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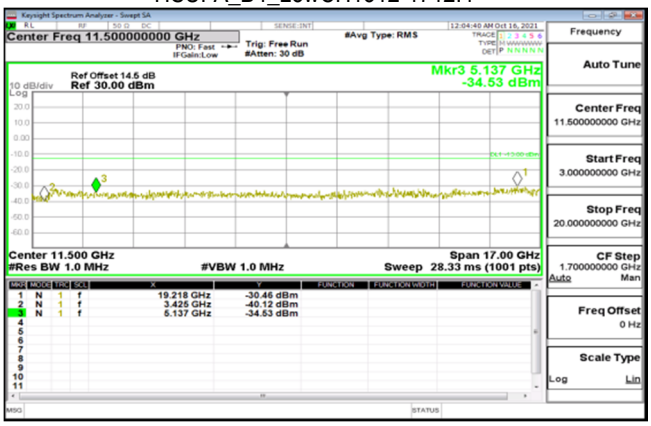

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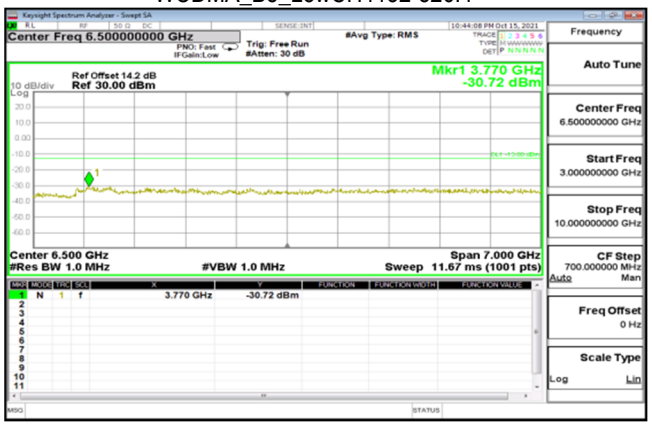

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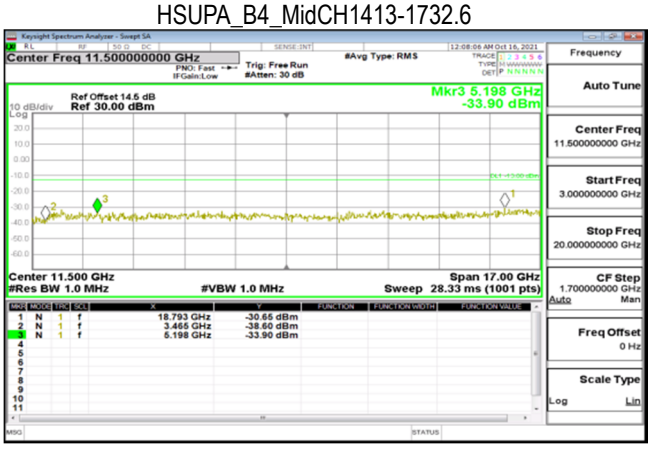

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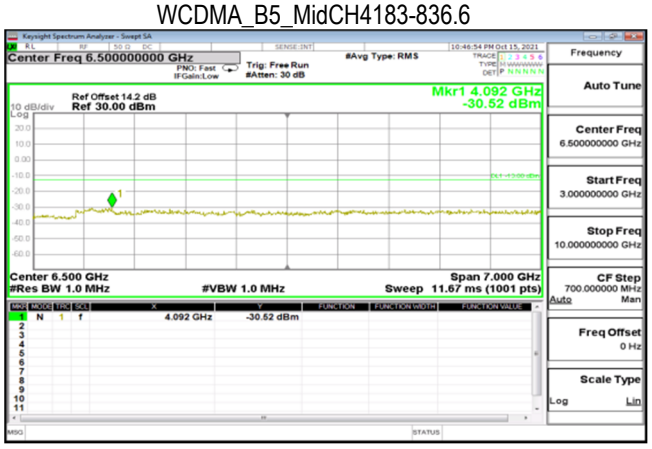

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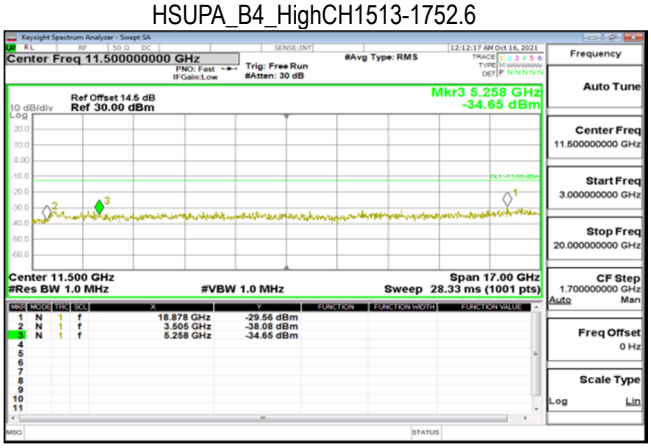
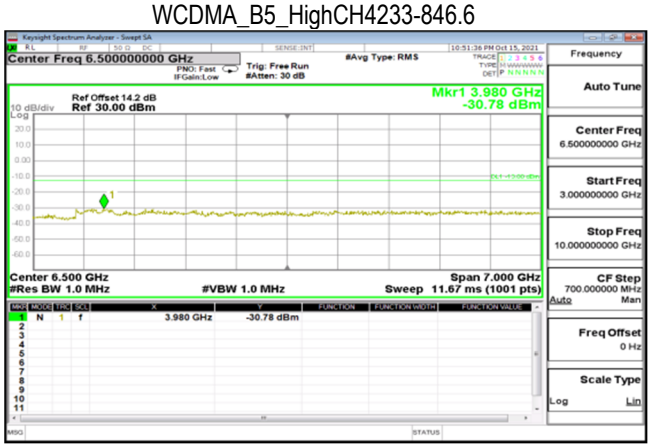


WCDMA_B5_HighCH4233-846.6



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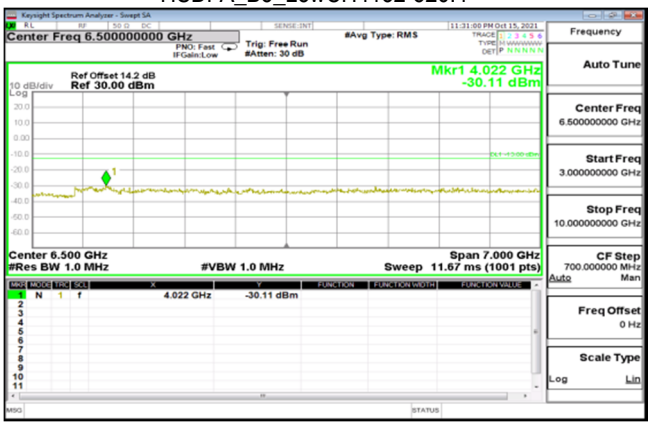

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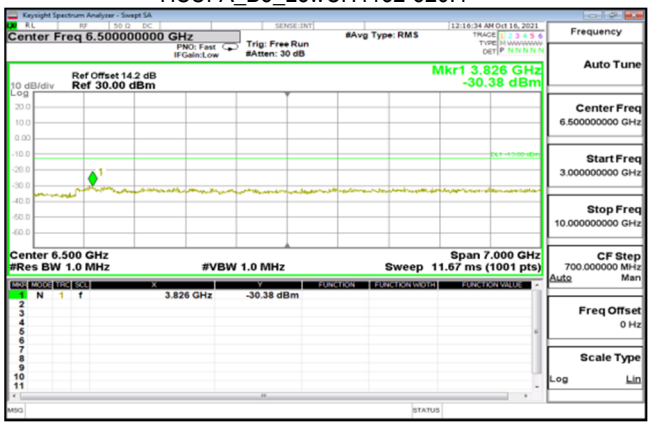

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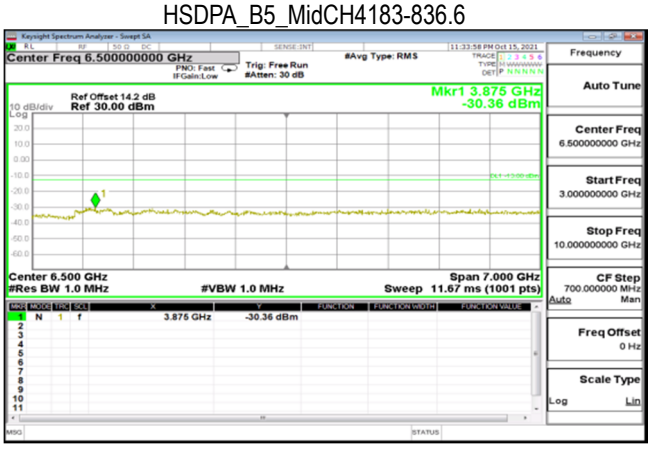

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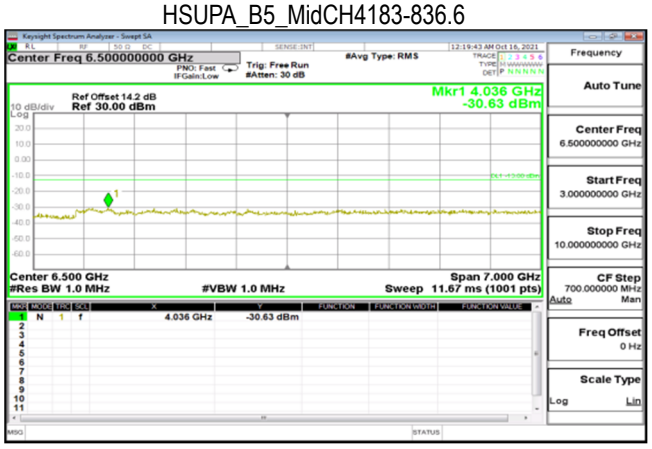

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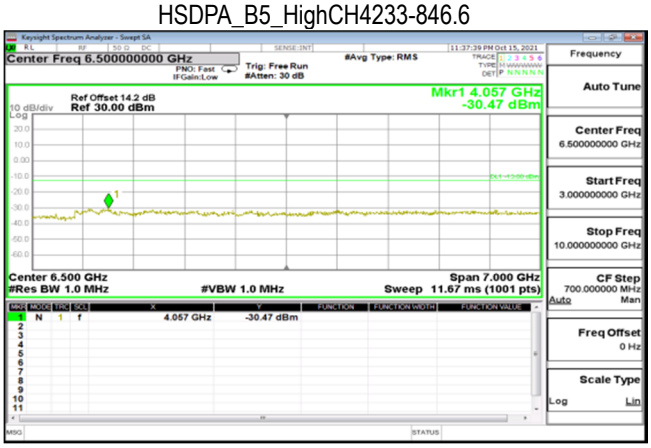

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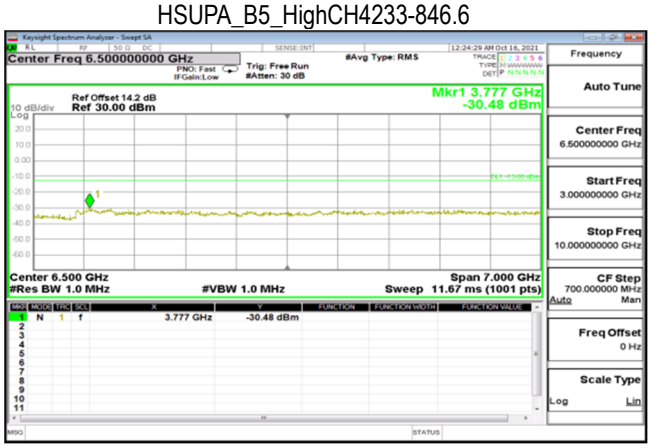

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9 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

9.1 Standard Applicable

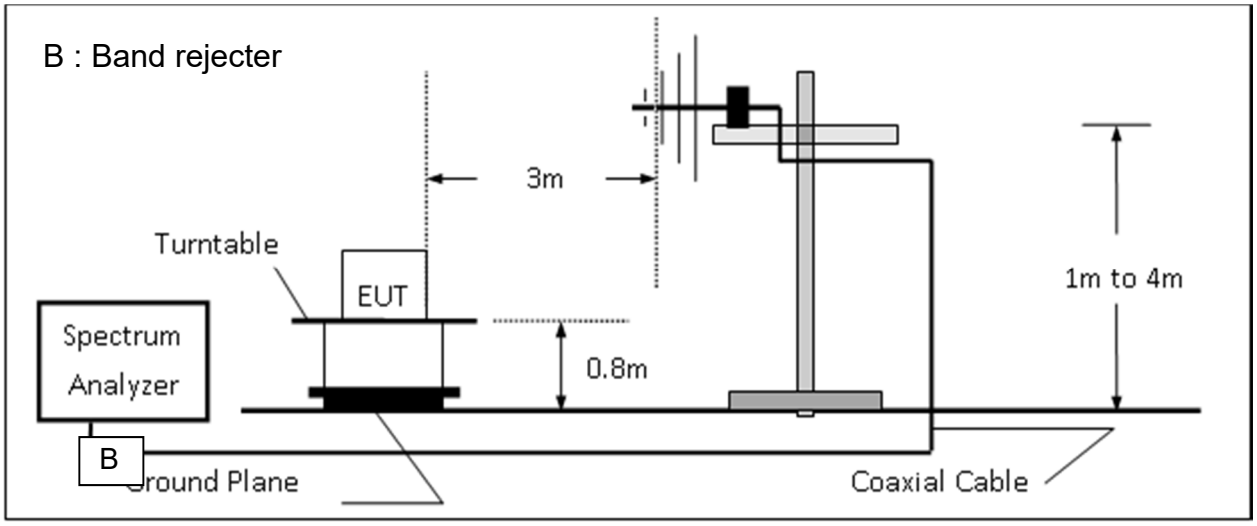
According to FCC §2.1053,

FCC §22.917(a), §24.238(a), §27.53(h) and RSS-132 §5.5, RSS-133 §6.5.1, RSS-139 §6.6

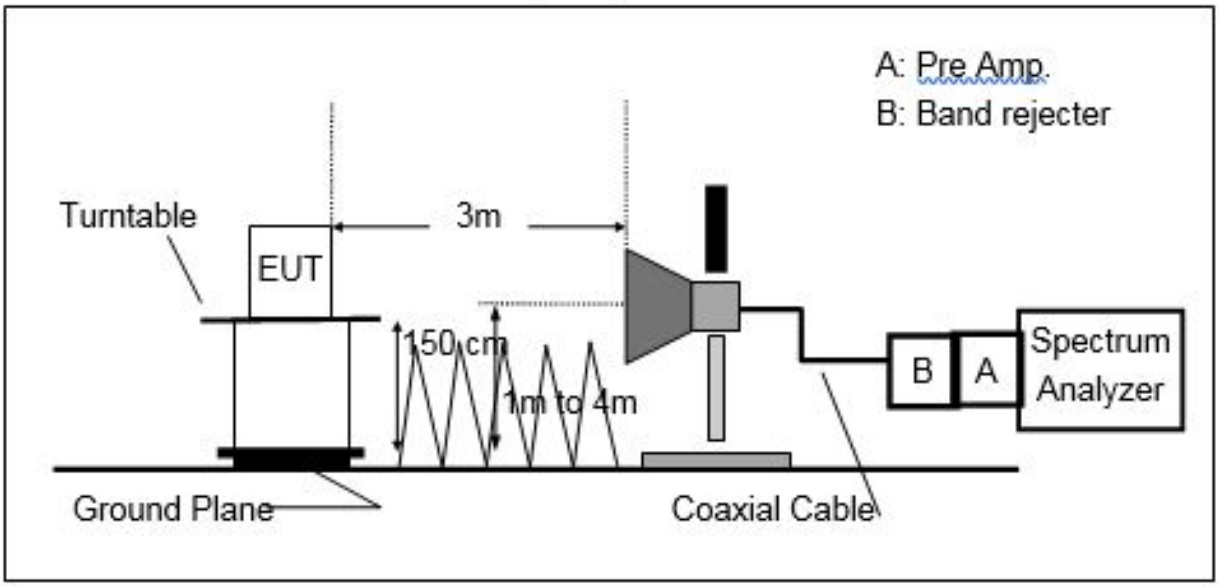
Out of band emissions.The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

9.2 EUT Setup

Radiated Emission Test Set-Up, Frequency Below 1000MHz



Radiated Emission Test Set-UP Frequency Over 1 GHz



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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.

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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9.4 Measurement Equipment Used:

Radiated Emission Test Site: SAC 1					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Bi-log Antenna	SCHWARZBECK	VULB9168	300	11/18/2020	11/17/2021
Horn Antenna	SCHWARZBECK	BBHA9120D	603	05/18/2021	05/17/2022
Horn Antenna	SCHWARZBECK	BBHA9170	184	12/11/2020	12/10/2021
Horn Antenna	SCHWARZBECK	BBHA9170	185	08/06/2021	08/05/2022
Site Cal	SGS	SAC I chamber	N/A	01/01/2021	12/31/2021
Horn Antenna	SCHWARZBECK	BBHA9120D	D803	12/17/2020	12/16/2021
Bi-log Antenna	TESEO	CBL 6112D	35242 & AT-N0555	01/13/2021	01/12/2022
Spectrum Analyzer	Agilent	E4446A	MY51100003	10/26/2020	10/25/2022
Radio Communication Analyer	Anritsu	MT8815B	6200711454	04/07/2021	04/06/2022
Radio Communication Analyer	Anritsu	MT8821C	6262044670	08/18/2021	08/17/2022
Test Software	Audix	e3	Ver. 9.210322	N.C.R	N.C.R
DC Power Supply	Agilent	E3640A	MY52410006	12/17/2020	12/16/2021
Pre-Amplifier	EMC Instruments	EMC184045B	980135	10/27/2021	10/26/2022
Pre-Amplifier	HP	8449B	3008A01973	12/16/2020	12/15/2021
Pre-Amplifier	HP	8447D	2944A09469	12/16/2020	12/15/2021
Bandreject Filter 800-1000	Micro-Tronics	EWT	M1	12/16/2020	12/15/2021
Bandreject Filter 1700-2000	Micro-Tronics	EWT	M3	12/16/2020	12/15/2021
3.2GHz High Pass Filter	WI	WHKX10-2624-80SS	3	04/20/2021	04/19/2022
7GHz High Pass Filter	WI	WHKX10-6090-80SS	3	04/20/2021	04/19/2022
Coaxial Cable	Huber Suhner	succoflex 102	MY2622/2	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	succoflex 104A	800086/4a	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	EMC 104-SM-SM-2000	160123	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 104	160125	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 106	76096/6	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY2630/2	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 102	MY22962/2	12/16/2020	12/15/2021
Coaxial Cable	Huber Suhner	SUCOFLEX 102	SN 520430/2	12/16/2020	12/15/2021

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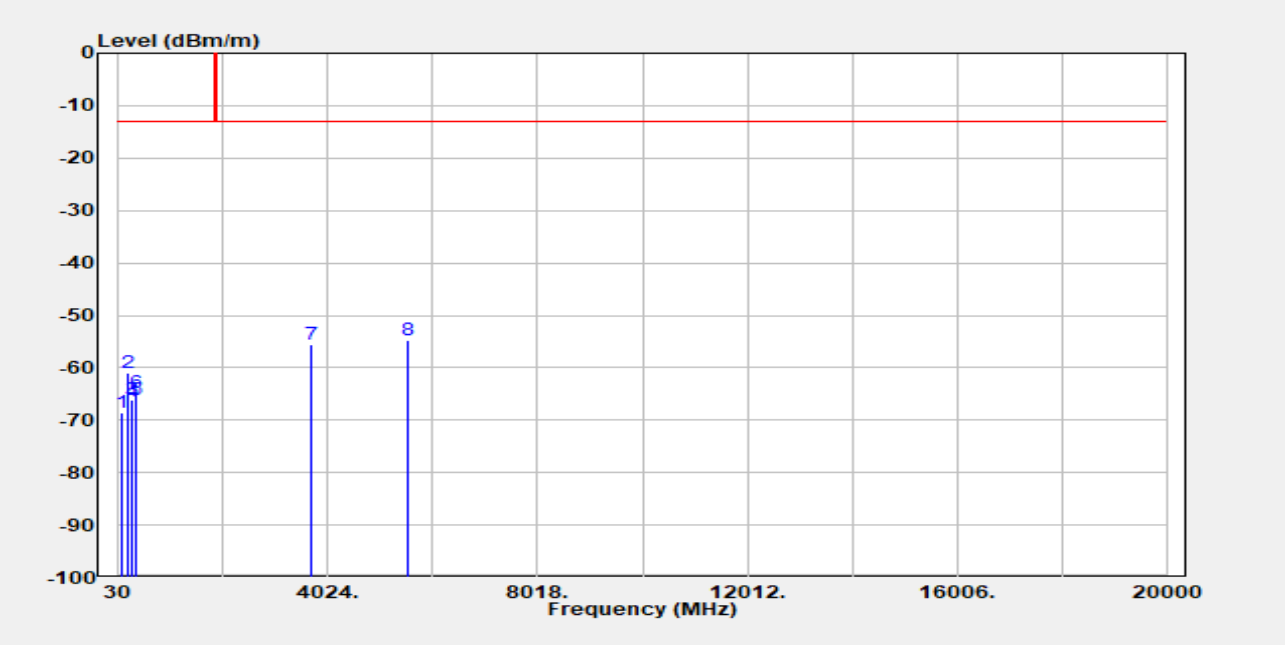
9.5 Measurement Result:

Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B2	Test Date	:2021-11-12
Test Mode	:Tx CH Low	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Vertical
Test Frequency	:1852.4 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
101.13	-68.69	-66.79	-0.88	-1.02	-13.00	-55.69
222.38	-60.89	-64.42	5.03	-1.50	-13.00	-47.89
269.27	-66.24	-68.73	4.14	-1.64	-13.00	-53.24
296.75	-66.46	-68.82	4.13	-1.77	-13.00	-53.46
348.48	-66.22	-68.73	4.52	-2.01	-13.00	-53.22
371.12	-64.85	-67.21	4.35	-1.99	-13.00	-51.85
3704.80	-55.55	-60.33	12.31	-7.53	-13.00	-42.55
5557.20	-54.63	-58.00	12.91	-9.55	-13.00	-41.63

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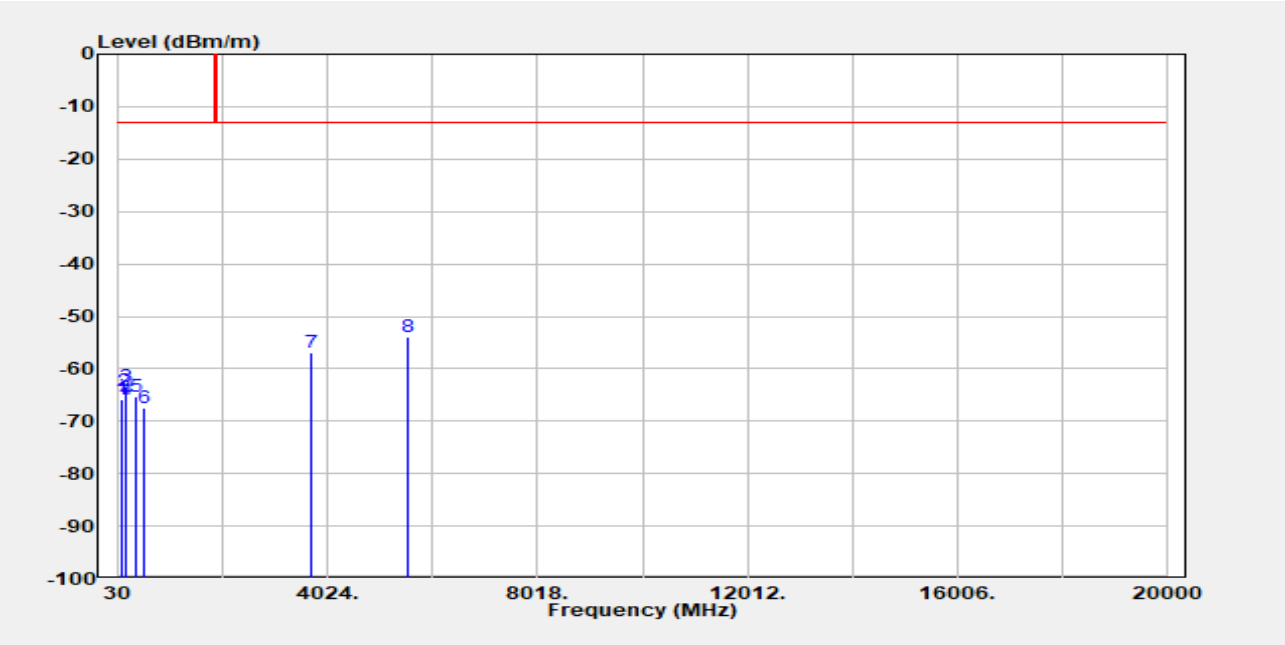
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B2	Test Date	:2021-11-12
Test Mode	:Tx CH Low	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Horizontal
Test Frequency	:1852.4 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-65.95	-64.54	-0.43	-0.98	-13.00	-52.95
149.63	-64.18	-61.42	-1.62	-1.15	-13.00	-51.18
164.18	-63.53	-61.39	-0.88	-1.26	-13.00	-50.53
181.97	-65.78	-66.27	1.87	-1.39	-13.00	-52.78
348.48	-65.21	-67.72	4.52	-2.01	-13.00	-52.21
519.85	-67.60	-69.50	4.10	-2.20	-13.00	-54.60
3704.80	-56.79	-61.57	12.31	-7.53	-13.00	-43.79
5557.20	-53.94	-57.31	12.91	-9.55	-13.00	-40.94

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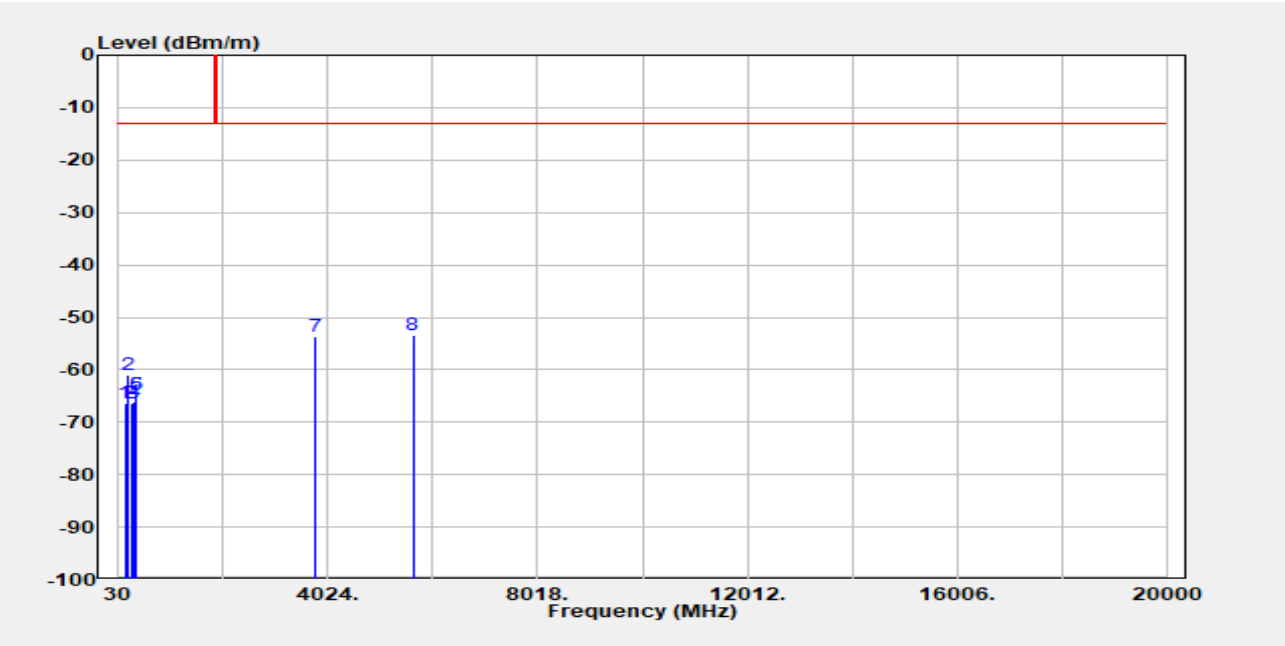
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B2	Test Date	:2021-11-12
Test Mode	:Tx CH Mid	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Vertical
Test Frequency	:1880 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
149.63	-66.36	-63.59	-1.62	-1.15	-13.00	-53.36
222.38	-60.99	-64.51	5.03	-1.50	-13.00	-47.99
269.27	-66.34	-68.84	4.14	-1.64	-13.00	-53.34
335.55	-66.20	-68.59	4.28	-1.90	-13.00	-53.20
348.48	-64.88	-67.39	4.52	-2.01	-13.00	-51.88
371.12	-64.85	-67.20	4.35	-1.99	-13.00	-51.85
3760.00	-53.64	-58.41	12.40	-7.63	-13.00	-40.64
5640.00	-53.40	-57.17	13.00	-9.23	-13.00	-40.40

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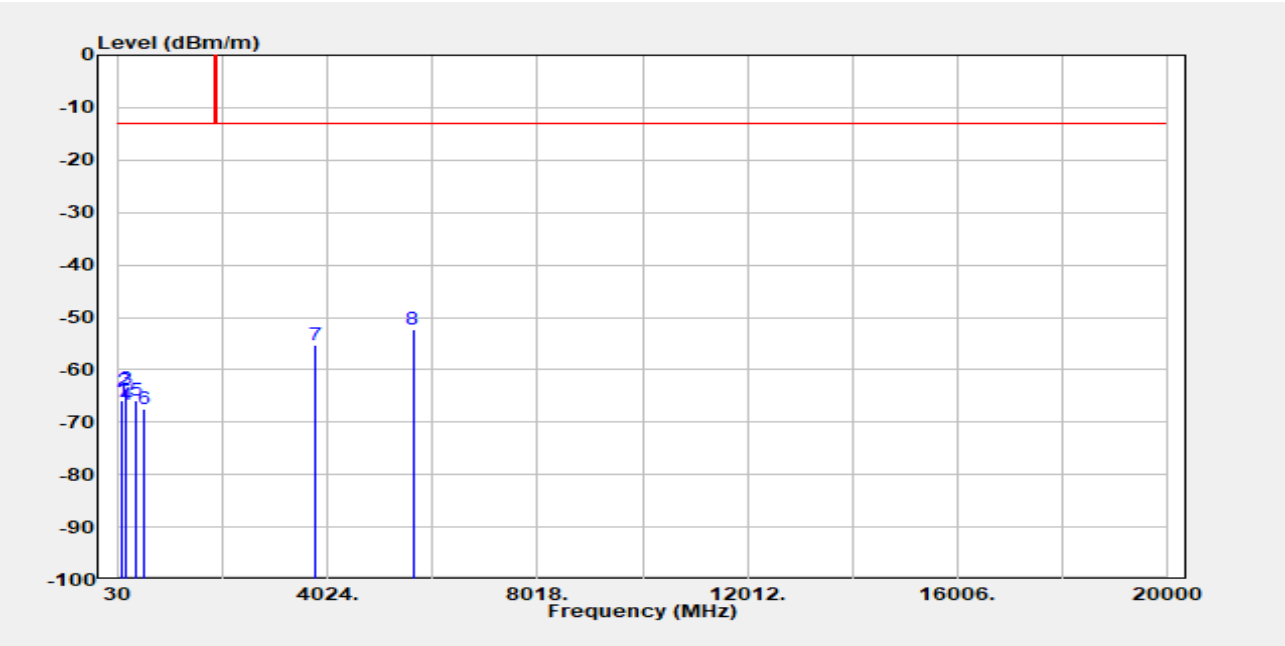
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B2	Test Date	:2021-11-12
Test Mode	:Tx CH Mid	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Horizontal
Test Frequency	:1880 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-65.75	-64.34	-0.43	-0.98	-13.00	-52.75
149.63	-63.92	-61.15	-1.62	-1.15	-13.00	-50.92
164.18	-63.73	-61.60	-0.88	-1.26	-13.00	-50.73
181.97	-66.75	-67.24	1.87	-1.39	-13.00	-53.75
348.48	-65.96	-68.47	4.52	-2.01	-13.00	-52.96
519.85	-67.40	-69.30	4.10	-2.20	-13.00	-54.40
3760.00	-55.17	-59.94	12.40	-7.63	-13.00	-42.17
5640.00	-52.18	-55.95	13.00	-9.23	-13.00	-39.18

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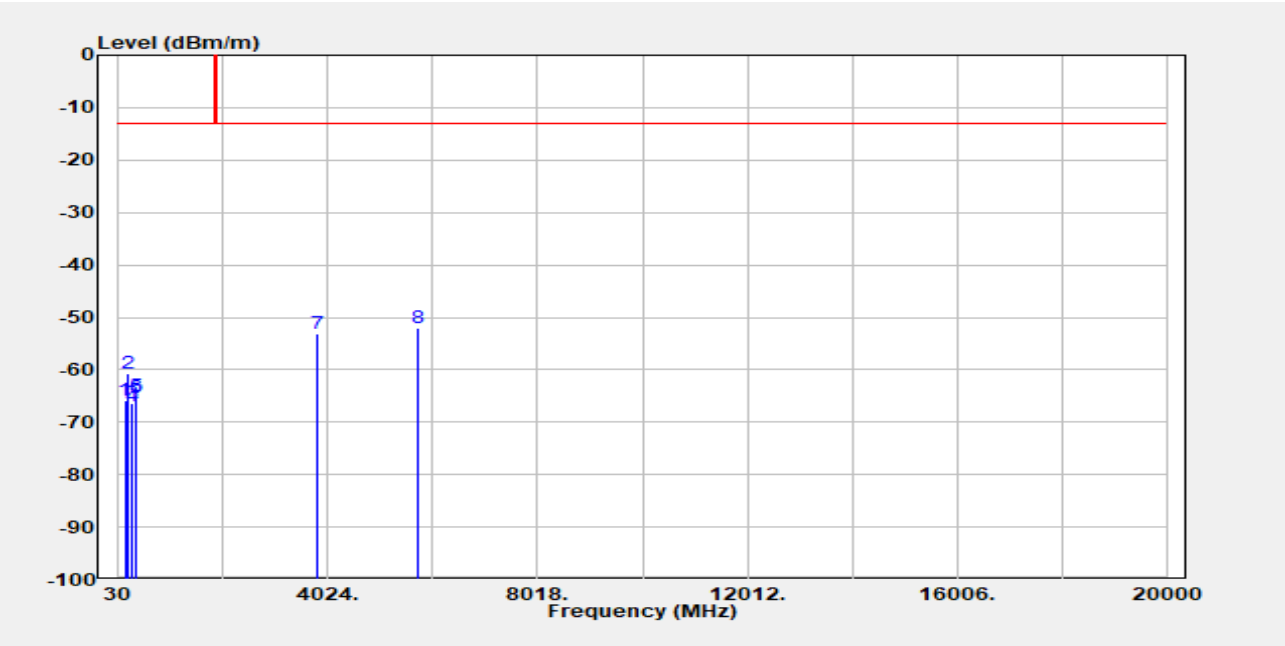
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B2	Test Date	:2021-11-12
Test Mode	:Tx CH High	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Vertical
Test Frequency	:1907.6 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
149.63	-65.94	-63.17	-1.62	-1.15	-13.00	-52.94
222.38	-60.75	-64.28	5.03	-1.50	-13.00	-47.75
269.27	-66.47	-68.97	4.14	-1.64	-13.00	-53.47
296.75	-66.81	-69.17	4.13	-1.77	-13.00	-53.81
348.48	-65.07	-67.58	4.52	-2.01	-13.00	-52.07
371.12	-65.18	-67.54	4.35	-1.99	-13.00	-52.18
3815.20	-53.02	-57.73	12.37	-7.66	-13.00	-40.02
5722.80	-52.05	-55.80	12.80	-9.05	-13.00	-39.05

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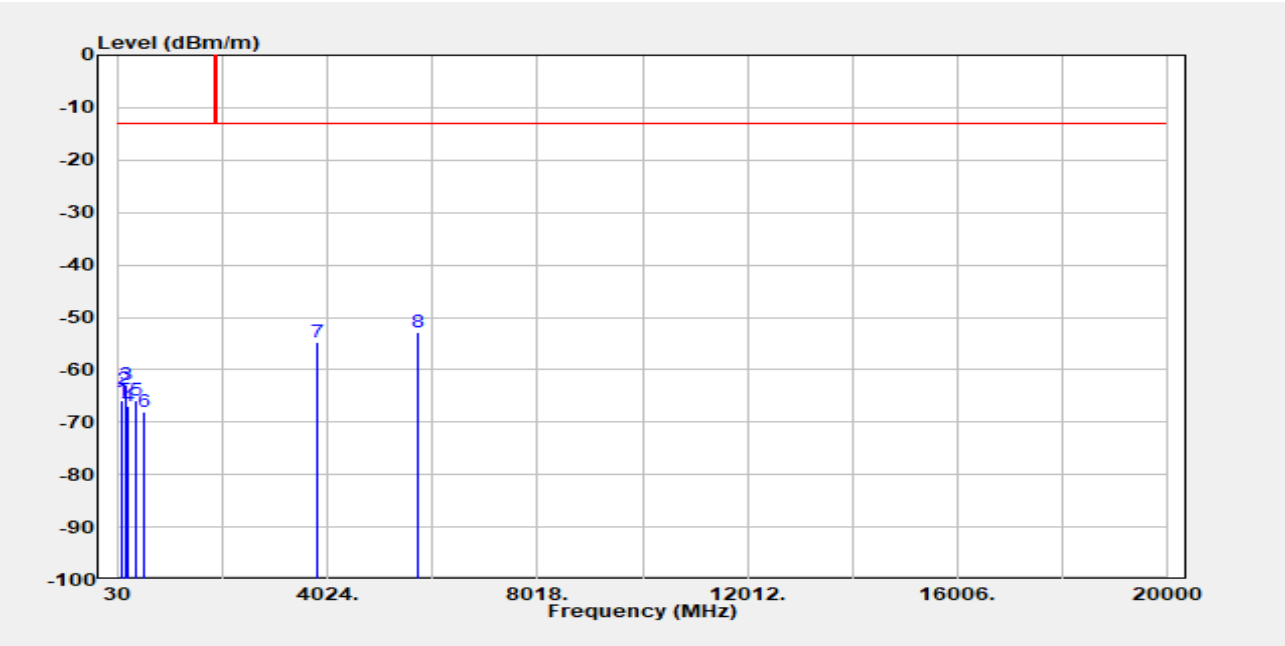
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B2	Test Date	:2021-11-12
Test Mode	:Tx CH High	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Horizontal
Test Frequency	:1907.6 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-65.95	-64.54	-0.43	-0.98	-13.00	-52.95
149.63	-63.77	-61.01	-1.62	-1.15	-13.00	-50.77
164.18	-62.88	-60.74	-0.88	-1.26	-13.00	-49.88
191.67	-66.87	-68.93	3.50	-1.43	-13.00	-53.87
348.48	-65.79	-68.30	4.52	-2.01	-13.00	-52.79
519.85	-68.01	-69.91	4.10	-2.20	-13.00	-55.01
3815.20	-54.84	-59.55	12.37	-7.66	-13.00	-41.84
5722.80	-52.86	-56.61	12.80	-9.05	-13.00	-39.86

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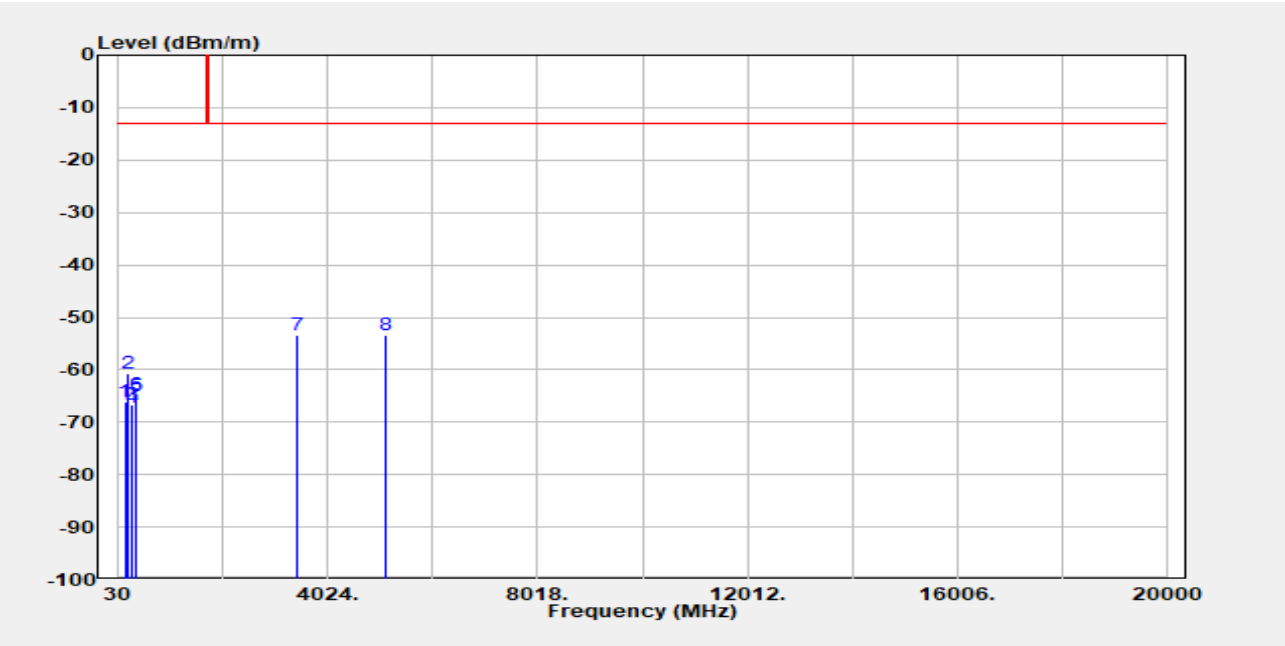
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B4	Test Date	:2021-11-12
Test Mode	:Tx CH Low	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Vertical
Test Frequency	:1712.4 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
149.63	-66.13	-63.36	-1.62	-1.15	-13.00	-53.13
222.38	-60.75	-64.27	5.03	-1.50	-13.00	-47.75
269.27	-66.62	-69.12	4.14	-1.64	-13.00	-53.62
296.75	-67.17	-69.53	4.13	-1.77	-13.00	-54.17
348.48	-64.96	-67.48	4.52	-2.01	-13.00	-51.96
371.12	-64.64	-67.00	4.35	-1.99	-13.00	-51.64
3424.80	-53.46	-60.16	12.55	-5.85	-13.01	-40.45
5137.20	-53.26	-57.40	12.10	-7.95	-13.01	-40.25

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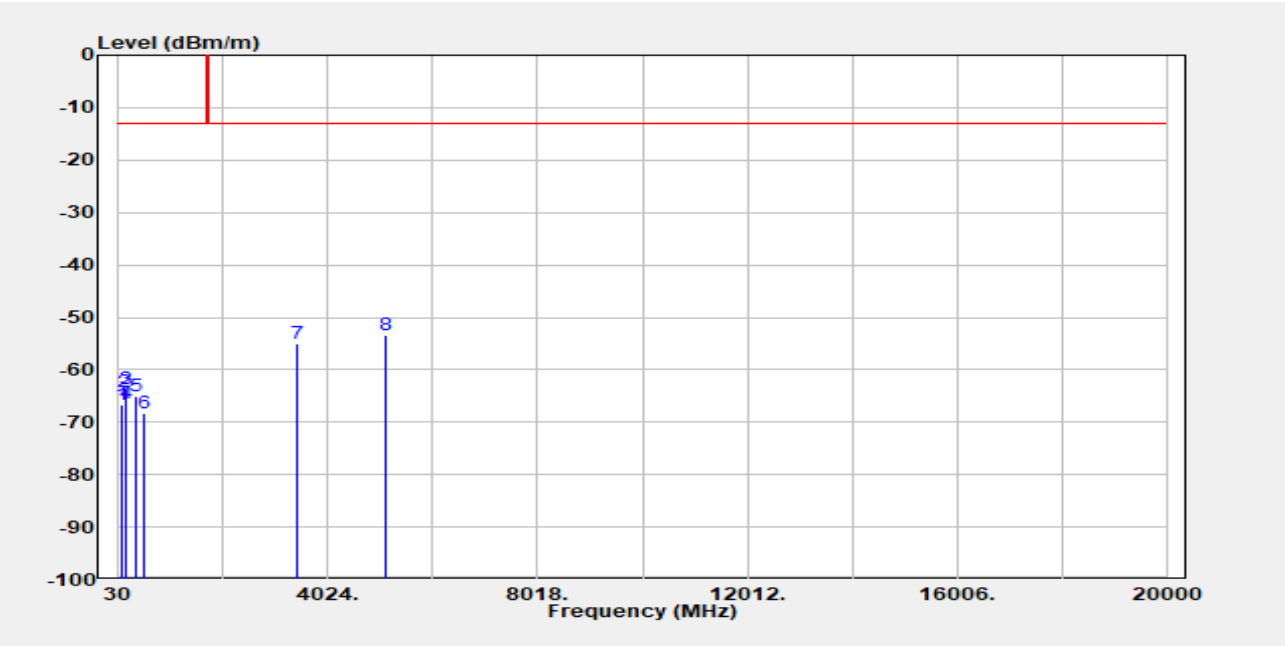
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B4	Test Date	:2021-11-12
Test Mode	:Tx CH Low	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Horizontal
Test Frequency	:1712.4 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-66.71	-65.30	-0.43	-0.98	-13.00	-53.71
149.63	-64.22	-61.45	-1.62	-1.15	-13.00	-51.22
164.18	-63.66	-61.53	-0.88	-1.26	-13.00	-50.66
181.97	-66.32	-66.80	1.87	-1.39	-13.00	-53.32
348.48	-65.06	-67.57	4.52	-2.01	-13.00	-52.06
519.85	-68.32	-70.22	4.10	-2.20	-13.00	-55.32
3424.80	-54.99	-61.69	12.55	-5.85	-13.01	-41.98
5137.20	-53.27	-57.42	12.10	-7.95	-13.01	-40.26

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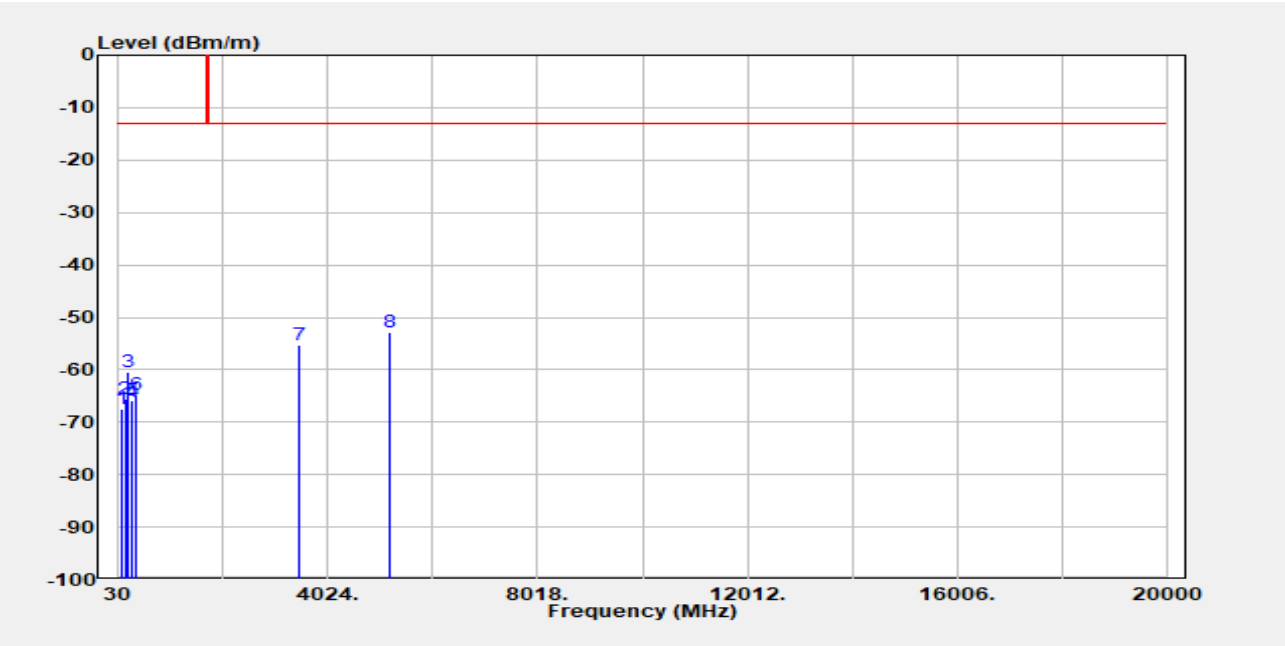
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B4	Test Date	:2021-11-12
Test Mode	:Tx CH Mid	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Vertical
Test Frequency	:1732.4 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-67.52	-66.11	-0.43	-0.98	-13.00	-54.52
149.63	-65.67	-62.90	-1.62	-1.15	-13.00	-52.67
222.38	-60.48	-64.00	5.03	-1.50	-13.00	-47.48
269.27	-66.13	-68.63	4.14	-1.64	-13.00	-53.13
296.75	-65.97	-68.33	4.13	-1.77	-13.00	-52.97
371.12	-64.78	-67.13	4.35	-1.99	-13.00	-51.78
3464.80	-55.39	-61.76	12.47	-6.10	-13.01	-42.38
5197.20	-52.86	-57.37	12.38	-7.88	-13.01	-39.85

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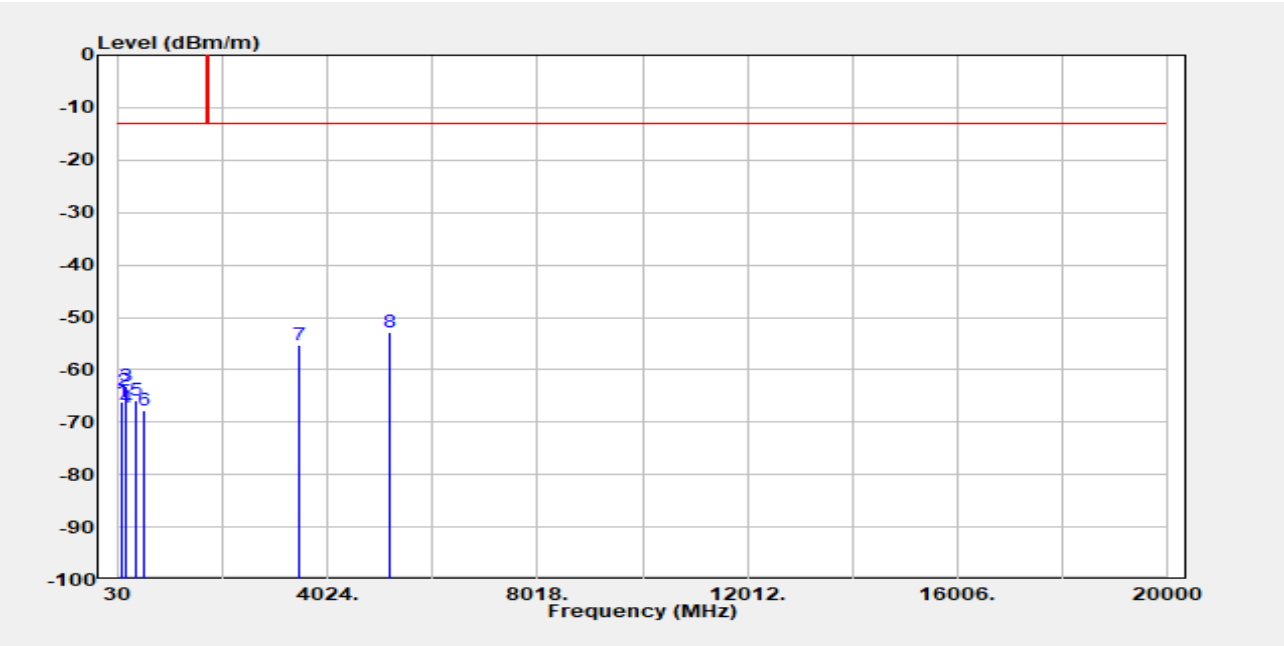
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B4	Test Date	:2021-11-12
Test Mode	:Tx CH Mid	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Horizontal
Test Frequency	:1732.4 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-66.04	-64.63	-0.43	-0.98	-13.00	-53.04
149.63	-64.06	-61.29	-1.62	-1.15	-13.00	-51.06
164.18	-63.22	-61.08	-0.88	-1.26	-13.00	-50.22
185.20	-67.14	-68.11	2.37	-1.41	-13.00	-54.14
348.48	-65.80	-68.31	4.52	-2.01	-13.00	-52.80
519.85	-67.77	-69.67	4.10	-2.20	-13.00	-54.77
3464.80	-55.21	-61.58	12.47	-6.10	-13.01	-42.20
5197.20	-52.83	-57.33	12.38	-7.88	-13.01	-39.82

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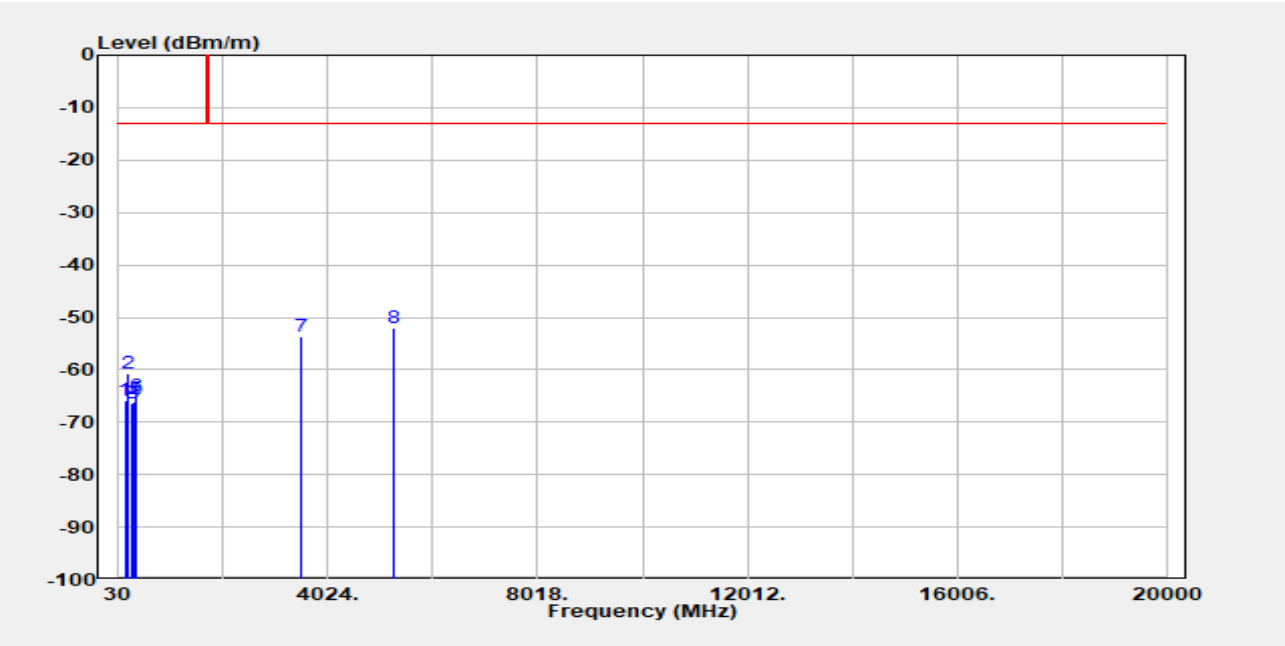
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B4	Test Date	:2021-11-12
Test Mode	:Tx CH High	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Vertical
Test Frequency	:1752.6 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
149.63	-65.80	-63.03	-1.62	-1.15	-13.00	-52.80
222.38	-60.72	-64.25	5.03	-1.50	-13.00	-47.72
269.27	-66.38	-68.87	4.14	-1.64	-13.00	-53.38
335.55	-66.25	-68.63	4.28	-1.90	-13.00	-53.25
348.48	-65.57	-68.08	4.52	-2.01	-13.00	-52.57
371.12	-65.13	-67.49	4.35	-1.99	-13.00	-52.13
3505.20	-53.77	-59.83	12.40	-6.34	-13.01	-40.76
5257.80	-51.95	-56.72	12.83	-8.06	-13.01	-38.94

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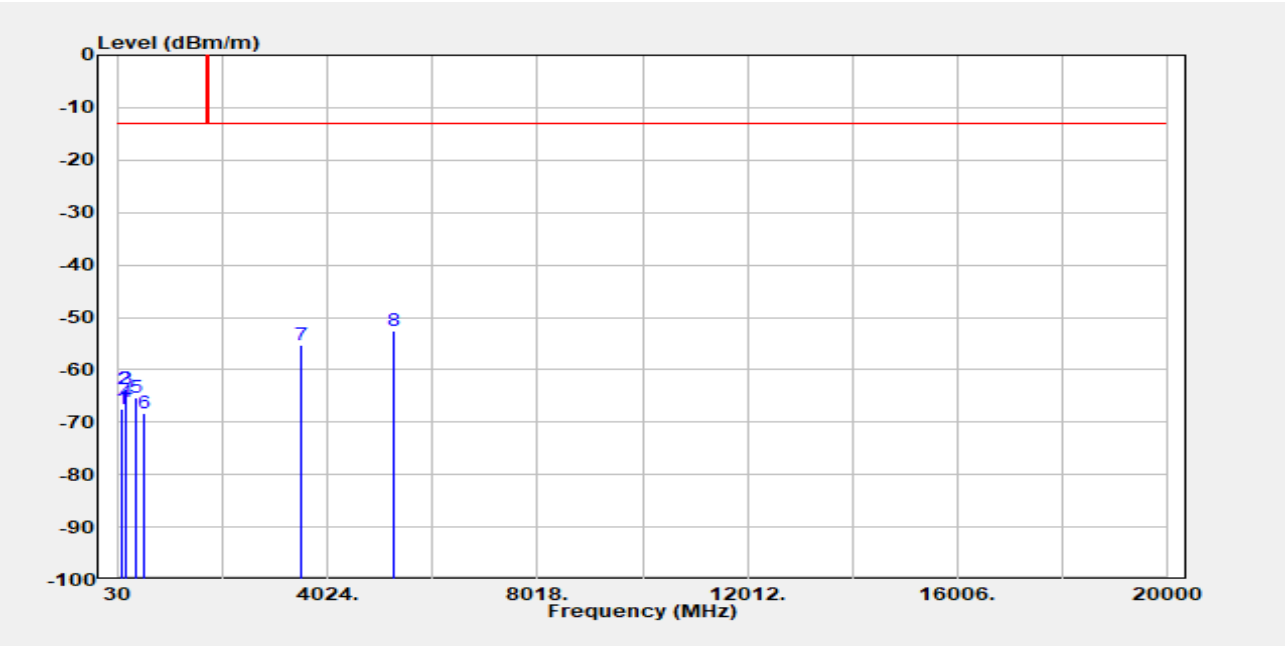
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B4	Test Date	:2021-11-12
Test Mode	:Tx CH High	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Horizontal
Test Frequency	:1752.6 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-67.42	-66.01	-0.43	-0.98	-13.00	-54.42
149.63	-63.78	-61.01	-1.62	-1.15	-13.00	-50.78
164.18	-63.78	-61.64	-0.88	-1.26	-13.00	-50.78
185.20	-66.19	-67.16	2.37	-1.41	-13.00	-53.19
348.48	-65.39	-67.90	4.52	-2.01	-13.00	-52.39
519.85	-68.26	-70.16	4.10	-2.20	-13.00	-55.26
3505.20	-55.23	-61.29	12.40	-6.34	-13.01	-42.22
5257.80	-52.63	-57.40	12.83	-8.06	-13.01	-39.62

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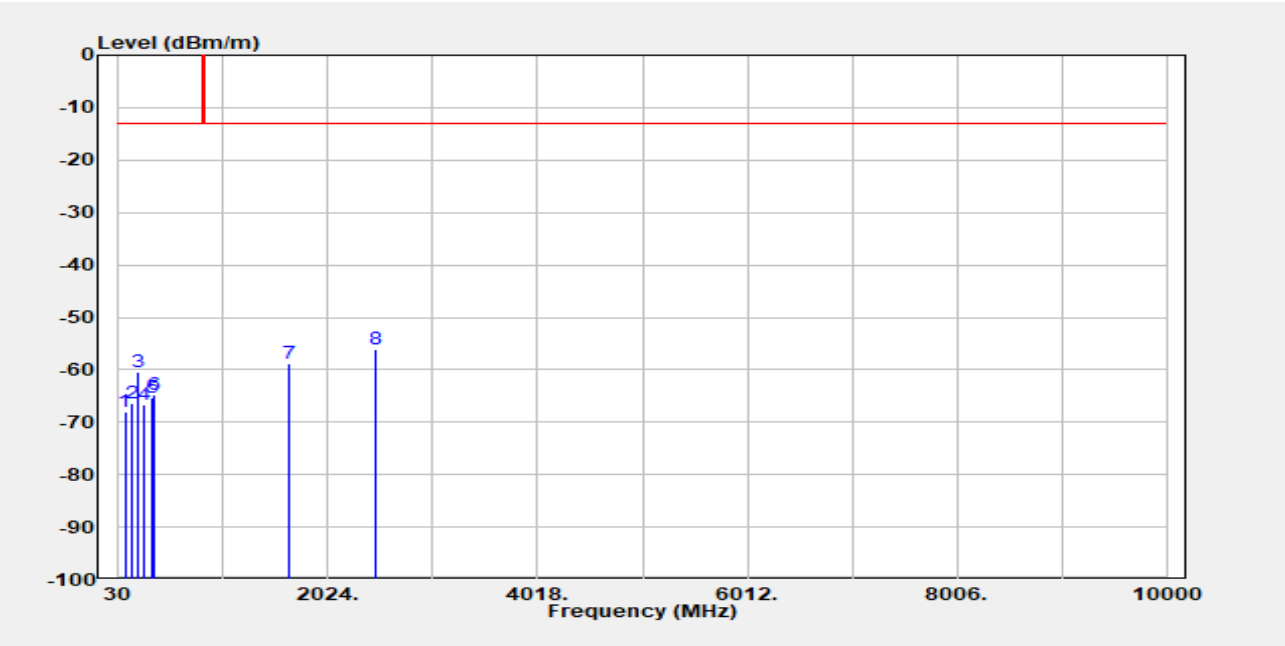
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B5	Test Date	:2021-11-12
Test Mode	:Tx CH Low	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Vertical
Test Frequency	:826.4 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-68.14	-66.73	-0.43	-0.98	-13.00	-55.14
149.63	-66.35	-63.58	-1.62	-1.15	-13.00	-53.35
222.38	-60.56	-64.08	5.03	-1.50	-13.00	-47.56
269.27	-66.68	-69.18	4.14	-1.64	-13.00	-53.68
348.48	-65.41	-67.93	4.52	-2.01	-13.00	-52.41
371.12	-64.85	-67.21	4.35	-1.99	-13.00	-51.85
1652.80	-58.80	-64.04	9.51	-4.26	-13.00	-45.80
2479.20	-55.97	-61.36	10.56	-5.17	-13.00	-42.97

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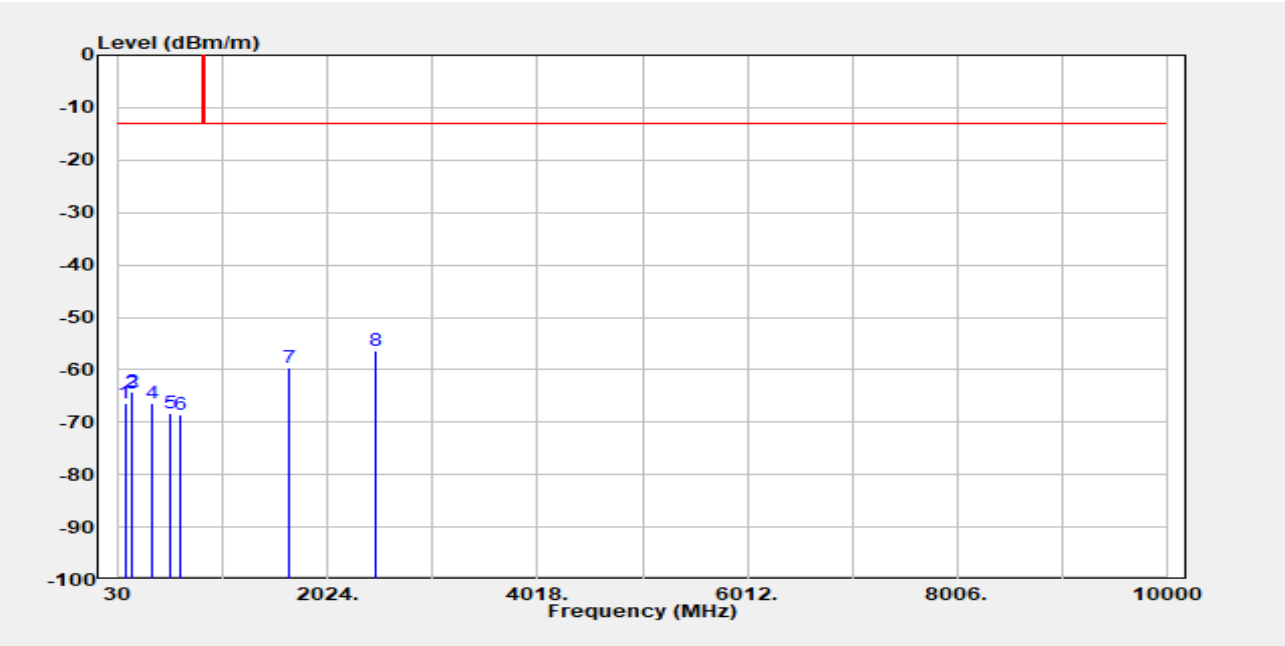
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B5	Test Date	:2021-11-12
Test Mode	:Tx CH Low	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Horizontal
Test Frequency	:826.4 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-66.51	-65.10	-0.43	-0.98	-13.00	-53.51
149.63	-64.29	-61.52	-1.62	-1.15	-13.00	-51.29
164.18	-64.56	-62.43	-0.88	-1.26	-13.00	-51.56
348.48	-66.35	-68.86	4.52	-2.01	-13.00	-53.35
519.85	-68.38	-70.28	4.10	-2.20	-13.00	-55.38
610.38	-68.52	-69.51	3.48	-2.50	-13.00	-55.52
1652.80	-59.75	-65.00	9.51	-4.26	-13.00	-46.75
2479.20	-56.31	-61.70	10.56	-5.17	-13.00	-43.31

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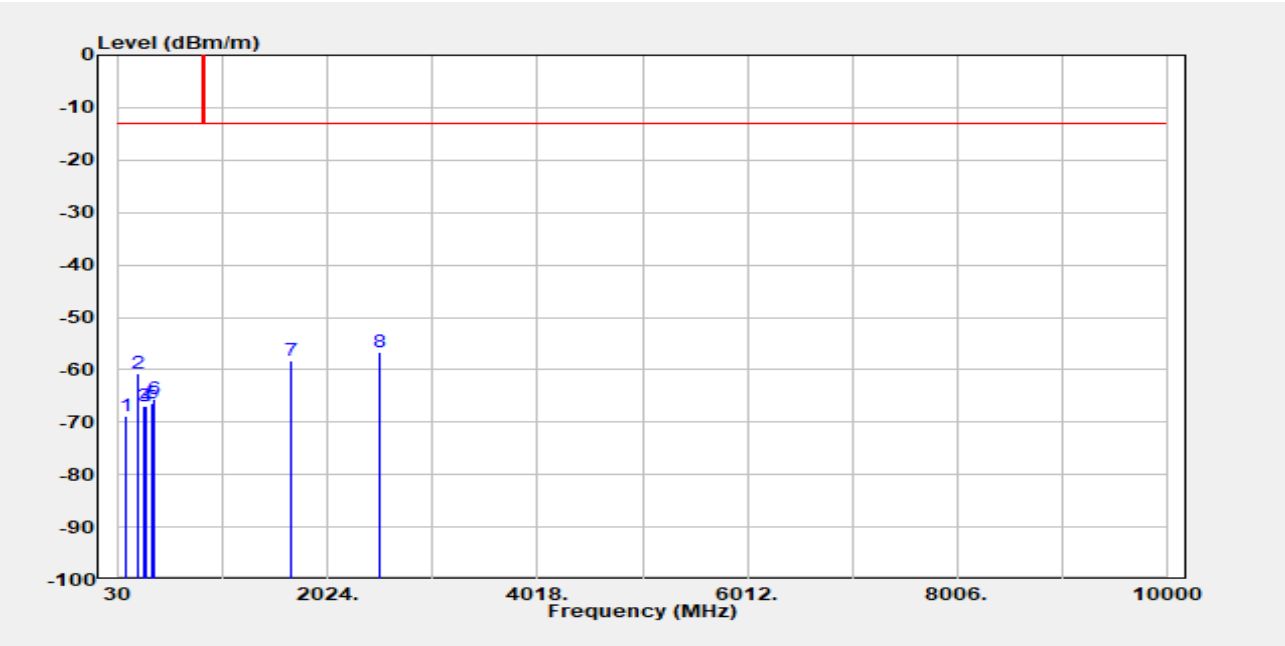
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B5	Test Date	:2021-11-12
Test Mode	:Tx CH Mid	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Vertical
Test Frequency	:836.6 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
107.60	-68.92	-66.45	-1.42	-1.04	-13.00	-55.92
222.38	-60.71	-64.23	5.03	-1.50	-13.00	-47.71
269.27	-66.89	-69.39	4.14	-1.64	-13.00	-53.89
296.75	-67.07	-69.43	4.13	-1.77	-13.00	-54.07
348.48	-66.50	-69.01	4.52	-2.01	-13.00	-53.50
371.12	-65.51	-67.86	4.35	-1.99	-13.00	-52.51
1673.20	-58.34	-63.60	9.55	-4.29	-13.00	-45.34
2509.80	-56.70	-62.12	10.62	-5.20	-13.00	-43.70

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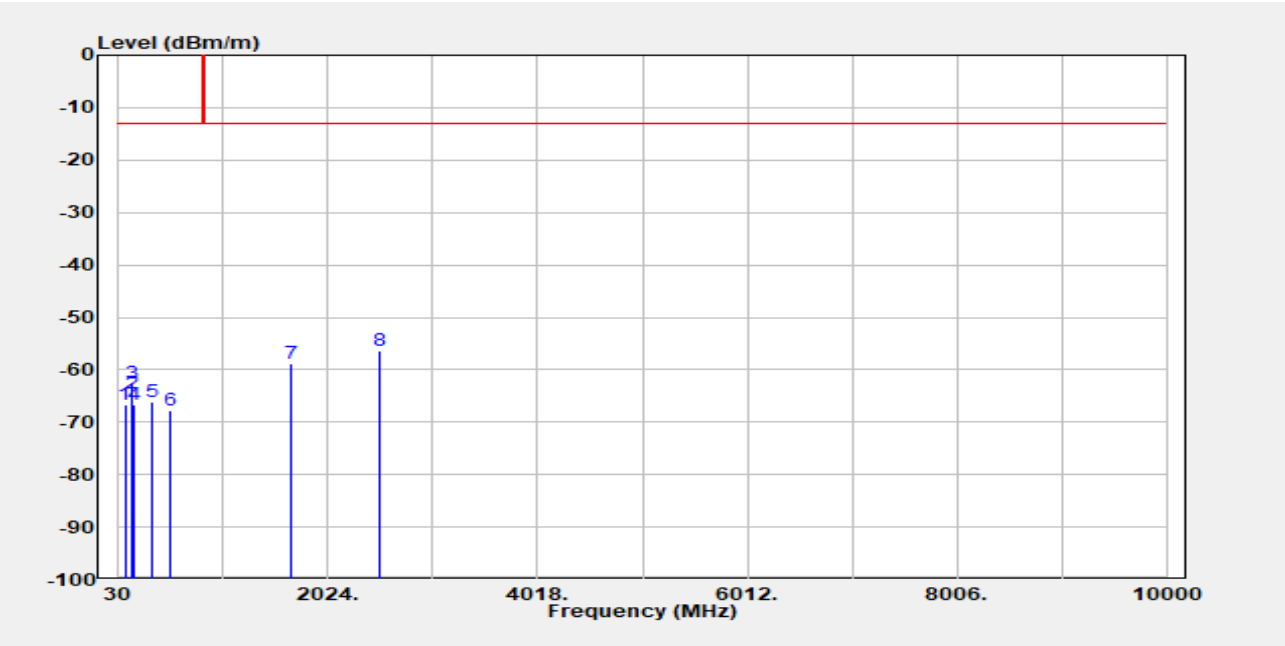
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B5	Test Date	:2021-11-12
Test Mode	:Tx CH Mid	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Horizontal
Test Frequency	:836.6 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-66.55	-65.14	-0.43	-0.98	-13.00	-53.55
149.63	-64.45	-61.68	-1.62	-1.15	-13.00	-51.45
164.18	-62.71	-60.57	-0.88	-1.26	-13.00	-49.71
181.97	-66.65	-67.14	1.87	-1.39	-13.00	-53.65
348.48	-66.11	-68.62	4.52	-2.01	-13.00	-53.11
519.85	-67.71	-69.61	4.10	-2.20	-13.00	-54.71
1673.20	-58.86	-64.12	9.55	-4.29	-13.00	-45.86
2509.80	-56.26	-61.68	10.62	-5.20	-13.00	-43.26

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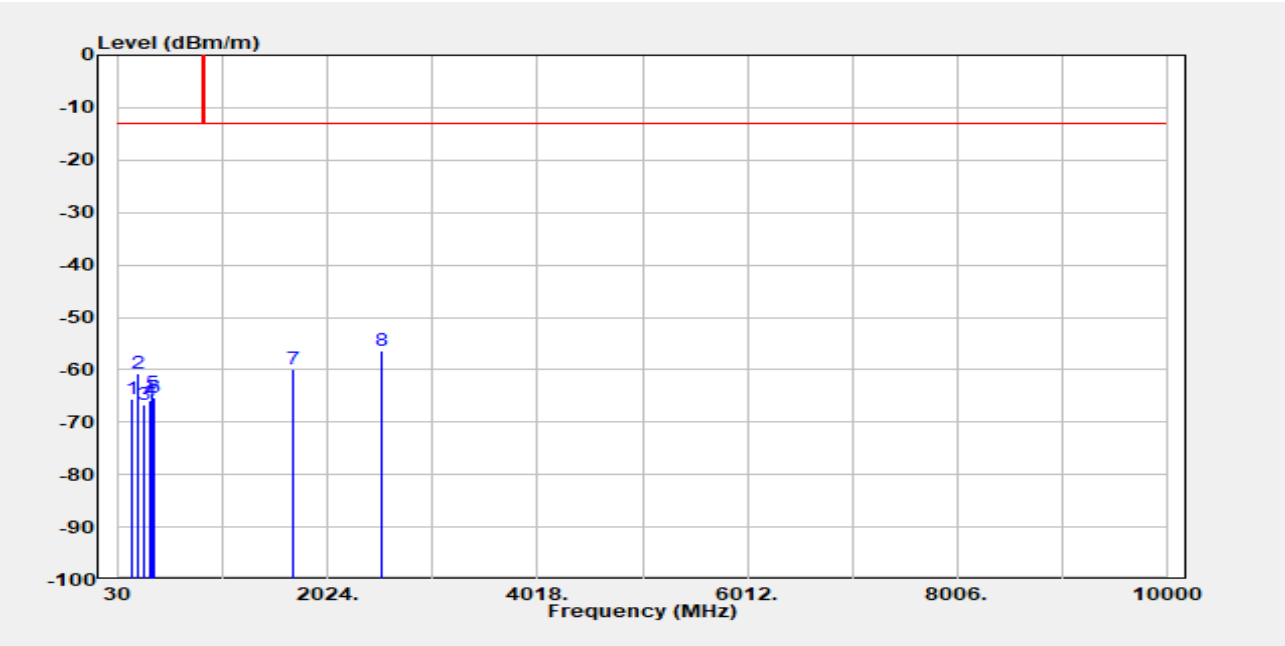
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B5	Test Date	:2021-11-12
Test Mode	:Tx CH High	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Vertical
Test Frequency	:846.6 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
149.63	-65.72	-62.95	-1.62	-1.15	-13.00	-52.72
222.38	-60.72	-64.25	5.03	-1.50	-13.00	-47.72
269.27	-66.67	-69.17	4.14	-1.64	-13.00	-53.67
335.55	-65.73	-68.12	4.28	-1.90	-13.00	-52.73
348.48	-64.53	-67.04	4.52	-2.01	-13.00	-51.53
371.12	-65.43	-67.78	4.35	-1.99	-13.00	-52.43
1693.20	-59.84	-65.11	9.59	-4.32	-13.00	-46.84
2539.80	-56.29	-61.74	10.68	-5.23	-13.00	-43.29

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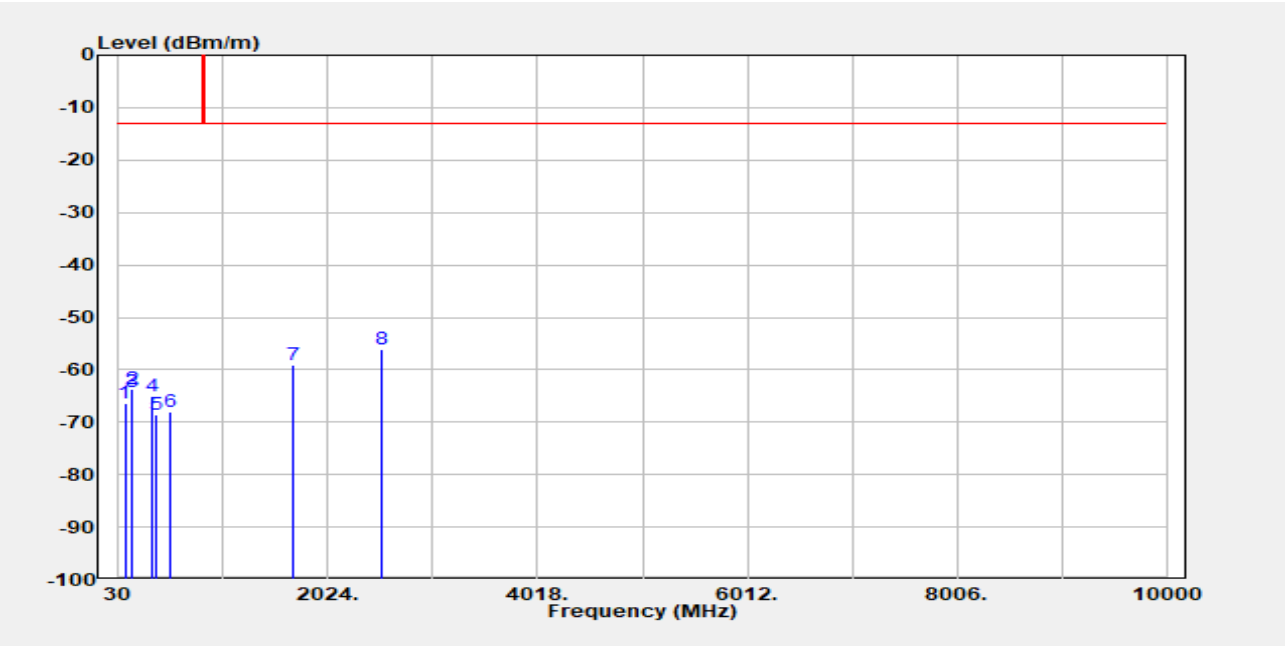
Report Number	:ER/2021/A0026	Test Site	:SAC 1
Operation Mode	:WCDMA B5	Test Date	:2021-11-12
Test Mode	:Tx CH High	Temp./Humi.	:25.3/68
EUT Pol	:H Plane	Antenna Pol.	:Horizontal
Test Frequency	:846.6 MHz	Engineer	:GN Lin



Freq. MHz	EIRP/ERP dBm	SG Output Level dBm	Antenna Gain dBi/dBd	Cable Loss dB	Limit dBm	Margin dB
89.82	-66.49	-65.08	-0.43	-0.98	-13.00	-53.49
149.63	-63.67	-60.91	-1.62	-1.15	-13.00	-50.67
164.18	-64.34	-62.20	-0.88	-1.26	-13.00	-51.34
348.48	-65.14	-67.65	4.52	-2.01	-13.00	-52.14
388.90	-68.44	-70.80	4.40	-2.04	-13.00	-55.44
519.85	-68.12	-70.02	4.10	-2.20	-13.00	-55.12
1693.20	-59.06	-64.33	9.59	-4.32	-13.00	-46.06
2539.80	-56.20	-61.65	10.68	-5.23	-13.00	-43.20

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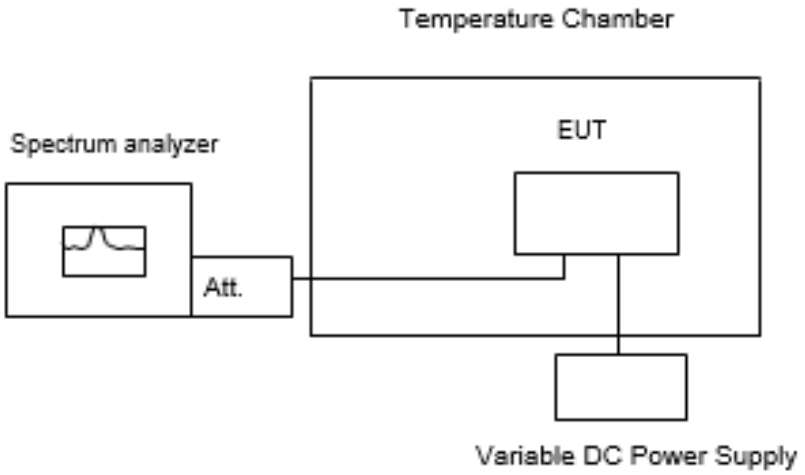
10 FREQUENCY STABILITY MEASUREMENT

10.1 Standard Applicabl

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 Test Site: Conducted 4					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL DUE.**
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	10/13/2021	10/12/2022
Radio Communication Analyer	Anritsu	MT8815B	6200711454	04/07/2021	04/06/2022
Test Software	WORLD-PAL-LAS TECH. CO., LTD	Dr.E	Ver. 3.0	N.C.R	N.C.R
Temperature Chamber	Giant Force	GTH-150-40-CP-AR	MAA0512-018	05/19/2021	05/18/2022
DC Power Supply	Gwinstek	SPS-3610	GEV856761	09/18/2021	09/17/2022
Attenuator	Mini-Circuit	BW-S10W2+	4	12/16/2020	12/15/2021
DC Block	Mini-Circuits	BLK-18-S+	1	12/16/2020	12/15/2021
Power Divider	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-017	12/16/2020	12/15/2021
Coaxial Cable	Woken	00100A1F1A196S	N/A	N/A	N/A

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10.5 Measurement Result

Note: *The battery is rated 3.3V dc.*

WCDMA II Mid Channel 1880.0000 MHz				
Vdc	Temp. (℃)	Freq. (MHz)	(ppm)	Limit: +/- 2.5 ppm
FREQUENCY ERROR vs. VOLTAGE				
3.795	20	1879.999994	-0.0032	+/- 2.5 ppm
3.3	20	1880.000009	0.0048	
2.805	20	1879.999993	-0.0037	
2.3 (End point)	20	1880.000003	0.0016	
FREQUENCY ERROR vs. Temp.				
3.3	50	1880.000006	0.0032	+/- 2.5 ppm
3.3	40	1880.000009	0.0048	
3.3	30	1880.000006	0.0032	
3.3	20	1880.000008	0.0043	
3.3	10	1880.000004	0.0021	
3.3	0	1879.999989	-0.0059	
3.3	-10	1880.000003	0.0016	
3.3	-20	1879.999995	-0.0027	
3.3	-30	1879.999993	-0.0037	

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WCDMA IV Mid Channel 1732.6000 MHz				
Vdc	Temp. (℃)	Freq. (MHz)	(ppm)	Limit: +/- 2.5 ppm
FREQUENCY ERROR vs. VOLTAGE				
3.795	20	1732.600009	0.0052	+/- 2.5 ppm
3.3	20	1732.600005	0.0029	
2.805	20	1732.600008	0.0046	
2.3 (End point)	20	1732.599996	-0.0023	
FREQUENCY ERROR vs. Temp.				
3.3	50	1732.599996	-0.0023	+/- 2.5 ppm
3.3	40	1732.599996	-0.0023	
3.3	30	1732.600001	0.0006	
3.3	20	1732.60001	0.0058	
3.3	10	1732.599989	-0.0063	
3.3	0	1732.599991	-0.0052	
3.3	-10	1732.60001	0.0058	
3.3	-20	1732.600007	0.0040	
3.3	-30	1732.599991	-0.0052	

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WCDMA V Mid Channel 836.6000 MHz				
Vdc	Temp. (℃)	Freq. (MHz)	(ppm)	Limit: +/- 2.5 ppm
FREQUENCY ERROR vs. VOLTAGE				
3.795	20	836.600005	0.0060	+/- 2.5 ppm
3.3	20	836.599989	-0.0131	
2.805	20	836.599998	-0.0024	
2.3 (End point)	20	836.599997	-0.0036	
FREQUENCY ERROR vs. Temp.				
3.3	50	836.599994	-0.0072	+/- 2.5 ppm
3.3	40	836.600004	0.0048	
3.3	30	836.599992	-0.0096	
3.3	20	836.600003	0.0036	
3.3	10	836.59999	-0.0120	
3.3	0	836.600009	0.0108	
3.3	-10	836.600002	0.0024	
3.3	-20	836.600011	0.0131	
3.3	-30	836.600009	0.0108	

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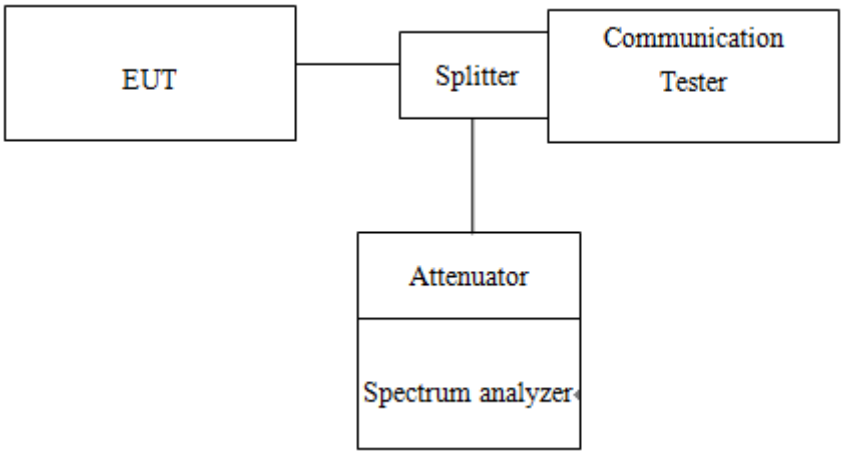
11 PEAK TO AVERAGE RATIO

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 ≥ 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 Test Site: Conducted 4					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EXA Spectrum Analyzer	Agilent	N9010A	MY54200716	10/13/2021	10/12/2022
Radio Communication Analyer	Anritsu	MT8815B	6200711454	04/07/2021	04/06/2022
Test Software	WORLD-PAL-LAS TECH. CO., LTD	Dr.E	Ver. 3.0	N.C.R	N.C.R
Temperature Chamber	Giant Force	GTH-150-40-CP-AR	MAA0512-018	05/19/2021	05/18/2022
DC Power Supply	Gwinstek	SPS-3610	GEV856761	09/18/2021	09/17/2022
Attenuator	Mini-Circuit	BW-S10W2+	4	12/16/2020	12/15/2021
DC Block	Mini-Circuits	BLK-18-S+	1	12/16/2020	12/15/2021
Power Divider	RF-LAMBAD	RFLT2W1G18G	11-JSPF412-017	12/16/2020	12/15/2021
Coaxial Cable	Woken	00100A1F1A196S	N/A	N/A	N/A

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11.5 Measurement Result

Freq. (MHz)	CH	Peak-to-Average Ratio (dB)		
		WCDMA II	HSDPA II	HSUPA II
1852.4	9262	3.03	3.23	3.25
1880	9400	**3.04**	**3.27**	**3.24**
1907.6	9538	3.23	3.30	3.22

Freq. (MHz)	CH	Peak-to-Average Ratio (dB)		
		WCDMA IV	HSDPA IV	HSUPA IV
1712.4	1312	2.90	3.25	3.19
1732.6	1413	**3.31**	**3.41**	**3.31**
1752.6	1513	2.78	3.18	3.20

Freq. (MHz)	CH	Peak-to-Average Ratio (dB)		
		WCDMA V	HSDPA V	HSUPA V
826.4	4132	2.86	3.03	2.99
836.6	4183	**3.19**	**3.34**	**3.32**
846.6	4233	3.14	3.25	3.29

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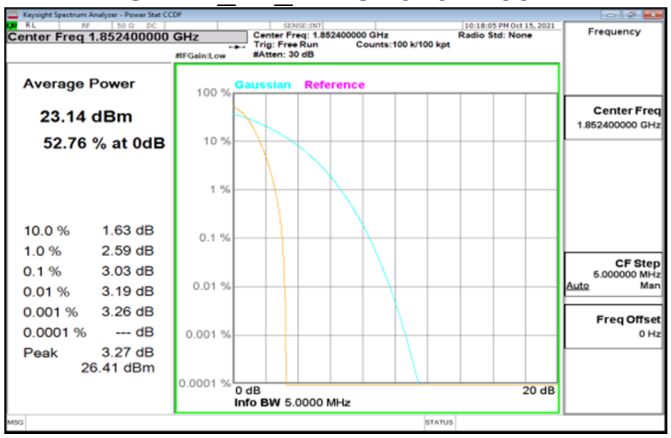
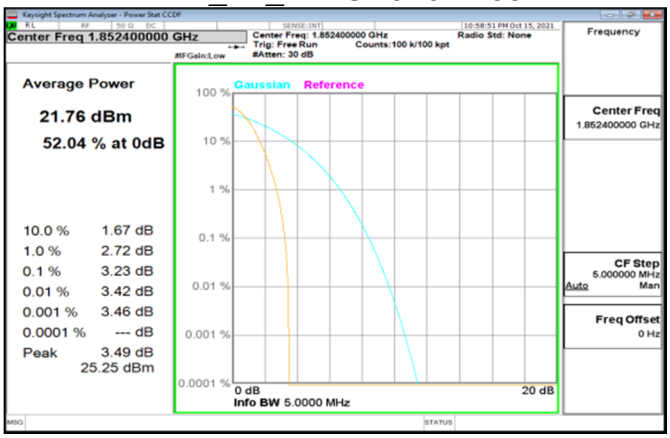
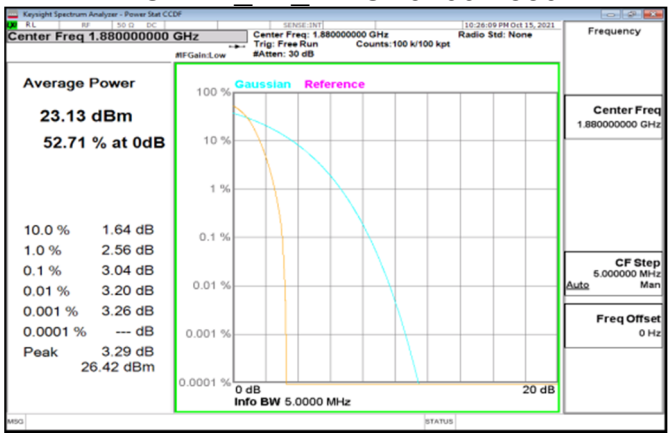
WCDMA_B2_LowCH9262-1852.4



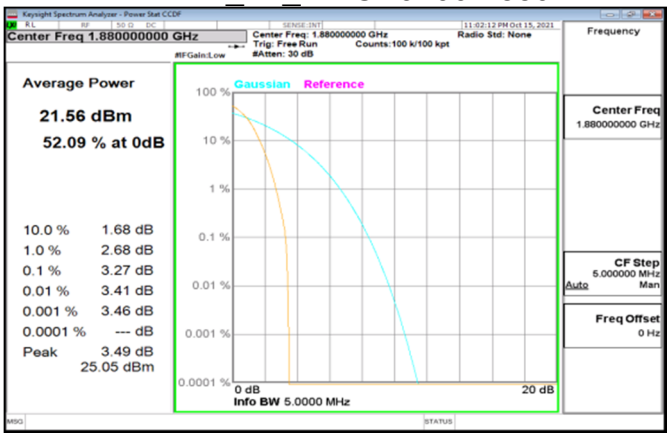
HSDPA_B2_LowCH9262-1852.4



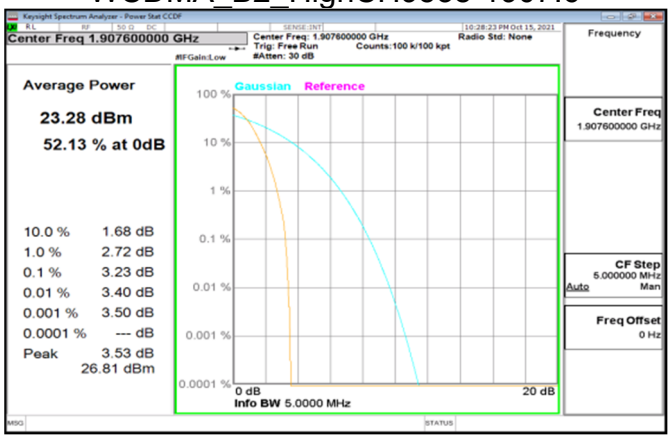
WCDMA_B2_MidCH9400-1880



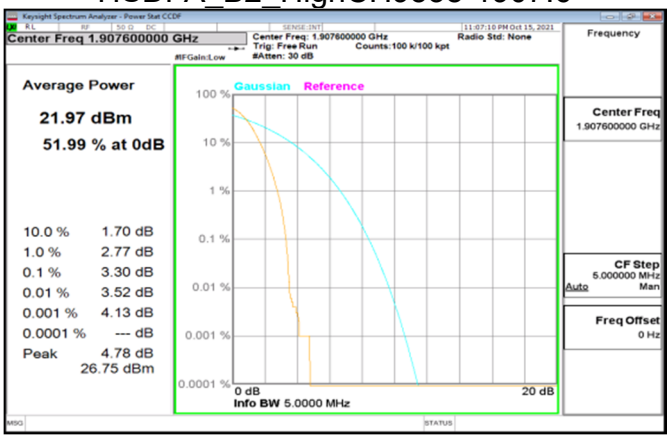
HSDPA_B2_MidCH9400-1880



WCDMA_B2_HighCH9538-1907.6



HSDPA_B2_HighCH9538-1907.6



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