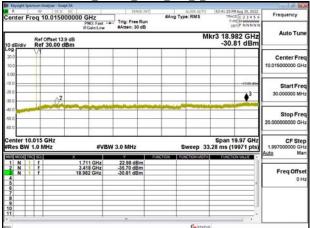
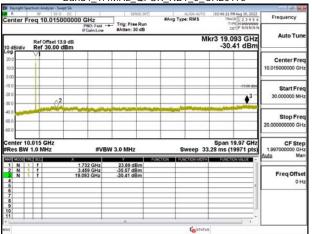


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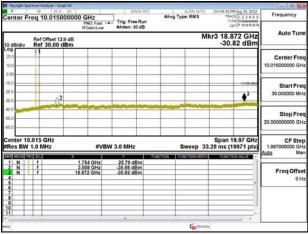
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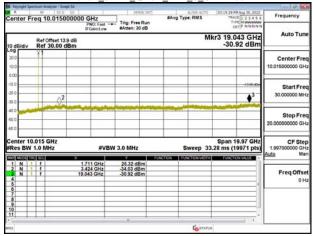
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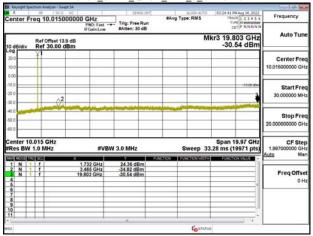
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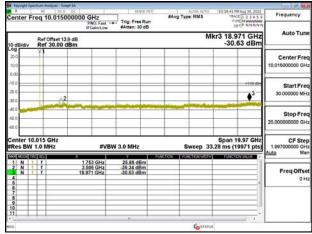
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Band4_3MHz_QPSK_RB1_0_CH20175



Band4_3MHz_QPSK_RB1_0_CH20385



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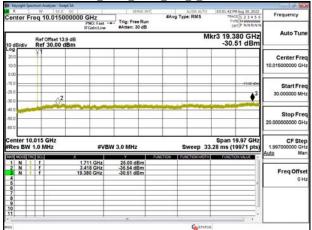
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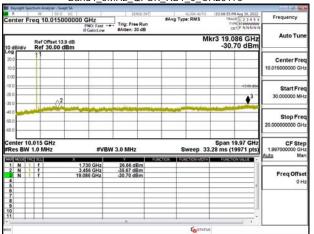


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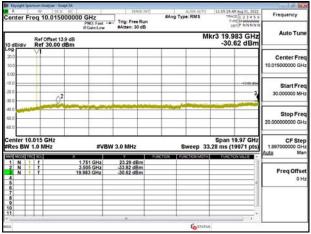
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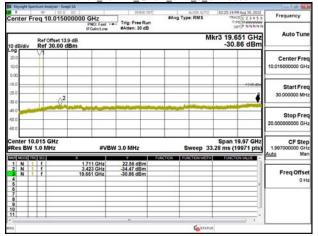
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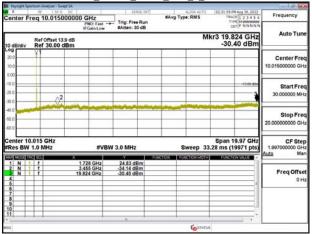
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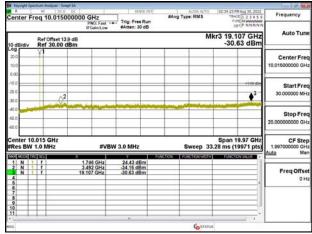
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Band4_10MHz_QPSK_RB1_0_CH20175



Band4 10MHz QPSK RB1 0 CH20350



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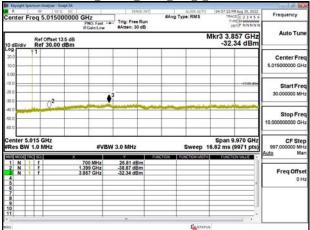
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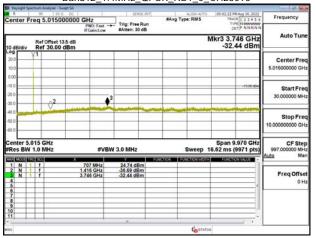


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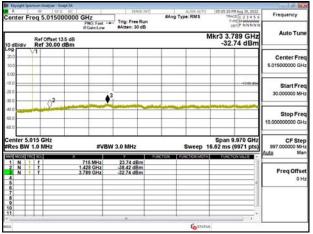
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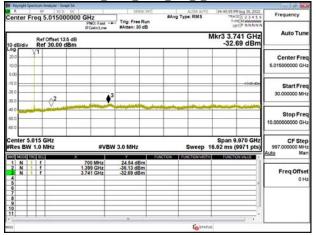




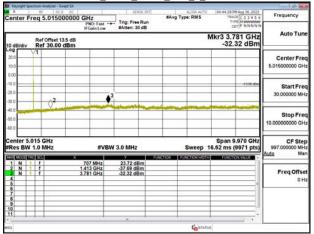
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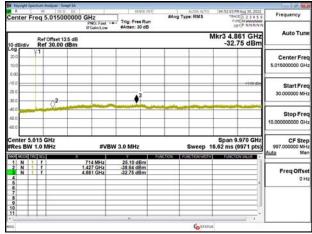
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Band12_3MHz_QPSK_RB1_0_CH23095



Band12 3MHz QPSK RB1 0 CH23165



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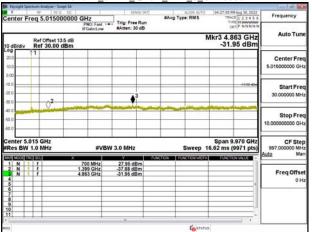
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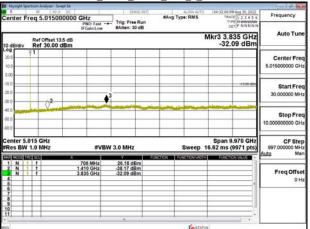


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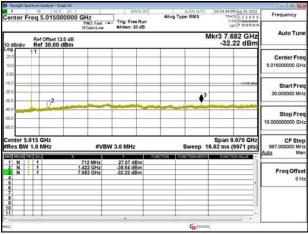
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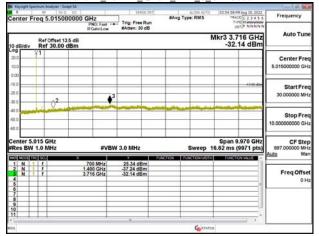




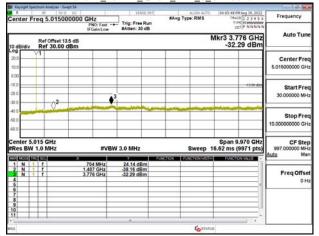
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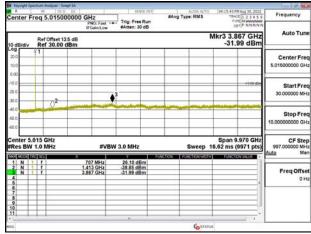
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Band12_10MHz_QPSK_RB1_0_CH23095



Band12_10MHz_QPSK_RB1_0_CH23130



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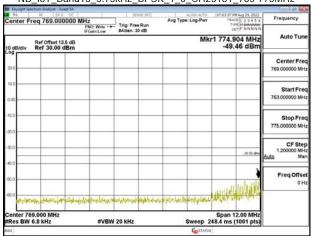
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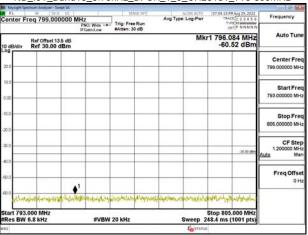
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Emissions outside the 746-758, 776-788 MHz

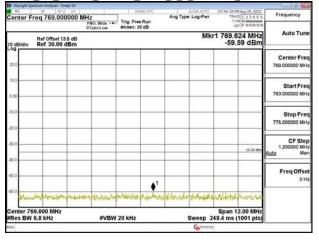
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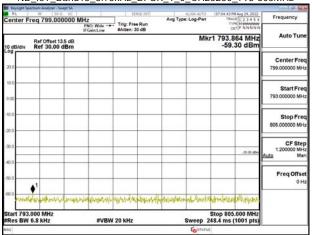
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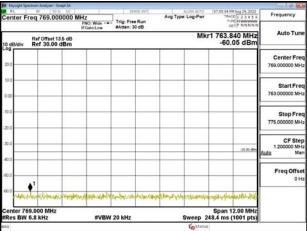
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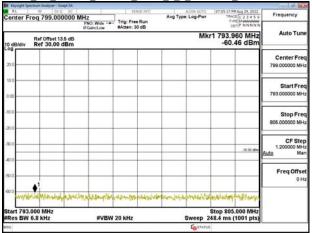
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NB IoT Band13 3.75kHz BPSK 1 0 CH23279 763-775MHz



NB_IoT_Band13_3.75kHz_BPSK_1_0_CH23279_793-805MHz



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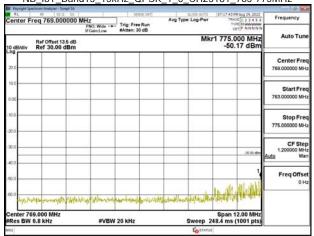
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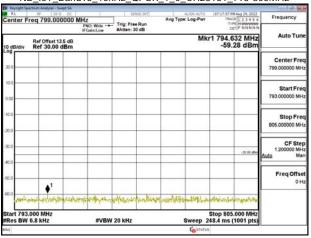


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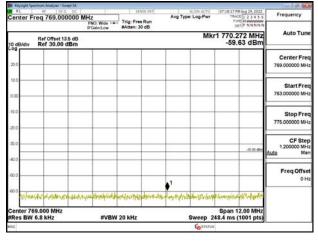
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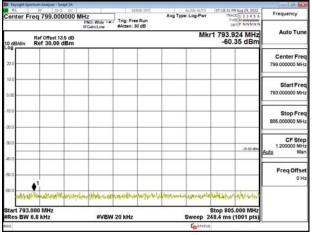
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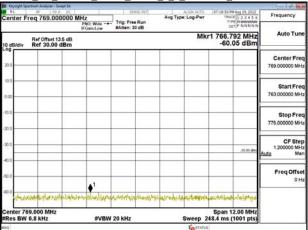
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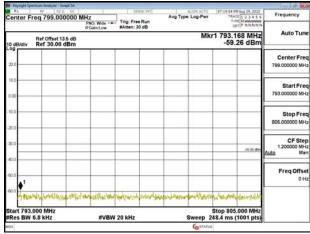
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NB_IoT_Band13_15kHz_QPSK_1_0_CH23279_793-805MHz



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10 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

10.1 Standard Applicable

According to FCC §2.1053, FCC §24.238(a), §27.53(h)

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(g)

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.

- (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;
- (3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;
- (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(h)(1)

(h) AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}$ (P) dB.

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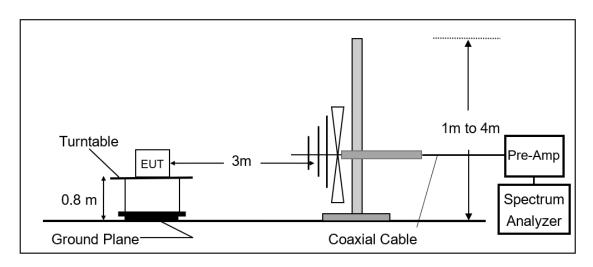
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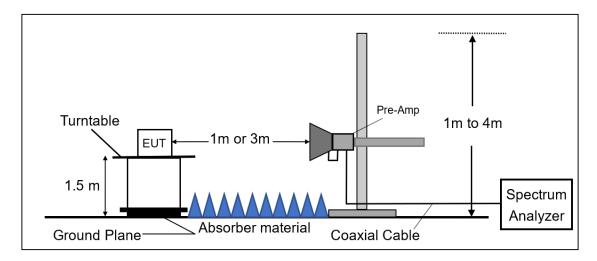
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Radiated Emission Test Set-Up, Frequency From 30MHz to 1000MHz.



Radiated Emission Test Set-Up, Frequency Above 1GHz.



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Measurement Procedure:

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

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

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

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

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

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Measurement Result:

10.4.1 Radiated Spurious Emission

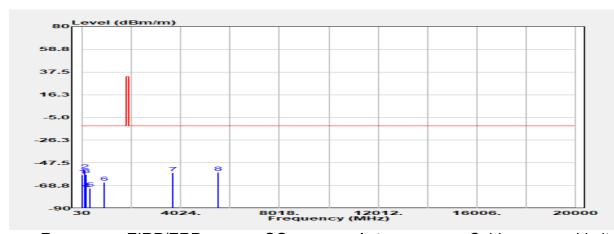
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :NB-IoT B2 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Test Frequency :1850.1 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
-		Output Level	Gain	Loss		_
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
72.680	-58.93	-47.30	-11.14	-0.49	-13.00	-45.93
144.460	-54.37	-46.66	-7.04	-0.67	-13.00	-41.37
192.960	-58.34	-55.89	-1.63	-0.82	-13.00	-45.34
217.210	-71.74	-70.71	-0.16	-0.87	-13.00	-58.74
361.740	-71.23	-69.64	-0.50	-1.09	-13.00	-58.23
918.520	-65.61	-62.40	-1.35	-1.86	-13.00	-52.61
3700.200	-56.62	-65.04	12.30	-3.88	-13.00	-43.62
5550.300	-56.31	-64.69	12.90	-4.52	-13.00	-43.31

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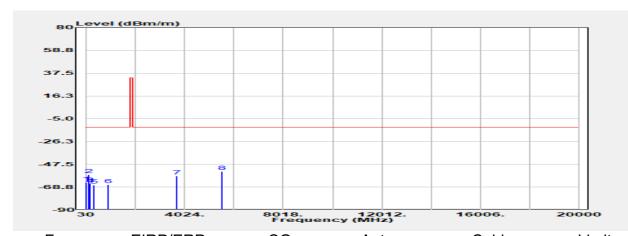
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :NB-IoT B2 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Engineer Test Frequency :1850.1 MHz :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	
						_	
72.680	-64.52	-52.89	-11.14	-0.49	-13.00	-51.52	
144.460	-57.29	-49.58	-7.04	-0.67	-13.00	-44.29	
191.990	-65.18	-62.69	-1.67	-0.82	-13.00	-52.18	
216.240	-66.05	-64.97	-0.21	-0.87	-13.00	-53.05	
347.190	-67.19	-65.56	-0.43	-1.20	-13.00	-54.19	
962.170	-66.59	-63.26	-1.47	-1.86	-13.00	-53.59	
3700.200	-58.46	-66.88	12.30	-3.88	-13.00	-45.46	
5550.300	-54.04	-62.42	12.90	-4.52	-13.00	-41.04	

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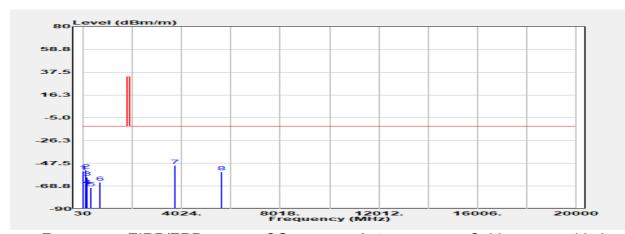
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :NB-IoT B2 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Test Frequency :1880 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
-		Output Level	Gain	Loss		_
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
72.680	-54.93	-43.30	-11.14	-0.49	-13.00	-41.93
144.460	-53.75	-46.04	-7.04	-0.67	-13.00	-40.75
191.990	-60.57	-58.08	-1.67	-0.82	-13.00	-47.57
217.210	-68.14	-67.11	-0.16	-0.87	-13.00	-55.14
364.650	-70.26	-68.68	-0.49	-1.09	-13.00	-57.26
734.220	-65.45	-62.28	-1.20	-1.97	-13.00	-52.45
3760.000	-49.47	-58.13	12.40	-3.74	-13.00	-36.47
5640.000	-55.35	-63.60	13.00	-4.75	-13.00	-42.35

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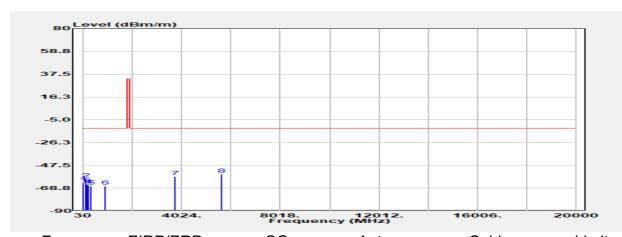
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :NB-IoT B2 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :1880 MHz Engineer :Howard Huang



dB
-51.16
-47.34
-52.33
-53.31
-53.84
-54.05
-44.99
-42.95

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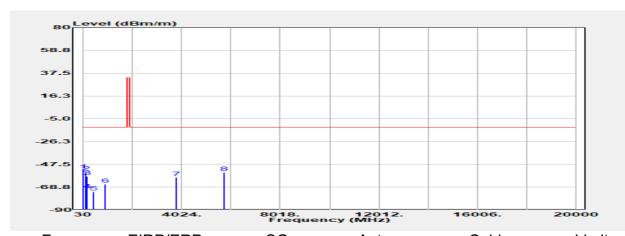
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :NB-IoT B2 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Engineer Test Frequency :1909.9 MHz :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
						_
72.680	-53.09	-41.46	-11.14	-0.49	-13.00	-40.09
144.460	-54.43	-46.72	-7.04	-0.67	-13.00	-41.43
191.990	-58.92	-56.43	-1.67	-0.82	-13.00	-45.92
217.210	-71.18	-70.15	-0.16	-0.87	-13.00	-58.18
450.010	-73.20	-71.17	-0.98	-1.05	-13.00	-60.20
922.400	-65.99	-62.77	-1.39	-1.83	-13.00	-52.99
3819.800	-59.70	-68.27	12.36	-3.79	-13.00	-46.70
5729.700	-55.07	-63.11	12.80	-4.76	-13.00	-42.07

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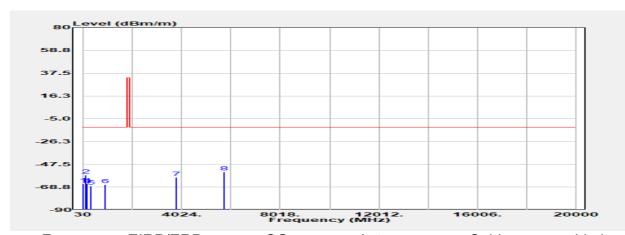
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :NB-IoT B2 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Engineer Test Frequency :1909.9 MHz :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
		Output Level	Gain	Loss		_	
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	
						_	
72.680	-65.90	-54.27	-11.14	-0.49	-13.00	-52.90	
144.460	-57.62	-49.91	-7.04	-0.67	-13.00	-44.62	
192.960	-66.43	-63.98	-1.63	-0.82	-13.00	-53.43	
226.910	-65.78	-65.11	0.22	-0.89	-13.00	-52.78	
361.740	-67.74	-66.15	-0.50	-1.09	-13.00	-54.74	
954.410	-66.44	-63.27	-1.35	-1.82	-13.00	-53.44	
3819.800	-59.69	-68.26	12.36	-3.79	-13.00	-46.69	
5729.700	-54.69	-62.73	12.80	-4.76	-13.00	-41.69	

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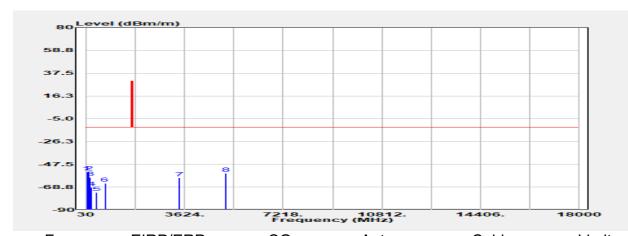
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :NB-IoT B4 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Engineer Test Frequency :1710.1 MHz :Howard Huang



	Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
	MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
_							
	72.680	-54.68	-43.05	-11.14	-0.49	-13.00	-41.68
	144.460	-54.60	-46.89	-7.04	-0.67	-13.00	-41.60
	191.990	-59.86	-57.37	-1.67	-0.82	-13.00	-46.86
	226.910	-69.32	-68.65	0.22	-0.89	-13.00	-56.32
	438.370	-73.68	-71.56	-0.97	-1.15	-13.00	-60.68
	730.340	-65.36	-62.19	-1.17	-2.00	-13.00	-52.36
	3420.200	-60.34	-69.31	12.56	-3.59	-13.00	-47.34
	5130.300	-55.85	-63.48	12.10	-4.47	-13.00	-42.85

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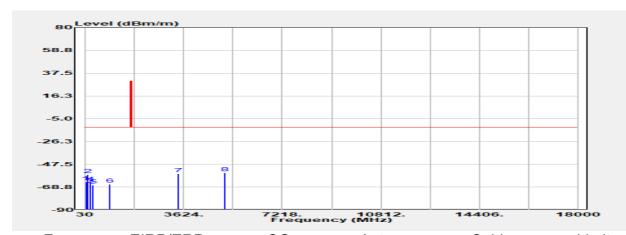
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :NB-IoT B4 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Engineer Test Frequency :1710.1 MHz :Howard Huang



	Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
	MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
_							
	72.680	-64.06	-52.43	-11.14	-0.49	-13.00	-51.06
	144.460	-57.29	-49.58	-7.04	-0.67	-13.00	-44.29
	216.240	-65.97	-64.89	-0.21	-0.87	-13.00	-52.97
	217.210	-64.23	-63.20	-0.16	-0.87	-13.00	-51.23
	352.040	-67.08	-65.52	-0.39	-1.17	-13.00	-54.08
	954.410	-66.15	-62.98	-1.35	-1.82	-13.00	-53.15
	3420.200	-56.15	-65.12	12.56	-3.59	-13.00	-43.15
	5130.300	-55.30	-62.93	12.10	-4.47	-13.00	-42.30

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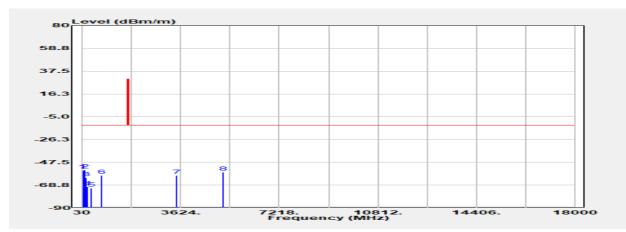
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :NB-IoT B4 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Test Frequency :1732.5 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		_
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
						_
72.680	-55.18	-43.55	-11.14	-0.49	-13.00	-42.18
144.460	-54.44	-46.73	-7.04	-0.67	-13.00	-41.44
191.990	-62.05	-59.56	-1.67	-0.82	-13.00	-49.05
231.760	-70.61	-69.61	-0.09	-0.91	-13.00	-57.61
379.200	-71.62	-69.92	-0.54	-1.16	-13.00	-58.62
739.070	-59.89	-56.63	-1.33	-1.93	-13.00	-46.89
3465.000	-59.68	-68.46	12.47	-3.69	-13.00	-46.68
5197.500	-56.68	-64.57	12.39	-4.50	-13.00	-43.68

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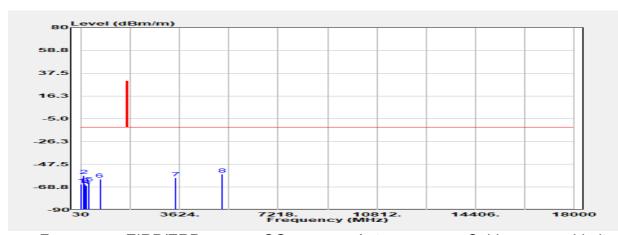
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :NB-IoT B4 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Engineer Test Frequency :1732.5 MHz :Howard Huang



	Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
	-		Output Level	Gain	Loss		_
	MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
_							
	40.670	-66.04	-47.26	-18.42	-0.36	-13.00	-53.04
	144.460	-58.12	-50.41	-7.04	-0.67	-13.00	-45.12
	211.390	-66.33	-65.03	-0.44	-0.86	-13.00	-53.33
	216.240	-67.45	-66.37	-0.21	-0.87	-13.00	-54.45
	349.130	-64.74	-63.17	-0.38	-1.19	-13.00	-51.74
	731.310	-61.45	-58.28	-1.18	-1.99	-13.00	-48.45
	3465.000	-60.38	-69.16	12.47	-3.69	-13.00	-47.38
	5197.500	-56.91	-64.80	12.39	-4.50	-13.00	-43.91

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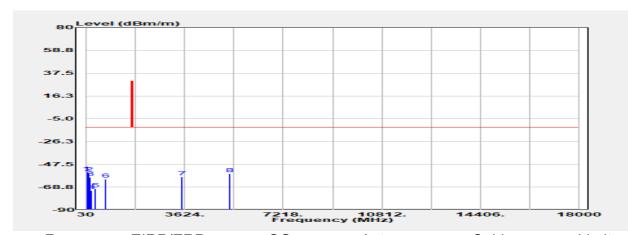
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :NB-IoT B4 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Test Frequency :1754.9 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
						_
72.680	-55.21	-43.58	-11.14	-0.49	-13.00	-42.21
144.460	-55.54	-47.83	-7.04	-0.67	-13.00	-42.54
191.990	-59.84	-57.35	-1.67	-0.82	-13.00	-46.84
237.580	-71.99	-70.47	-0.59	-0.93	-13.00	-58.99
399.570	-70.21	-68.22	-0.60	-1.39	-13.00	-57.21
741.980	-61.33	-58.04	-1.42	-1.87	-13.00	-48.33
3509.800	-59.43	-68.22	12.40	-3.61	-13.00	-46.43
5264.700	-56.27	-64.64	12.86	-4.49	-13.00	-43.27

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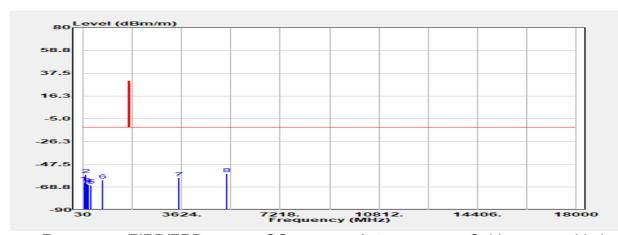
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :NB-IoT B4 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Engineer :1754.9 MHz Test Frequency :Howard Huang



	Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
	MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
_							
	72.680	-64.25	-52.62	-11.14	-0.49	-13.00	-51.25
	144.460	-57.21	-49.50	-7.04	-0.67	-13.00	-44.21
	191.990	-65.76	-63.27	-1.67	-0.82	-13.00	-52.76
	216.240	-66.51	-65.43	-0.21	-0.87	-13.00	-53.51
	349.130	-67.16	-65.59	-0.38	-1.19	-13.00	-54.16
	740.040	-62.19	-58.91	-1.36	-1.92	-13.00	-49.19
	3509.800	-59.99	-68.78	12.40	-3.61	-13.00	-46.99
	5264.700	-56.17	-64.54	12.86	-4.49	-13.00	-43.17

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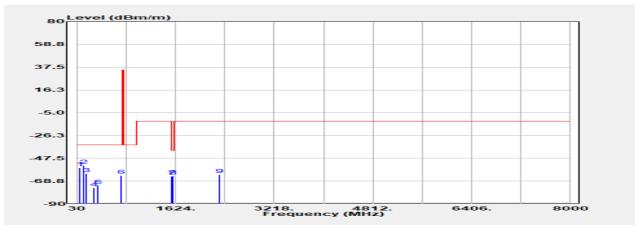
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :NB-IoT B13 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Test Frequency :777.1 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
•		Output Level	Gain	Loss		_
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
						_
72.680	-56.15	-44.52	-11.14	-0.49	-35.00	-21.15
144.460	-54.28	-46.57	-7.04	-0.67	-35.00	-19.28
191.990	-62.02	-59.53	-1.67	-0.82	-35.00	-27.02
310.330	-75.01	-72.86	-1.01	-1.14	-35.00	-40.01
363.680	-72.92	-71.33	-0.50	-1.09	-35.00	-37.92
740.040	-63.72	-60.44	-1.36	-1.92	-35.00	-28.72
1554.200	-64.47	-71.19	9.13	-2.41	-13.00	-51.47
1574.000	-64.08	-70.92	9.25	-2.41	-40.00	-24.08
2331.300	-62.61	-69.17	9.49	-2.93	-13.00	-49.61

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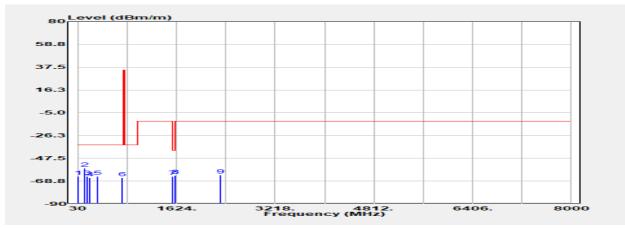
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :NB-IoT B13 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :777.1 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
·		Output Level	Gain	Loss		J
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
31.940	-64.37	-44.49	-19.56	-0.32	-35.00	-29.37
144.460	-56.78	-49.07	-7.04	-0.67	-35.00	-21.78
191.990	-64.38	-61.89	-1.67	-0.82	-35.00	-29.38
216.240	-65.89	-64.81	-0.21	-0.87	-35.00	-30.89
360.770	-64.62	-63.02	-0.51	-1.09	-35.00	-29.62
744.890	-65.62	-62.32	-1.50	-1.80	-35.00	-30.62
1554.200	-64.25	-70.97	9.13	-2.41	-13.00	-51.25
1595.000	-63.69	-70.65	9.37	-2.41	-40.00	-23.69
2331.300	-63.21	-69.77	9.49	-2.93	-13.00	-50.21

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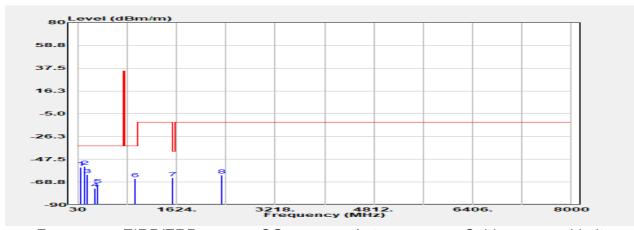
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :NB-IoT B13 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Engineer Test Frequency :782 MHz :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
						_
72.680	-55.07	-43.44	-11.14	-0.49	-35.00	-20.07
144.460	-54.39	-46.68	-7.04	-0.67	-35.00	-19.39
191.990	-61.70	-59.21	-1.67	-0.82	-35.00	-26.70
319.060	-74.87	-72.66	-1.03	-1.18	-35.00	-39.87
354.950	-71.20	-69.62	-0.44	-1.14	-35.00	-36.20
962.170	-65.79	-62.46	-1.47	-1.86	-35.00	-30.79
1564.000	-64.67	-71.44	9.18	-2.41	-40.00	-24.67
2346.000	-62.12	-68.76	9.58	-2.94	-13.00	-49.12

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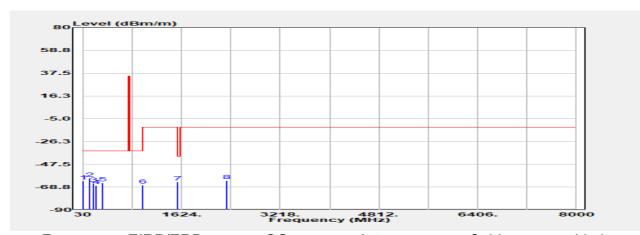
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :NB-IoT B13 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :782 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
						_
31.940	-63.22	-43.34	-19.56	-0.32	-35.00	-28.22
144.460	-60.43	-52.72	-7.04	-0.67	-35.00	-25.43
211.390	-65.48	-64.18	-0.44	-0.86	-35.00	-30.48
246.310	-67.50	-65.69	-0.84	-0.97	-35.00	-32.50
351.070	-64.89	-63.33	-0.38	-1.18	-35.00	-29.89
992.240	-66.87	-63.72	-1.21	-1.94	-35.00	-31.87
1564.000	-63.93	-70.70	9.18	-2.41	-40.00	-23.93
2346.000	-62.86	-69.50	9.58	-2.94	-13.00	-49.86

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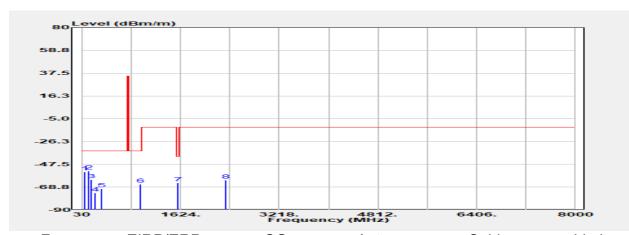
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Operation Mode :NB-IoT B13 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Test Frequency :786.9 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
						_
72.680	-54.62	-42.99	-11.14	-0.49	-35.00	-19.62
144.460	-53.84	-46.13	-7.04	-0.67	-35.00	-18.84
191.990	-61.95	-59.46	-1.67	-0.82	-35.00	-26.95
242.430	-74.44	-72.69	-0.80	-0.95	-35.00	-39.44
357.860	-70.26	-68.67	-0.48	-1.11	-35.00	-35.26
967.990	-66.20	-62.88	-1.42	-1.90	-35.00	-31.20
1573.800	-65.02	-71.85	9.24	-2.41	-40.00	-25.02
2360.700	-62.42	-69.18	9.71	-2.95	-13.00	-49.42

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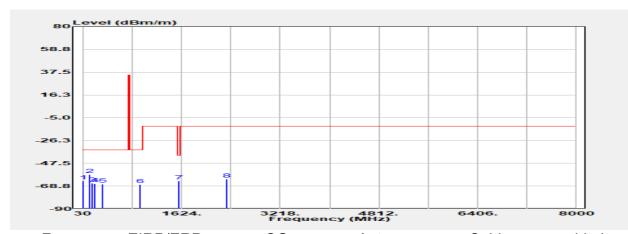
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Operation Mode :NB-IoT B13 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :786.9 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
31.940	-64.17	-44.29	-19.56	-0.32	-35.00	-29.17
144.460	-57.94	-50.23	-7.04	-0.67	-35.00	-22.94
192.960	-66.21	-63.76	-1.63	-0.82	-35.00	-31.21
216.240	-66.61	-65.53	-0.21	-0.87	-35.00	-31.61
351.070	-67.08	-65.52	-0.38	-1.18	-35.00	-32.08
957.320	-67.63	-64.39	-1.41	-1.83	-35.00	-32.63
1573.800	-64.09	-70.92	9.24	-2.41	-40.00	-24.09
2360.700	-62.39	-69.15	9.71	-2.95	-13.00	-49.39

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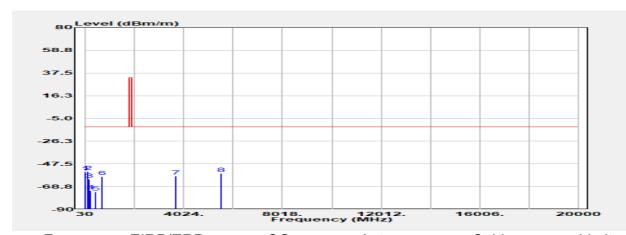
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B2 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Test Frequency :1851.5 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
-		Output Level	Gain	Loss		_
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
						_
72.680	-54.89	-43.26	-11.14	-0.49	-13.00	-41.89
144.460	-54.47	-46.76	-7.04	-0.67	-13.00	-41.47
191.990	-61.70	-59.21	-1.67	-0.82	-13.00	-48.70
254.070	-72.61	<i>-</i> 70.82	-0.80	-0.99	-13.00	-59.61
450.010	-73.70	<i>-</i> 71.67	-0.98	-1.05	-13.00	-60.70
744.890	-59.42	-56.12	-1.50	-1.80	-13.00	-46.42
3703.000	-58.98	-67.42	12.31	-3.87	-13.00	-45.98
5554.500	-56.49	-64.86	12.91	-4.54	-13.00	-43.49

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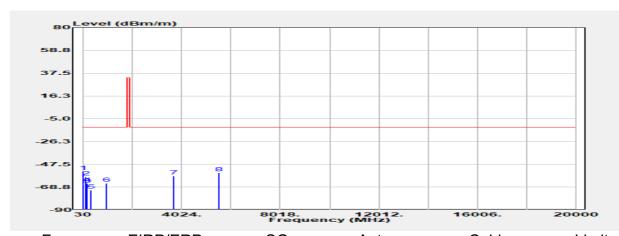
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B2 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :1851.5 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
34.850	-54.17	-34.56	-19.27	-0.34	-13.00	-41.17
144.460	-59.51	-51.80	-7.04	-0.67	-13.00	-46.51
191.990	-66.00	-63.51	-1.67	-0.82	-13.00	-53.00
220.120	-65.22	-64.36	0.02	-0.88	-13.00	-52.22
359.800	-71.50	-69.90	-0.51	-1.09	-13.00	-58.50
970.900	-65.27	-61.97	-1.39	-1.91	-13.00	-52.27
3703.000	-58.68	-67.12	12.31	-3.87	-13.00	-45.68
5554.500	-55.67	-64.04	12.91	-4.54	-13.00	-42.67

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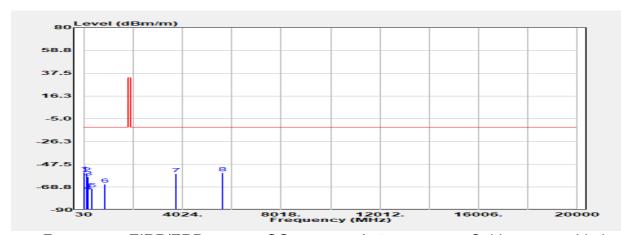
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B2 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Test Frequency :1880 MHz Engineer :Howard Huang



	Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
	MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
_							
	72.680	-54.93	-43.30	-11.14	-0.49	-13.00	-41.93
	144.460	-56.00	-48.29	-7.04	-0.67	-13.00	-43.00
	191.990	-59.50	-57.01	-1.67	-0.82	-13.00	-46.50
	216.240	-72.51	-71.43	-0.21	-0.87	-13.00	-59.51
	360.770	-70.59	-68.99	-0.51	-1.09	-13.00	-57.59
	904.940	-66.20	-63.08	-1.21	-1.91	-13.00	-53.20
	3760.000	-56.13	-64.79	12.40	-3.74	-13.00	-43.13
	5640.000	-55.65	-63.90	13.00	-4.75	-13.00	-42.65

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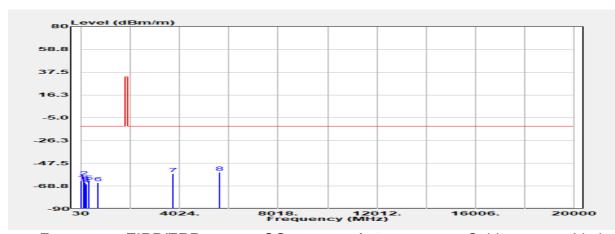
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B2 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :1880 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	[.] dBm	dBi/dBd	dB	dBm	dB
						_
72.680	-63.89	-52.26	-11.14	-0.49	-13.00	-50.89
144.460	-60.14	-52.43	-7.04	-0.67	-13.00	-47.14
211.390	-65.38	-64.08	-0.44	-0.86	-13.00	-52.38
248.250	-66.81	-65.02	-0.81	-0.98	-13.00	-53.81
356.890	-64.58	-62.99	-0.47	-1.12	-13.00	-51.58
729.370	-65.60	-62.45	-1.16	-1.99	-13.00	-52.60
3760.000	-57.28	-65.94	12.40	-3.74	-13.00	-44.28
5640.000	-56.12	-64.37	13.00	- 4.75	-13.00	-43.12

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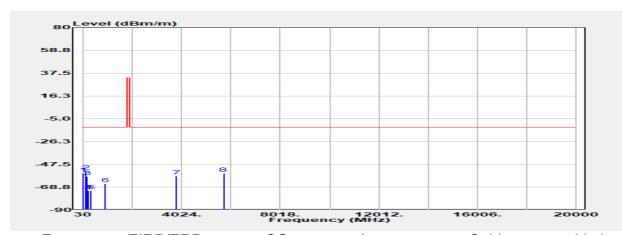
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B2 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Test Frequency :1908.5 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
		Output Level	Gain	Loss			
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	
						_	
72.680	-55.78	-44.15	-11.14	-0.49	-13.00	-42.78	
144.460	-53.82	-46.11	-7.04	-0.67	-13.00	-40.82	
191.990	-58.93	-56.44	-1.67	-0.82	-13.00	-45.93	
247.280	-72.13	-70.33	-0.82	-0.98	-13.00	-59.13	
386.960	-72.14	-70.33	-0.57	-1.24	-13.00	-59.14	
957.320	-65.72	-62.48	-1.41	-1.83	-13.00	-52.72	
3817.000	-58.42	-67.00	12.37	-3.79	-13.00	-45.42	
5725.500	-55.75	-63.81	12.80	-4.74	-13.00	-42.75	

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Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B2 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :1908.5 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
72.680	-64.81	-53.18	-11.14	-0.49	-13.00	-51.81
144.460	-57.29	-49.58	-7.04	-0.67	-13.00	-44.29
191.990	-65.06	-62.57	-1.67	-0.82	-13.00	-52.06
237.580	-68.04	-66.52	-0.59	-0.93	-13.00	-55.04
361.740	-74.55	-72.96	-0.50	-1.09	-13.00	-61.55
956.350	-66.59	-63.38	-1.38	-1.83	-13.00	-53.59
3817.000	-57.53	-66.11	12.37	-3.79	-13.00	-44.53
5725.500	-55.67	-63.73	12.80	-4.74	-13.00	-42.67

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除业只有约明,此程生处用度影响经少锋中乌害,同时此类早度原列的主,大司如公海侧。

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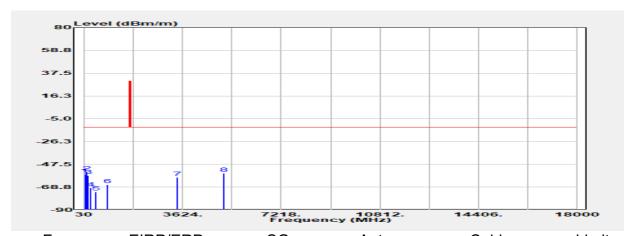
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B4 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Test Frequency :1715 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
-		Output Level	Gain	Loss		_
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
72.680	-56.90	-45.27	-11.14	-0.49	-13.00	-43.90
144.460	-54.57	-46.86	-7.04	-0.67	-13.00	-41.57
191.990	-58.01	-55.52	-1.67	-0.82	-13.00	-45.01
299.660	-69.47	-67.40	-1.00	-1.07	-13.00	-56.47
451.950	-73.30	-71.25	-0.98	-1.07	-13.00	-60.30
914.640	-66.52	-63.32	-1.31	-1.89	-13.00	-53.52
3430.000	-59.89	-68.79	12.54	-3.64	-13.00	-46.89
5145.000	-55.84	-63.45	12.10	-4.49	-13.00	-42.84

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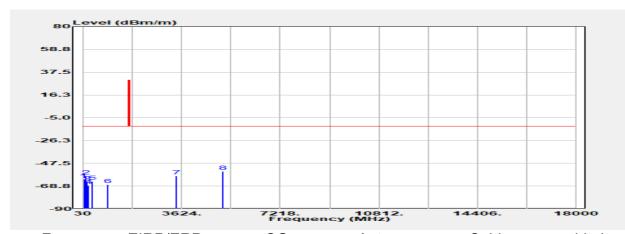
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B4 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :1715 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
-		Output Level	Gain	Loss		_
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
72.680	-62.75	-51.12	-11.14	-0.49	-13.00	-49.75
144.460	-59.24	-51.53	-7.04	-0.67	-13.00	-46.24
192.960	-64.67	-62.22	-1.63	-0.82	-13.00	-51.67
220.120	-68.10	-67.24	0.02	-0.88	-13.00	-55.10
358.830	-64.58	-62.99	-0.49	-1.10	-13.00	-51.58
964.110	-67.39	-64.06	-1.46	-1.87	-13.00	-54.39
3430.000	-59.43	-68.33	12.54	-3.64	-13.00	-46.43
5145.000	-55.23	-62.84	12.10	-4.49	-13.00	-42.23

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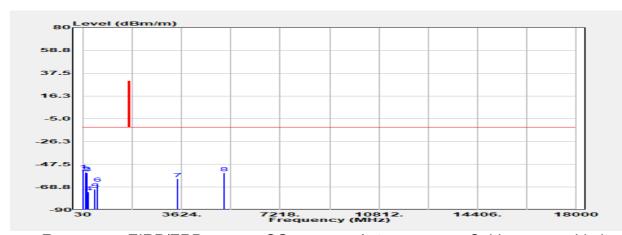
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B4 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Test Frequency :1732.5 MHz Engineer :Howard Huang



	Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
	MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
_							
	47.460	-53.17	-35.25	-17.52	-0.40	-13.00	-40.17
	144.460	-55.02	-47.31	-7.04	-0.67	-13.00	-42.02
	191.990	-55.65	-53.16	-1.67	-0.82	-13.00	-42.65
	242.430	-73.56	-71.81	-0.80	-0.95	-13.00	-60.56
	454.860	-70.79	-68.70	-0.98	-1.11	-13.00	-57.79
	586.780	-65.11	-62.47	-1.04	-1.60	-13.00	-52.11
	3465.000	-60.90	-69.68	12.47	-3.69	-13.00	-47.90
	5197.500	-55.68	-63.57	12.39	-4.50	-13.00	-42.68

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Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B4 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :1732.5 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
						_
48.430	-61.76	-44.10	-17.26	-0.40	-13.00	-48.76
144.460	-56.05	-48.34	-7.04	-0.67	-13.00	-43.05
191.990	-60.29	-57.80	-1.67	-0.82	-13.00	-47.29
242.430	-67.93	-66.18	-0.80	-0.95	-13.00	-54.93
361.740	-66.78	-65.19	-0.50	-1.09	-13.00	-53.78
956.350	-65.86	-62.65	-1.38	-1.83	-13.00	-52.86
3465.000	-60.01	-68.79	12.47	-3.69	-13.00	-47.01
5197.500	-55.91	-63.80	12.39	-4.50	-13.00	-42.91

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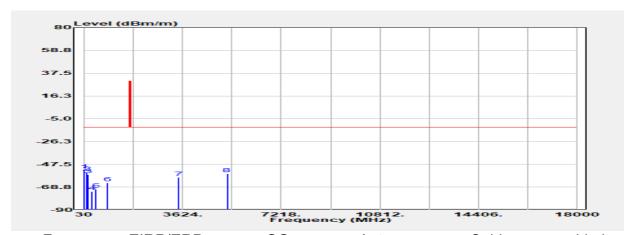
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :Cat-M1 B4 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Engineer :1750 MHz Test Frequency :Howard Huang



	Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
			Output Level	Gain	Loss			
	MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	
_								
	46.490	-52.86	-34.78	-17.69	-0.39	-13.00	-39.86	
	144.460	-55.05	-47.34	-7.04	-0.67	-13.00	-42.05	
	191.990	-57.13	-54.64	-1.67	-0.82	-13.00	-44.13	
	344.280	-72.83	-71.12	-0.50	-1.21	-13.00	-59.83	
	450.980	-70.82	-68.78	-0.98	-1.06	-13.00	-57.82	
	905.910	-64.89	-61.75	-1.22	-1.92	-13.00	-51.89	
	3500.000	-59.91	-68.73	12.40	-3.58	-13.00	-46.91	
	5250.000	-56.37	-64.70	12.80	-4.47	-13.00	-43.37	

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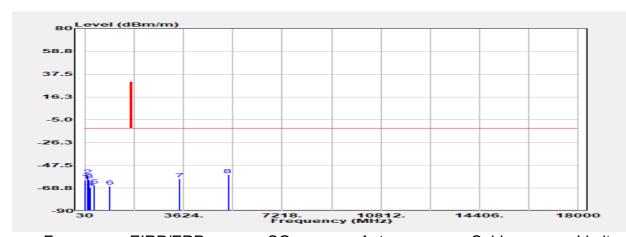
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B4 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :1750 MHz Engineer :Howard Huang



EIRP/ERP	SG	Antenna	Cable	Limit	Margin
	Output Level	Gain	Loss		_
dBm	dBm	dBi/dBd	dB	dBm	dB
-61.59	-43.93	-17.26	-0.40	-13.00	-48.59
-56.83	-49.12	-7.04	-0.67	-13.00	-43.83
-61.23	-58.74	-1.67	-0.82	-13.00	-48.23
-68.08	-66.30	-0.82	-0.96	-13.00	-55.08
-66.26	-64.67	-0.47	-1.12	-13.00	-53.26
-67.17	-63.89	-1.44	-1.84	-13.00	-54.17
-60.03	-68.85	12.40	-3.58	-13.00	-47.03
-56.51	-64.84	12.80	-4.47	-13.00	-43.51
	-61.59 -56.83 -61.23 -68.08 -66.26 -67.17 -60.03	Output Level dBm -61.59	Output Level Gain dBm dBi/dBd -61.59 -43.93 -17.26 -56.83 -49.12 -7.04 -61.23 -58.74 -1.67 -68.08 -66.30 -0.82 -66.26 -64.67 -0.47 -67.17 -63.89 -1.44 -60.03 -68.85 12.40	dBm Output Level dBm Gain dBi/dBd Loss dB -61.59 -43.93 -17.26 -0.40 -56.83 -49.12 -7.04 -0.67 -61.23 -58.74 -1.67 -0.82 -68.08 -66.30 -0.82 -0.96 -66.26 -64.67 -0.47 -1.12 -67.17 -63.89 -1.44 -1.84 -60.03 -68.85 12.40 -3.58	dBm Output Level dBm Gain dBi/dBd Loss dBm -61.59 -43.93 -17.26 -0.40 -13.00 -56.83 -49.12 -7.04 -0.67 -13.00 -61.23 -58.74 -1.67 -0.82 -13.00 -68.08 -66.30 -0.82 -0.96 -13.00 -66.26 -64.67 -0.47 -1.12 -13.00 -67.17 -63.89 -1.44 -1.84 -13.00 -60.03 -68.85 12.40 -3.58 -13.00

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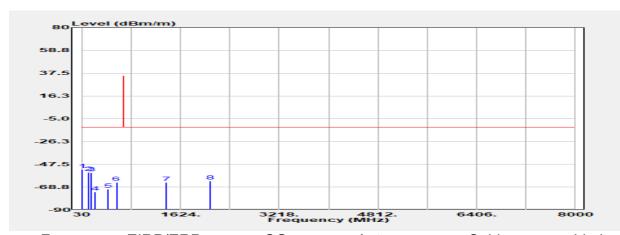
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :Cat-M1 B12 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Engineer **Test Frequency** :699.7 MHz :Howard Huang



	Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
			Output Level	Gain	Loss		_	
	MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	
_								
	46.490	-52.65	-34.57	-17.69	-0.39	-13.00	-39.65	
	144.460	-54.95	-47.24	-7.04	-0.67	-13.00	-41.95	
	191.990	-55.58	-53.09	-1.67	-0.82	-13.00	-42.58	
	242.430	-73.24	-71.49	-0.80	-0.95	-13.00	-60.24	
	451.950	-70.89	-68.84	-0.98	-1.07	-13.00	-57.89	
	591.630	-64.38	-61.78	-1.13	-1.47	-13.00	-51.38	
	1399.400	-64.56	-69.88	7.59	-2.27	-13.00	-51.56	
	2099.100	-63.33	-70.44	9.90	-2.79	-13.00	-50.33	

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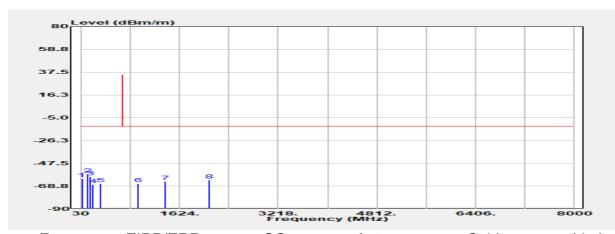
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :Cat-M1 B12 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Engineer **Test Frequency** :699.7 MHz :Howard Huang



	Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
			Output Level	Gain	Loss		
_	MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
	48.430	-61.78	-44.12	-17.26	-0.40	-13.00	-48.78
	144.460	-57.56	-49.85	-7.04	-0.67	-13.00	-44.56
	191.990	-60.08	-57.59	-1.67	-0.82	-13.00	-47.08
	226.910	-67.55	-66.88	0.22	-0.89	-13.00	-54.55
	357.860	-66.38	-64.79	-0.48	-1.11	-13.00	-53.38
	958.290	-66.76	-63.48	-1.44	-1.84	-13.00	-53.76
	1399.400	-64.60	-69.92	7.59	-2.27	-13.00	-51.60
	2099.100	-63.10	-70.21	9.90	-2.79	-13.00	-50.10

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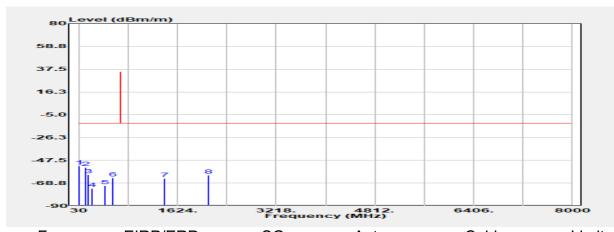
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :Cat-M1 B12 **Test Date** :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Vertical

Engineer :707.5 MHz Test Frequency :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
						_
47.460	-53.05	-35.13	-17.52	-0.40	-13.00	-40.05
144.460	-54.37	-46.66	-7.04	-0.67	-13.00	-41.37
191.990	-61.12	-58.63	-1.67	-0.82	-13.00	-48.12
243.400	-73.73	-71.95	-0.82	-0.96	-13.00	-60.73
464.560	-71.04	-68.90	-0.89	-1.25	-13.00	-58.04
590.660	-64.11	-61.49	-1.12	-1.50	-13.00	-51.11
1415.000	-64.60	-70.04	7.72	-2.28	-13.00	-51.60
2122.500	-61.34	-68.17	9.63	-2.80	-13.00	-48.34

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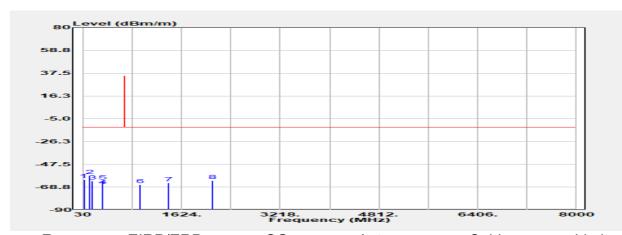
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B12 Test Date :2022-08-16

Test Mode :TX Temp./Humi. :24.0/61

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :707.5 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin	
		Output Level	Gain	Loss		_	
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB	
48.430	-61.67	-44.01	-17.26	-0.40	-13.00	-48.67	
144.460	-58.08	-50.37	-7.04	-0.67	-13.00	-45.08	
191.990	-63.01	-60.52	-1.67	-0.82	-13.00	-50.01	
342.340	-67.28	-65.51	-0.55	-1.22	-13.00	-54.28	
356.890	-63.03	-61.44	-0.47	-1.12	-13.00	-50.03	
961.200	-66.43	-63.09	-1.48	-1.86	-13.00	-53.43	
1415.000	-64.77	-70.21	7.72	-2.28	-13.00	-51.77	
2122.500	-62.72	-69.55	9.63	-2.80	-13.00	-49.72	

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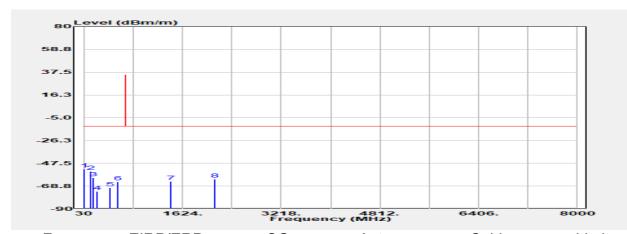
Report Number :TERF2207001076E2 **Test Site** :SAC D

Operation Mode :Cat-M1 B12 **Test Date** :2022-08-25

Test Mode :TX Temp./Humi. :23.6/64

EUT Pol :E2 Plane Antenna Pol. :Vertical

Engineer :715.3 MHz Test Frequency :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
						_
47.460	-52.97	-35.05	-17.52	-0.40	-13.00	-39.97
144.460	-55.22	-47.51	-7.04	-0.67	-13.00	-42.22
191.990	-61.05	-58.56	-1.67	-0.82	-13.00	-48.05
240.490	-73.89	-72.20	-0.75	-0.94	-13.00	-60.89
457.770	-70.27	-68.21	-0.92	-1.14	-13.00	-57.27
587.750	-64.80	-62.15	-1.07	-1.58	-13.00	-51.80
1430.600	-64.34	-69.90	7.85	-2.29	-13.00	-51.34
2145.900	-62.46	-69.00	9.35	-2.81	-13.00	-49.46

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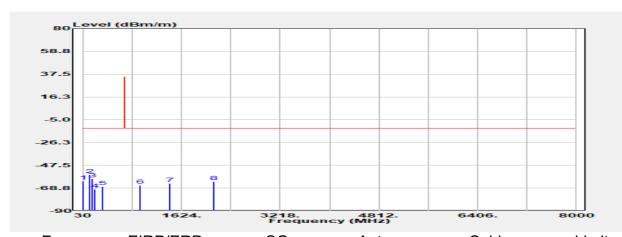
Report Number :TERF2207001076E2 Test Site :SAC D

Operation Mode :Cat-M1 B12 Test Date :2022-08-25

Test Mode :TX Temp./Humi. :23.6/64

EUT Pol :E2 Plane Antenna Pol. :Horizontal

Test Frequency :715.3 MHz Engineer :Howard Huang



Freq.	EIRP/ERP	SG	Antenna	Cable	Limit	Margin
		Output Level	Gain	Loss		
MHz	dBm	dBm	dBi/dBd	dB	dBm	dB
33.880	-62.21	-42.57	-19.31	-0.33	-13.00	-49.21
144.460	-56.48	-48.77	-7.04	-0.67	-13.00	-43.48
191.990	-60.13	-57.64	-1.67	-0.82	-13.00	-47.13
217.210	-70.03	-69.00	-0.16	-0.87	-13.00	-57.03
354.950	-67.36	-65.78	-0.44	-1.14	-13.00	-54.36
960.230	-65.97	-62.63	-1.49	-1.85	-13.00	-52.97
1430.600	-64.38	-69.94	7.85	-2.29	-13.00	-51.38
2145.900	-62.61	-69.15	9.35	-2.81	-13.00	-49.61

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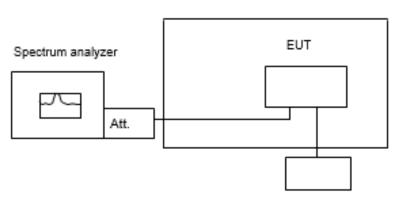
11 FREQUENCY STABILITY MEASUREMENT

Standard Applicable

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

11.2 **Test Set-up**





Variable DC Power Supply

Note: Measurement setup for testing on Antenna connector

11.3 **Measurement Procedure**

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

Set chamber temperature to 25°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint as declared by the manufacturer, record the maximum frequency change.

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Measurement Result

Note: The battery is rated 3.7Vdc.

11.4.1 NB IoT

		NB-IoT Band 2	1880	MHz
	Lii	mit: within freqeuncy blo	ock	
Vdc	Temp. (°C)	Freq. (MHz)	Delta (Hz)	Frequency error (PPM)
	FREQ	LTAGE		
4.26	20	1880.000042	42	0.022
3.70	20	1879.999966	34	-0.018
3.15	20	1879.99992	80	-0.043
3(End point)	20	1880.000011	11	0.006
	FRE	QUENCY ERROR vs. T	emp.	
3.70	50	1880.00006	55	0.029
3.70	40	1880.00003	33	0.018
3.70	30	1879.99991	87	-0.046
3.70	20	1880.00008	82	0.044
3.70	10	1880.00008	79	0.042
3.70	0	1880.00004	36	0.019
3.70	-10	1880.00002	24	0.013
3.70	-20	1880.00002	22	0.012
3.70	-30	1879.99992	85	-0.045

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		NB-IoT Band 4	1733	MHz
	Lir	mit: within freqeuncy blo	ock	
Vdc	Temp. (℃)	Freq. (MHz)	Delta (Hz)	Frequency error (PPM)
	FREQ	JENCY ERROR vs. VO	LTAGE	
4.26	20	1732.500071	71	0.041
3.70	20	1732.499901	99	-0.057
3.15	20	1732.499905	95	-0.055
3(End point)	20	1732.499995	5	-0.003
	FRE	QUENCY ERROR vs. T	emp.	
3.70	50	1732.50005	47	0.027
3.70	40	1732.50006	58	0.033
3.70	30	1732.50006	58	0.033
3.70	20	1732.49998	16	-0.009
3.70	10	1732.49999	15	-0.009
3.70	0	1732.50004	41	0.024
3.70	-10	1732.50001	14	0.008
3.70	-20	1732.50009	86	0.050
3.70	-30	1732.50000	1	0.001

		NB-IoT Band 13	782	MHz		
	Lir	mit: within freqeuncy blo	ock			
Vdc	Temp. (℃)	Freq. (MHz)	Delta (Hz)	Frequency error (PPM)		
	FREQ	JENCY ERROR vs. VO	LTAGE			
4.26	20	781.999937	63	-0.081		
3.70	20	781.999924	76	-0.097		
3.15	20	782.000002	2	0.003		
3(End point)	20	781.999977	23	-0.029		
	FREQUENCY ERROR vs. Temp.					
3.70	50	781.99992	78	-0.100		
3.70	40	782.00007	74	0.095		
3.70	30	782.00002	16	0.020		
3.70	20	781.99992	78	-0.100		
3.70	10	781.99997	30	-0.038		
3.70	0	781.99992	78	-0.100		
3.70	-10	781.99994	60	-0.077		
3.70	-20	781.99991	86	-0.110		
3.70	-30	782.00006	55	0.070		

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Reference Freq.:	M1 B2 Mid Channel		1880.0000	MHz 10M QPSK CH 18900					
Power Supply Vdc	Temp. (°C)	Freq. (MHz)	(ppm)	Limit					
	Freq. ERROR vs. VOLTAGE								
4.255	25	1879.999994	-0.0031						
3.7	25	1880.000000	0.0001						
3.145	25	1879.999990	-0.0053	+/- 2.5 ppm					
3 (End Point)	3 25		0.0004						
		req. ERROR vs.	Temp.						
3.7	-30	1879.999990	-0.0053						
3.7	-20	1879.999991	-0.0048						
3.7	-10	1880.000009	0.0050						
3.7	0	1880.000001	0.0005						
3.7	10	1879.999996	-0.0020	+/- 2.5 ppm					
3.7	20	1880.000001	0.0006						
3.7	30	1879.999992	-0.0045						
3.7	40	1880.000006	0.0033						
3.7	50	1880.000000	-0.0001						

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Reference Freq.:		B4 Mid	1732.5000	MHz 10M QPSK CH 20175					
Power Supply Vdc	Temp. (°C)	hannel Freq. (MHz)	(ppm)	Limit					
1 Owel Gupply Vac	Freq. ERROR vs. VOLTAGE								
4.255	25	1732.499990	-0.0056						
3.7	25	1732.499993	-0.0039	1					
3.145	25	1732.499997	-0.0017	+/- 2.5 ppm					
3	25	1732.499999	-0.0009						
(End Point)									
		req. ERROR vs.	· ·	T					
3.7	-30	1732.499995	-0.0027						
3.7	-2 0	1732.499995	-0.0031						
3.7	-10	1732.500008	0.0046						
3.7	0	1732.500004	0.0021						
3.7	10	1732.499993	-0.0043	+/- 2.5 ppm					
3.7	20	1732.499996	-0.0021						
3.7	30	1732.499992	-0.0046						
3.7	40	1732.500002	0.0009						
3.7	50	1732.499992	-0.0044						
Reference Freq.:		B12 Mid 707.5000 annel		MHz 10M QPSK CH 23095					
Power Supply Vdc	Temp. (°C)			Limit					
		eq. ERROR vs. VC	DLTAGE						
4.255	25	707.499996	-0.0059						
3.7	25	707.499999	-0.0021						
3.145	25	707.500008	0.0116	+/- 2.5 ppm					
3 (End Point)	25	707.499993	-0.0100						
		req. ERROR vs.	Temp.						
3.7	-30	707.500009	0.0126						
3.7	-20	707.500000	0.0001						
3.7	-10	707.499996	-0.0064						
3.7	0	707.499999	-0.0010						
3.7	10	707.499995	-0.0075	+/- 2.5 ppm					
3.7	20	707.500002	0.0031						
3.7	30	707.500009	0.0122						
3.7	40	707.500010	0.0134						
3.7	50	707.499994	-0.0092						

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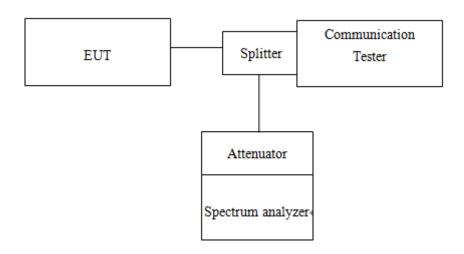
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12 PEAK TO AVERAGE RATIO

Standard Applicable

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

12.2 **Test SET-UP**



12.3 **Measurement Procedure**

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

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Measurement Result

12.4.1 **NB IoT**

	NB-IoT Band 2									
Channel	Freq.	Modulation	Subcarrier	N	Peak-to-Average					
	(MHz)	Modulation	Spacing (kHz)	N _{tones}	Power Ratio(dB)					
18601 1850.1	BPSK	15	1@0	9.65						
10001	1850.1	QPSK	15	12@0	9.67					
18900	4000	BPSK	15	1@0	8.54					
10900	1880	QPSK	15	12@0	4.66					
10100	1000.0	BPSK	15	1@0	9.3					
19199	1909.9	QPSK	15	12@0	4.78					

	NB-IoT Band 4									
Channel	Freq.	Modulation	Subcarrier	N	Peak-to-Average					
	(MHz)	Modulation	Spacing (kHz)	N _{tones}	Power Ratio(dB)					
19951	1710.1	BPSK	15	1@0	5.6					
19951		QPSK	15	12@0	11.61					
20175	1732.5	BPSK	15	1@0	12.12					
20175	1732.5	QPSK	15	12@0	5.94					
20399	1754.9	BPSK	15	1@0	9.63					
20399		QPSK	15	12@0	7.06					

	NB-IoT Band 13									
Channel	Freq.	Modulation	Subcarrier	N	Peak-to-Average					
Chamile	(MHz)	Modulation	Spacing (kHz)	N _{tones}	Power Ratio(dB)					
23181 777.1	777 1	BPSK	15	1@0	7.45					
23101	111.1	QPSK	15	12@0	7.79					
23230	782	BPSK	15	1@0	9.73					
23230		QPSK	15	12@0	12.16					
23279	700.0	BPSK	15	1@0	6.95					
23219	786.9	QPSK	15	12@0	9.54					

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M1 BAND 2										
Char	nel bandv	width: 1.4N	ЛHz	Cha	nnel band	lwidth: 3M	Hz			
Freq.	СН	PAPR	(dB)	Freq.	СН	PAPR	(dB)			
(MHz)	ОП	16QAM	Limit	(MHz)	ОП	16QAM	Limit			
1850.7	18607	6.46	13	1851.5	18615	6.10	13			
1880.0	18900	7.04	13	1880.0	18900	6.02	13			
1909.3	19193	5.57	13	1908.5	19185	5.88	13			

		M1 BAND 2									
Channel bandwidth: 5MHz				Chai	nnel bandı	width: 10N	1Hz				
	Freq.	СН	PAPR	(dB)	Freq.	CH	PAPR (dB)				
	(MHz)	ОП	16QAM	Limit	(MHz)	СП	16QAM	Limit			
	1852.5	18625	5.96	13	1855.0	18650	6.46	13			
	1880.0	18900	5.81	13	1880.0	18900	5.78	13			
	1907.5	19175	5.56	13	1905.0	19150	5.74	13			
-1											

_											
	M1 BAND 4										
	Char	nel bandv	vidth: 1.4N	ЛHz	Cha	nnel band	width: 3M	Hz			
	Freq.	ΛU	PAPR	(dB)	Freq.	СН	PAPR	PAPR (dB)			
	(MHz)	СН	16QAM	Limit	(MHz)	СП	16QAM	Limit			
	1710.7	19957	6.13	13	1711.5	19965	6.17	13			
	1732.5	20175	6.15	13	1732.5	20175	6.05	13			
	1754.3	20393	5.90	13	1753.5	20385	6.02	13			
-											

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	M1 BAND 4										
Cha	nnel band	width: 5M	Hz	Cha	nnel band	width: 10N	1Hz				
Freq.	СН	PAPR	(dB)	Freq.	СН	PAPR	PAPR (dB)				
(MHz)		16QAM	Limit	(MHz)	СП	16QAM	Limit				
1712.5	19975	6.38	13	1715.0	20000	6.91	13				
1732.5	20175	6.31	13	1732.5	20175	6.98	13				
1752.5	20375	6.25	13	1750.0	20350	5.79	13				

	M1 BAND 12										
Char	Channel bandwidth: 1.4MHz				Channel bandwidth: 3MHz						
Freq.	СН	PAPR	(dB)	Freq.	CI	PAPR	PAPR (dB)				
(MHz)	СП	16QAM	Limit	(MHz)	СН	16QAM	Limit				
699.7	23017	6.28	13	700.5	23025	6.67	13				
707.5	23095	6.10	13	707.5	23095	6.10	13				
715.3	23173	6.30	13	714.5	23165	6.57	13				

	M1 BAND 12										
Cha	nnel band	lwidth: 5M	Hz	Chai	nnel band	width: 10N	1Hz				
Freq.	CI	PAPR	(dB)	Freq.	СН	PAPR	PAPR (dB)				
(MHz)	CH	16QAM	Limit	(MHz)	СП	16QAM	Limit				
701.5	23035	6.37	13	704.0	23060	5.92	13				
707.5	23095	6.18	13	707.5	23095	6.40	13				
713.5	23155	5.51	13	711.0	23130	7.48	13				

Please refer to next page for test plots.

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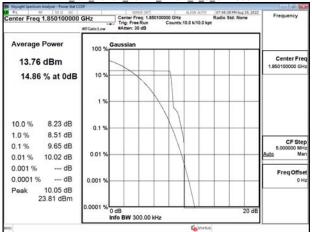
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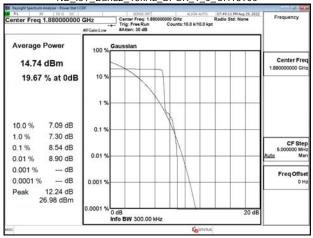


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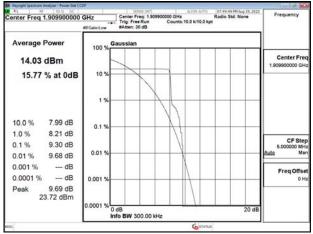
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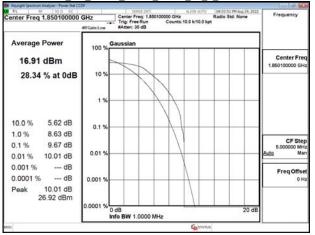
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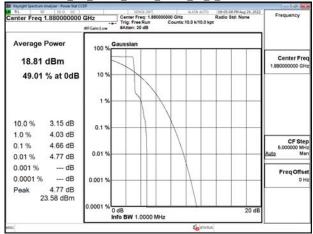
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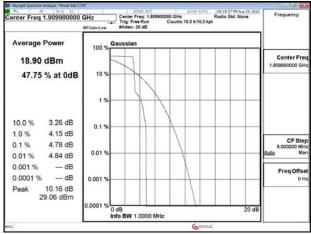
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NB_IoT_Band2_15kHz_QPSK_12_0_CH18900



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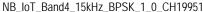
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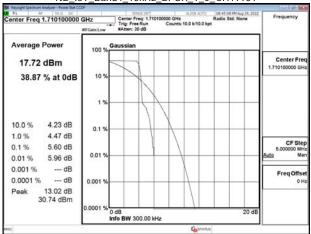
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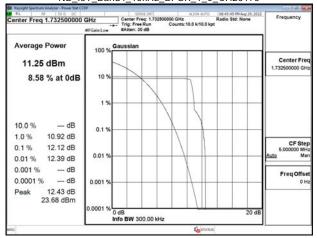


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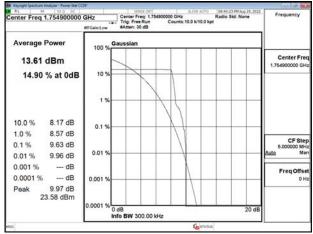




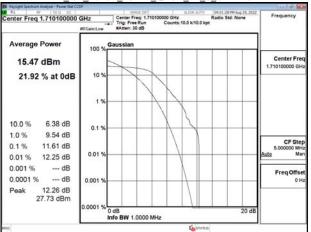
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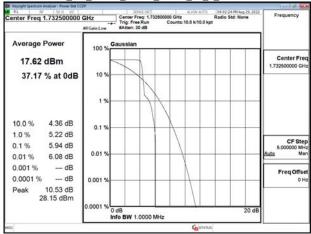
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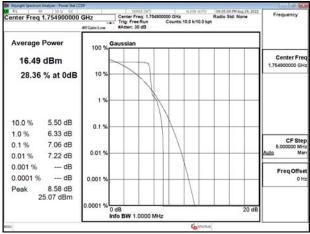
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NB IoT_Band4_15kHz_QPSK_12_0_CH20175



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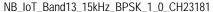
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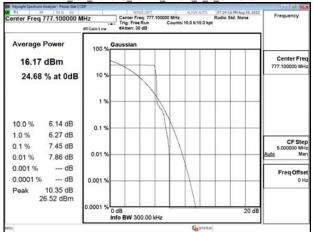
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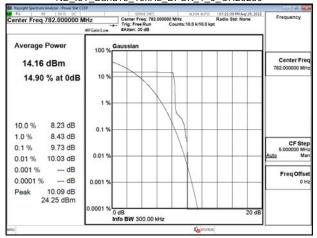


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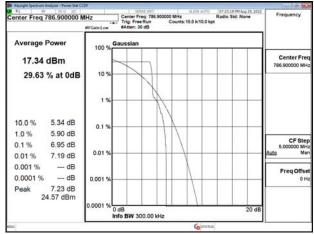




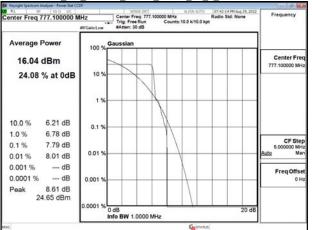
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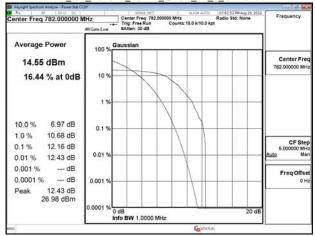
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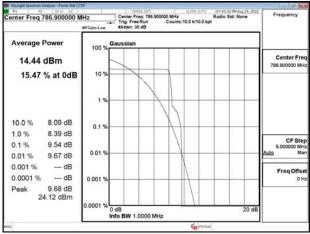
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NB_IoT_Band13_15kHz_QPSK_12_0_CH23230



NB IoT Band13 15kHz QPSK 12 0 CH23279



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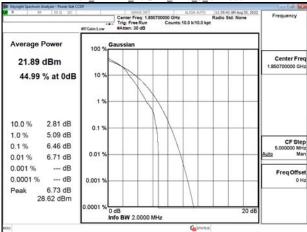
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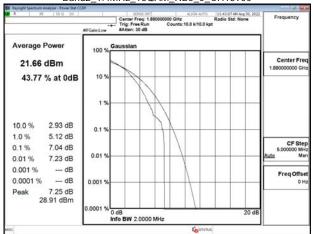


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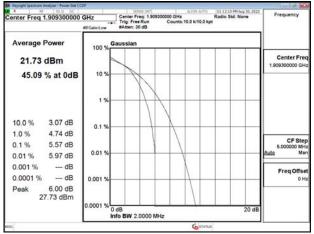




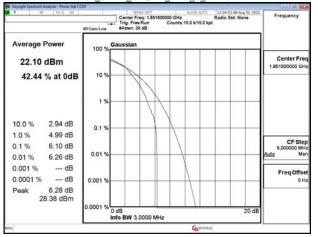
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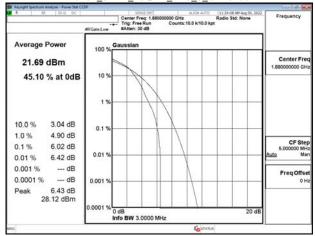
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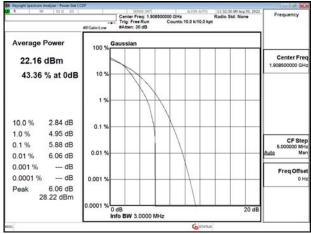
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Band2_3MHz_16QAM_RB5_0_CH18900



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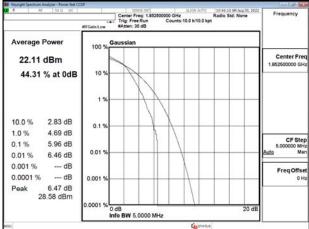
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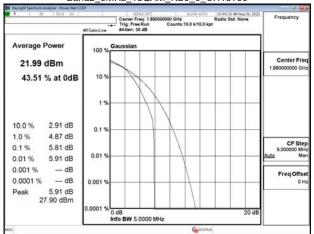


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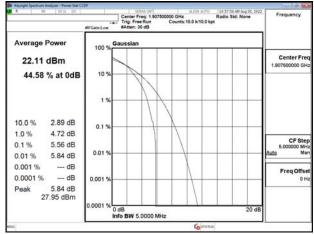




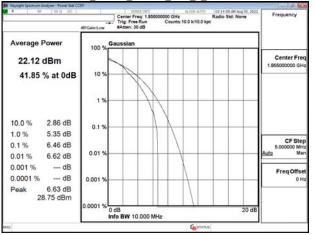
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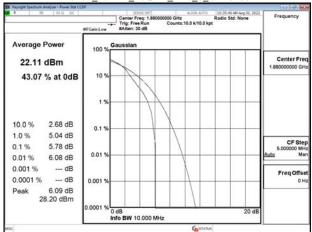
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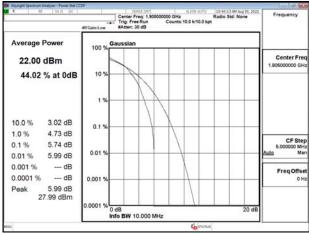
Band2_10MHz_16QAM_RB5_0_CH18650



Band2_10MHz_16QAM_RB5_0_CH18900



Band2 10MHz 16QAM RB5 0 CH19150



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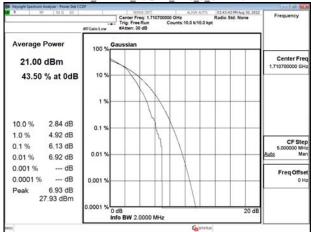
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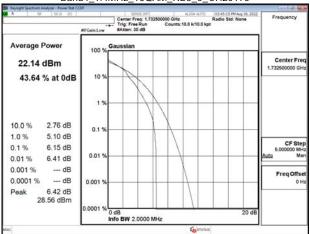


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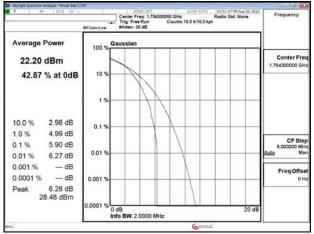




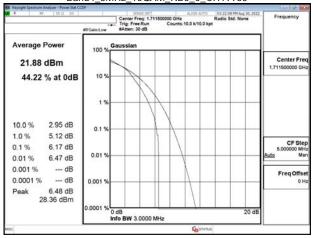
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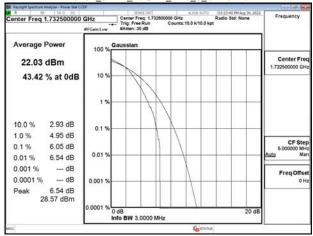
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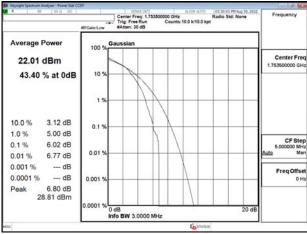
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Band4_3MHz_16QAM_RB5_0_CH20175



Band4 3MHz 16QAM RB5 0 CH20385



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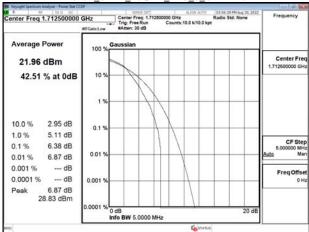
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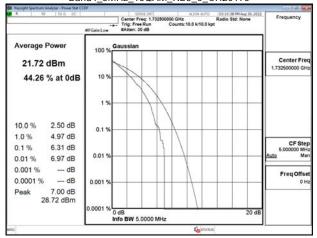


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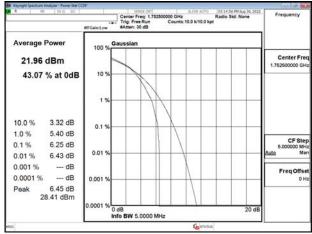




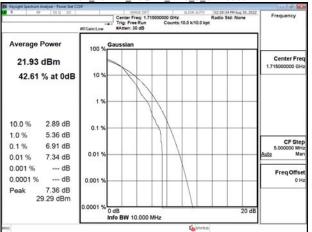
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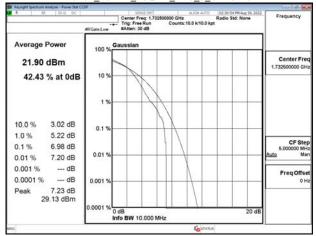
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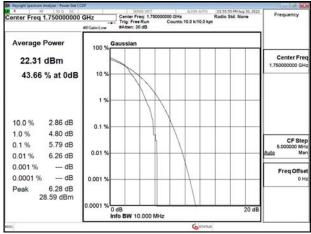
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Band4_10MHz_16QAM_RB5_0_CH20175



Band4 10MHz 16QAM RB5 0 CH20350



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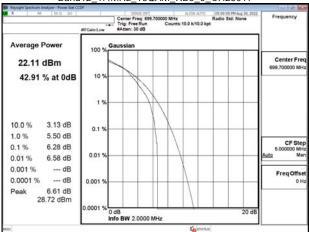
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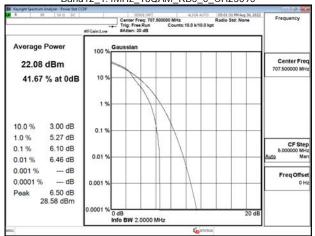


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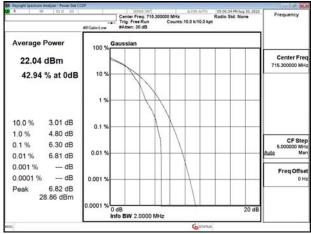




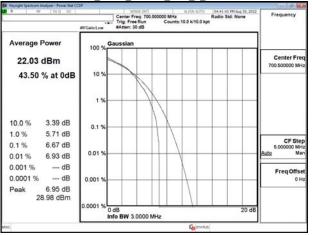
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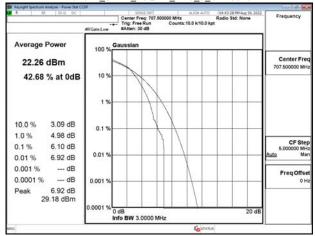
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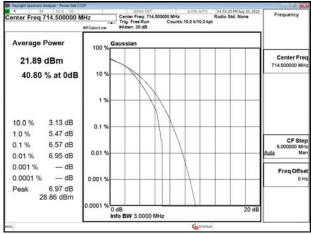
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Band12 3MHz 16QAM RB5 0 CH23095



Band12 3MHz 16QAM RB5 0 CH23165



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

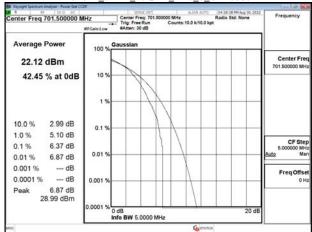
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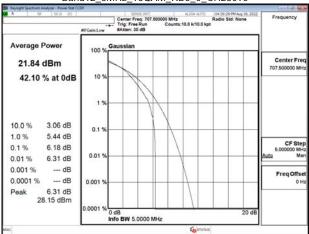


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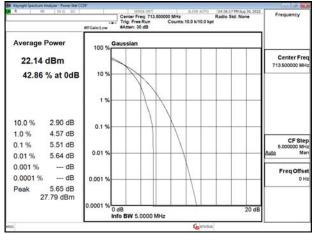




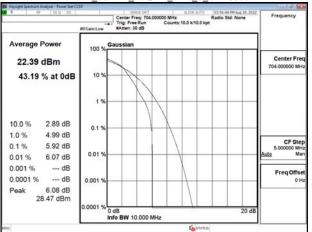
Band12_5MHz_16QAM_RB5_0_CH23095



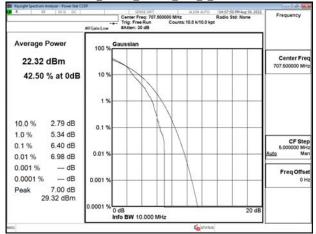
Band12 5MHz 16QAM RB5 0 CH23155



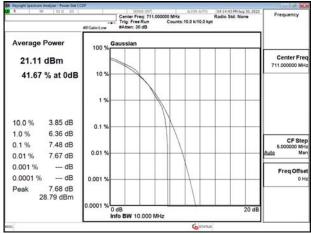
Band12_10MHz_16QAM_RB5_0_CH23060



Band12_10MHz_16QAM_RB5_0_CH23095



Band12 10MHz 16QAM RB5 0 CH23130



~ End of Report ~

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