-7.26	-1.10	-13.00	-59.06
182.29	-76.87	-71.80	-3.80	-1.27	-13.00	-63.87
306.45	-76.80	-73.50	-1.67	-1.63	-13.00	-63.80
416.06	-74.48	-70.92	-1.60	-1.96	-13.00	-61.48
478.14	-70.04	-66.34	-1.45	-2.25	-13.00	-57.04
1693.00	-32.12	-37.71	9.64	-4.05	-13.00	-19.12

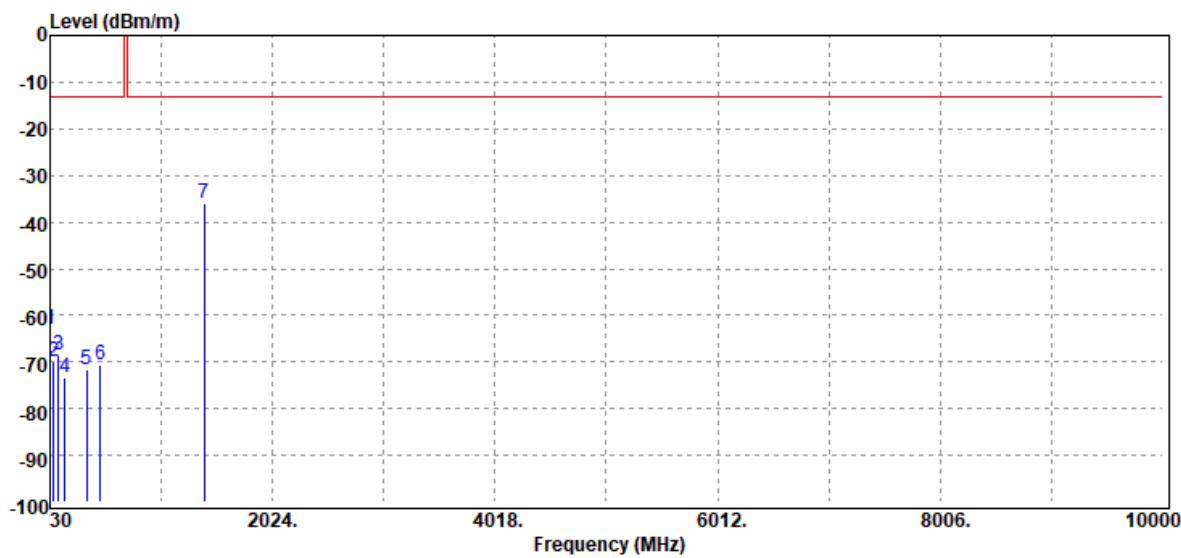
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Radiated Spurious Emission Measurement Result: CAT_M1_Band 12 (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-09
Operation Mode	:Cat_M1 B12 10MHz 16QAM 1 5	Temp./Humi.	:24.3/69
Test Mode	:Tx CH Low	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:704.0 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
36.79	-62.91	-43.04	-19.25	-0.62	-13.00	-49.91
62.98	-70.06	-55.04	-14.26	-0.76	-13.00	-57.06
104.69	-68.67	-60.99	-6.68	-1.00	-13.00	-55.67
159.98	-73.52	-65.19	-6.96	-1.37	-13.00	-60.52
355.92	-71.48	-68.03	-1.53	-1.92	-13.00	-58.48
479.11	-70.71	-67.02	-1.44	-2.25	-13.00	-57.71
1408.00	-35.86	-40.08	7.92	-3.70	-13.00	-22.86

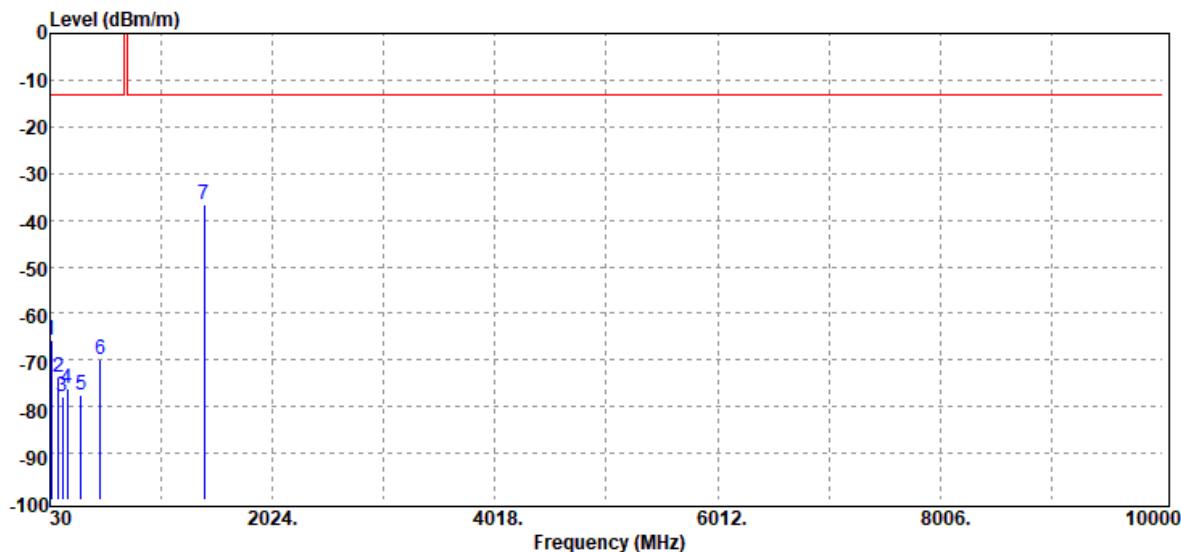
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B12 10MHz 16QAM 1 5
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :704.0 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-65.67	-45.89	-19.15	-0.63	-13.00	-52.67
107.60	-73.59	-65.72	-6.86	-1.01	-13.00	-60.59
141.55	-77.84	-68.77	-7.92	-1.15	-13.00	-64.84
184.23	-76.04	-71.22	-3.53	-1.29	-13.00	-63.04
304.51	-77.48	-74.18	-1.65	-1.65	-13.00	-64.48
478.14	-69.80	-66.10	-1.45	-2.25	-13.00	-56.80
1408.00	-36.55	-40.77	7.92	-3.70	-13.00	-23.55

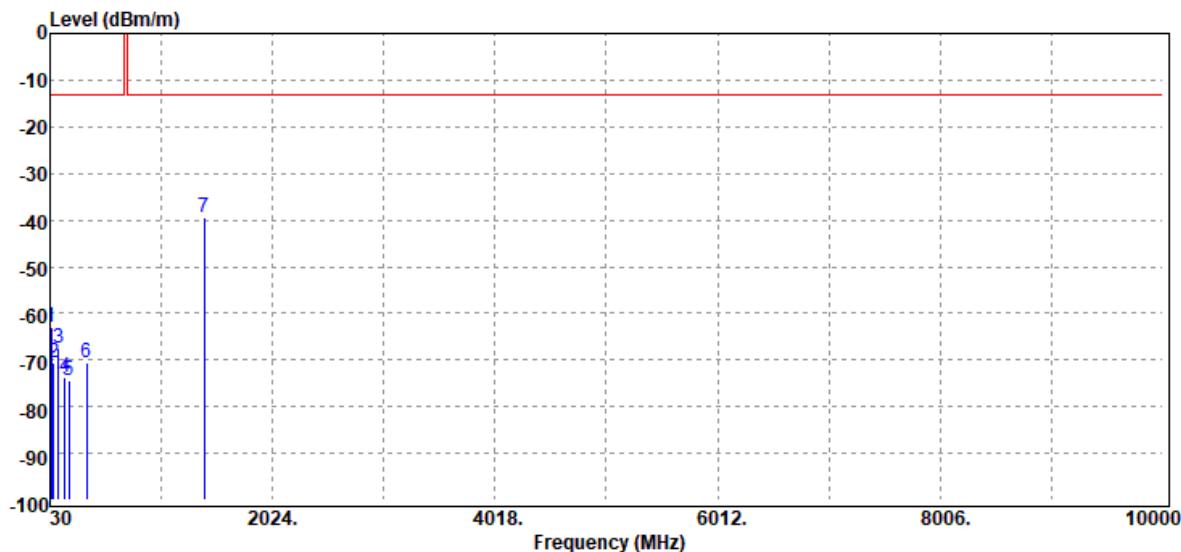
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B12 10MHz 16QAM 1 5
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :707.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-63.02	-43.25	-19.13	-0.64	-13.00	-50.02
62.98	-70.71	-55.69	-14.26	-0.76	-13.00	-57.71
104.69	-67.51	-59.83	-6.68	-1.00	-13.00	-54.51
159.98	-73.60	-65.27	-6.96	-1.37	-13.00	-60.60
197.81	-74.52	-70.80	-2.34	-1.38	-13.00	-61.52
359.80	-70.53	-67.09	-1.51	-1.93	-13.00	-57.53
1415.00	-39.33	-43.56	7.93	-3.70	-13.00	-26.33

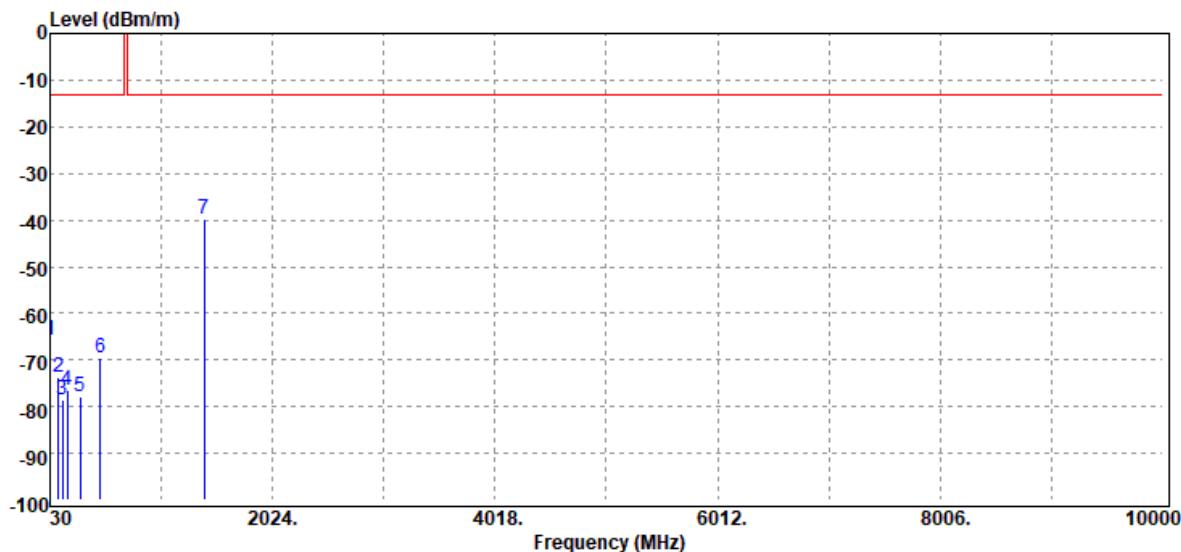
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B12 10MHz 16QAM 1 5
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :707.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
36.79	-65.75	-45.88	-19.25	-0.62	-13.00	-52.75
107.60	-73.63	-65.76	-6.86	-1.01	-13.00	-60.63
141.55	-78.59	-69.52	-7.92	-1.15	-13.00	-65.59
182.29	-76.36	-71.29	-3.80	-1.27	-13.00	-63.36
303.54	-77.92	-74.60	-1.66	-1.66	-13.00	-64.92
481.05	-69.62	-65.94	-1.44	-2.24	-13.00	-56.62
1415.00	-39.70	-43.93	7.93	-3.70	-13.00	-26.70

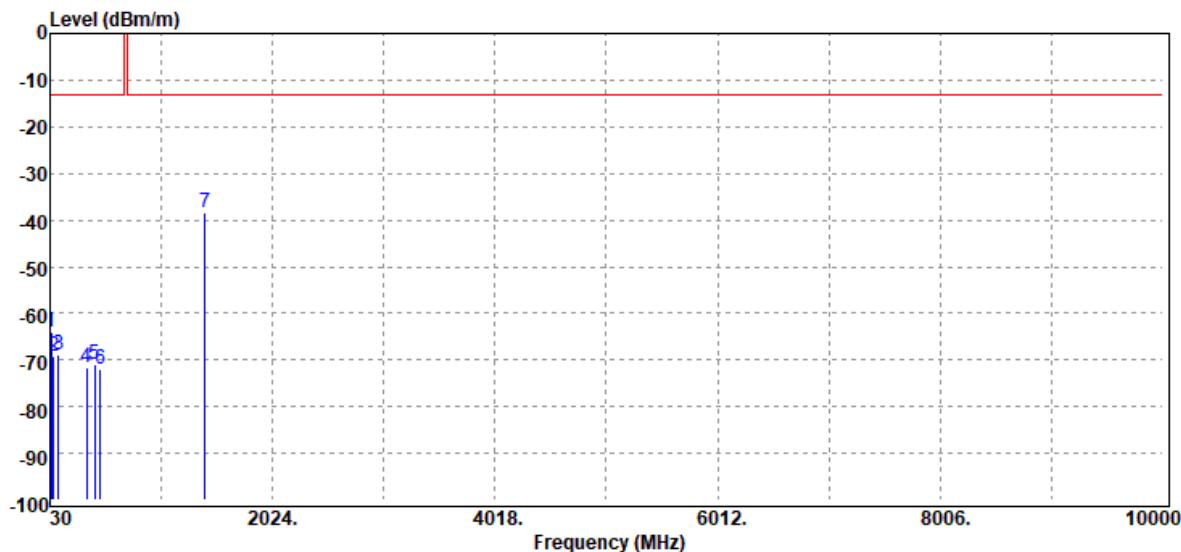
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B12 10MHz 16QAM 1 5
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :711.0 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-63.94	-44.17	-19.13	-0.64	-13.00	-50.94
62.01	-69.24	-53.80	-14.69	-0.75	-13.00	-56.24
104.69	-68.78	-61.10	-6.68	-1.00	-13.00	-55.78
359.80	-71.59	-68.15	-1.51	-1.93	-13.00	-58.59
430.61	-70.93	-67.42	-1.67	-1.84	-13.00	-57.93
479.11	-71.91	-68.22	-1.44	-2.25	-13.00	-58.91
1422.00	-38.36	-42.59	7.94	-3.71	-13.00	-25.36

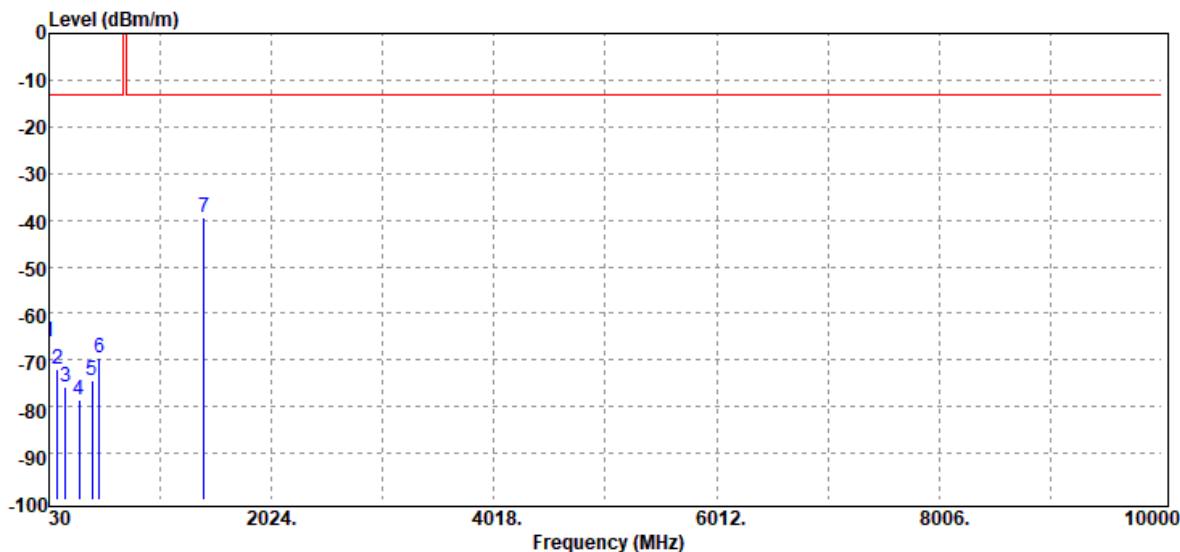
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B12 10MHz 16QAM 1 5
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :711.0 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
31.94	-66.07	-44.76	-20.76	-0.55	-13.00	-53.07
107.60	-71.97	-64.10	-6.86	-1.01	-13.00	-58.97
176.47	-75.78	-69.71	-4.81	-1.26	-13.00	-62.78
301.60	-78.60	-75.25	-1.68	-1.67	-13.00	-65.60
413.15	-74.47	-70.94	-1.58	-1.95	-13.00	-61.47
480.08	-69.69	-66.02	-1.42	-2.25	-13.00	-56.69
1422.00	-39.49	-43.72	7.94	-3.71	-13.00	-26.49

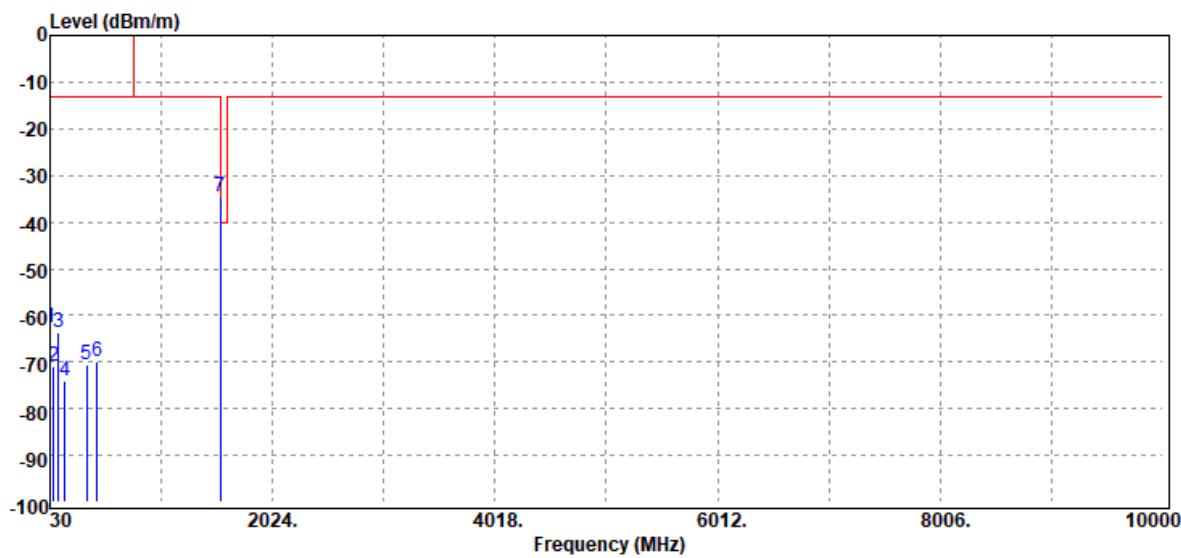
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Radiated Spurious Emission Measurement Result: CAT_M1_Band 13 (The Worst Case)

Report Number :ER-2019-80104 Test Date :2019-09-09
Operation Mode :Cat_M1 B13 10MHz 16QAM 1 0 Temp./Humi. :24.3/69
Test Mode :Tx CH Mid Antenna Pol. :VERTICAL
EUT Pol :H Plane Engineer. : Nick
Test Channel :782.0 MHz



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-62.71	-42.53	-19.57	-0.61	-13.00	-49.71
62.98	-70.93	-55.91	-14.26	-0.76	-13.00	-57.93
107.60	-63.77	-55.90	-6.86	-1.01	-13.00	-50.77
159.98	-74.15	-65.82	-6.96	-1.37	-13.00	-61.15
358.83	-70.75	-67.30	-1.52	-1.93	-13.00	-57.75
450.01	-70.01	-66.31	-1.68	-2.02	-13.00	-57.01
1555.00	-34.60	-39.83	9.11	-3.88	-13.00	-21.60

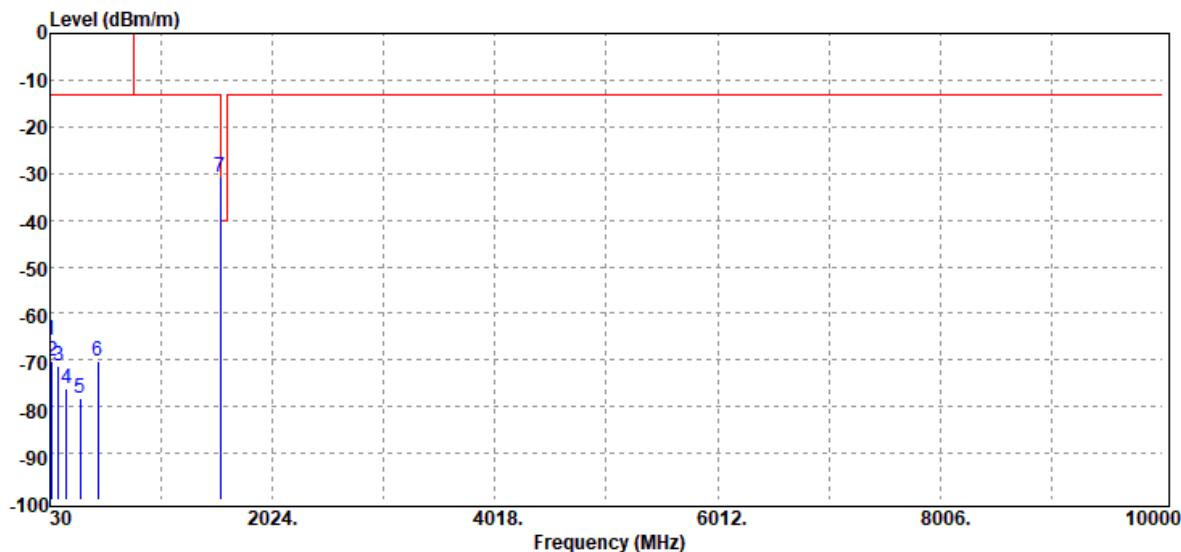
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B13 10MHz 16QAM 1 0
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :782.0 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-65.91	-45.73	-19.57	-0.61	-13.00	-52.91
45.52	-70.20	-51.40	-18.13	-0.67	-13.00	-57.20
107.60	-71.20	-63.33	-6.86	-1.01	-13.00	-58.20
176.47	-76.03	-69.96	-4.81	-1.26	-13.00	-63.03
302.57	-78.18	-74.85	-1.67	-1.66	-13.00	-65.18
462.62	-70.22	-66.50	-1.53	-2.19	-13.00	-57.22
1555.00	-30.91	-36.14	9.11	-3.88	-13.00	-17.91

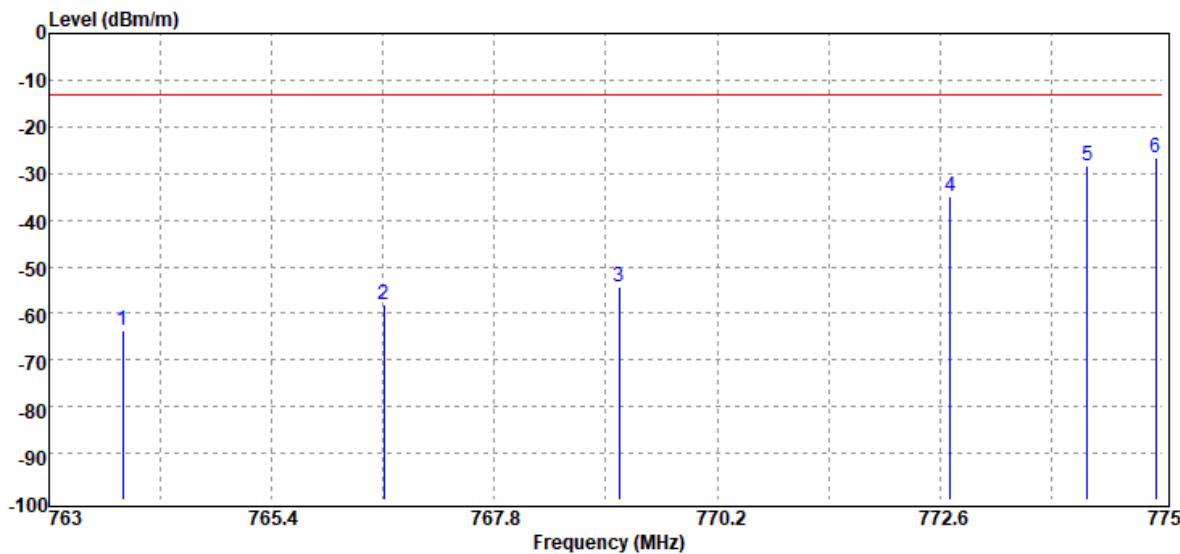
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Radiated Spurious Emission Measurement Result: CAT_M1_Band 13 (763-775MHz) (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-06
Operation Mode	:Cat_M1 B13 10MHz 16QAM 1 0	Temp./Humi.	:24.3/69
Test Mode	:Tx CH Mid	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:782.0 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
763.79	-63.53	-59.14	-1.78	-2.61	-13.00	-50.53
766.61	-58.10	-53.75	-1.75	-2.60	-13.00	-45.10
769.14	-54.38	-50.08	-1.72	-2.58	-13.00	-41.38
772.71	-35.05	-30.71	-1.73	-2.61	-13.00	-22.05
774.18	-28.28	-23.92	-1.74	-2.62	-13.00	-15.28
774.93	-26.75	-22.37	-1.75	-2.63	-13.00	-13.75

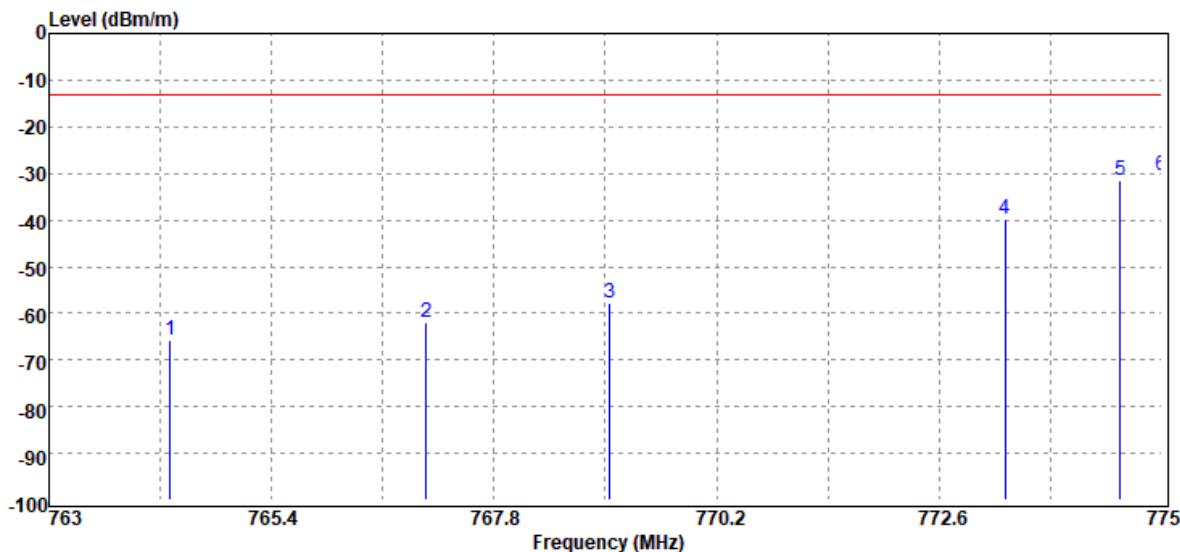
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B13 10MHz 16QAM 1 0
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :782.0 MHz

Test Date :2019-09-06
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
764.31	-65.72	-61.33	-1.78	-2.61	-13.00	-52.72
767.07	-61.86	-57.51	-1.75	-2.60	-13.00	-48.86
769.05	-57.88	-53.58	-1.72	-2.58	-13.00	-44.88
773.31	-39.65	-35.30	-1.74	-2.61	-13.00	-26.65
774.56	-31.45	-27.08	-1.75	-2.62	-13.00	-18.45
775.00	-30.43	-26.05	-1.75	-2.63	-13.00	-17.43

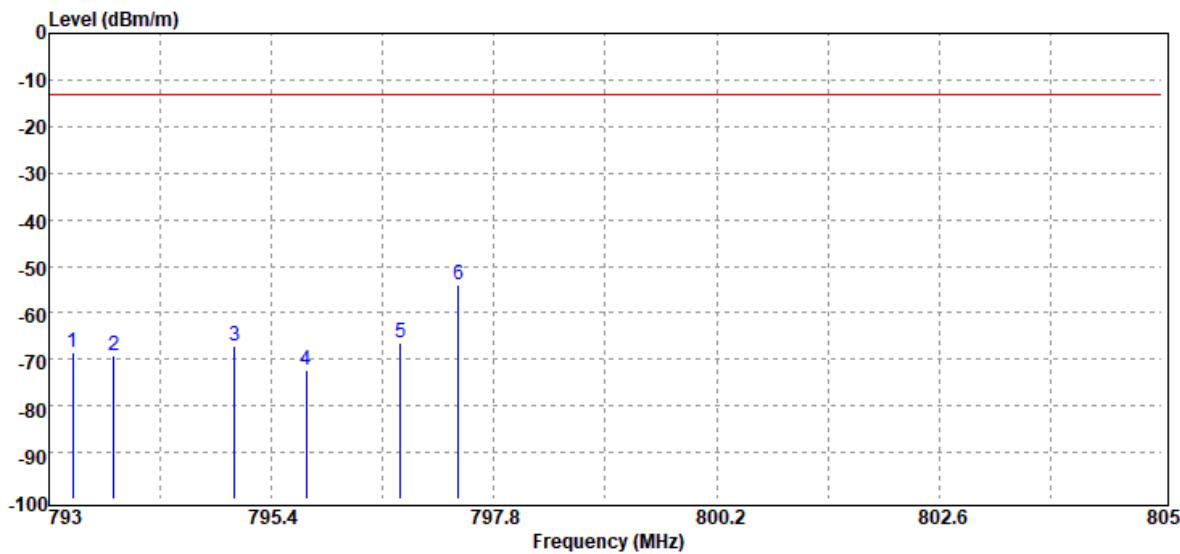
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Radiated Spurious Emission Measurement Result: CAT_M1_Band 13 (793-805MHz) (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-06
Operation Mode	:Cat_M1 B13 10MHz 16QAM 1 0	Temp./Humi.	:24.3/69
Test Mode	:Tx CH Mid	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:782.0 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
793.25	-68.62	-63.93	-1.65	-3.04	-13.00	-55.62
793.70	-69.20	-64.50	-1.65	-3.05	-13.00	-56.20
795.00	-67.14	-62.44	-1.63	-3.07	-13.00	-54.14
795.77	-72.35	-67.65	-1.62	-3.08	-13.00	-59.35
796.79	-66.32	-61.61	-1.61	-3.10	-13.00	-53.32
797.42	-53.92	-49.20	-1.61	-3.11	-13.00	-40.92

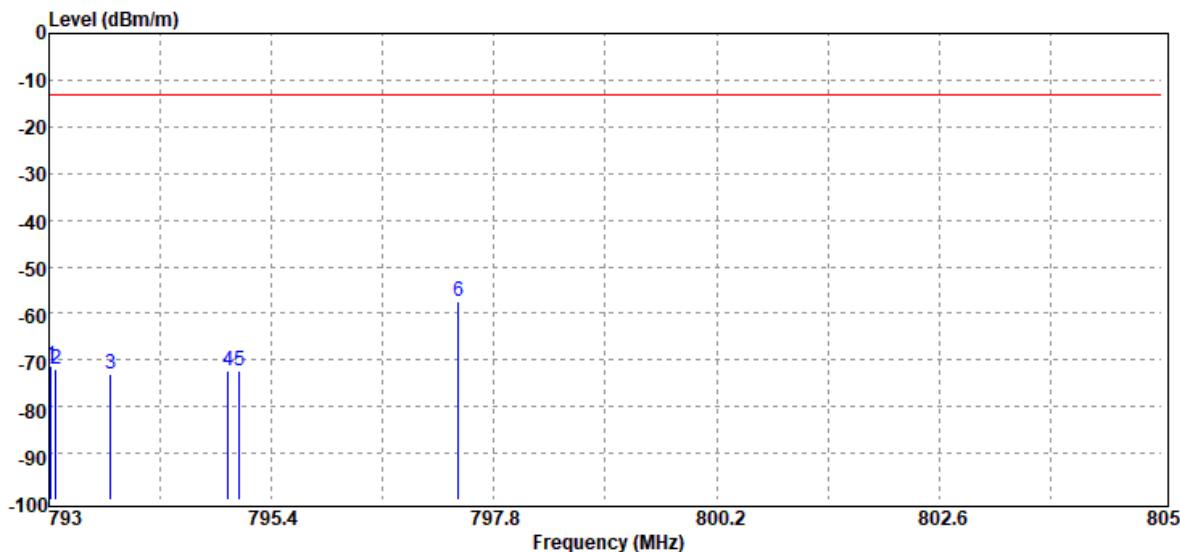
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B13 10MHz 16QAM 1 0
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :782.0 MHz

Test Date :2019-09-06
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
793.02	-71.24	-66.55	-1.65	-3.04	-13.00	-58.24
793.07	-72.04	-67.35	-1.65	-3.04	-13.00	-59.04
793.66	-72.87	-68.17	-1.65	-3.05	-13.00	-59.87
794.93	-72.35	-67.65	-1.63	-3.07	-13.00	-59.35
795.05	-72.19	-67.49	-1.63	-3.07	-13.00	-59.19
797.42	-57.56	-52.84	-1.61	-3.11	-13.00	-44.56

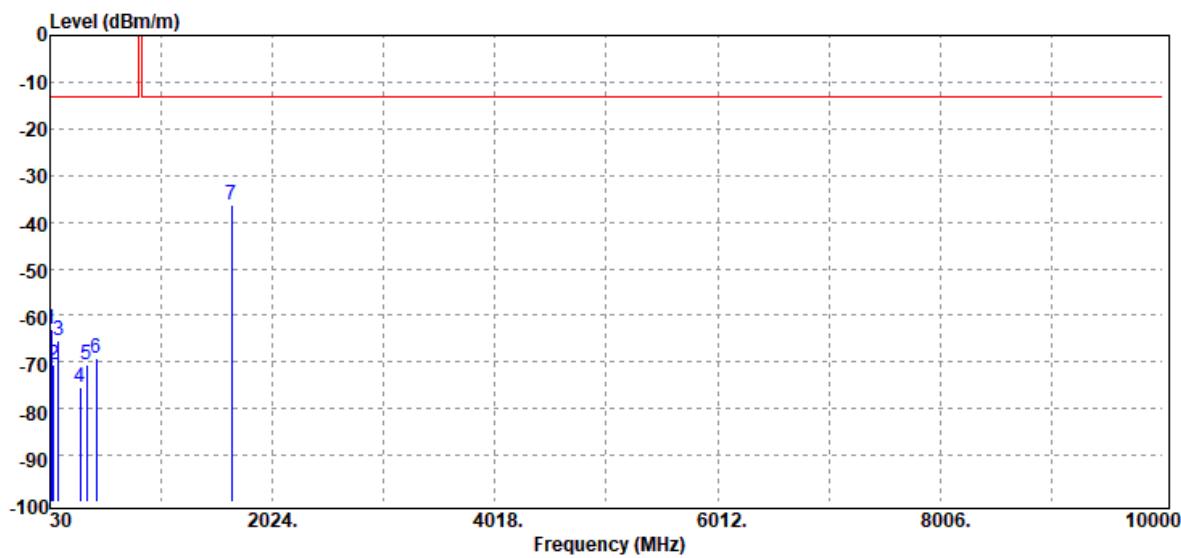
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Radiated Spurious Emission Measurement Result: CAT_M1_Band 26 (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-09
Operation Mode	:Cat_M1 B26 10MHz 16QAM 1 0	Temp./Humi.	:24.3/69
Test Mode	:Tx CH Low	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:829.0 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-63.02	-43.25	-19.13	-0.64	-13.00	-50.02
62.98	-70.71	-55.69	-14.26	-0.76	-13.00	-57.71
107.60	-65.55	-57.68	-6.86	-1.01	-13.00	-52.55
297.72	-75.27	-71.86	-1.72	-1.69	-13.00	-62.27
358.83	-70.64	-67.19	-1.52	-1.93	-13.00	-57.64
447.10	-69.12	-65.49	-1.67	-1.96	-13.00	-56.12
1658.00	-36.48	-41.82	9.36	-4.02	-13.00	-23.48

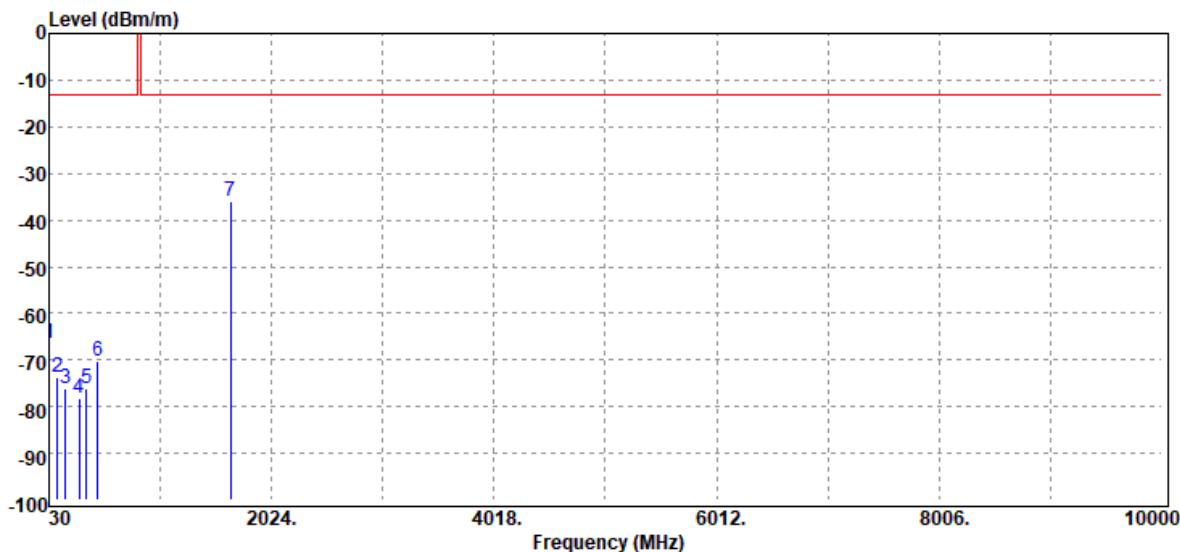
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B26 10MHz 16QAM 1 0
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :829.0 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-66.29	-46.11	-19.57	-0.61	-13.00	-53.29
107.60	-73.71	-65.84	-6.86	-1.01	-13.00	-60.71
174.53	-75.98	-69.56	-5.15	-1.27	-13.00	-62.98
302.57	-78.31	-74.98	-1.67	-1.66	-13.00	-65.31
367.56	-76.00	-72.51	-1.58	-1.91	-13.00	-63.00
464.56	-70.18	-66.47	-1.50	-2.21	-13.00	-57.18
1658.00	-35.99	-41.33	9.36	-4.02	-13.00	-22.99

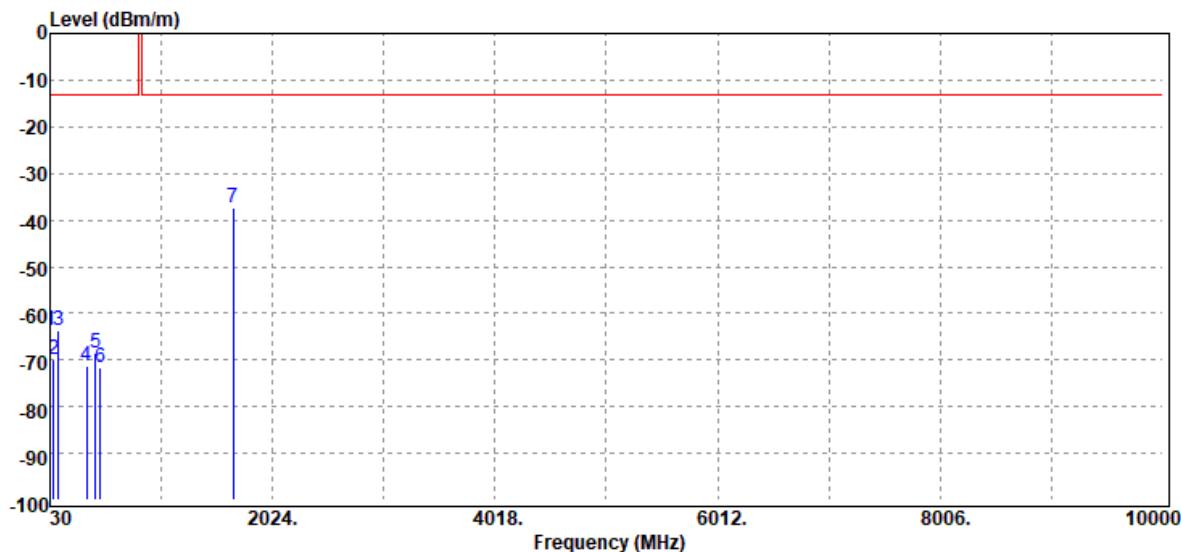
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B26 10MHz 16QAM 1 0
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :836.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
36.79	-63.80	-43.93	-19.25	-0.62	-13.00	-50.80
62.98	-69.83	-54.81	-14.26	-0.76	-13.00	-56.83
107.60	-63.74	-55.87	-6.86	-1.01	-13.00	-50.74
359.80	-71.42	-67.98	-1.51	-1.93	-13.00	-58.42
434.49	-68.56	-65.06	-1.67	-1.83	-13.00	-55.56
482.02	-71.49	-67.79	-1.46	-2.24	-13.00	-58.49
1673.00	-37.33	-42.79	9.49	-4.03	-13.00	-24.33

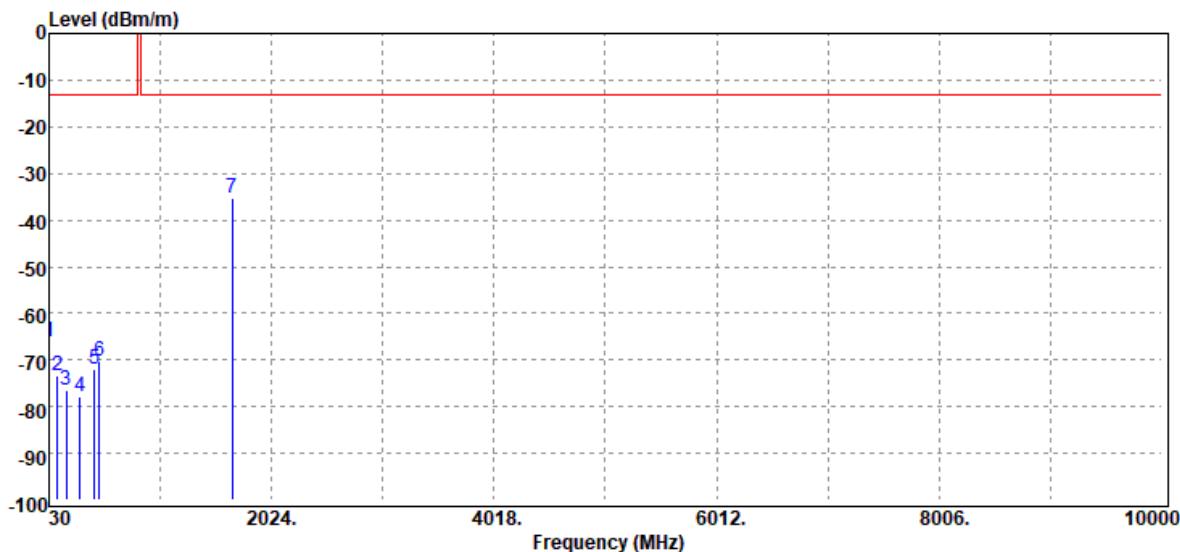
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B26 10MHz 16QAM 1 0
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :836.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-66.19	-46.01	-19.57	-0.61	-13.00	-53.19
108.57	-73.43	-65.47	-6.94	-1.02	-13.00	-60.43
183.26	-76.33	-71.40	-3.65	-1.28	-13.00	-63.33
304.51	-77.91	-74.61	-1.65	-1.65	-13.00	-64.91
438.37	-72.01	-68.44	-1.74	-1.83	-13.00	-59.01
482.99	-70.34	-66.62	-1.49	-2.23	-13.00	-57.34
1673.00	-35.42	-40.88	9.49	-4.03	-13.00	-22.42

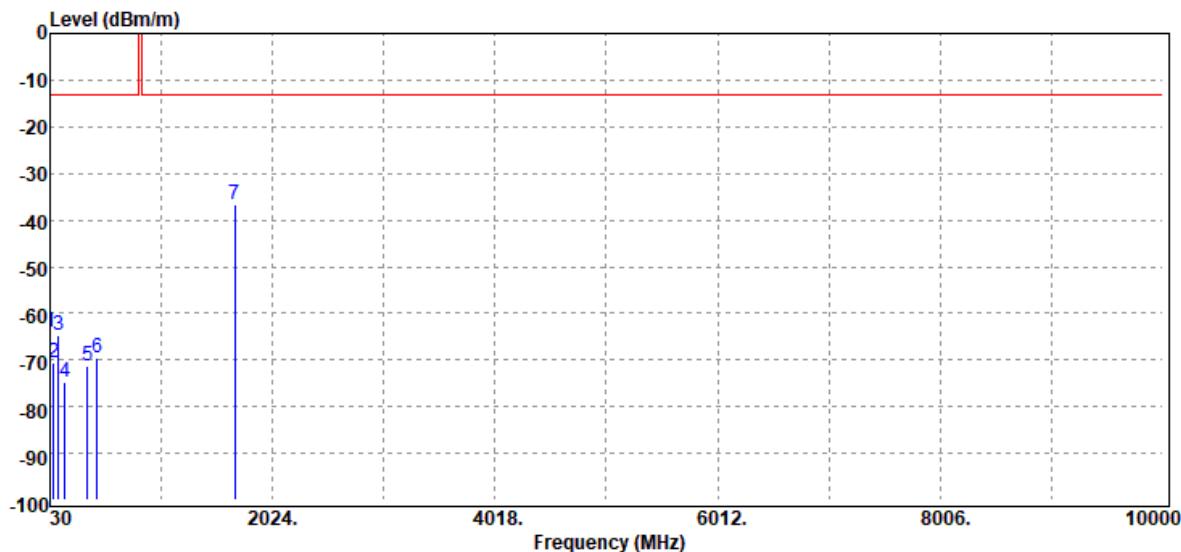
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B26 10MHz 16QAM 1 0
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :844.0 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
36.79	-64.01	-44.14	-19.25	-0.62	-13.00	-51.01
62.98	-70.42	-55.40	-14.26	-0.76	-13.00	-57.42
107.60	-64.80	-56.93	-6.86	-1.01	-13.00	-51.80
159.98	-74.59	-66.26	-6.96	-1.37	-13.00	-61.59
362.71	-71.35	-67.88	-1.55	-1.92	-13.00	-58.35
451.95	-69.47	-65.78	-1.64	-2.05	-13.00	-56.47
1688.00	-36.71	-42.27	9.61	-4.05	-13.00	-23.71

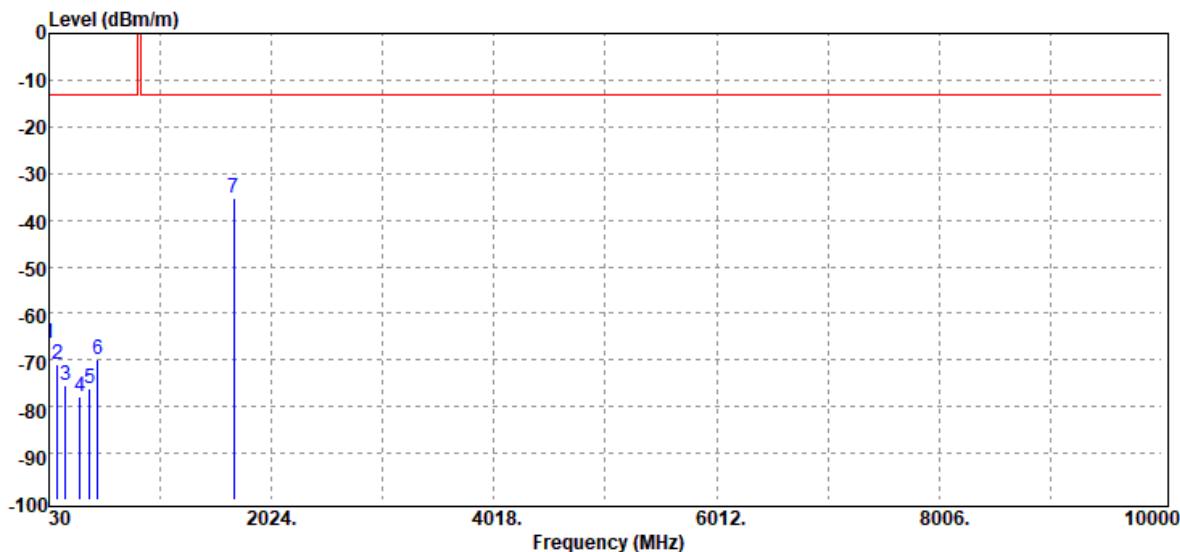
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B26 10MHz 16QAM 1 0
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :844.0 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
35.82	-66.51	-46.33	-19.57	-0.61	-13.00	-53.51
107.60	-71.00	-63.13	-6.86	-1.01	-13.00	-58.00
176.47	-75.36	-69.29	-4.81	-1.26	-13.00	-62.36
305.48	-77.99	-74.69	-1.66	-1.64	-13.00	-64.99
391.81	-76.08	-72.49	-1.62	-1.97	-13.00	-63.08
463.59	-69.93	-66.21	-1.52	-2.20	-13.00	-56.93
1688.00	-35.37	-40.93	9.61	-4.05	-13.00	-22.37

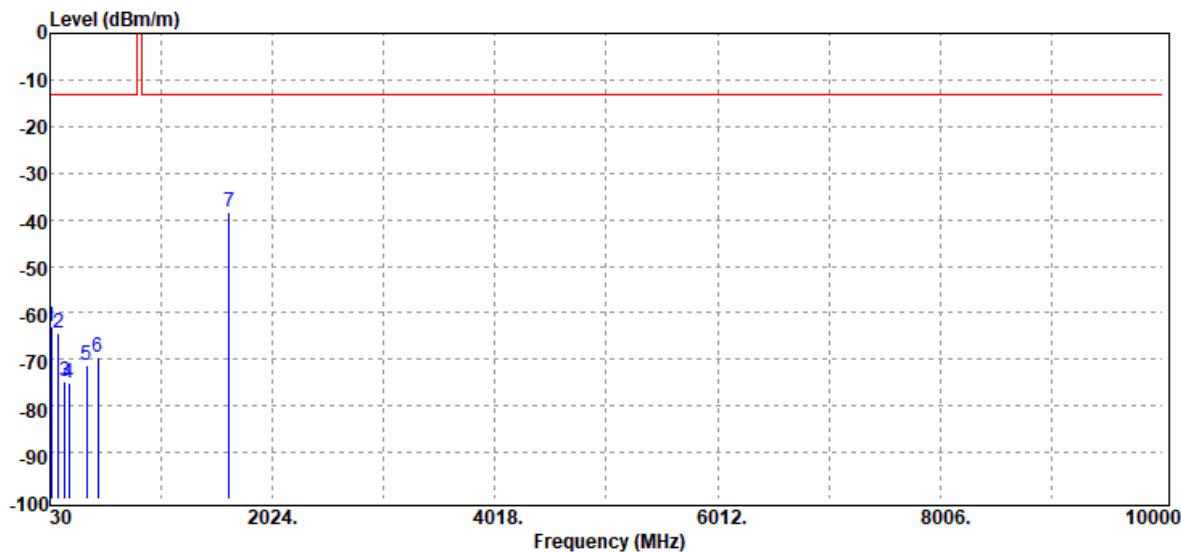
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Radiated Spurious Emission Measurement Result: CAT_M1_Band 26 (Part 90) (The Worst Case)

Report Number	:ER-2019-80104	Test Date	:2019-09-09
Operation Mode	:Cat_M1 B26 5MHz 16QAM 1 5	Temp./Humi.	:24.3/69
Test Mode	:Tx CH Low	Antenna Pol.	:VERTICAL
EUT Pol	:H Plane	Engineer.	: Nick
Test Channel	:816.5 MHz		



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
38.73	-62.94	-43.17	-19.13	-0.64	-13.00	-49.94
107.60	-64.53	-56.66	-6.86	-1.01	-13.00	-51.53
159.98	-74.75	-66.42	-6.96	-1.37	-13.00	-61.75
197.81	-75.20	-71.48	-2.34	-1.38	-13.00	-62.20
355.92	-71.20	-67.75	-1.53	-1.92	-13.00	-58.20
462.62	-69.55	-65.83	-1.53	-2.19	-13.00	-56.55
1633.00	-38.51	-43.79	9.27	-3.99	-13.00	-25.51

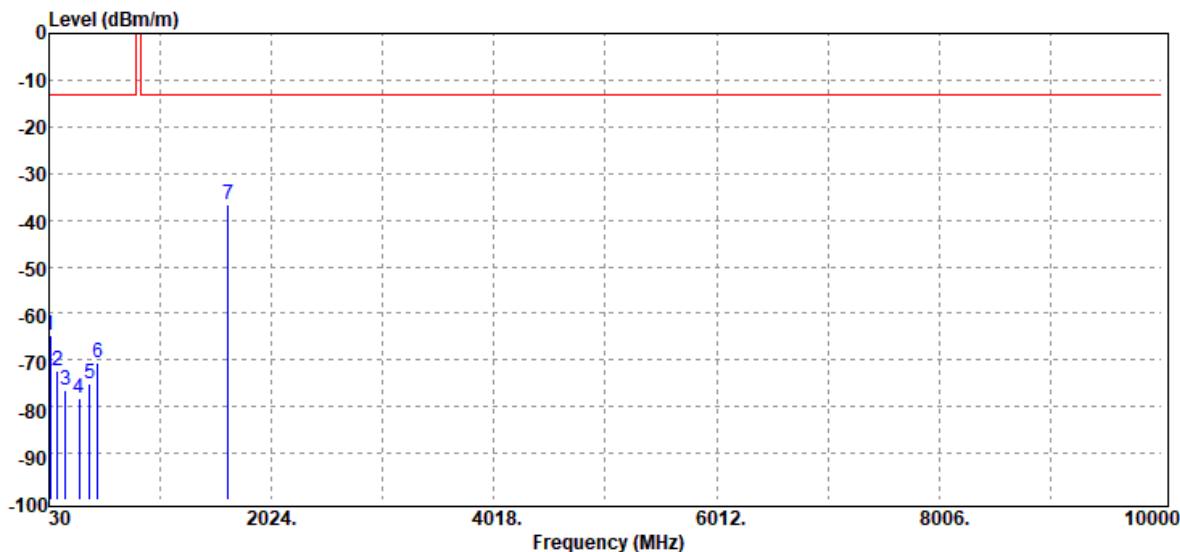
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B26 5MHz 16QAM 1 5
 Test Mode :Tx CH Low
 EUT Pol :H Plane
 Test Channel :816.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. : Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-64.67	-44.89	-19.15	-0.63	-13.00	-51.67
107.60	-72.45	-64.58	-6.86	-1.01	-13.00	-59.45
175.50	-76.39	-70.12	-5.00	-1.27	-13.00	-63.39
298.69	-78.36	-74.96	-1.71	-1.69	-13.00	-65.36
396.66	-75.03	-71.48	-1.61	-1.94	-13.00	-62.03
464.56	-70.44	-66.73	-1.50	-2.21	-13.00	-57.44
1633.00	-36.57	-41.85	9.27	-3.99	-13.00	-23.57

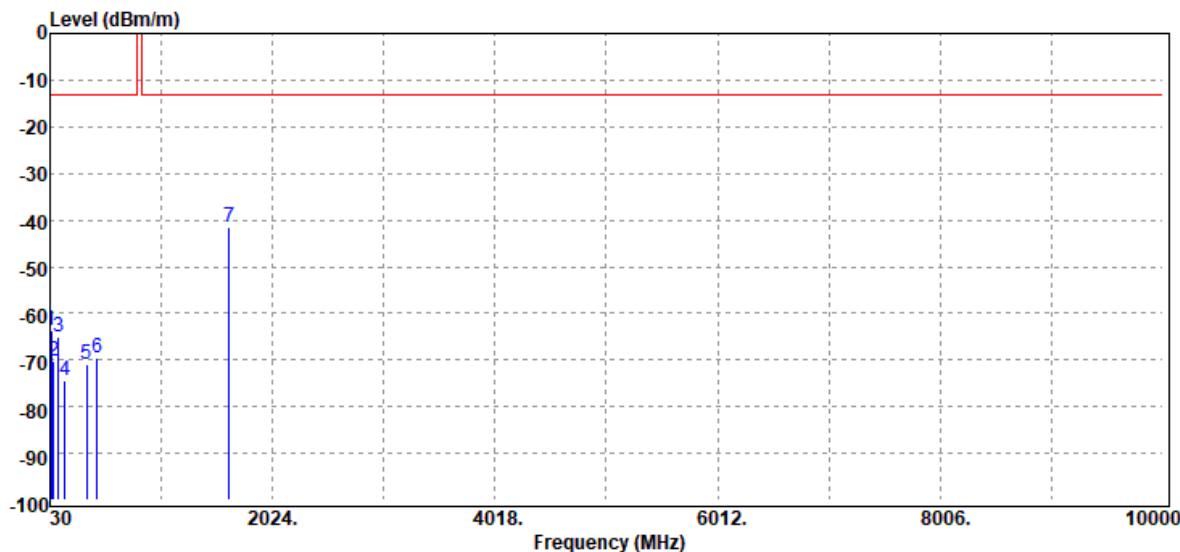
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B26 5MHz 16QAM 1 5
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :819.0 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-63.72	-43.94	-19.15	-0.63	-13.00	-50.72
62.98	-70.37	-55.35	-14.26	-0.76	-13.00	-57.37
107.60	-64.94	-57.07	-6.86	-1.01	-13.00	-51.94
159.98	-74.35	-66.02	-6.96	-1.37	-13.00	-61.35
361.74	-70.87	-67.41	-1.54	-1.92	-13.00	-57.87
449.04	-69.39	-65.71	-1.68	-2.00	-13.00	-56.39
1638.00	-41.63	-46.91	9.28	-4.00	-13.00	-28.63

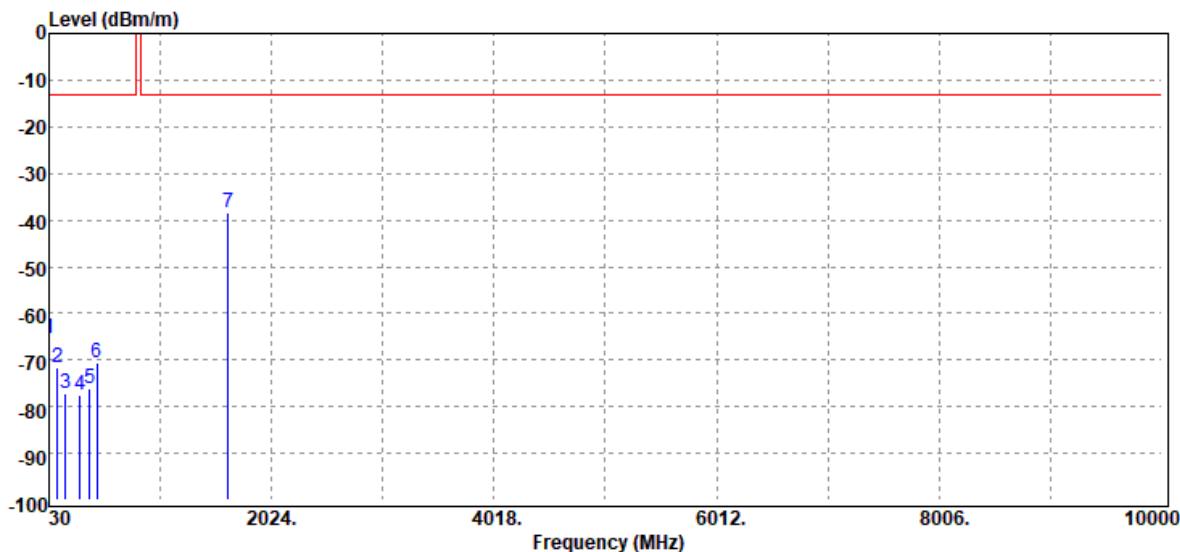
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B26 5MHz 16QAM 1 5
 Test Mode :Tx CH Mid
 EUT Pol :H Plane
 Test Channel :819.0 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
33.88	-65.48	-44.75	-20.15	-0.58	-13.00	-52.48
107.60	-71.59	-63.72	-6.86	-1.01	-13.00	-58.59
175.50	-77.20	-70.93	-5.00	-1.27	-13.00	-64.20
310.33	-77.52	-74.21	-1.70	-1.61	-13.00	-64.52
396.66	-76.24	-72.69	-1.61	-1.94	-13.00	-63.24
462.62	-70.55	-66.83	-1.53	-2.19	-13.00	-57.55
1638.00	-38.30	-43.58	9.28	-4.00	-13.00	-25.30

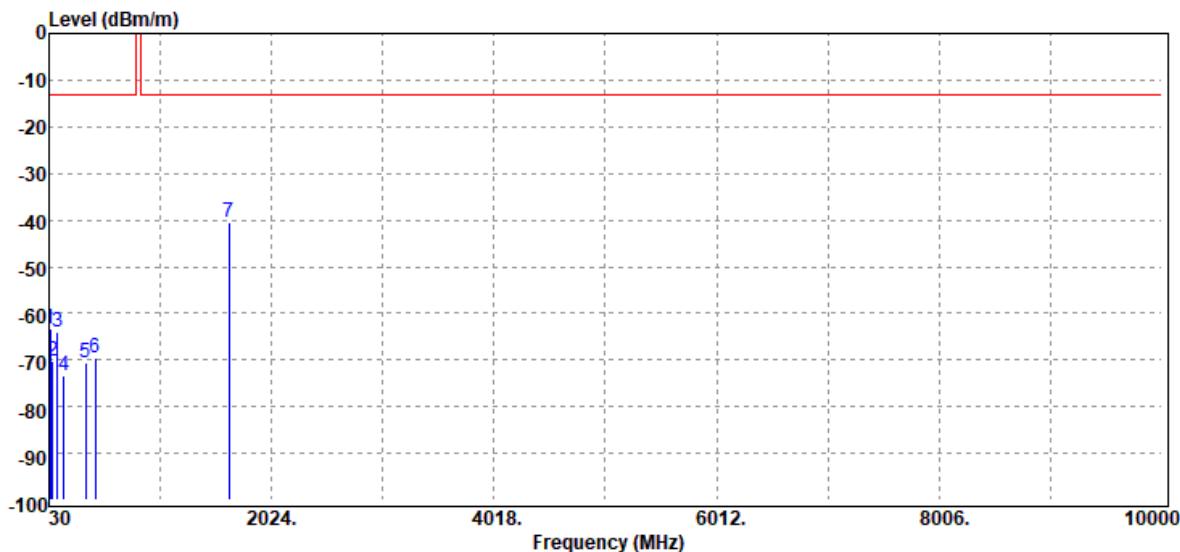
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Report Number :ER-2019-80104
 Operation Mode :Cat_M1 B26 5MHz 16QAM 1 5
 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :821.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :VERTICAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
37.76	-63.42	-43.64	-19.15	-0.63	-13.00	-50.42
62.98	-70.22	-55.20	-14.26	-0.76	-13.00	-57.22
107.60	-64.10	-56.23	-6.86	-1.01	-13.00	-51.10
159.98	-73.31	-64.98	-6.96	-1.37	-13.00	-60.31
358.83	-70.56	-67.11	-1.52	-1.93	-13.00	-57.56
448.07	-69.54	-65.88	-1.68	-1.98	-13.00	-56.54
1643.00	-40.51	-45.80	9.29	-4.00	-13.00	-27.51

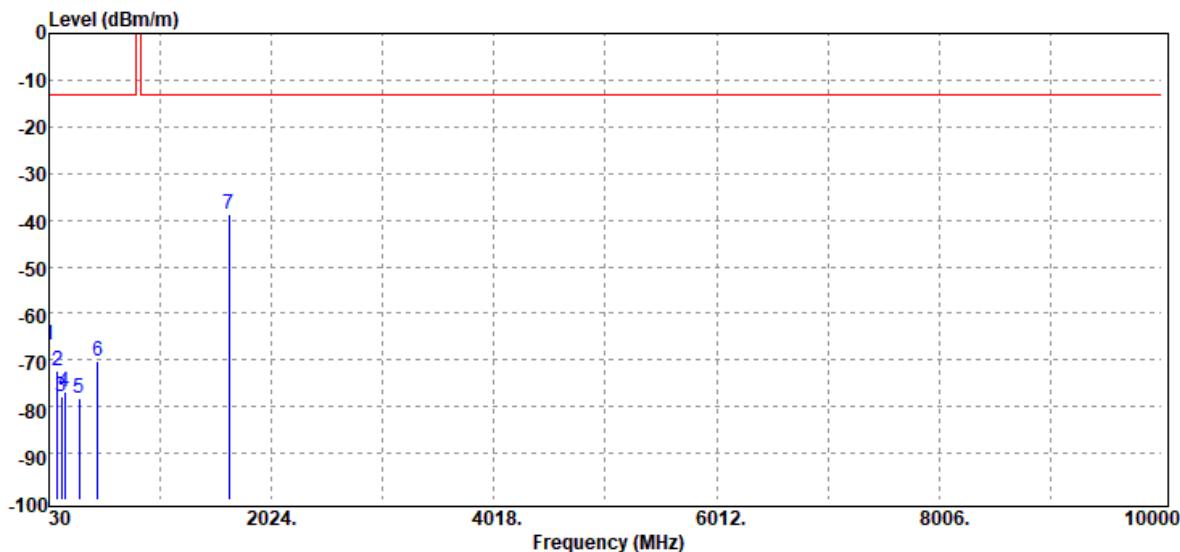
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 Test Mode :Tx CH High
 EUT Pol :H Plane
 Test Channel :821.5 MHz

Test Date :2019-09-09
 Temp./Humi. :24.3/69
 Antenna Pol. :HORIZONTAL
 Engineer. :Nick



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
33.88	-66.66	-45.93	-20.15	-0.58	-13.00	-53.66
107.60	-72.17	-64.30	-6.86	-1.01	-13.00	-59.17
142.52	-77.89	-68.82	-7.91	-1.16	-13.00	-64.89
173.56	-76.74	-70.16	-5.30	-1.28	-13.00	-63.74
302.57	-78.17	-74.84	-1.67	-1.66	-13.00	-65.17
467.47	-70.32	-66.59	-1.49	-2.24	-13.00	-57.32
1643.00	-38.63	-43.92	9.29	-4.00	-13.00	-25.63

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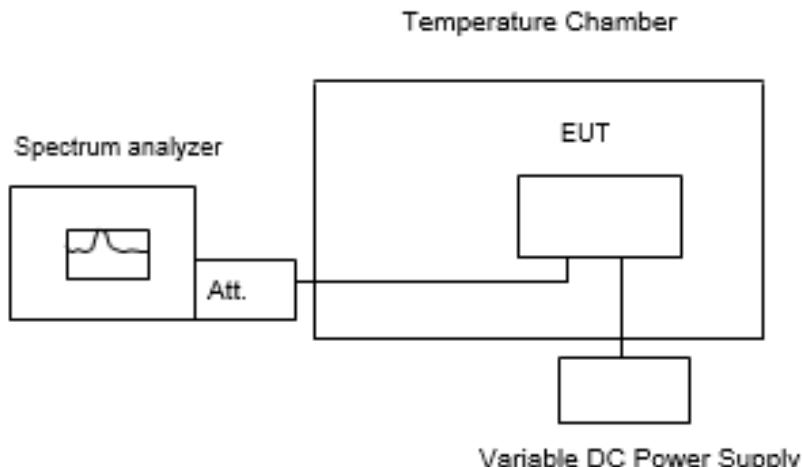
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10 FREQUENCY STABILITY MEASUREMENT

10.1 Standard Applicable

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

10.2 Test Set-up



Note: Measurement setup for testing on Antenna connector

10.3 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 . 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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10.4 Measurement Equipment Used

Conducted Emission (measured at antenna port) Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	05/02/2019	05/01/2020
Radio Communication Analyer	Anritsu	MT8821C	6261786084	01/09/2019	01/08/2020
DC Power Supply	Agilent	E3640A	MY52410006	12/04/2018	12/03/2019
Attenuator	Mini-Circuit	BW-S10W2+	4	01/02/2019	01/01/2020
Temperature Chamber	TERCHY	MHG-120LF	911009	05/17/2019	05/16/2020
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2019	01/01/2020
Splitter	RF-LAMBAD	RFLT2W1G1 8G	11-JSPF412-018	01/02/2019	01/01/2020

10.5 Measurement Result

NB IoT

LTE NB IoT Band 2 1880 MHz				
Limit: within frequency block				
Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Frequency error
FREQUENCY ERROR vs. VOLTAGE				
4.10	20	1879.99955	450	-0.239
3.60	20	1879.99964	360	-0.191
2.50	20	1879.99921	790	-0.420
2.4(End point)	20	1879.99952	480	-0.255
FREQUENCY ERROR vs. Temp.				
3.60	60	1880.00063	630	0.335
3.60	50	1879.99987	130	-0.069
3.60	40	1879.99973	270	-0.144
3.60	30	1879.99962	380	-0.202
3.60	20	1879.99955	450	-0.239
3.60	10	1879.99947	530	-0.282
3.60	0	1879.99988	120	-0.064
3.60	-10	1879.99957	430	-0.229
3.60	-20	1880.00054	540	0.287

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LTE NB IoT Band 4 1733 MHz				
Limit: within frequency block				
Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Frequency error
FREQUENCY ERROR vs. VOLTAGE				
4.10	20	1732.49978	220	-0.127
3.60	20	1732.49972	280	-0.162
2.50	20	1732.50082	820	0.473
2.4(End point)	20	1732.49933	670	-0.387
FREQUENCY ERROR vs. Temp.				
3.60	60	1732.50000	0	0.000
3.60	50	1732.50040	400	0.231
3.60	40	1732.49972	280	-0.162
3.60	30	1732.50012	120	0.069
3.60	20	1732.50070	700	0.404
3.60	10	1732.49963	370	-0.214
3.60	0	1732.49956	440	-0.254
3.60	-10	1732.49955	450	-0.260
3.60	-20	1732.50078	780	0.450
LTE NB IoT Band 5 888 MHz				
Limit: +/- 2.5 ppm				
Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Frequency error
FREQUENCY ERROR vs. VOLTAGE				
4.10	20	887.9993	700	-0.788
3.60	20	888.00087	870	0.980
2.50	20	887.99936	640	-0.721
2.4(End point)	20	888.00027	270	0.304
FREQUENCY ERROR vs. Temp.				
3.60	60	888.00089	890	1.002
3.60	50	887.99980	200	-0.225
3.60	40	887.99916	840	-0.946
3.60	30	888.00060	600	0.676
3.60	20	887.99970	300	-0.338
3.60	10	888.00081	810	0.912
3.60	0	888.00017	170	0.191
3.60	-10	888.00086	860	0.968
3.60	-20	887.99917	830	-0.935

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LTE NB IoT Band 12 708 MHz				
Limit: within frequency block				
Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Frequency error
FREQUENCY ERROR vs. VOLTAGE				
4.10	20	707.49958	420	-0.594
3.60	20	707.50034	340	0.481
2.50	20	707.50045	450	0.636
2.4(End point)	20	707.50093	930	1.314
FREQUENCY ERROR vs. Temp.				
3.60	60	707.49991	90	-0.127
3.60	50	707.50004	40	0.057
3.60	40	707.49914	860	-1.216
3.60	30	707.49995	50	-0.071
3.60	20	707.49933	670	-0.947
3.60	10	707.50092	920	1.300
3.60	0	707.50010	100	0.141
3.60	-10	707.49996	40	-0.057
3.60	-20	707.50025	250	0.353
LTE NB IoT Band 13 782 MHz				
Limit: within frequency block				
Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Frequency error
FREQUENCY ERROR vs. VOLTAGE				
4.10	20	781.99939	610	-0.780
3.60	20	782.00023	230	0.294
2.50	20	781.99925	750	-0.959
2.4(End point)	20	782.00071	710	0.908
FREQUENCY ERROR vs. Temp.				
3.60	60	781.99986	140	-0.179
3.60	50	781.99972	280	-0.358
3.60	40	781.99902	980	-1.253
3.60	30	781.99986	140	-0.179
3.60	20	781.99938	620	-0.793
3.60	10	781.99981	190	-0.243
3.60	0	781.99952	480	-0.614
3.60	-10	781.99967	330	-0.422
3.60	-20	782.00091	910	1.164

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LTE NB IoT Band 26 837 MHz				
Limit: within frequency block				
Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Frequency error
FREQUENCY ERROR vs. VOLTAGE				
4.10	20	836.50072	720	0.861
3.60	20	836.49936	640	-0.765
2.50	20	836.50093	930	1.112
2.4(End point)	20	836.50034	340	0.406
FREQUENCY ERROR vs. Temp.				
3.60	60	836.49928	720	-0.861
3.60	50	836.49958	420	-0.502
3.60	40	836.50099	990	1.184
3.60	30	836.50100	1000	1.195
3.60	20	836.49982	180	-0.215
3.60	10	836.49976	240	-0.287
3.60	0	836.49912	880	-1.052
3.60	-10	836.49994	60	-0.072
3.60	-20	836.50076	760	0.909
LTE NB IoT Band 26_Part90 819 MHz				
Limit: within frequency block				
Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Frequency error
FREQUENCY ERROR vs. VOLTAGE				
4.10	20	819.00087	870	1.062
3.60	20	819.00091	910	1.111
2.50	20	818.99916	840	-1.026
2.4(End point)	20	818.99989	110	-0.134
FREQUENCY ERROR vs. Temp.				
3.60	60	818.99940	600	-0.733
3.60	50	818.99908	920	-1.123
3.60	40	819.00026	260	0.317
3.60	30	818.99989	110	-0.134
3.60	20	818.99974	260	-0.317
3.60	10	819.00001	10	0.012
3.60	0	819.00041	410	0.501
3.60	-10	819.00006	60	0.073
3.60	-20	819.00042	420	0.513

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Cat M1

Reference Freq.:		M1 B2 Mid Channel		1880 MHz 20M QPSK CH 18900
Power Supply Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)
Freq. ERROR vs. VOLTAGE				
4.1	25	1880.000007	7.000000096	4700
3.6	25	1880.000017	17.00000007	4700
2.5	25	1879.999992	-7.99999998	4700
2.4 (End Point)	25	1879.999987	-13.00000008	4700
Freq. ERROR vs. Temp.				
3.6	-20	1880.000040	39.9999999	4700
3.6	-10	1880.000018	17.99999995	4700
3.6	0	1880.000014	13.99999996	4700
3.6	10	1879.999997	-3.000000106	4700
3.6	20	1880.000042	41.99999989	4700
3.6	30	1880.000003	3.000000106	4700
3.6	40	1879.999964	-35.99999991	4700
3.6	50	1880.000019	19.00000007	4700
3.6	60	1879.999986	-13.99999996	4700
Reference Freq.:		M1 B4 Mid Channel		1732.5 MHz 20M QPSK CH 20175
Power Supply Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)
Freq. ERROR vs. VOLTAGE				
4.1	25	1732.500019	19.00000007	4331
3.6	25	1732.499980	-19.9999999	4331
2.5	25	1732.500015	15.00000008	4331
2.4 (End Point)	25	1732.499984	-16	4331
Freq. ERROR vs. Temp.				
3.6	-20	1732.500038	37.9999999	4331
3.6	-10	1732.500001	1.000000111	4331
3.6	0	1732.500027	27.00000005	4331
3.6	10	1732.500036	35.99999991	4331
3.6	20	1732.499961	-39	4331
3.6	30	1732.500040	39.9999999	4331
3.6	40	1732.499997	-3.00000011	4331
3.6	50	1732.499975	-25.00000001	4331
3.6	60	1732.500035	35.00000003	4331

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Reference Freq.:		M1 B5 Mid Channel		836.5	MHz 10M QPSK CH 20525
Power Supply Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)	
Freq. ERROR vs. VOLTAGE					
4.1	25	836.499967	-33.00000003	2091	
3.6	25	836.499959	-41.00000001	2091	
2.5	25	836.500047	47	2091	
2.4 (End Point)	25	836.499997	-2.700000096	2091	
Freq. ERROR vs. Temp.					
3.6	-20	836.500029	29.00000004	2091	
3.6	-10	836.499985	-14.99999996	2091	
3.6	0	836.500034	34.00000003	2091	
3.6	10	836.500021	20.99999995	2091	
3.6	20	836.499972	-28.00000004	2091	
3.6	30	836.500019	18.99999995	2091	
3.6	40	836.500035	35.00000003	2091	
3.6	50	836.499957	-43.00000001	2091	
3.6	60	836.499990	-9.99999975	2091	
Reference Freq.:		M1 B12 Mid Channel		707.5	MHz 10M QPSK CH 23095
Power Supply Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)	
Freq. ERROR vs. VOLTAGE					
4.1	25	707.500010	9.99999975	1769	
3.6	25	707.499977	-23.00000006	1769	
2.5	25	707.500018	17.99999995	1769	
2.4 (End Point)	25	707.500015	14.99999996	1769	
Freq. ERROR vs. Temp.					
3.6	-20	707.500031	31.00000004	1769	
3.6	-10	707.500013	12.99999997	1769	
3.6	0	707.500033	33.00000003	1769	
3.6	10	707.500002	1.99999995	1769	
3.6	20	707.500009	8.999999977	1769	
3.6	30	707.500049	48.99999999	1769	
3.6	40	707.499983	-16.99999996	1769	
3.6	50	707.499961	-39.00000002	1769	
3.6	60	707.499994	-5.999999985	1769	

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Reference Freq.:		M1 B13 Mid Channel		
Power Supply Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)
Freq. ERROR vs. VOLTAGE				
4.1	25	781.999950	-50	1955
3.6	25	781.999997	-2.99999999	1955
2.5	25	782.000005	4.999999987	1955
2.4 (End Point)	25	781.999986	-14	1955
Freq. ERROR vs. Temp.				
3.6	-20	781.999956	-44	1955
3.6	-10	781.999977	-23.0000001	1955
3.6	0	781.999976	-24.0000001	1955
3.6	10	782.000035	35.00000003	1955
3.6	20	781.999977	-23.0000001	1955
3.6	30	781.999987	-13	1955
3.6	40	782.000046	46	1955
3.6	50	782.000015	14.99999996	1955
3.6	60	782.000025	25.00000005	1955
Reference Freq.:		M1 B26 Mid Channel		
Power Supply Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)
Freq. ERROR vs. VOLTAGE				
4.1	25	831.499964	-36	2091
3.6	25	831.499997	-2.99999999	2091
2.5	25	831.500050	49.99999999	2091
2.4 (End Point)	25	831.500031	31.00000004	2091
Freq. ERROR vs. Temp.				
3.6	-20	831.499955	-45	2091
3.6	-10	831.499978	-21.99999999	2091
3.6	0	831.499960	-40	2091
3.6	10	831.499983	-17	2091
3.6	20	831.499987	-13	2091
3.6	30	831.500037	37.00000002	2091
3.6	40	831.500034	34.00000003	2091
3.6	50	831.499974	-26	2091
3.6	60	831.500049	48.99999999	2091

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Reference Freq.:		Part 90 M1 B26 Mid Channel		819	MHz 10M QPSK CH 26740
Power Supply Vdc	Temp. ()	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)	
Freq. ERROR vs. VOLTAGE (M1 B26 for Part 90S)					
4.1	25	818.999966	-34.00000003	2048	
3.6	25	819.000004	3.99999999	2048	
2.5	25	818.999972	-28.00000004	2048	
2.4 (End Point)	25	819.000021	20.99999995	2048	
Freq. ERROR vs. Temp.					
3.6	-20	818.999988	-11.99999997	2048	
3.6	-10	818.999965	-35.00000003	2048	
3.6	0	818.999991	-8.999999977	2048	
3.6	10	819.000021	20.99999995	2048	
3.6	20	819.000030	30.00000004	2048	
3.6	30	818.999969	-31.00000004	2048	
3.6	40	818.999978	-21.99999994	2048	
3.6	50	818.999989	-10.99999997	2048	
3.6	60	819.000040	40.00000001	2048	

Note: The battery is rated 3.6V dc.

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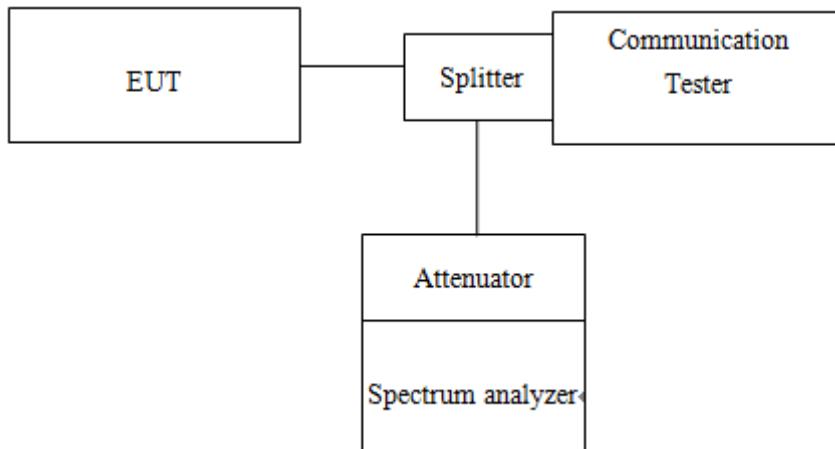
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11 PEAK TO AVERAGE RATIO

11.1 Standard Applicable

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

11.2 Test SET-UP



11.3 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.

11.4 Measurement Equipment Used

Conducted Emission (measured at antenna port) Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	05/02/2019	05/01/2020
Radio Communication Analyer	Anritsu	MT8821C	6261786084	01/09/2019	01/08/2020
DC Power Supply	Agilent	E3640A	MY52410006	12/04/2018	12/03/2019
Attenuator	Mini-Circuit	BW-S10W2+	4	01/02/2019	01/01/2020
Temperature Chamber	TERCHY	MHG-120LF	911009	05/17/2019	05/16/2020
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2019	01/01/2020
Splitter	RF-LAMBAD	RFLT2W1G1 8G	11-JSPF412-018	01/02/2019	01/01/2020

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11.5 Measurement Result

Tabular Results:

NB IoT

LTE NB-IoT Band 2					
Channel	Freq. (MHz)	Modulation	Subcarrier Spacing (kHz)	N _{tones}	Peak-to-Average Power Ratio(dB)
18601	1850.1	BPSK	15	1@0	5.31
		QPSK	15	12@0	6.51
18900	1880	BPSK	15	1@0	6.86
		QPSK	15	12@0	11.03
19199	1909.9	BPSK	15	1@0	6.6
		QPSK	15	12@0	12.26
LTE NB-IoT Band 4					
Channel	Freq. (MHz)	Modulation	Subcarrier Spacing (kHz)	N _{tones}	Peak-to-Average Power Ratio(dB)
19951	1710.1	BPSK	15	1@0	8.73
		QPSK	15	12@0	4.78
20175	1732.5	BPSK	15	1@0	6.8
		QPSK	15	12@0	5.14
20399	1754.9	BPSK	15	1@0	6.97
		QPSK	15	12@0	8.44
LTE NB-IoT Band 5					
Channel	Freq. (MHz)	Modulation	Subcarrier Spacing (kHz)	N _{tones}	Peak-to-Average Power Ratio(dB)
20401	824.1	BPSK	15	1@0	3.24
		QPSK	15	12@0	6.69
20525	836.5	BPSK	15	1@0	7.3
		QPSK	15	12@0	9.89
20649	848.9	BPSK	15	1@0	11.42
		QPSK	15	12@0	5.69
LTE NB-IoT Band 12					
Channel	Freq. (MHz)	Modulation	Subcarrier Spacing (kHz)	N _{tones}	Peak-to-Average Power Ratio(dB)
23011	699.1	BPSK	15	1@0	9.73
		QPSK	15	12@0	12.06
23095	707.5	BPSK	15	1@0	10.43
		QPSK	15	12@0	11.24
23719	715.9	BPSK	15	1@0	9.85
		QPSK	15	12@0	7.02

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LTE NB-IoT Band 13					
Channel	Freq. (MHz)	Modulation	Subcarrier Spacing (kHz)	N _{tones}	Peak-to-Average Power Ratio(dB)
23181	777.1	BPSK	15	1@0	6.02
		QPSK	15	12@0	8.07
23230	782	BPSK	15	1@0	9.81
		QPSK	15	12@0	6.77
23279	786.9	BPSK	15	1@0	7.1
		QPSK	15	12@0	4.5
LTE NB-IoT Band 26					
Channel	Freq. (MHz)	Modulation	Subcarrier Spacing (kHz)	N _{tones}	Peak-to-Average Power Ratio(dB)
26791	824.1	BPSK	15	1@0	8.92
		QPSK	15	12@0	9.7
26915	836.5	BPSK	15	1@0	6.63
		QPSK	15	12@0	8.22
27039	848.9	BPSK	15	1@0	10.58
		QPSK	15	12@0	4.77
LTE NB-IoT Band 26_Part90					
Channel	Freq. (MHz)	Modulation	Subcarrier Spacing (kHz)	N _{tones}	Peak-to-Average Power Ratio(dB)
26691	814.1	BPSK	15	1@0	10.4
		QPSK	15	12@0	11.55
26740	819	BPSK	15	1@0	9.51
		QPSK	15	12@0	4.45
26789	823.9	BPSK	15	1@0	9.79
		QPSK	15	12@0	9.1

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Cat M1

M1 BAND 2							
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
1850.7	18607	9.67	13	1851.5	18615	11.88	13
1880.0	18900	9.48	13	1880.0	18900	10.21	13
1909.3	19193	10.34	13	1908.5	19185	10.02	13

M1 BAND 2							
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
1852.5	18625	8.01	13	1855.0	18650	9.80	13
1880.0	18900	8.73	13	1880.0	18900	9.81	13
1907.5	19175	9.92	13	1905.0	19150	9.46	13

M1 BAND 2							
Channel bandwidth: 15MHz				Channel bandwidth: 20MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
1857.5	18675	9.86	13	1860.0	18700	8.09	13
1880.0	18900	9.59	13	1880.0	18900	9.16	13
1902.5	19125	9.39	13	1900.0	19100	6.37	13

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M1 BAND 4							
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
1710.7	19957	11.31	13	1711.5	19965	9.67	13
1732.5	20175	9.20	13	1732.5	20175	10.28	13
1754.3	20393	8.58	13	1753.5	20385	7.51	13

M1 BAND 4							
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
1712.5	19975	9.63	13	1715.0	20000	9.99	13
1732.5	20175	9.85	13	1732.5	20175	9.80	13
1752.5	20375	10.38	13	1750.0	20350	10.52	13

M1 BAND 4							
Channel bandwidth: 15MHz				Channel bandwidth: 20MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
1717.5	20025	9.90	13	1720.0	20050	5.53	13
1732.5	20175	9.79	13	1732.5	20175	8.56	13
1747.5	20325	9.32	13	1745.0	20300	6.93	13

M1 BAND 5							
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
824.7	20407	8.98	13	825.5	20415	10.67	13
836.5	20525	9.65	13	836.5	20525	10.39	13
848.3	20643	10.14	13	847.5	20635	10.38	13

M1 BAND 5							
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
826.5	20425	10.26	13	829.0	20450	10.10	13
836.5	20525	10.65	13	836.5	20525	10.13	13
846.5	20625	10.89	13	844.0	20600	9.48	13

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M1 BAND 12							
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
699.7	23017	9.67	13	700.5	23025	10.54	13
707.5	23095	9.47	13	707.5	23095	10.44	13
715.3	23173	9.79	13	714.5	23165	10.96	13

M1 BAND 12							
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
701.5	23035	9.71	13	704.0	23060	10.11	13
707.5	23095	10.21	13	707.5	23095	9.01	13
713.5	23155	11.21	13	711.0	23130	9.40	13
M1 BAND 13							
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
779.5	23205	9.85	13	782.0	23230	9.08	13
782.0	23230	9.09	13				
784.5	23255	9.55	13				

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M1 BAND 26							
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
814.7	26697	11.53	13	815.5	26705	12.02	13
831.5	26865	10.01	13	831.5	26865	9.63	13
848.3	27033	11.64	13	847.5	27025	11.73	13

M1 BAND 26							
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
816.5	26715	7.60	13	820.0	26750	10.36	13
831.5	26865	9.19	13	831.5	26865	8.28	13
846.5	27015	10.88	13	844.0	26990	8.61	13

M1 BAND 26			
Channel bandwidth: 15MHz			
Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit
822.5	26775	9.74	13
831.5	26865	9.42	13
841.5	26965	7.78	13

M1 BAND 26 for part 90S							
Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
814.7	26697	10.22	13	815.5	26705	8.93	13
819.0	26740	10.95	13	819	26740	10.74	13
823.3	26783	9.78	13	822.5	26775	7.01	13

M1 BAND 26 for part 90S							
Channel bandwidth: 5MHz				Channel bandwidth: 10MHz			
Freq. (MHz)	CH	PAPR (dB)		Freq. (MHz)	CH	PAPR (dB)	
		16QAM	Limit			16QAM	Limit
816.5	26715	10.51	13				
819.0	26740	11.58	13	819.0	26740	10.10	13
821.5	26765	10.77	13				

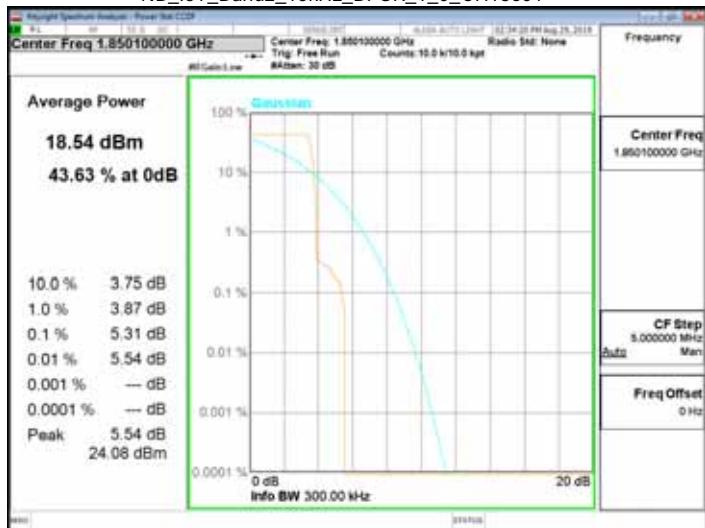
Please refer to next page for test plots.

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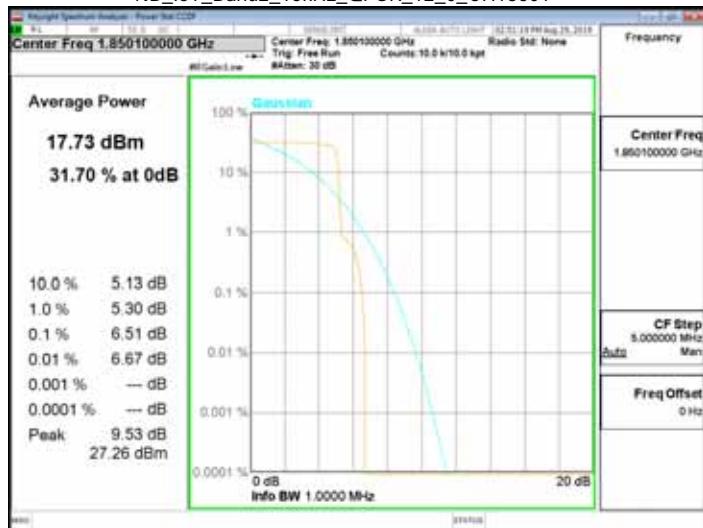
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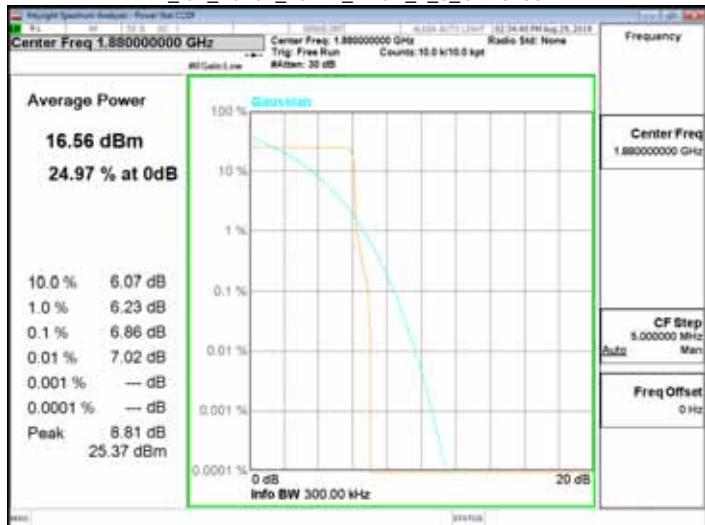
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NB_IoT_Band2_15kHz_QPSK_12_0_CH18601



NB_IoT_Band2_15kHz_BPSK_1_0_CH18900



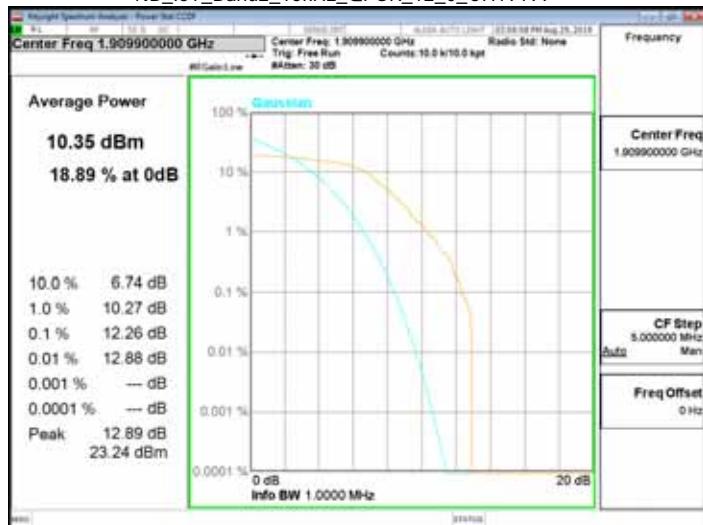
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NB_IoT_Band2_15kHz_QPSK_12_0_CH19199

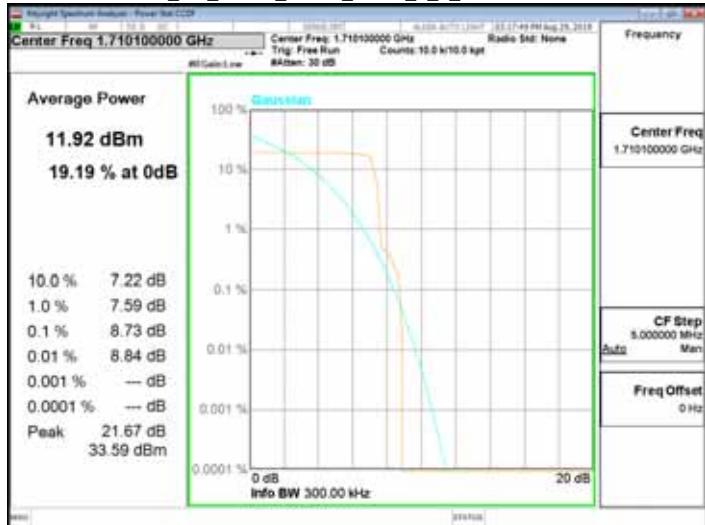


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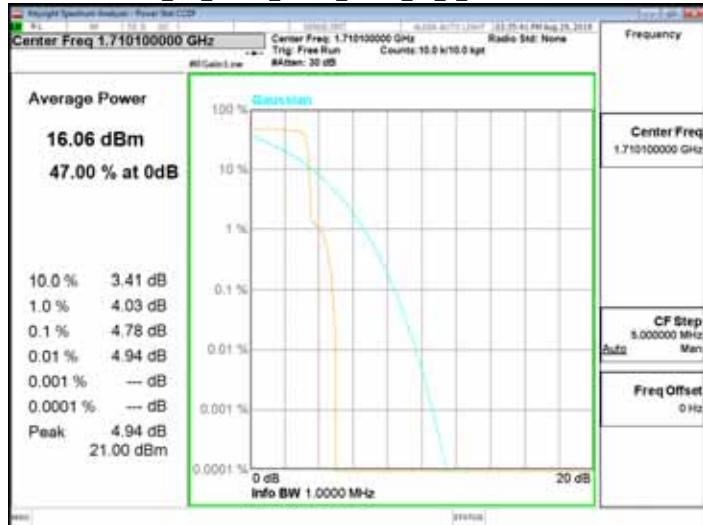
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NB_IoT_Band4_15kHz_BPSK_1_0_CH19951



NB_IoT_Band4_15kHz_QPSK_12_0_CH19951



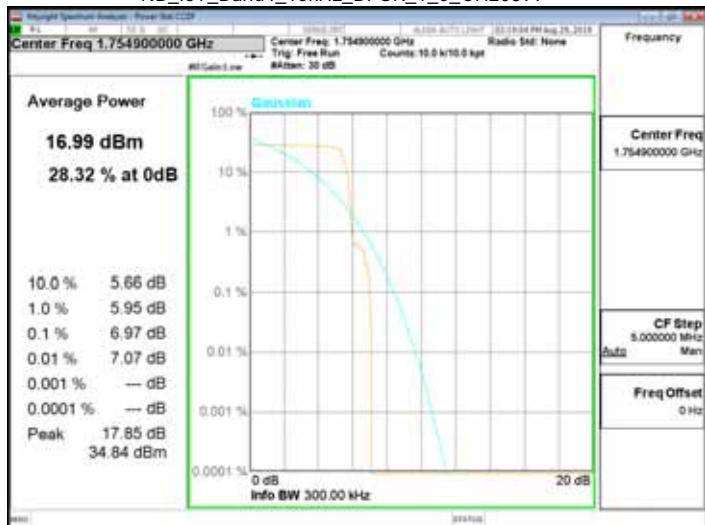
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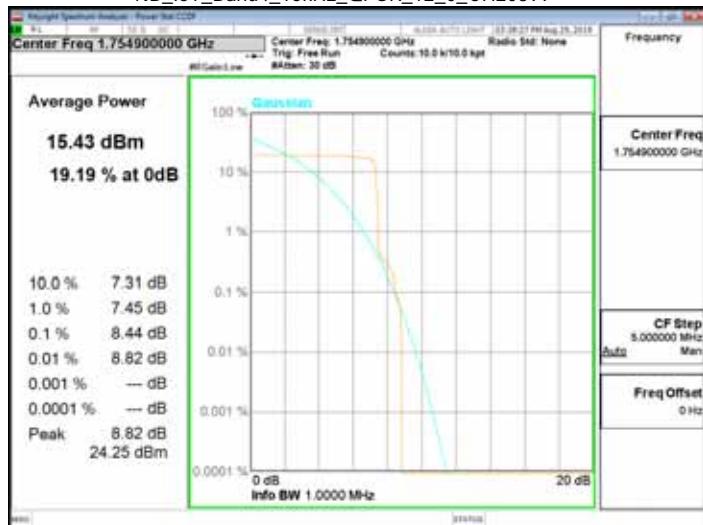
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NB_IoT_Band4_15kHz_BPSK_1_0_CH20399



NB_IoT_Band4_15kHz_QPSK_12_0_CH20399

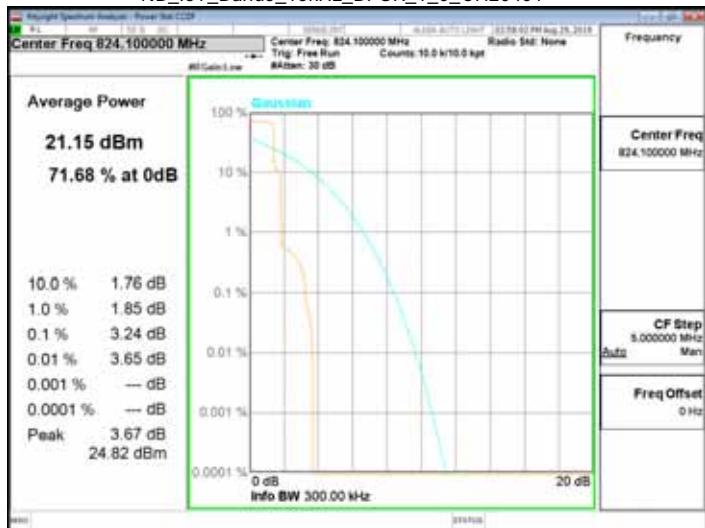


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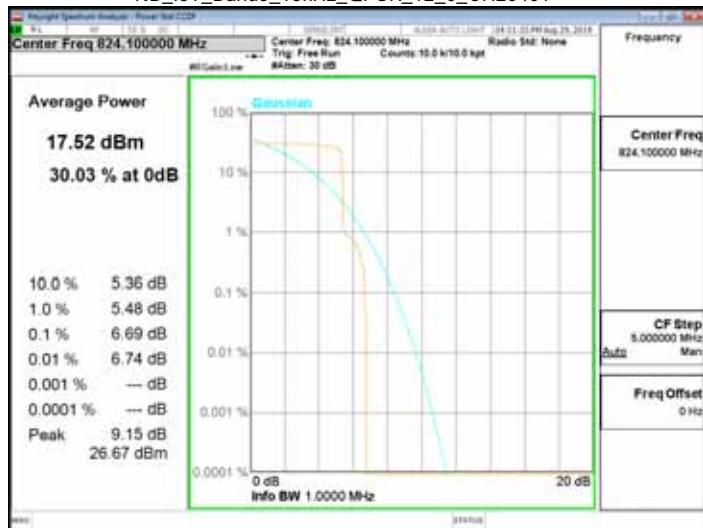
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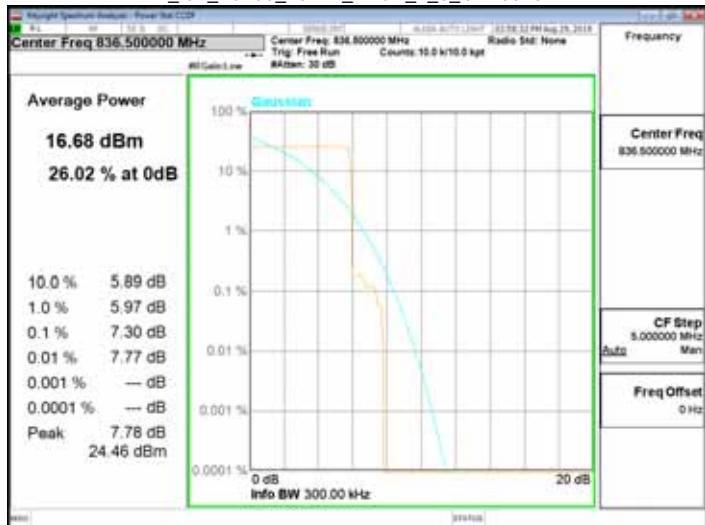
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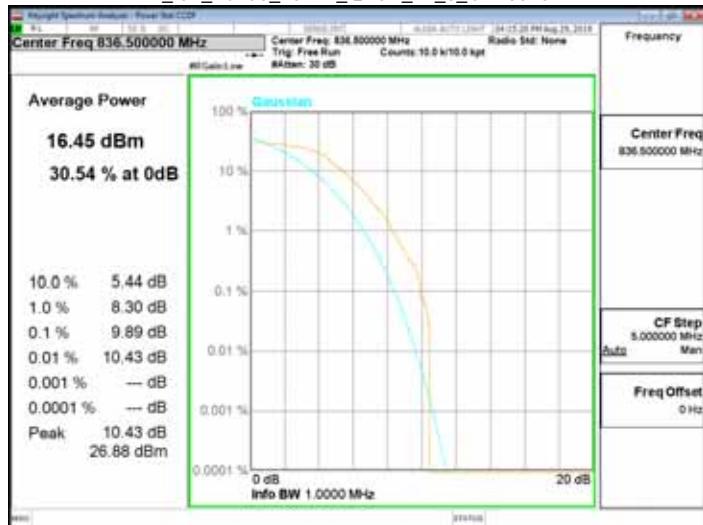
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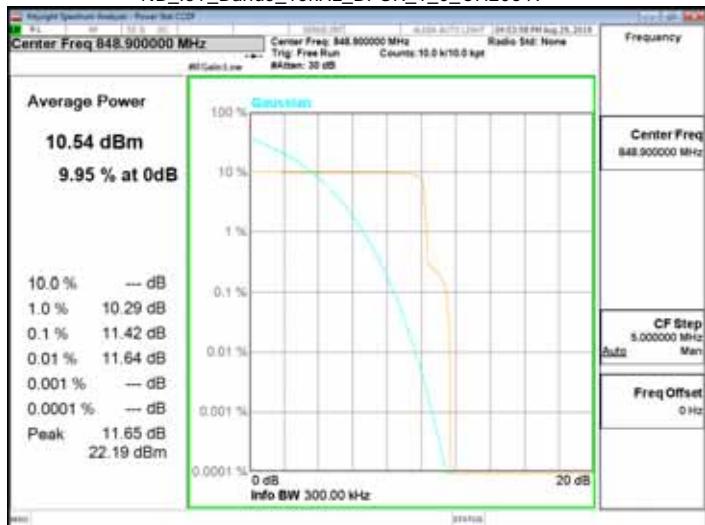
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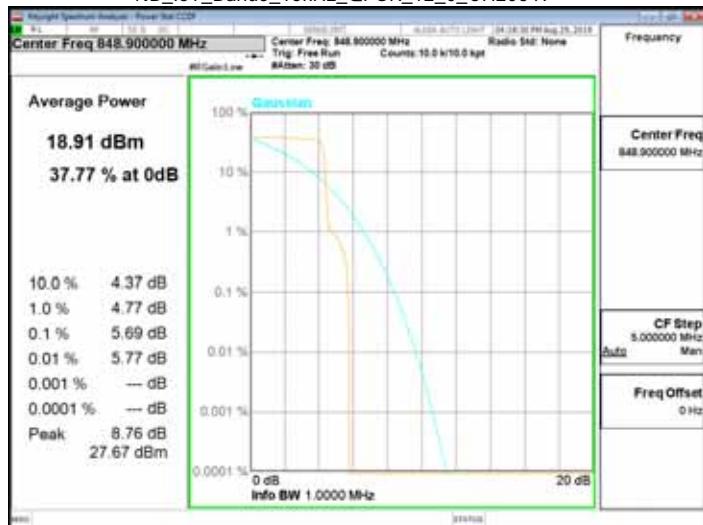
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NB_IoT_Band5_15kHz_QPSK_12_0_CH20649

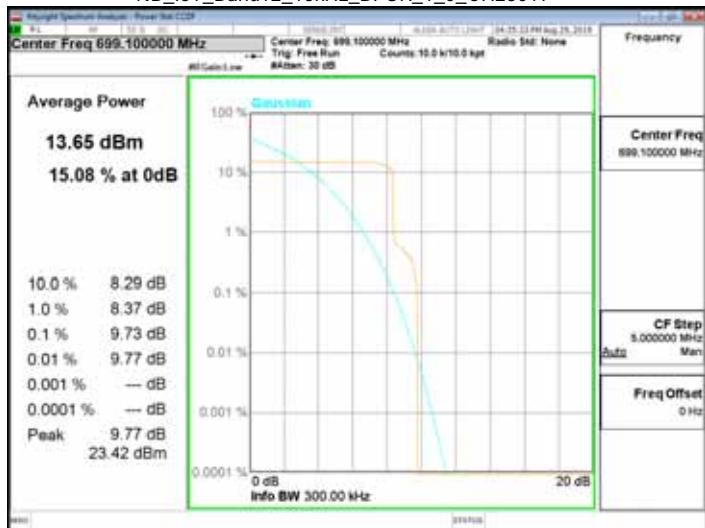


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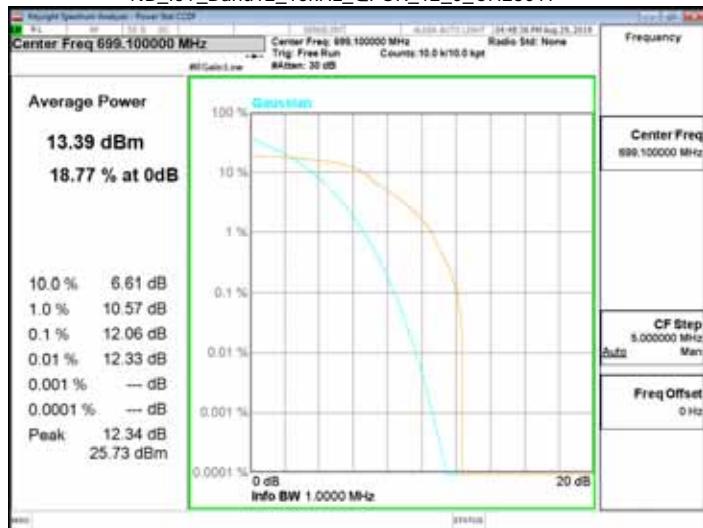
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NB_IoT_Band12_15kHz_BPSK_1_0_CH23011



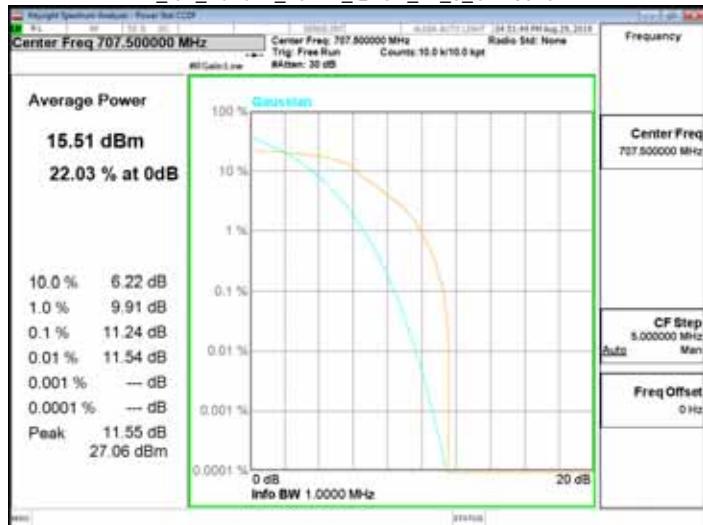
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NB_IoT_Band12_15kHz_BPSK_1_0_CH23095



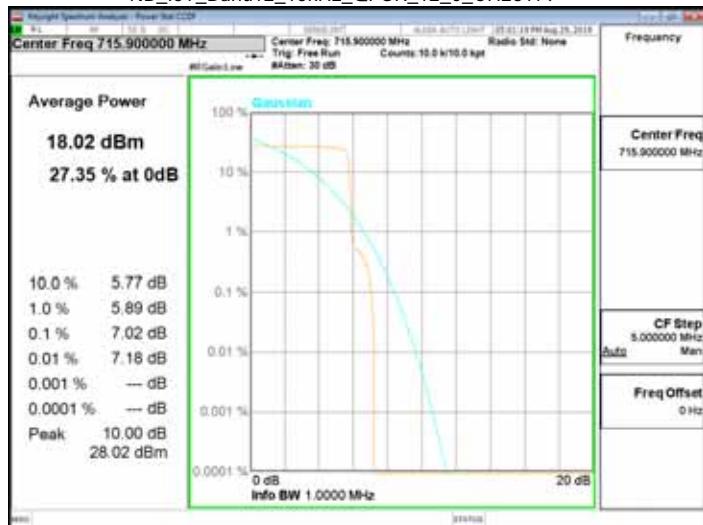
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NB_IoT_Band12_15kHz_BPSK_1_0_CH23179



NB_IoT_Band12_15kHz_QPSK_12_0_CH23179

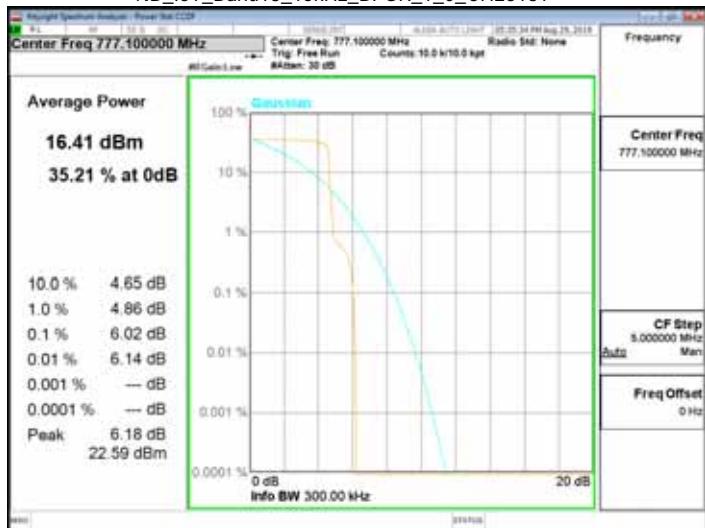


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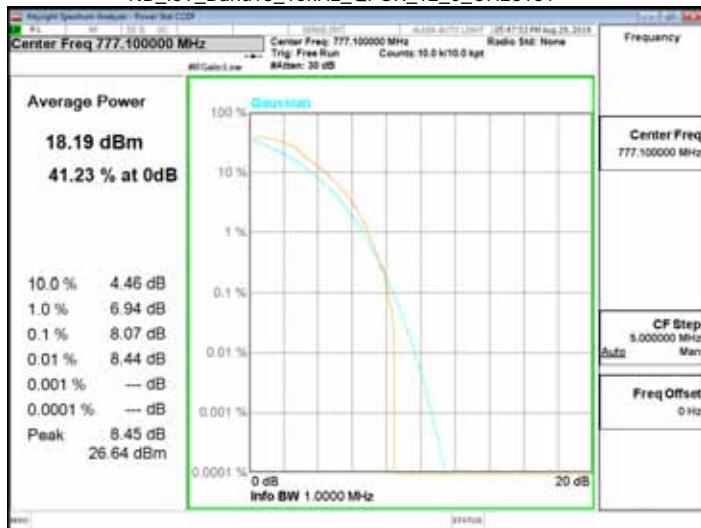
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NB_IoT_Band13_15kHz_BPSK_1_0_CH23181



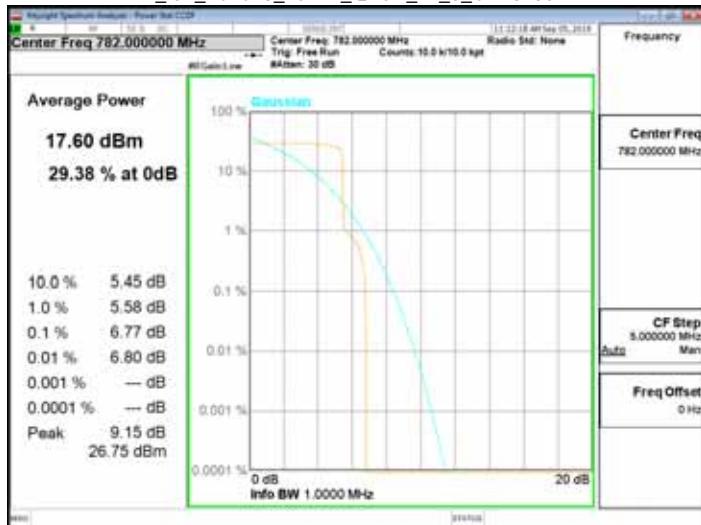
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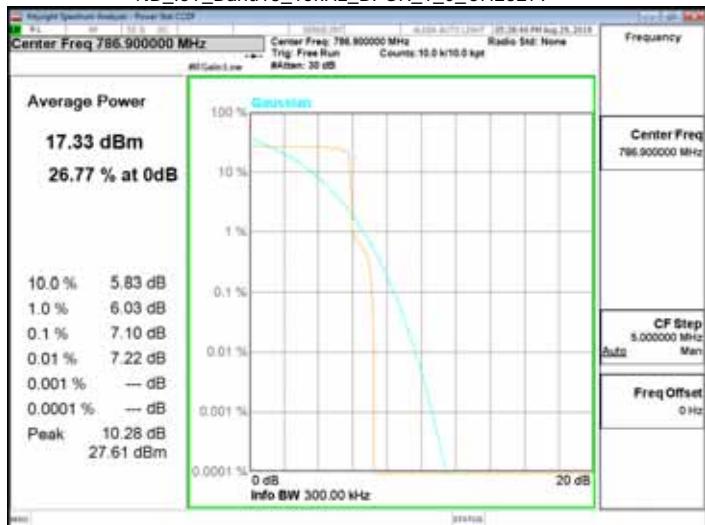
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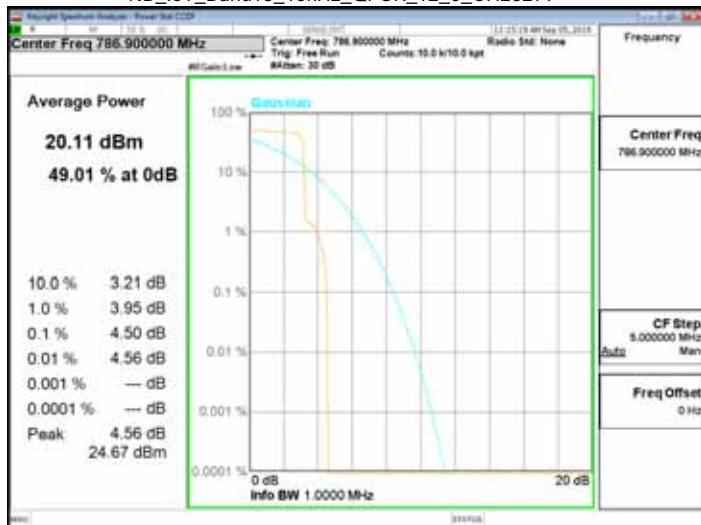
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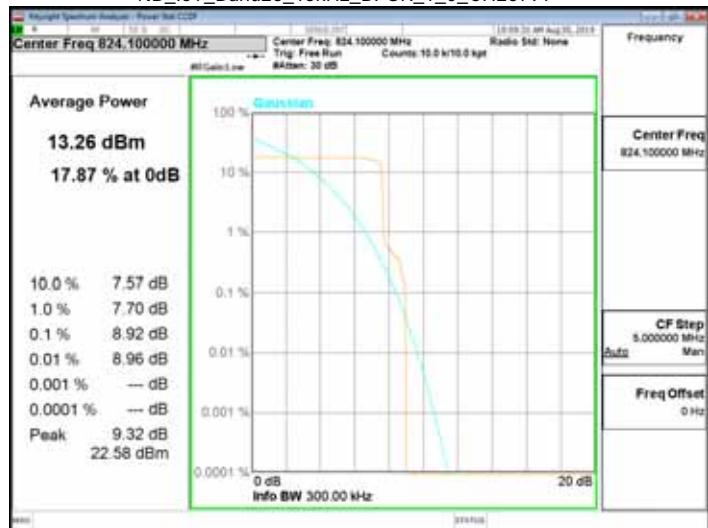


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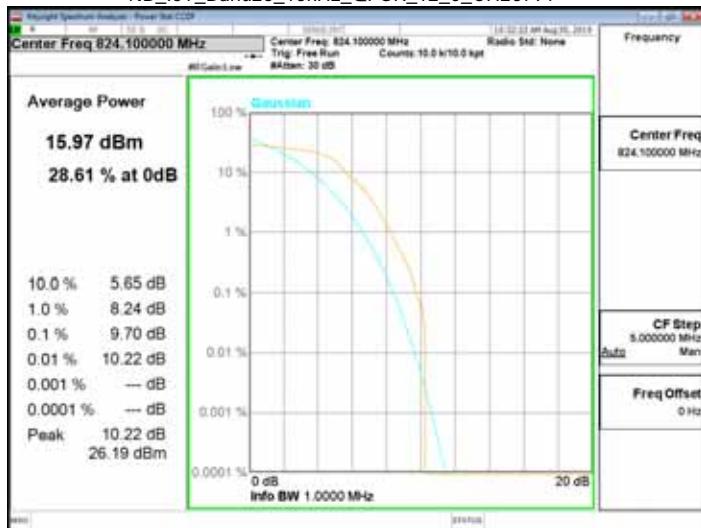
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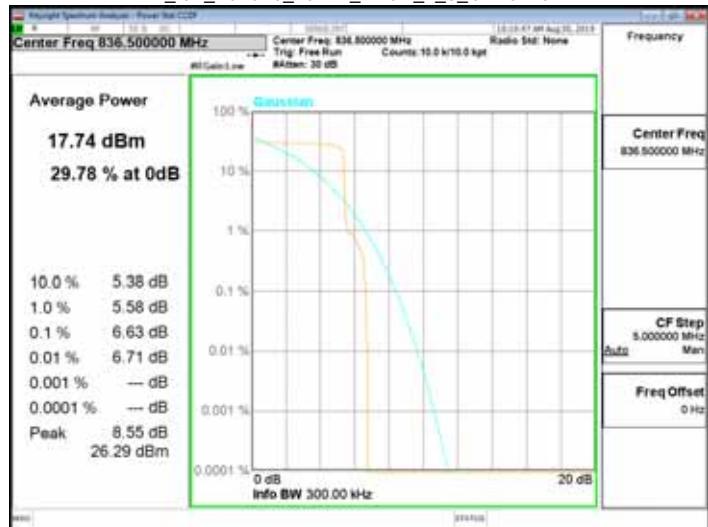
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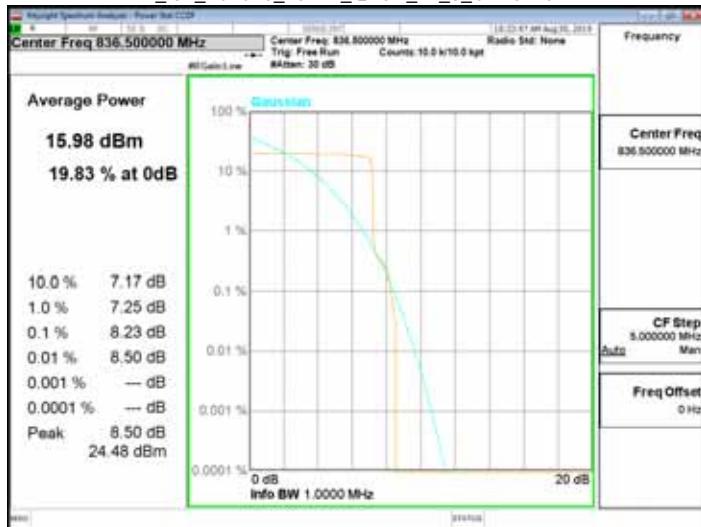
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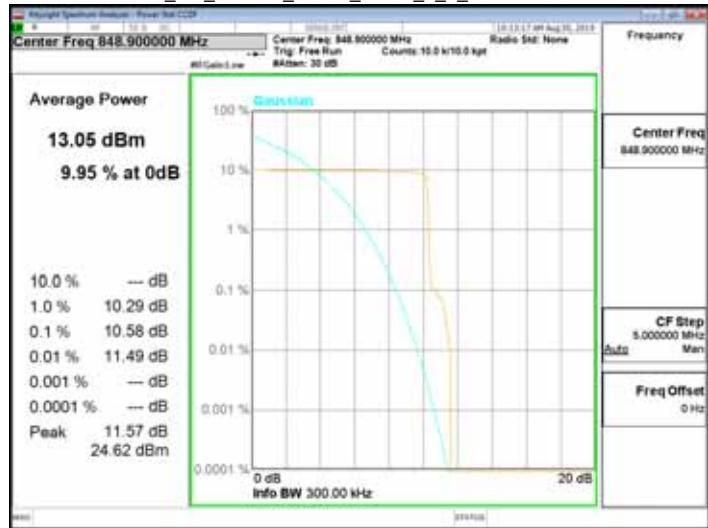
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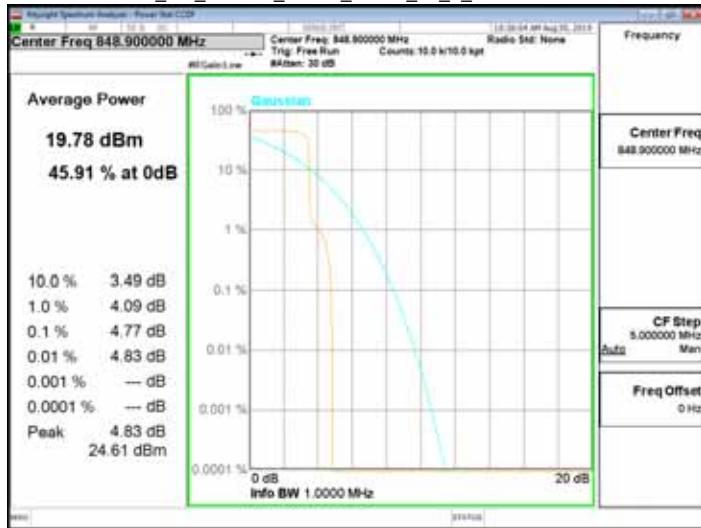
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NB_IoT_Band26_15kHz_BPSK_1_0_CH27039



NB_IoT_Band26_15kHz_QPSK_12_0_CH27039



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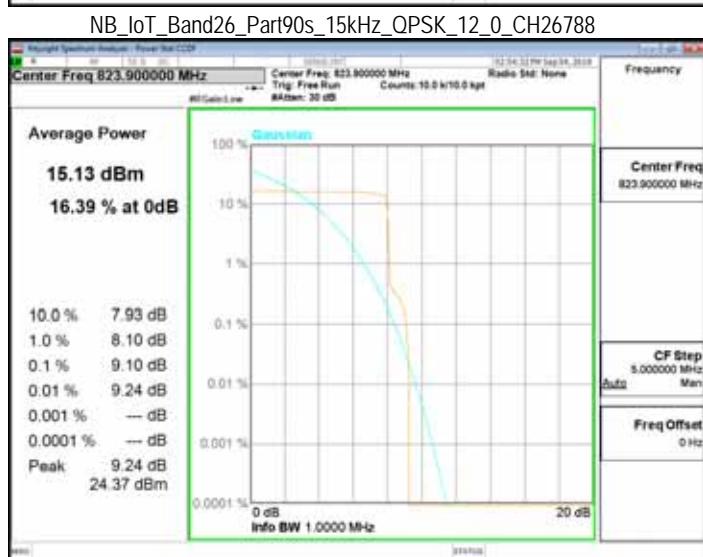
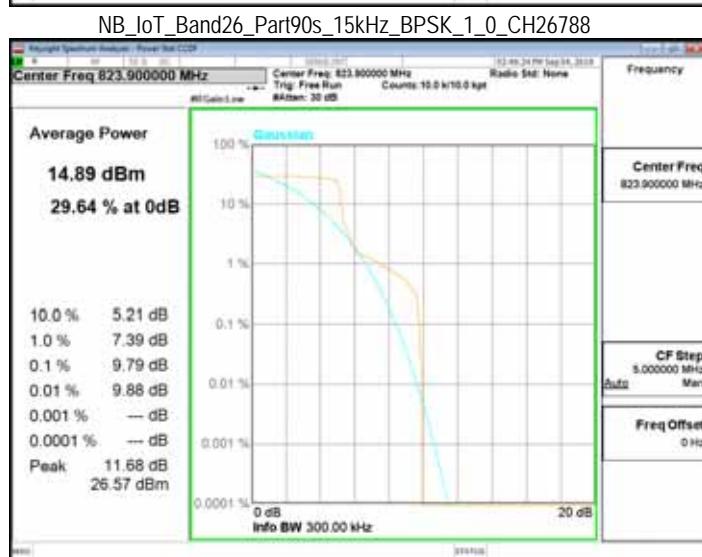
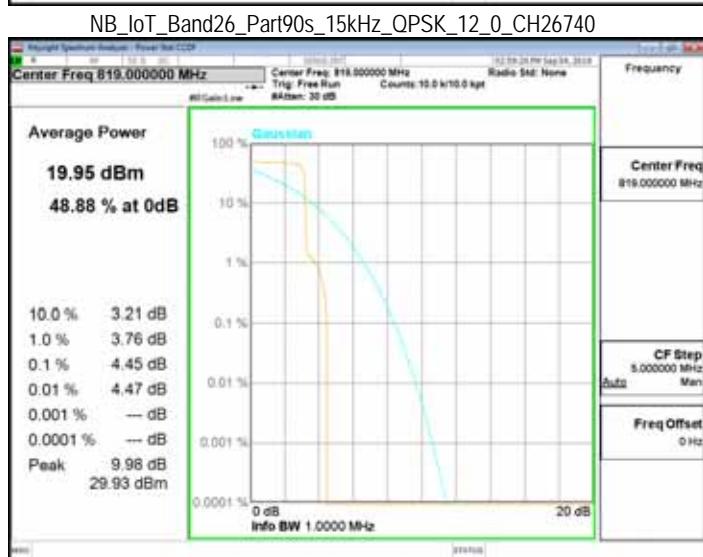
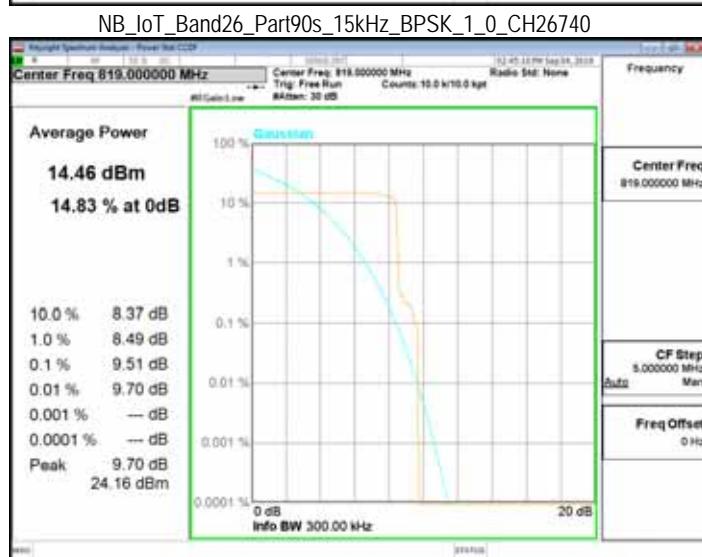
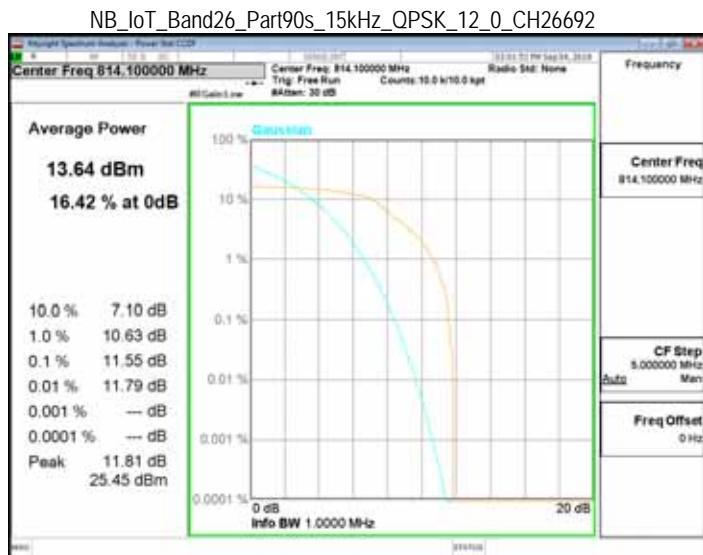
SGS Taiwan Ltd. No.134,WuKungRoad,NewTaipeiIndustrialPark,WukuDistrict,NewTaipeiCity,Taiwan24803/新北市五股區新北產業園區五工路134號

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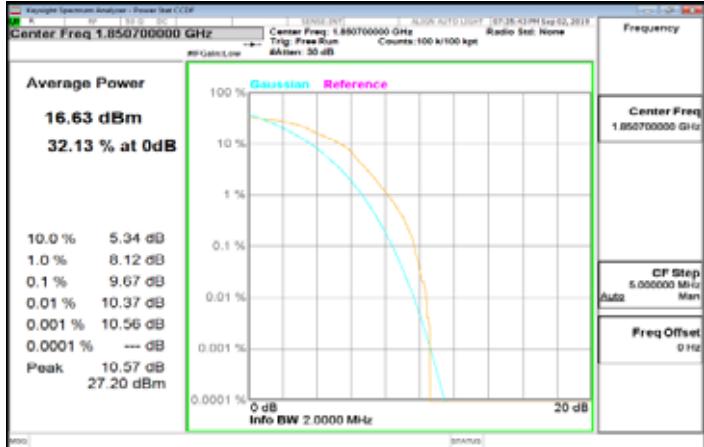


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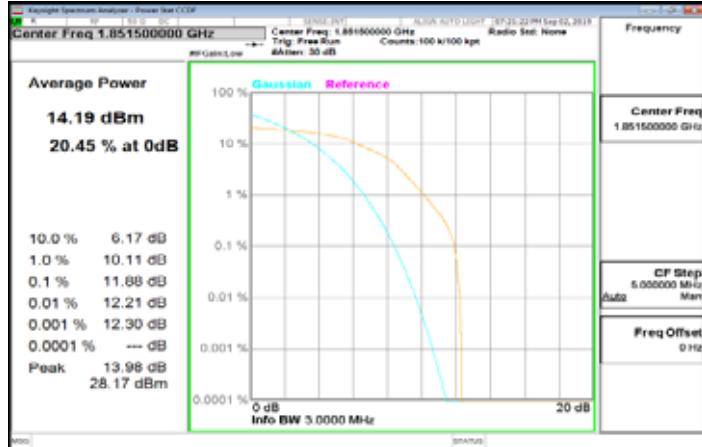
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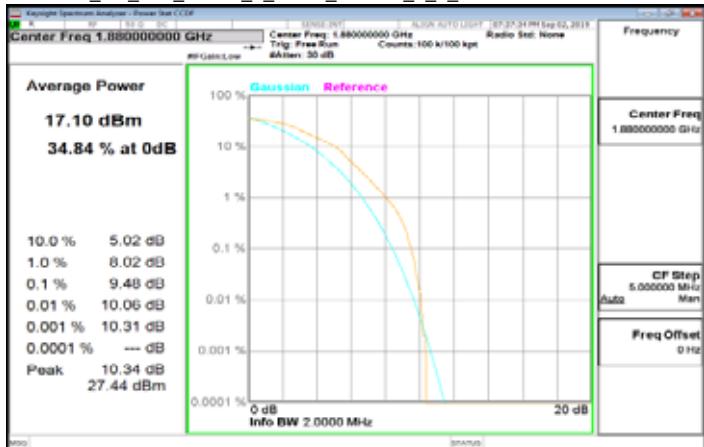
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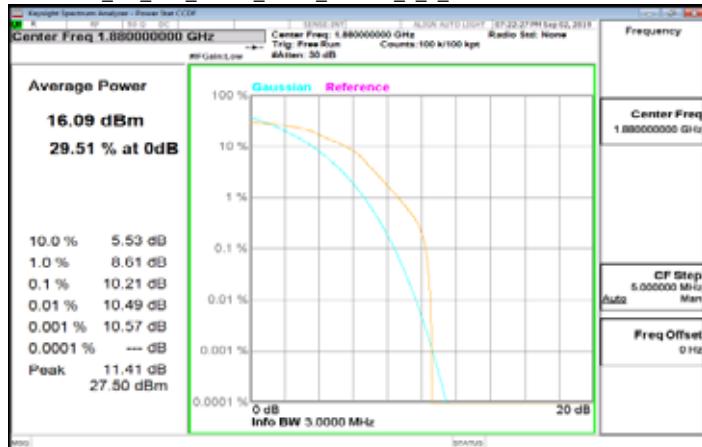
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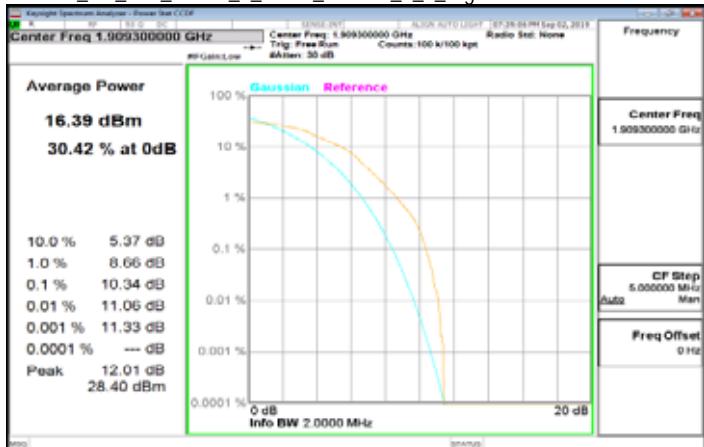
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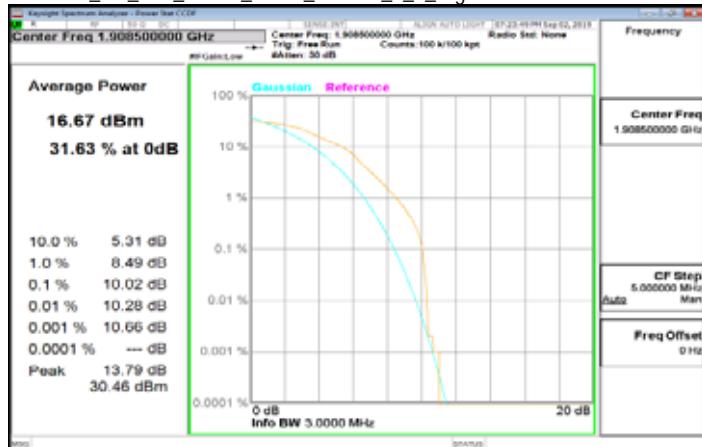
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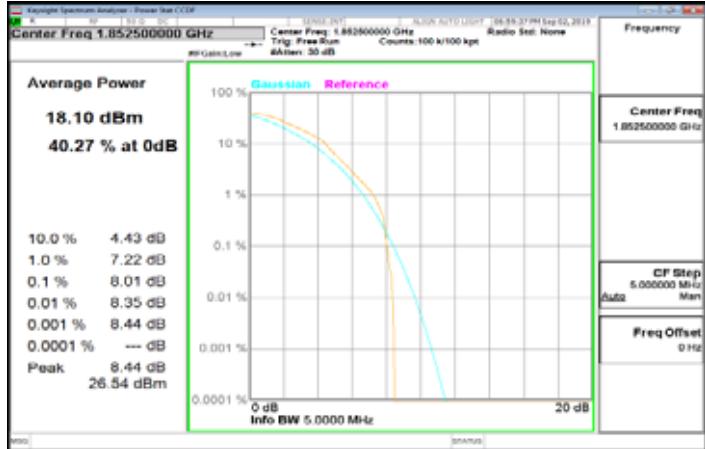


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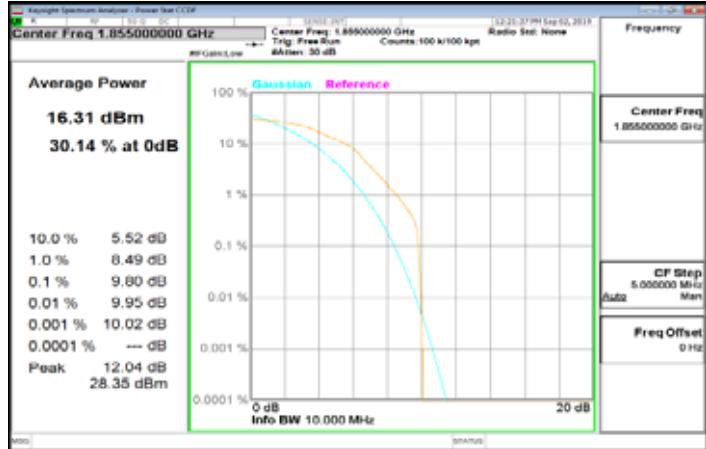
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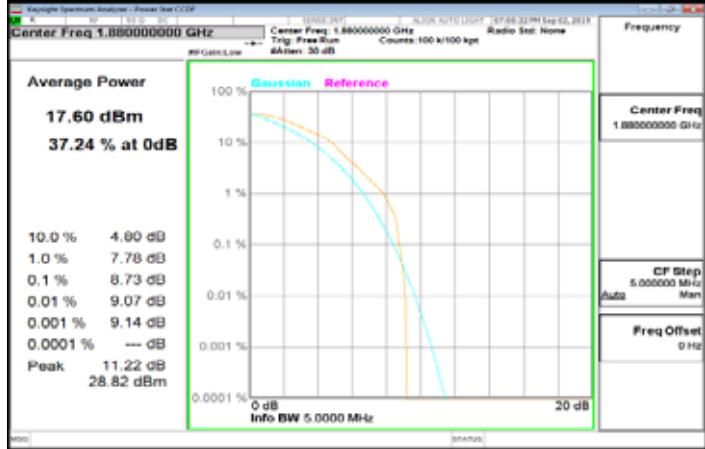
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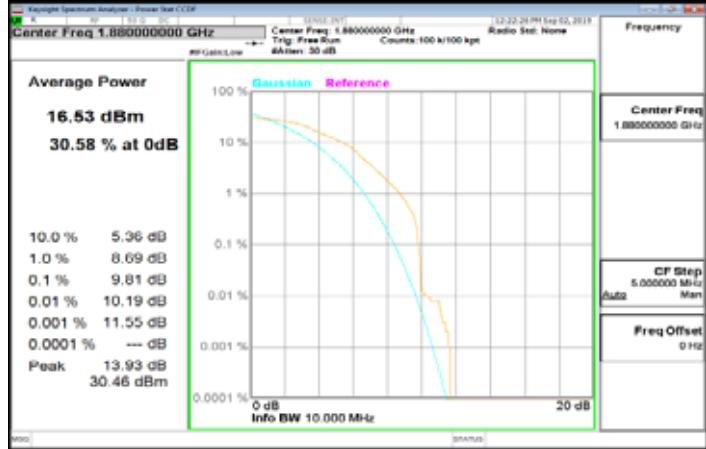
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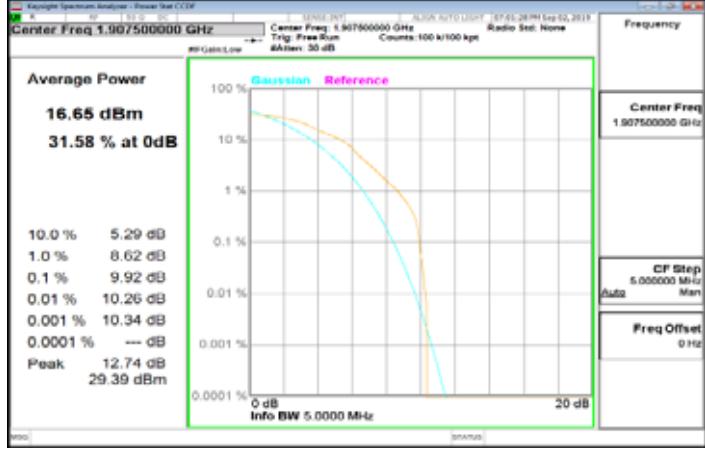
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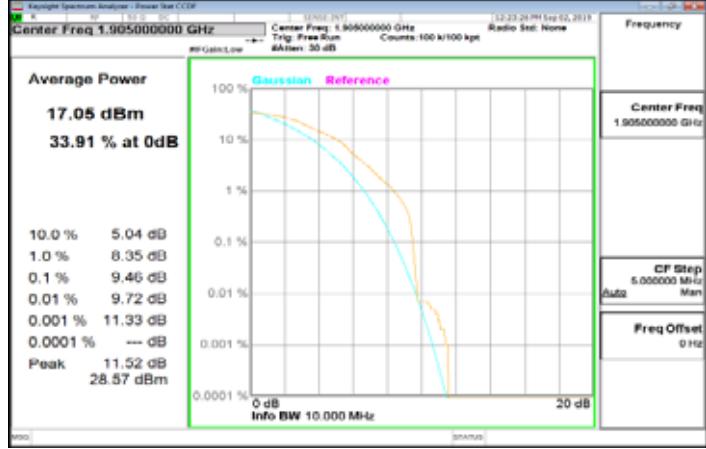
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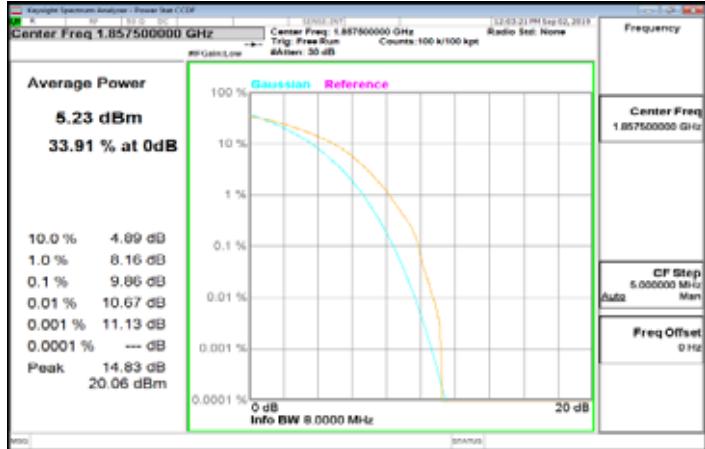


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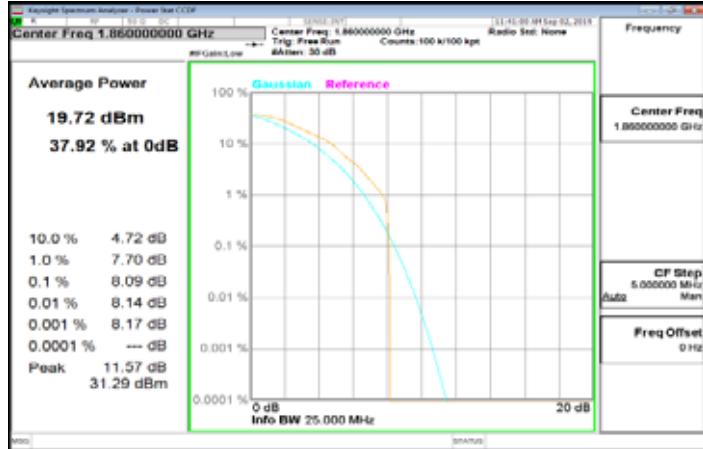
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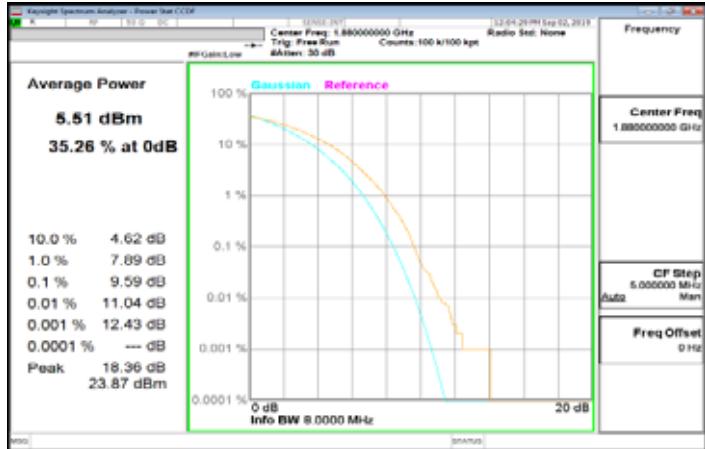
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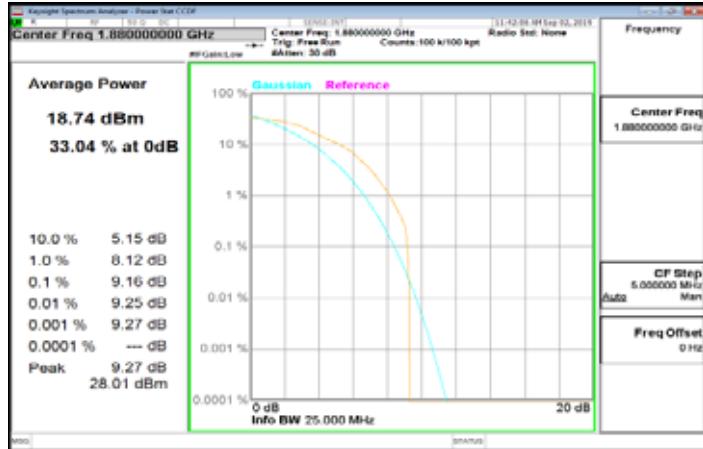
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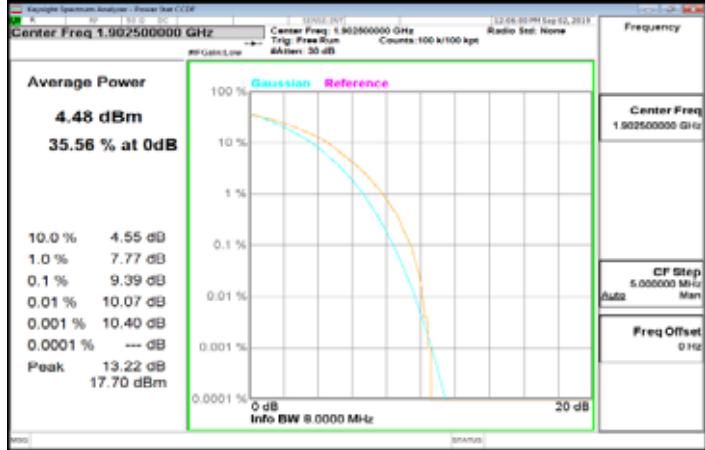
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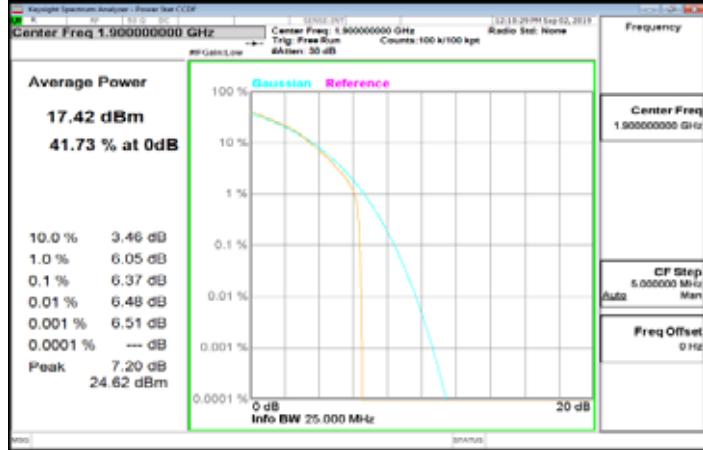
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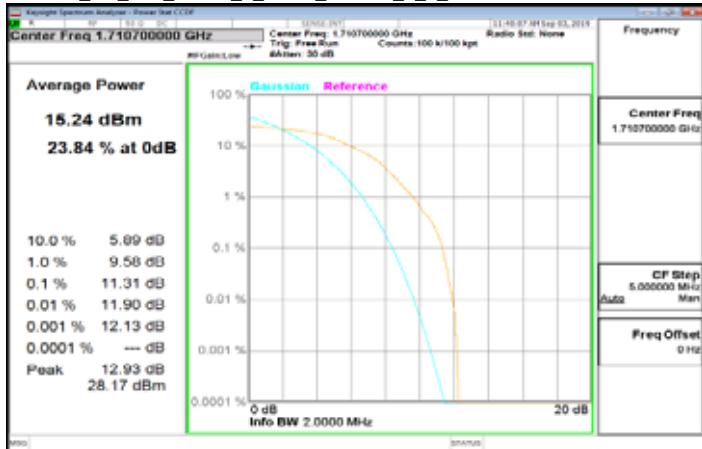


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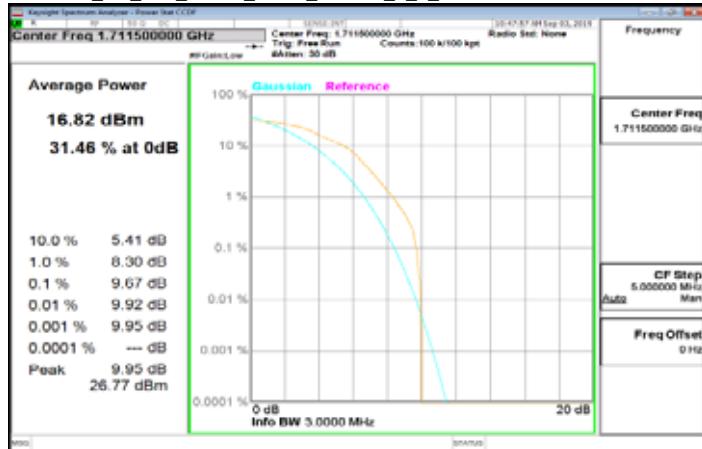
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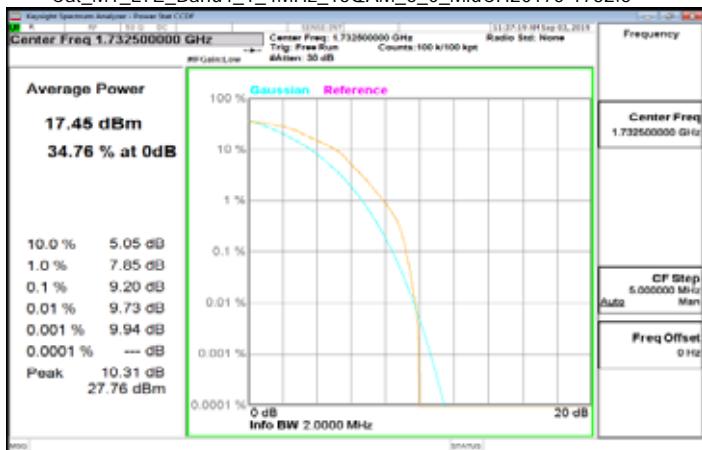
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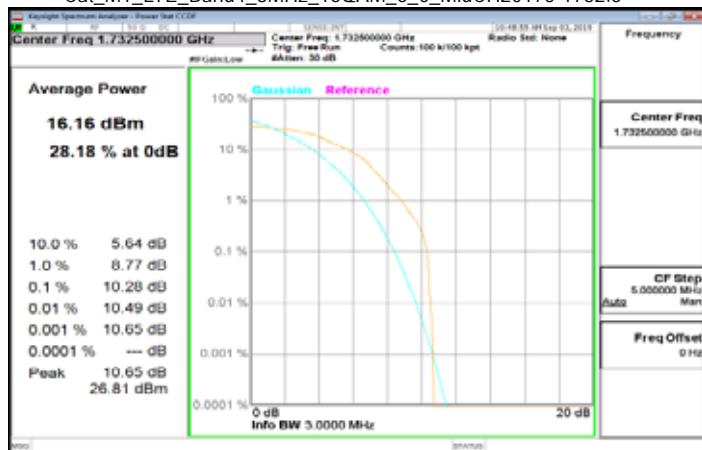
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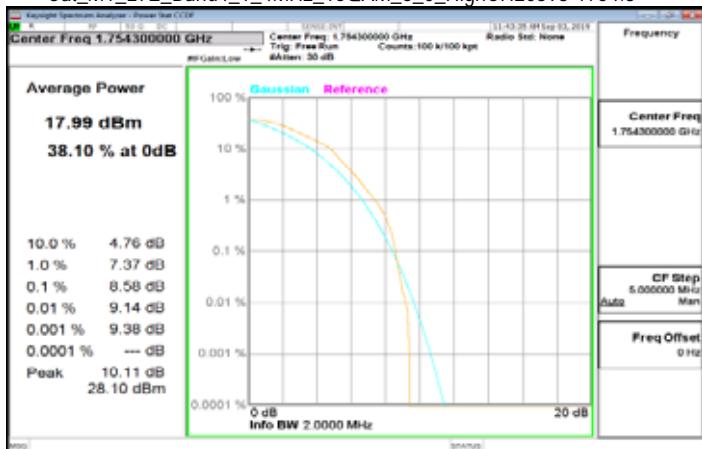
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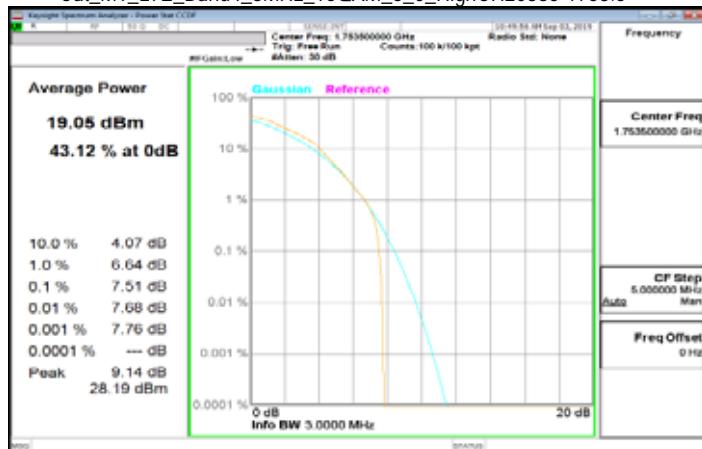
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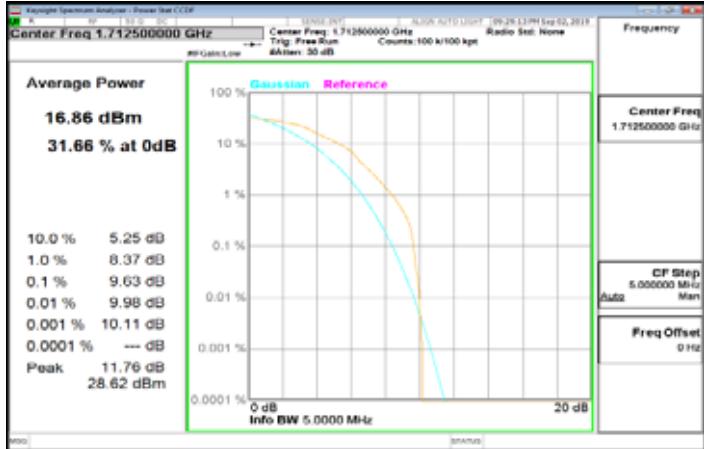


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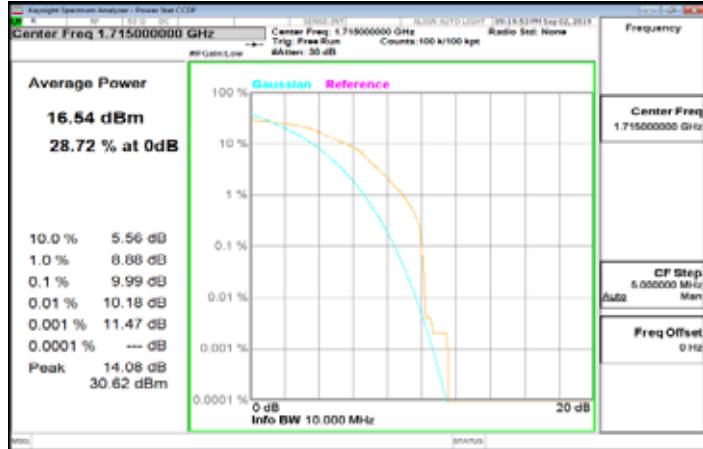
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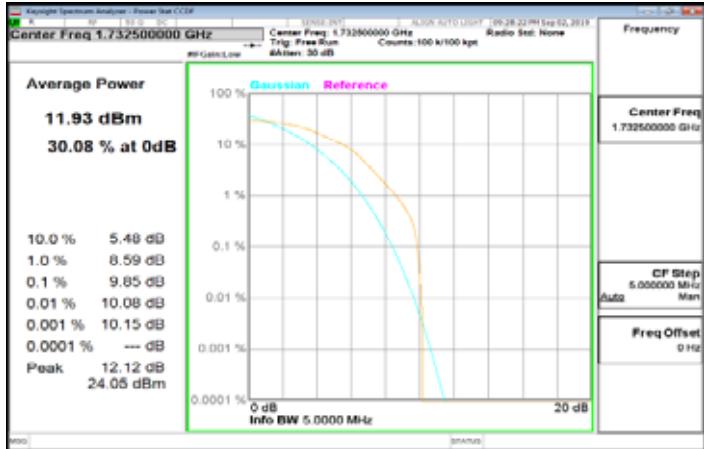
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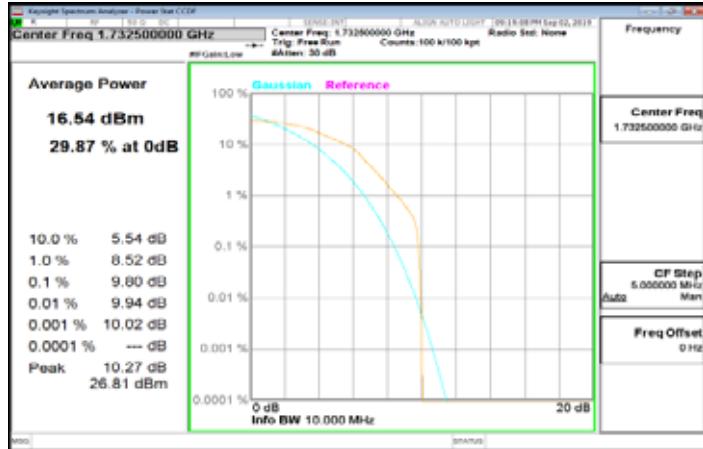
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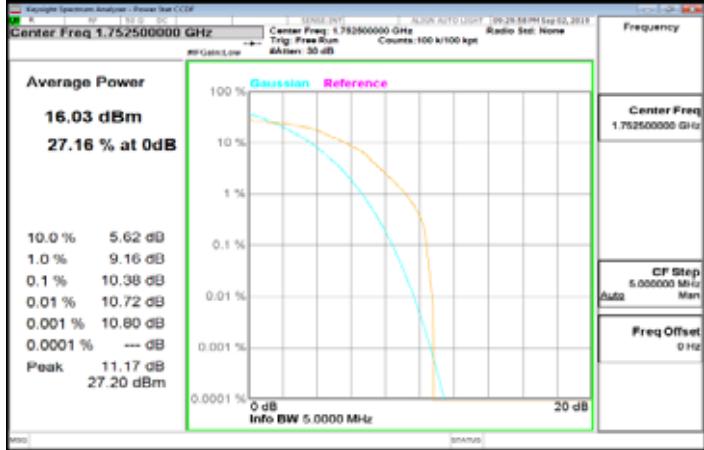
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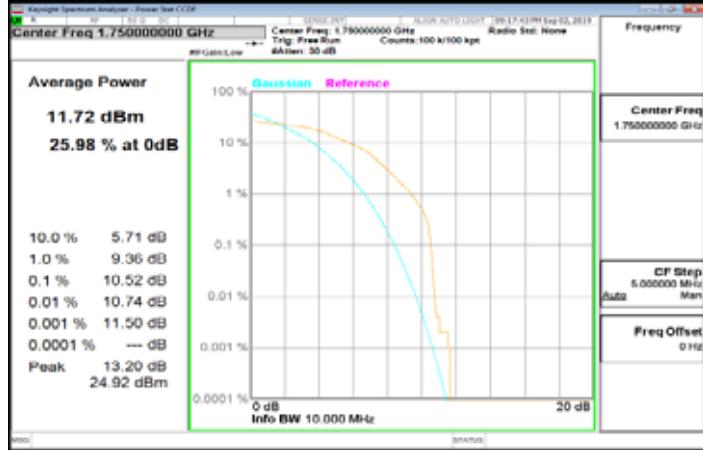
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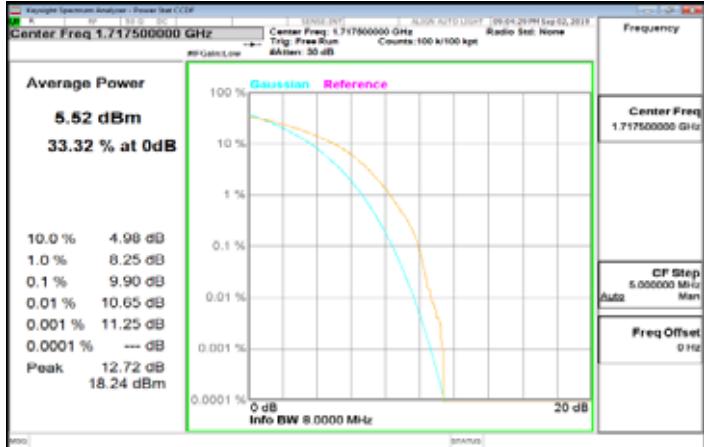


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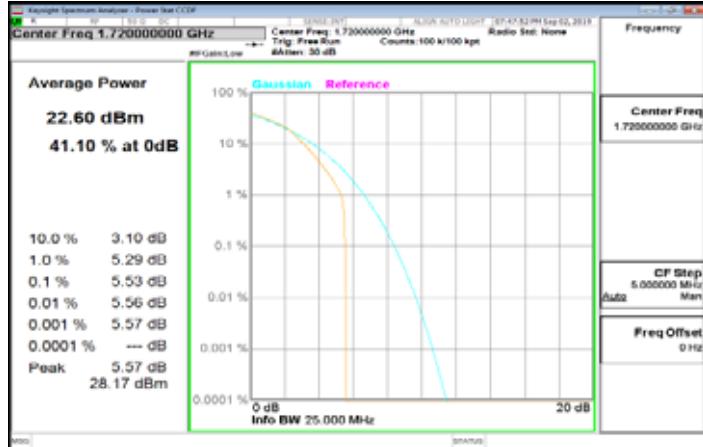
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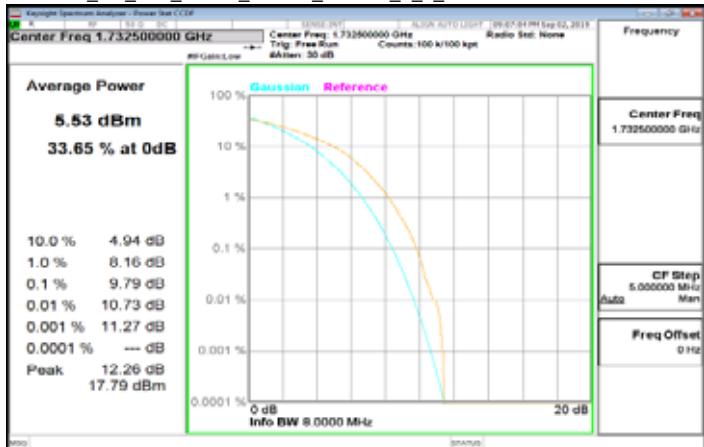
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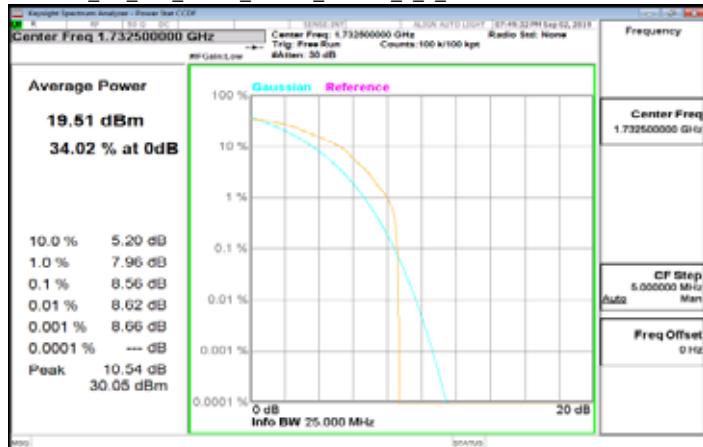
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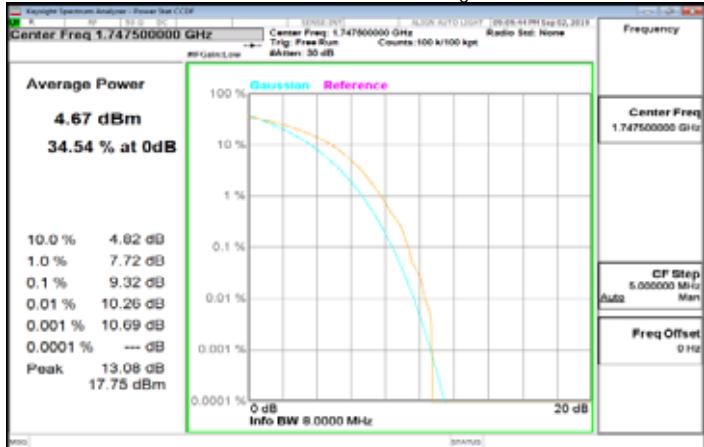
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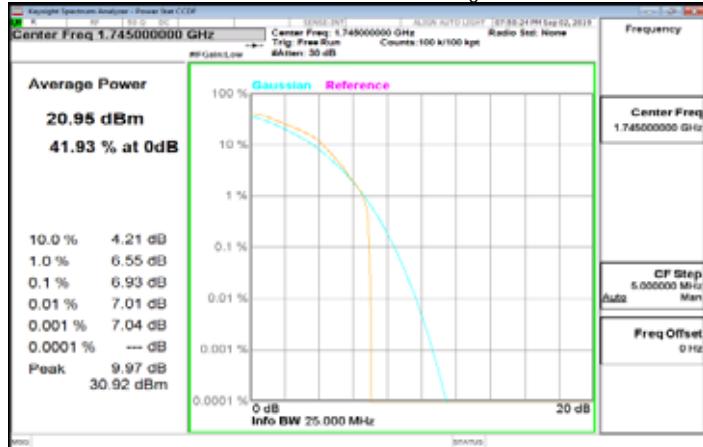
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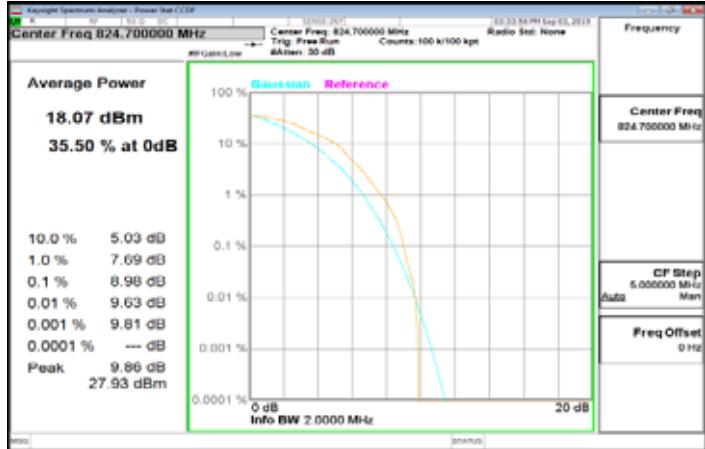


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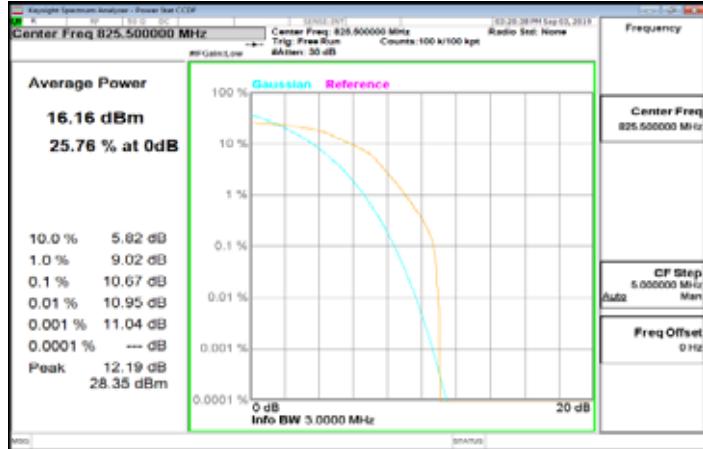
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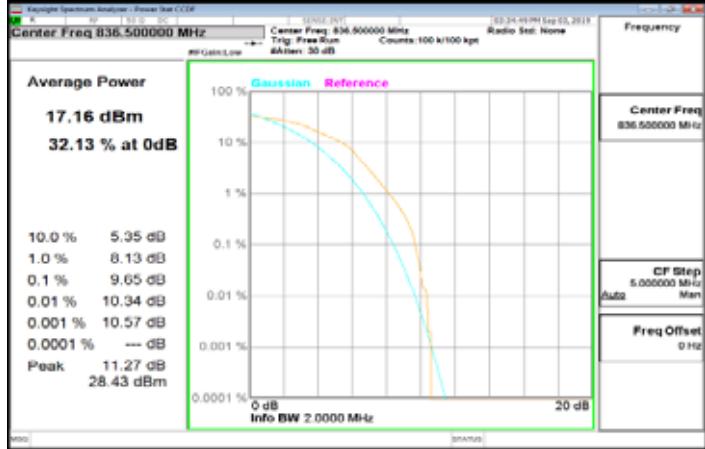
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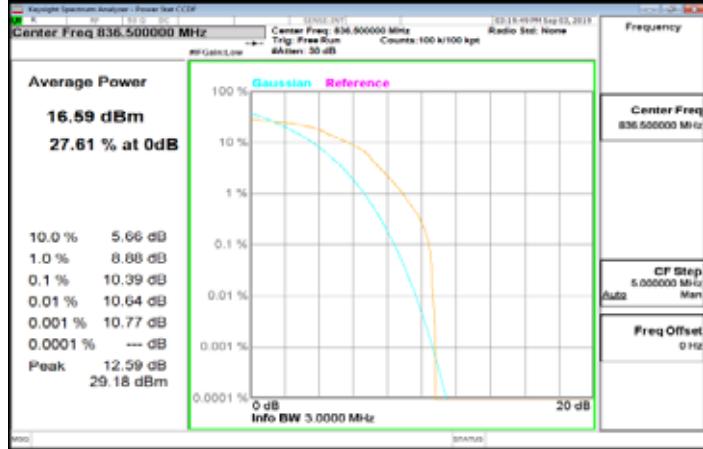
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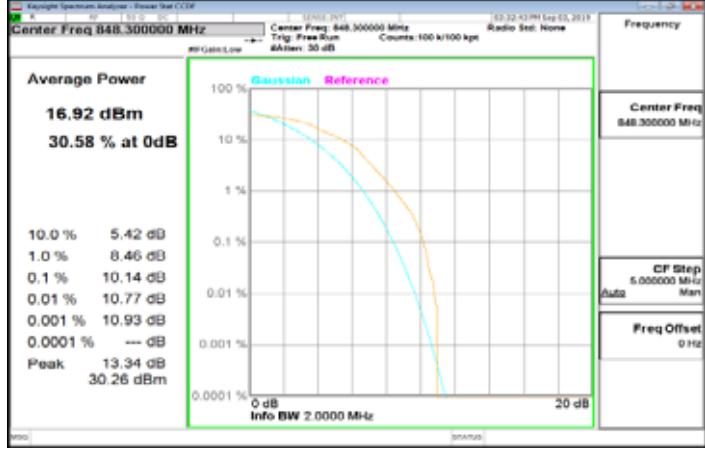
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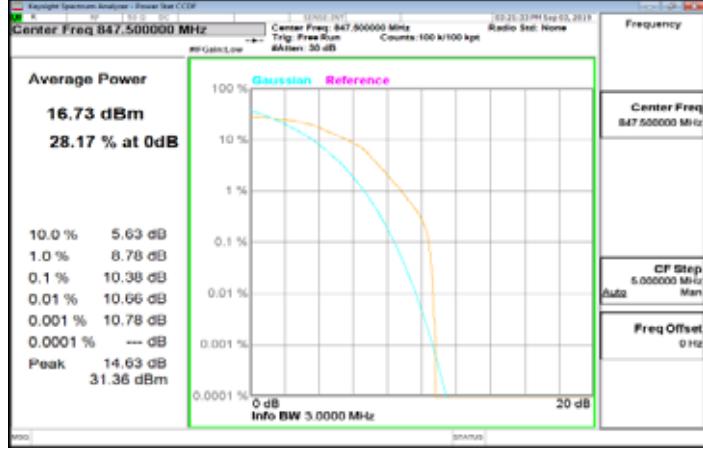
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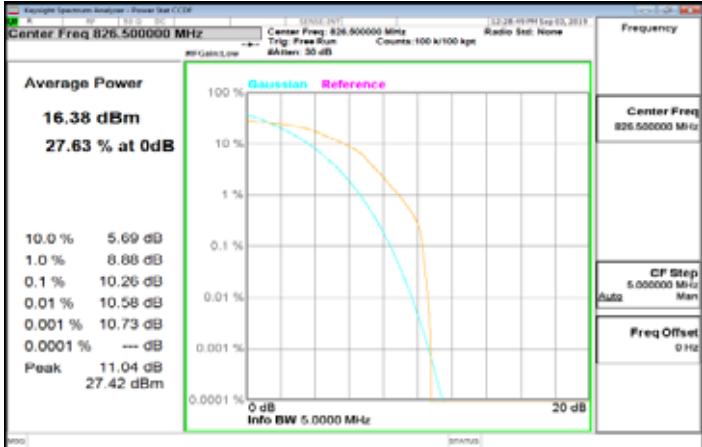


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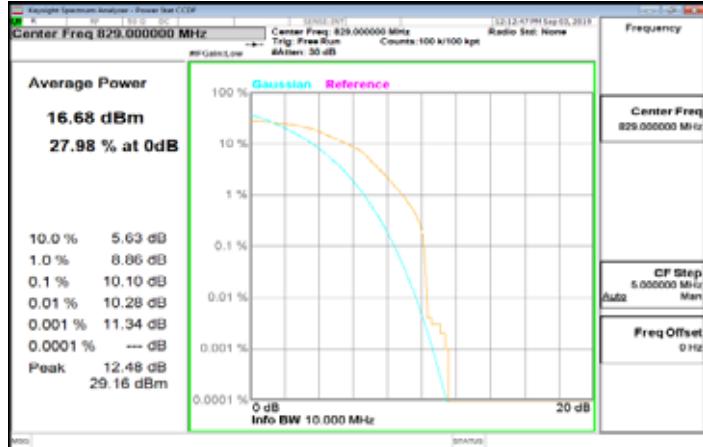
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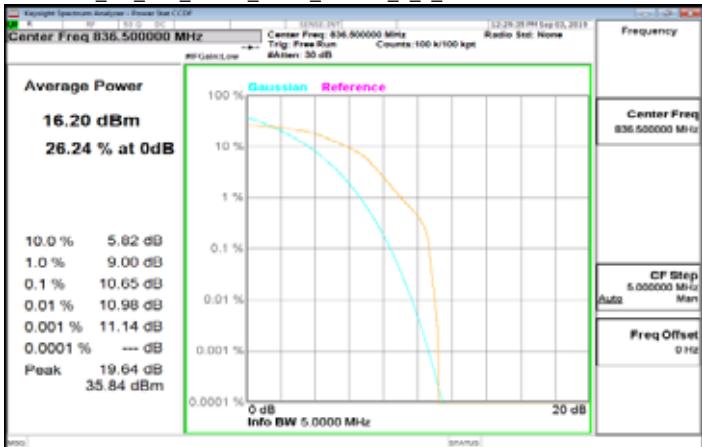
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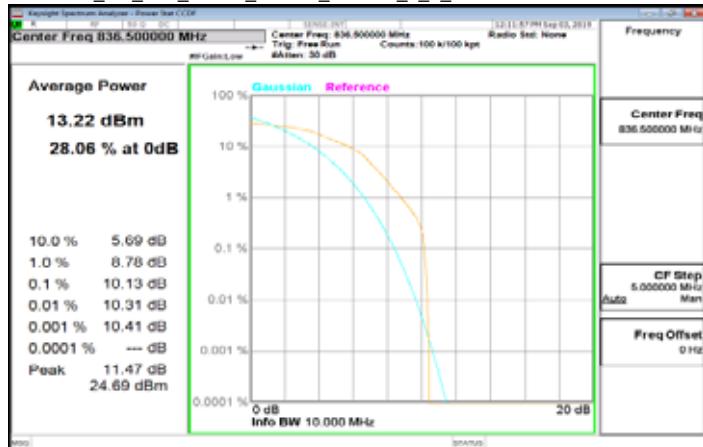
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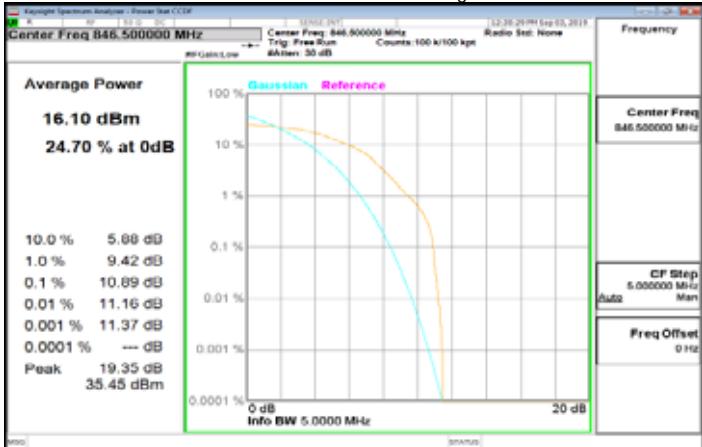
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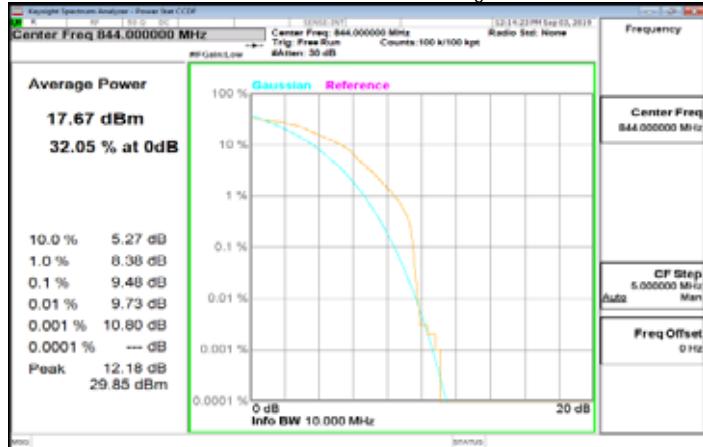
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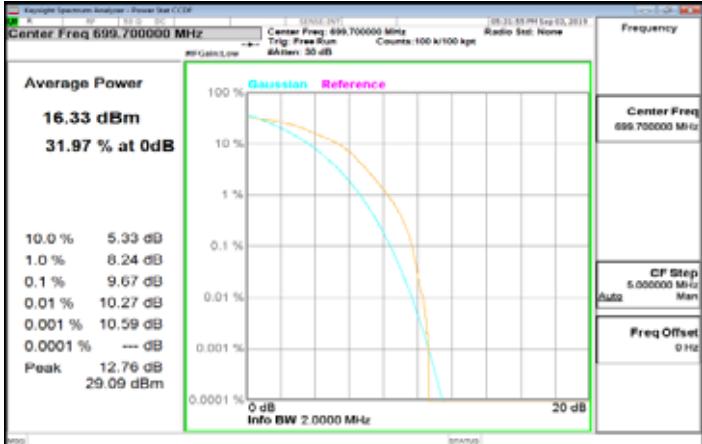


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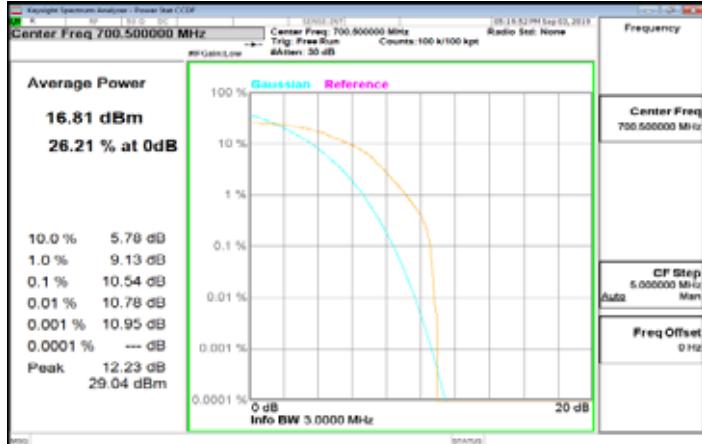
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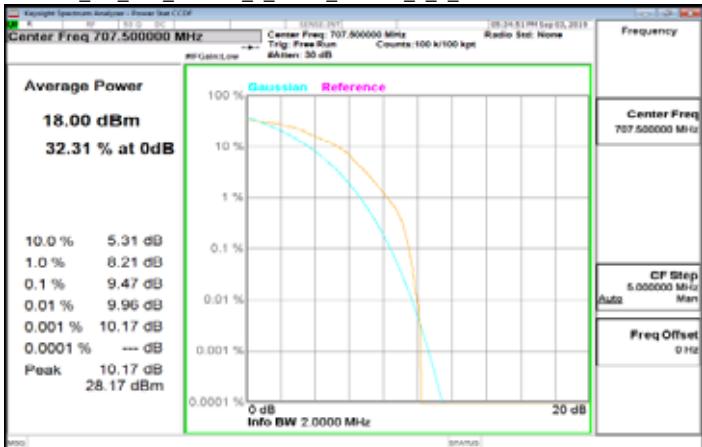
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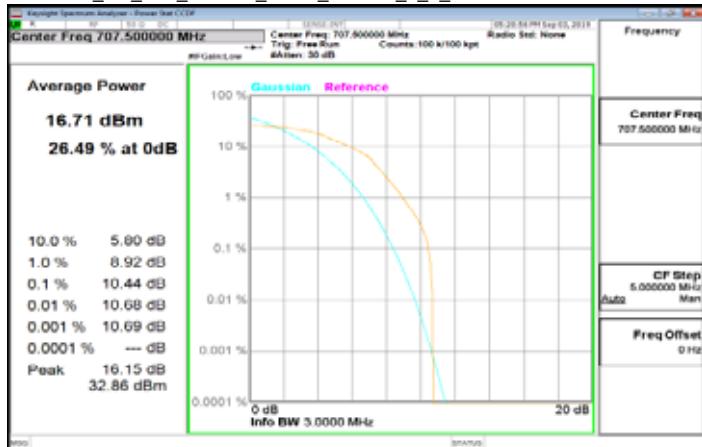
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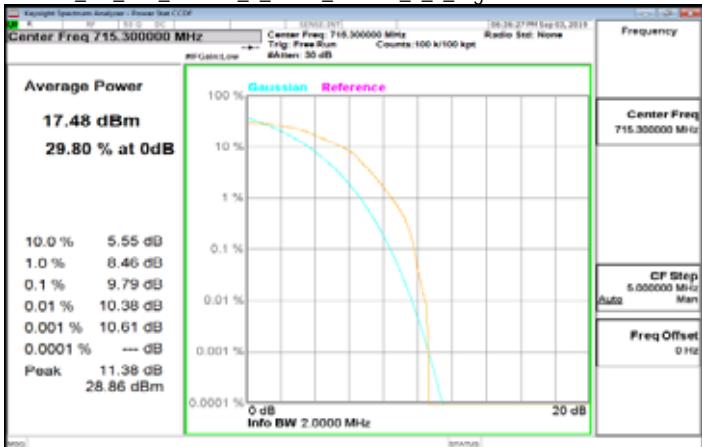
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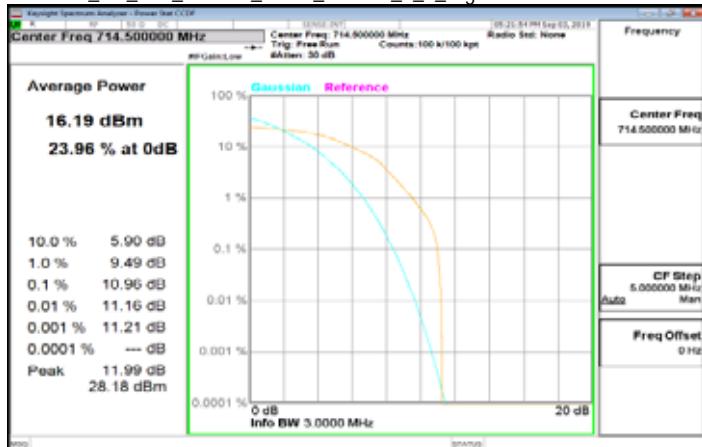
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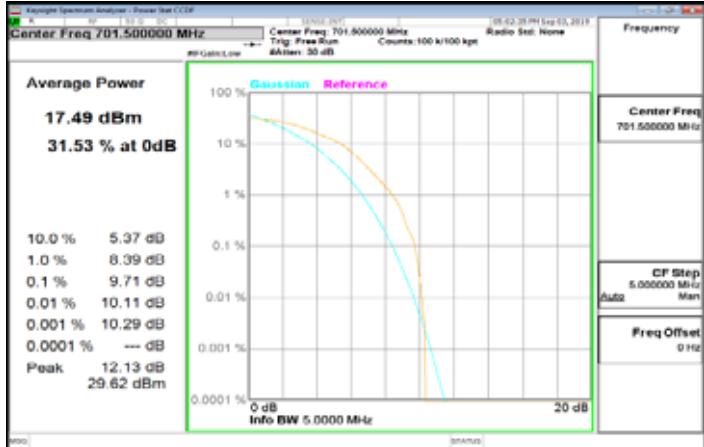


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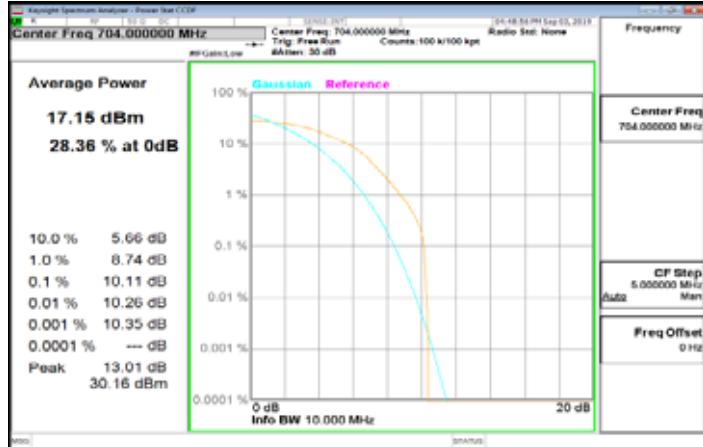
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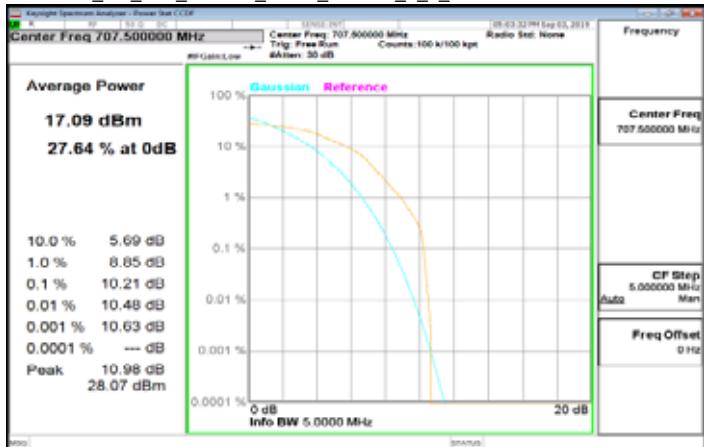
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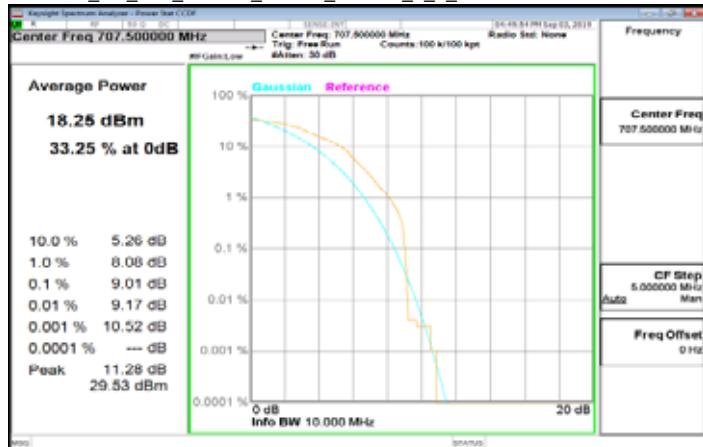
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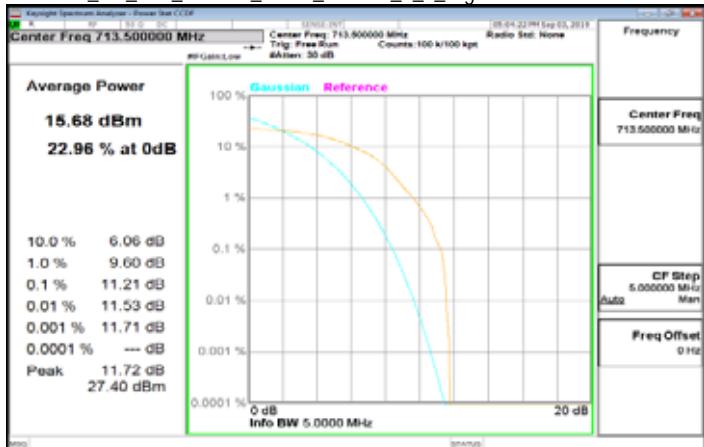
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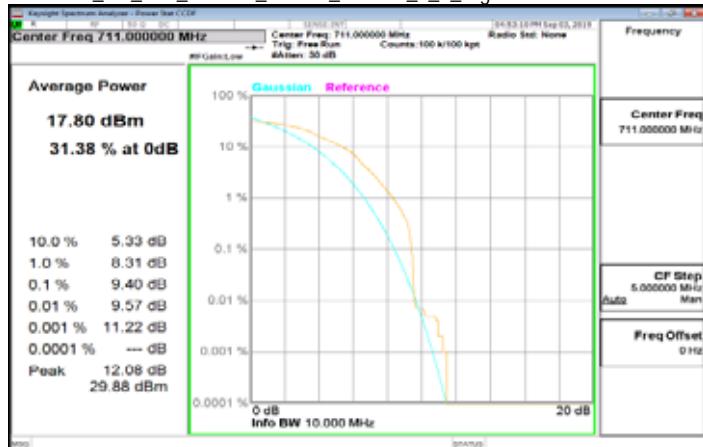
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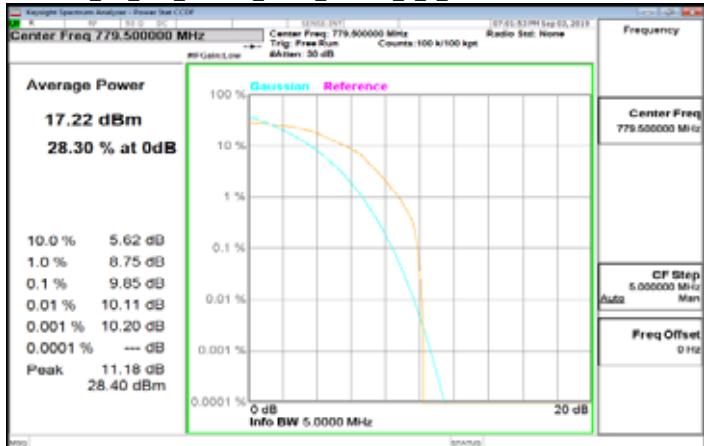


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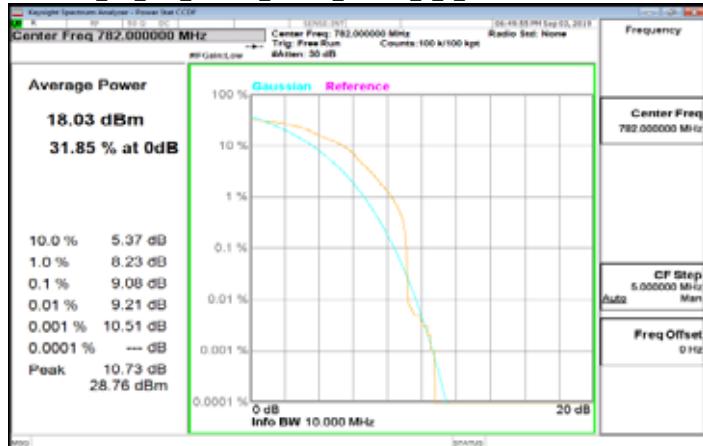
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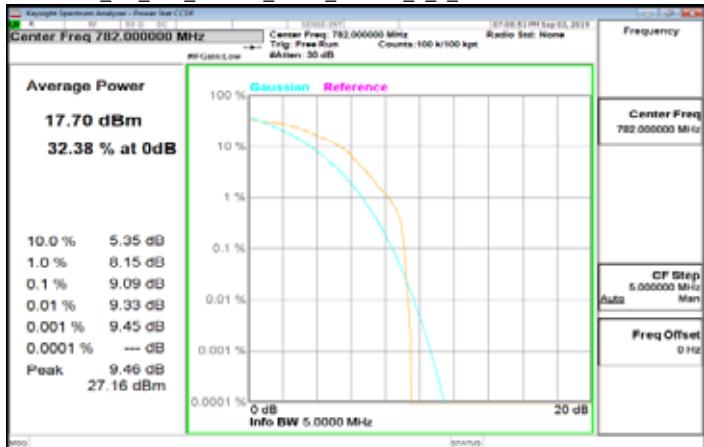
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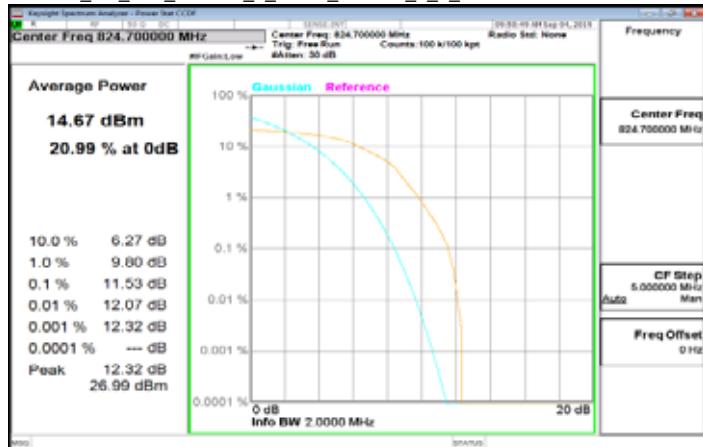
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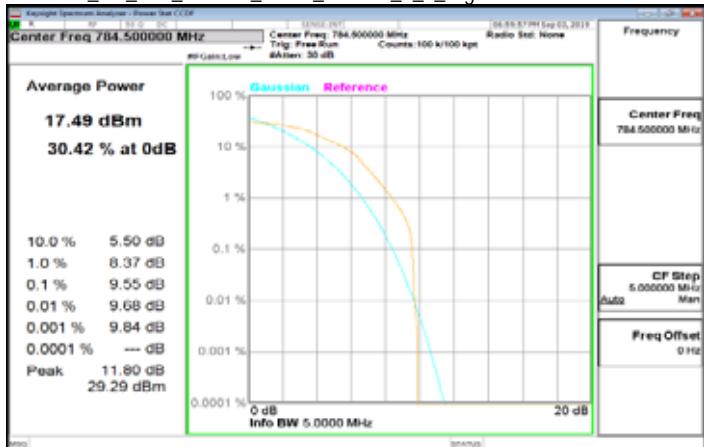
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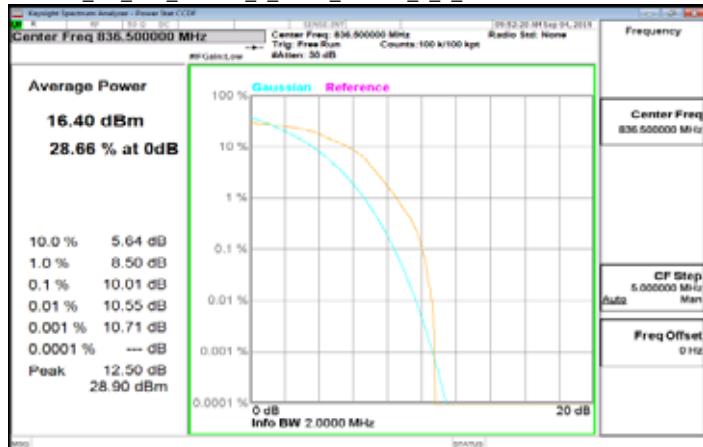
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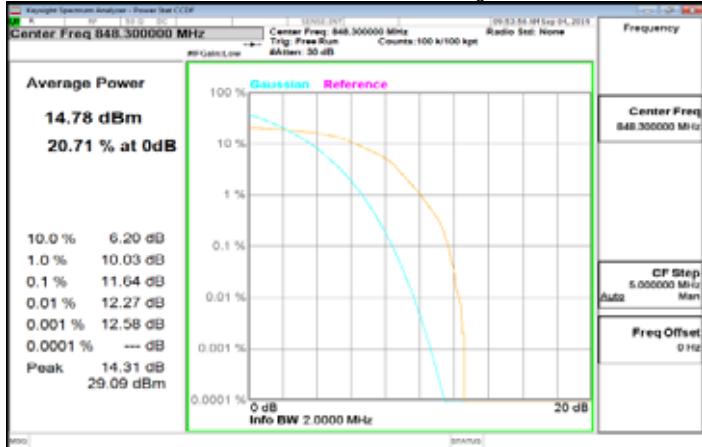


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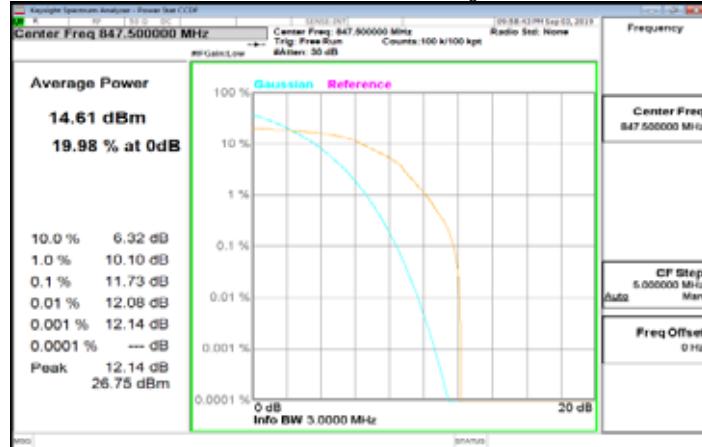
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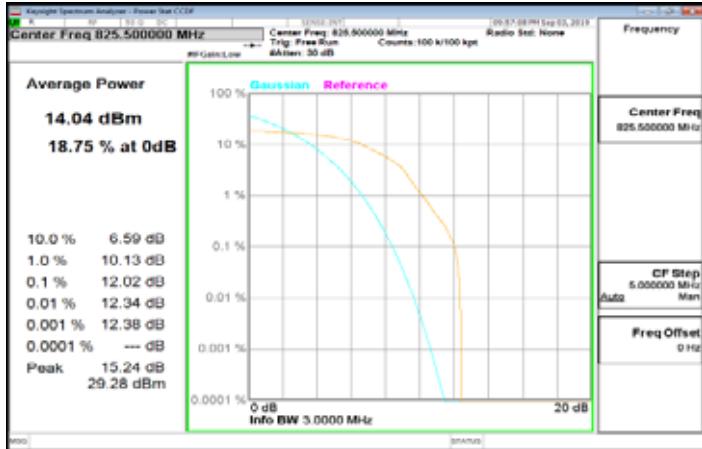
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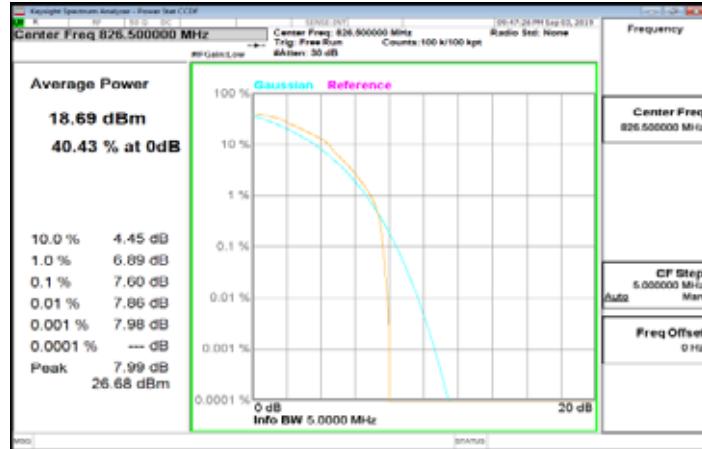
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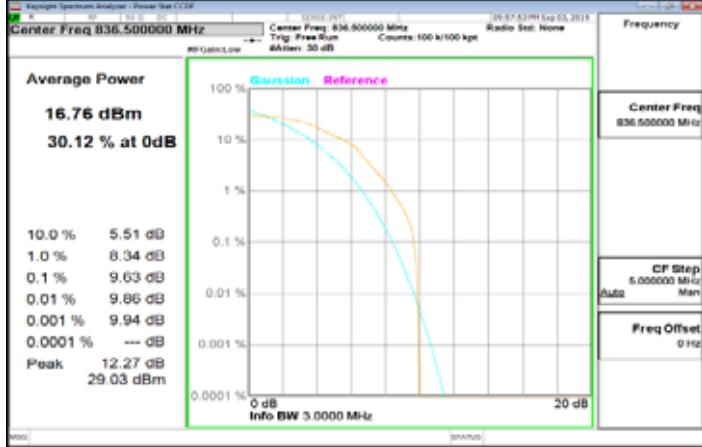
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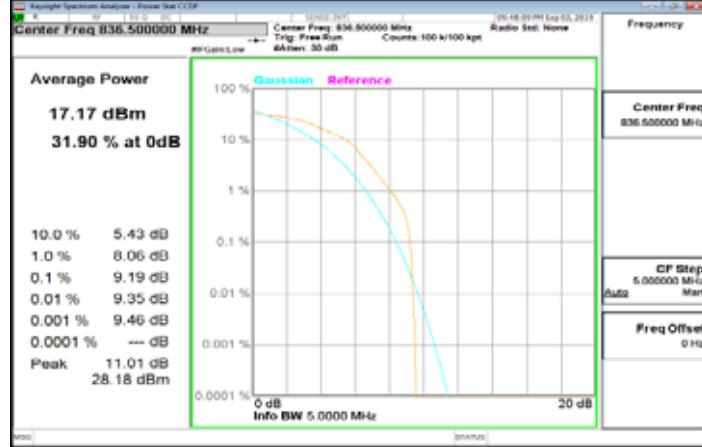
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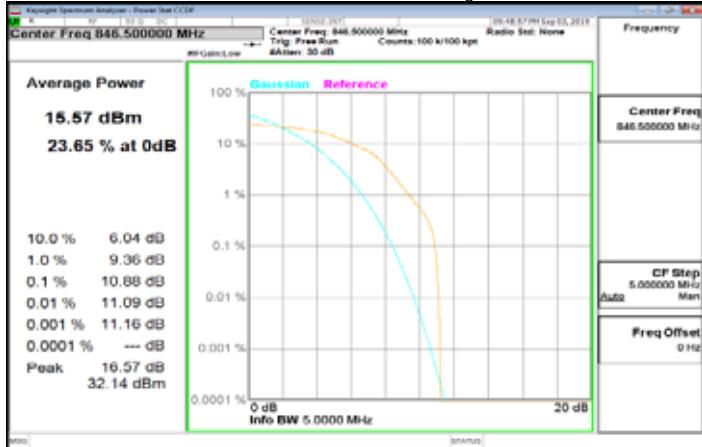
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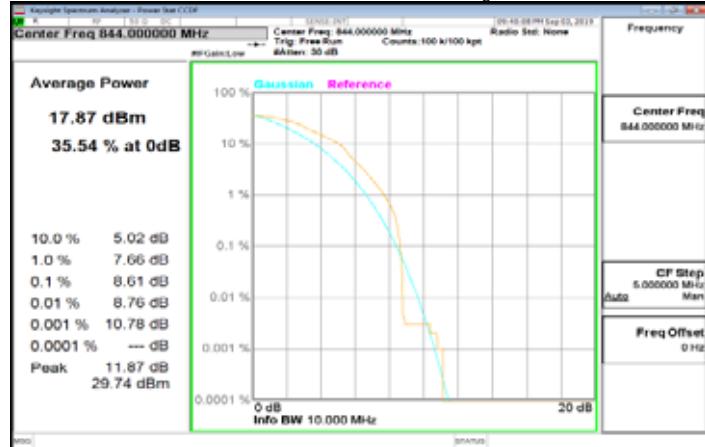
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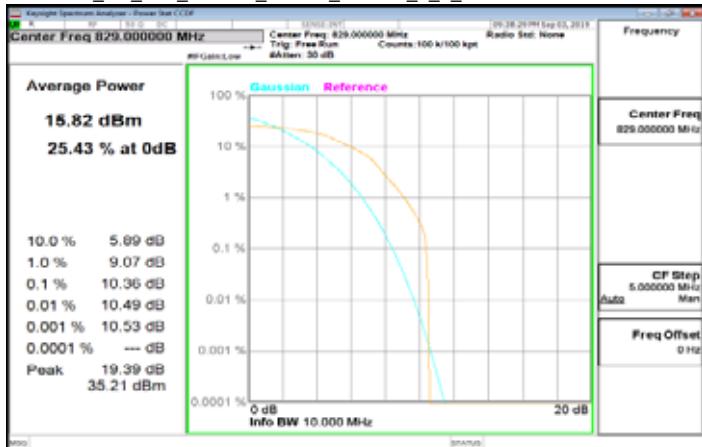
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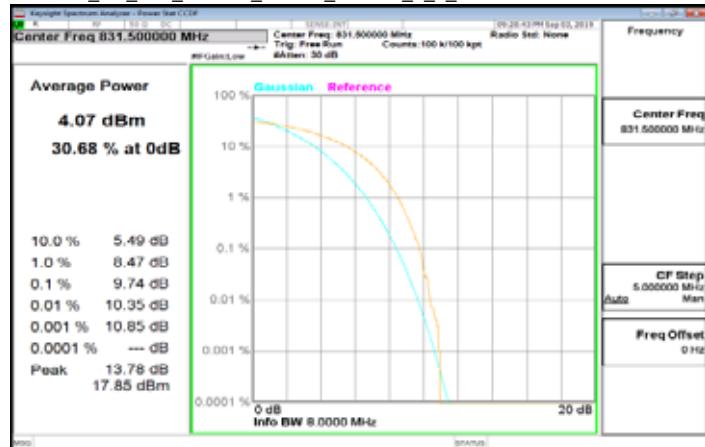
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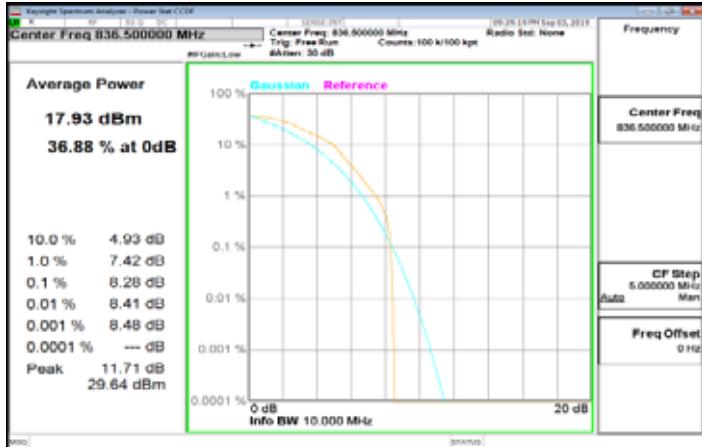
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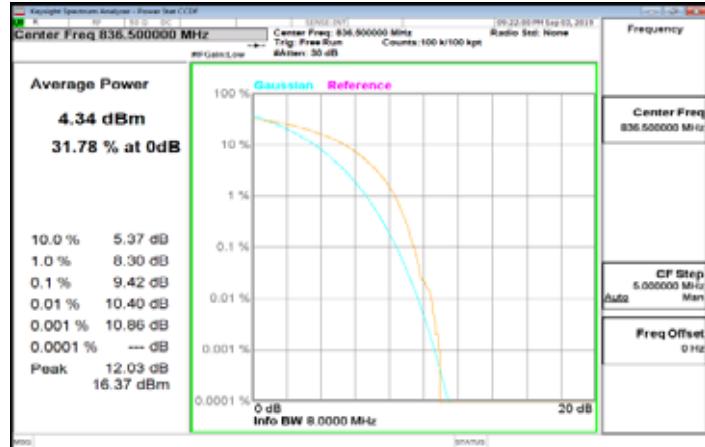
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Cat_M1_LTE_Band26_15MHz_16QAM_6_0_MidCH26915-836.5



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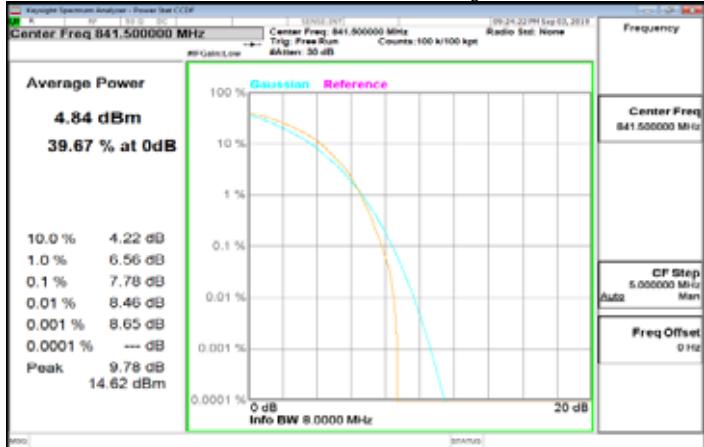
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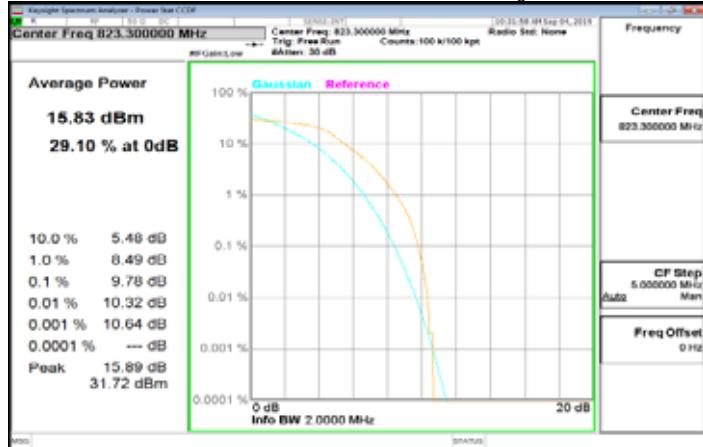
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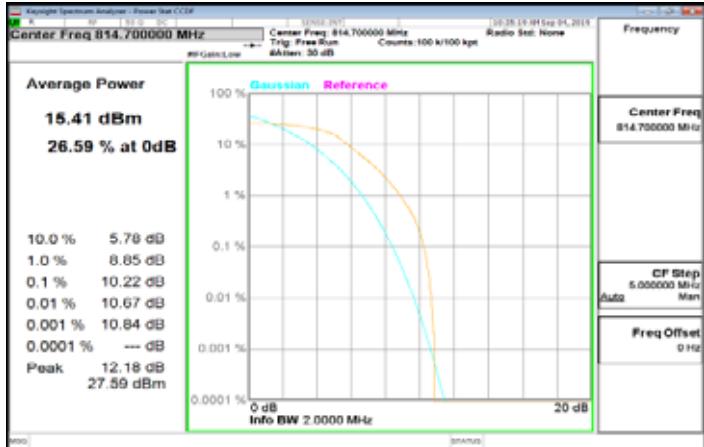
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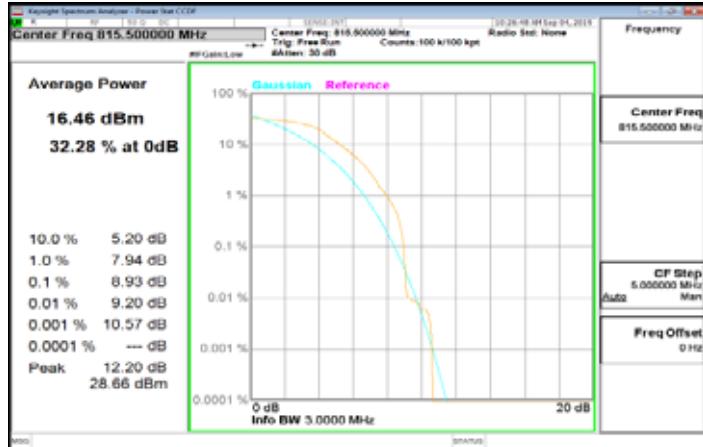
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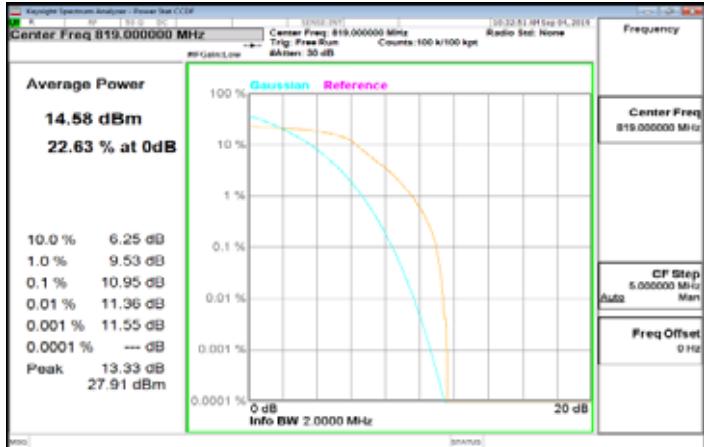
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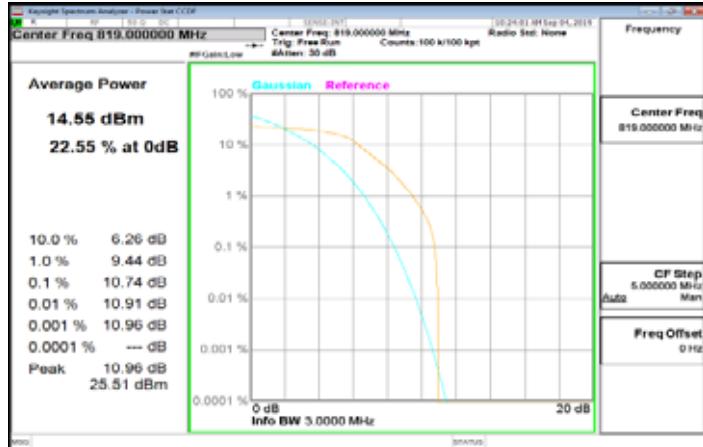
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Cat_M1_LTE_Band26_Part90s_1_4MHz_16QAM_6_0_MidCH26740-819



Cat_M1_LTE_Band26_Part90s_3MHz_16QAM_6_0_MidCH26740-819

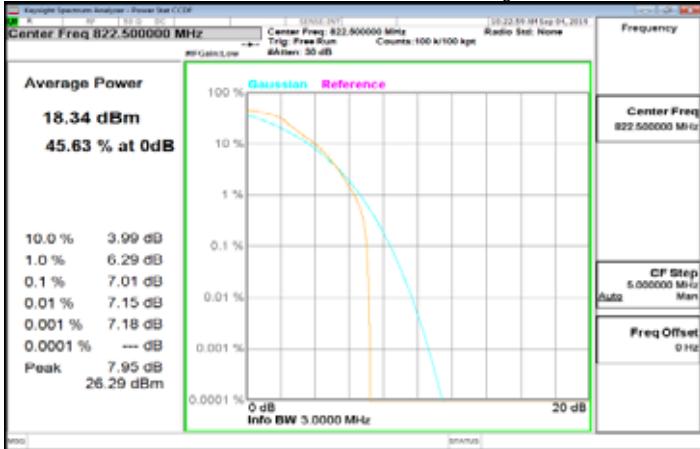


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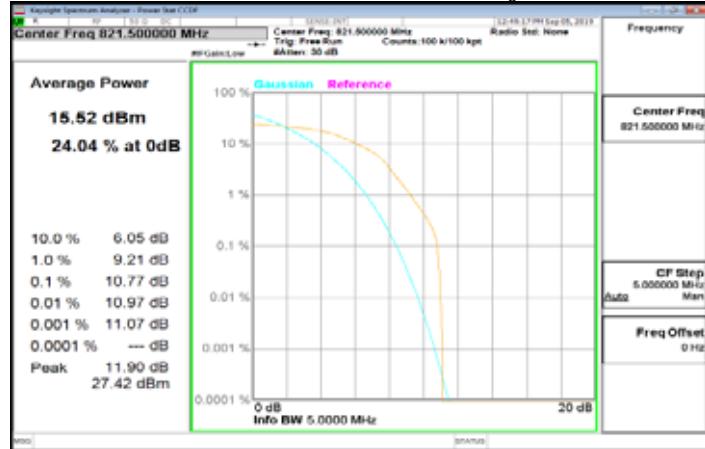
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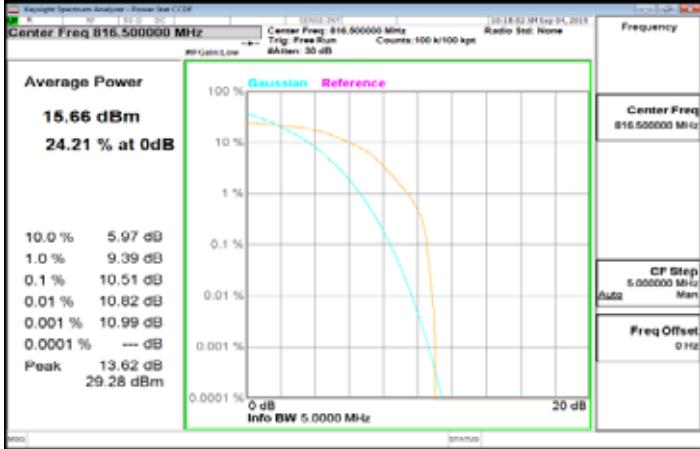
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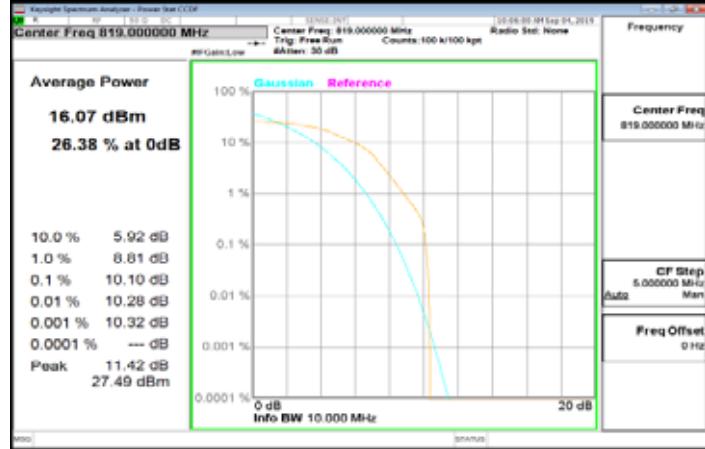
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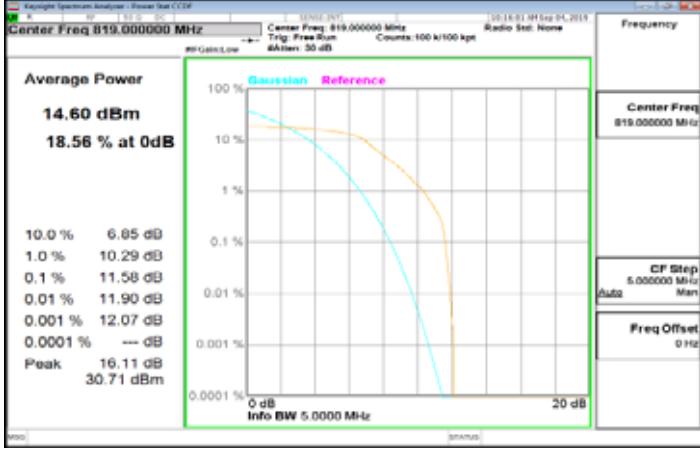
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Cat_M1_LTE_Band26_Part90s_10MHz_16QAM_6_0_MidCH26740-819



Cat_M1_LTE_Band26_Part90s_5MHz_16QAM_6_0_MidCH26740-819



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~ End of Report ~

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