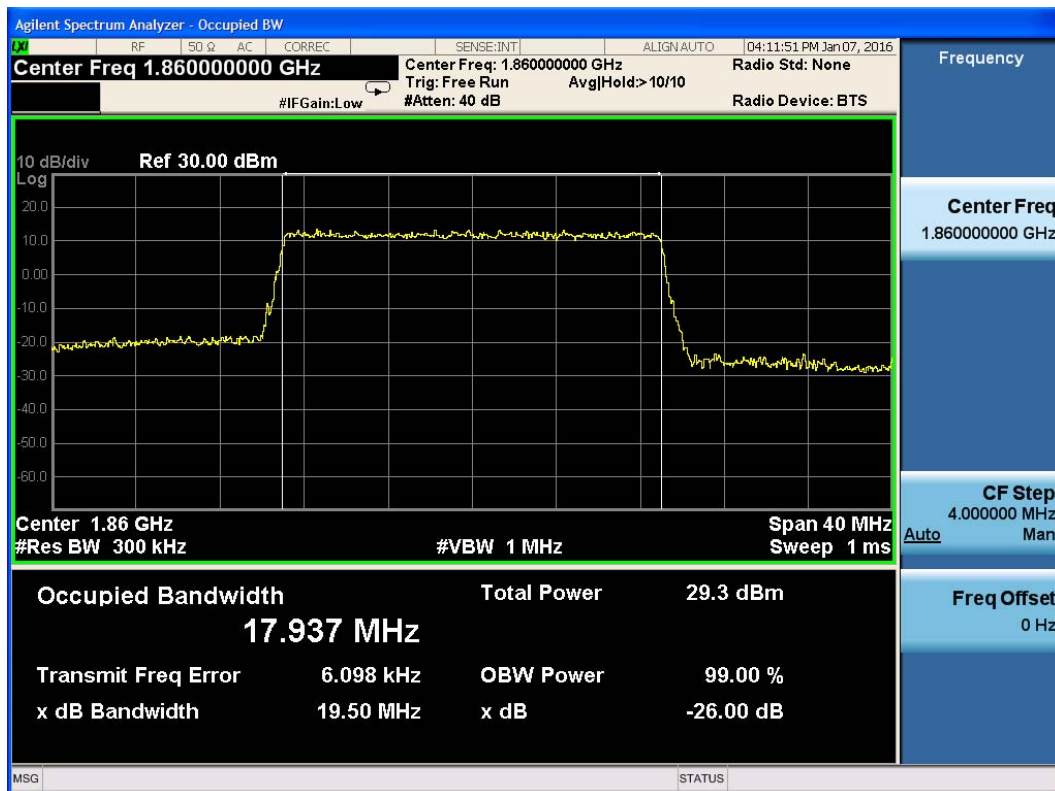
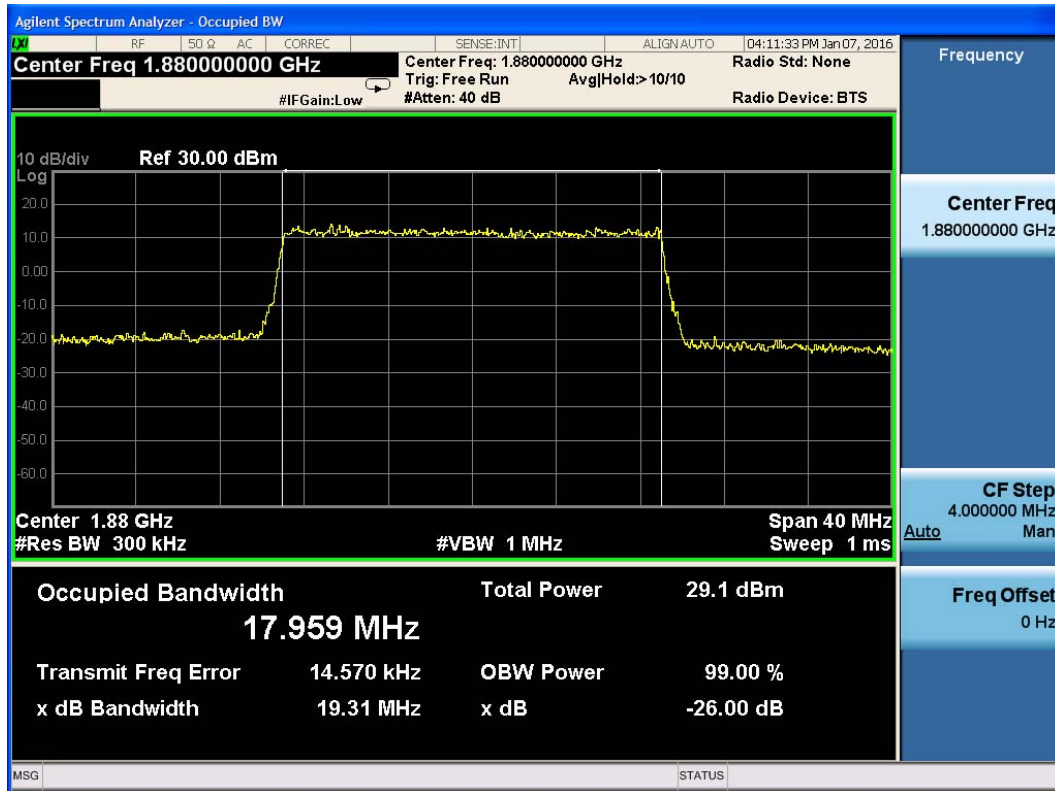




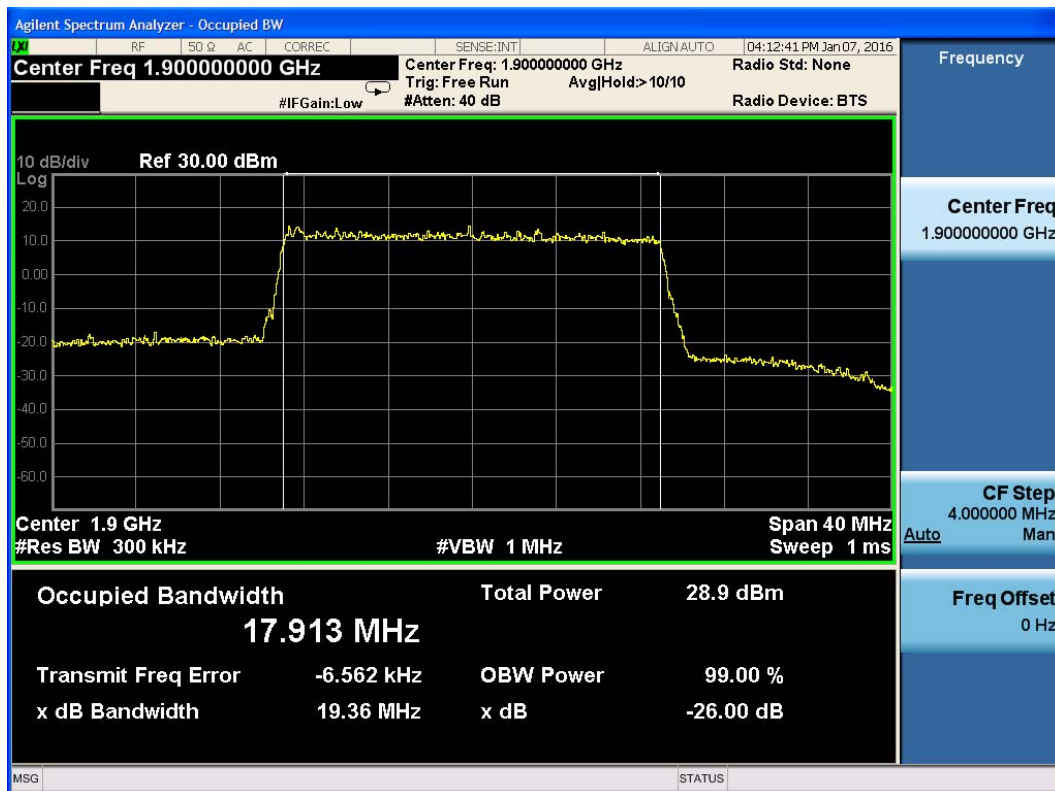
LTE Band II 20MHz QPSK CH19100



LTE Band II 20MHz 16QAM CH18700



LTE Band II 20MHz 16QAM CH18900



LTE Band II 20MHz 16QAM CH19100

5.4. Band Edge Compliance

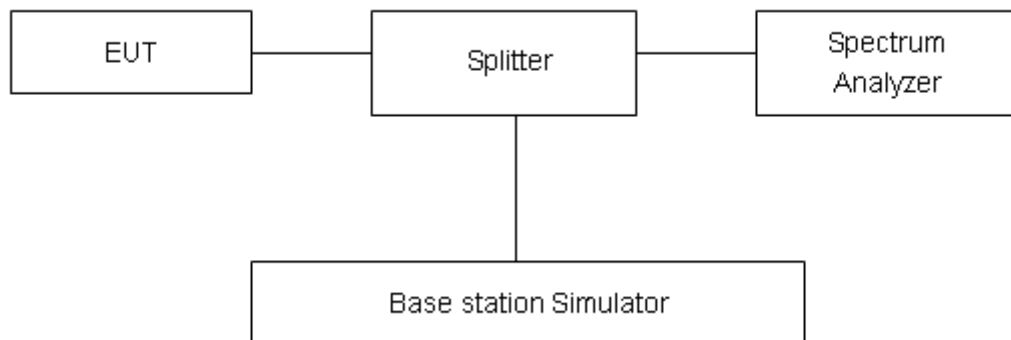
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The Average detector is used and RBW is set to 3kHz, VBW is set to 10kHz for GSM 1900, RBW is set to 51kHz, VBW is set to 160kHz for WCDMA Band II and RBW is set to 15kHz, VBW is set to 51kHz for LTE Band II. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10} (P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U=0.684$ dB.

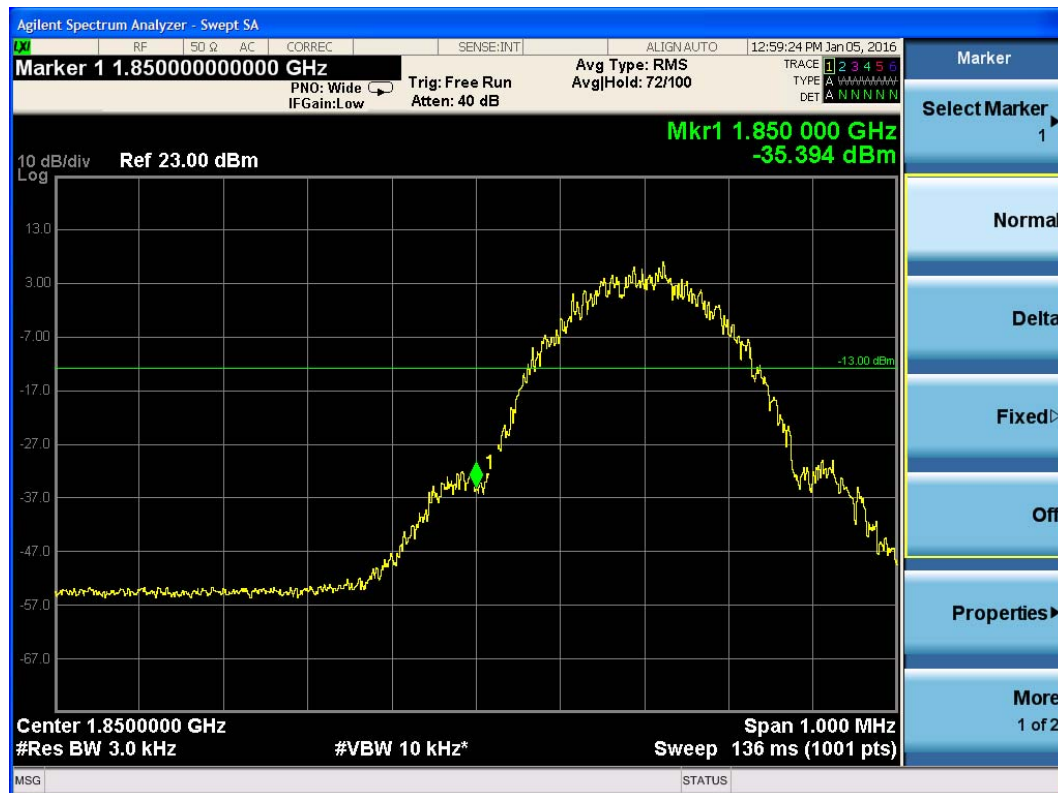
Test Result:

Mode	Carrier frequency (MHz)	Reference value (dBm)	Limit (dBm)	Conclusion
GSM 1900 (GSM)	1850.0	-35.394	-13	PASS
	1910.0	-33.183	-13	PASS
GPRS 1900 (GMSK)	1850.0	-34.092	-13	PASS
	1910.0	-34.158	-13	PASS
EGPRS 1900 (8-PSK)	1850.0	-36.250	-13	PASS
	1910.0	-39.044	-13	PASS
WCDMA Band II RMC	1850	-16.563	-13	PASS
	1910	-18.743	-13	PASS

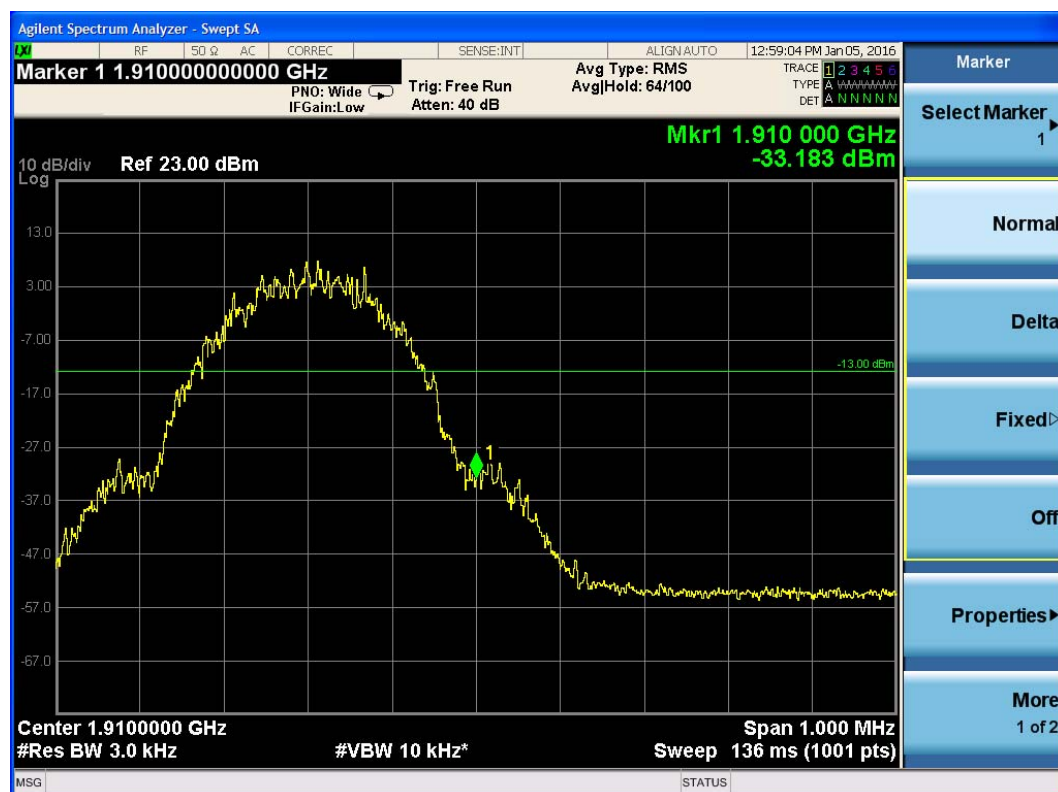
LTE Band II		RB	Carrier frequency (MHz)	Reference value (dBm)	Limit (dBm)	Conclusion
Bandwidth	Modulation					
1.4MHz	QPSK	1	1850	-26.710	-13	PASS
			1910	-22.052	-13	PASS
		100%	1850	-33.088	-13	PASS
			1910	-31.805	-13	PASS
	16QAM	1	1850	-27.600	-13	PASS
			1910	-22.815	-13	PASS
		100%	1850	-32.344	-13	PASS
			1910	-31.325	-13	PASS
3MHz	QPSK	1	1850	-18.236	-13	PASS
			1910	-16.776	-13	PASS
		100%	1850	-29.332	-13	PASS
			1910	-29.490	-13	PASS
	16QAM	1	1850	-19.456	-13	PASS
			1910	-16.878	-13	PASS
		100%	1850	-29.875	-13	PASS
			1910	-30.031	-13	PASS
5MHz	QPSK	1	1850	-16.352	-13	PASS
			1910	-17.657	-13	PASS
		100%	1850	-28.279	-13	PASS
			1910	-27.971	-13	PASS
	16QAM	1	1850	-16.522	-13	PASS
			1910	-15.990	-13	PASS



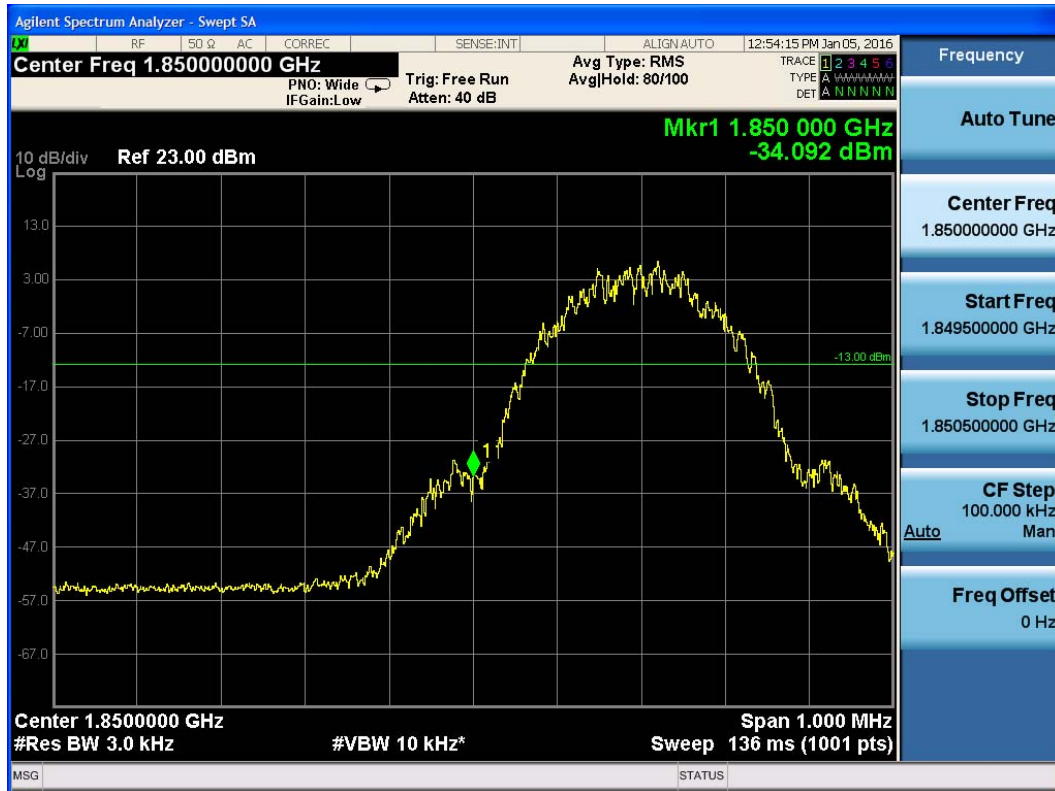
LTE Band II		RB	Carrier frequency (MHz)	Reference value (dBm)	Limit (dBm)	Conclusion
Bandwidth	Modulation					
10MHz	QPSK	100%	1850	-27.907	-13	PASS
			1910	-28.175	-13	PASS
		1	1850	-19.073	-13	PASS
			1910	-18.878	-13	PASS
	16QAM	100%	1850	-30.781	-13	PASS
			1910	-33.237	-13	PASS
		1	1850	-19.518	-13	PASS
			1910	-19.344	-13	PASS
		100%	1850	-30.503	-13	PASS
			1910	-33.307	-13	PASS
15MHz	QPSK	1	1850	-22.167	-13	PASS
			1910	-20.282	-13	PASS
		100%	1850	-30.402	-13	PASS
			1910	-33.059	-13	PASS
	16QAM	1	1850	-21.138	-13	PASS
			1910	-18.974	-13	PASS
		100%	1850	-29.867	-13	PASS
			1910	-34.003	-13	PASS
20MHz	QPSK	1	1850	-27.380	-13	PASS
			1910	-27.290	-13	PASS
		100%	1850	-29.121	-13	PASS
			1910	-31.943	-13	PASS
	16QAM	1	1850	-22.409	-13	PASS
			1910	-25.021	-13	PASS
		100%	1850	-28.894	-13	PASS
			1910	-31.897	-13	PASS



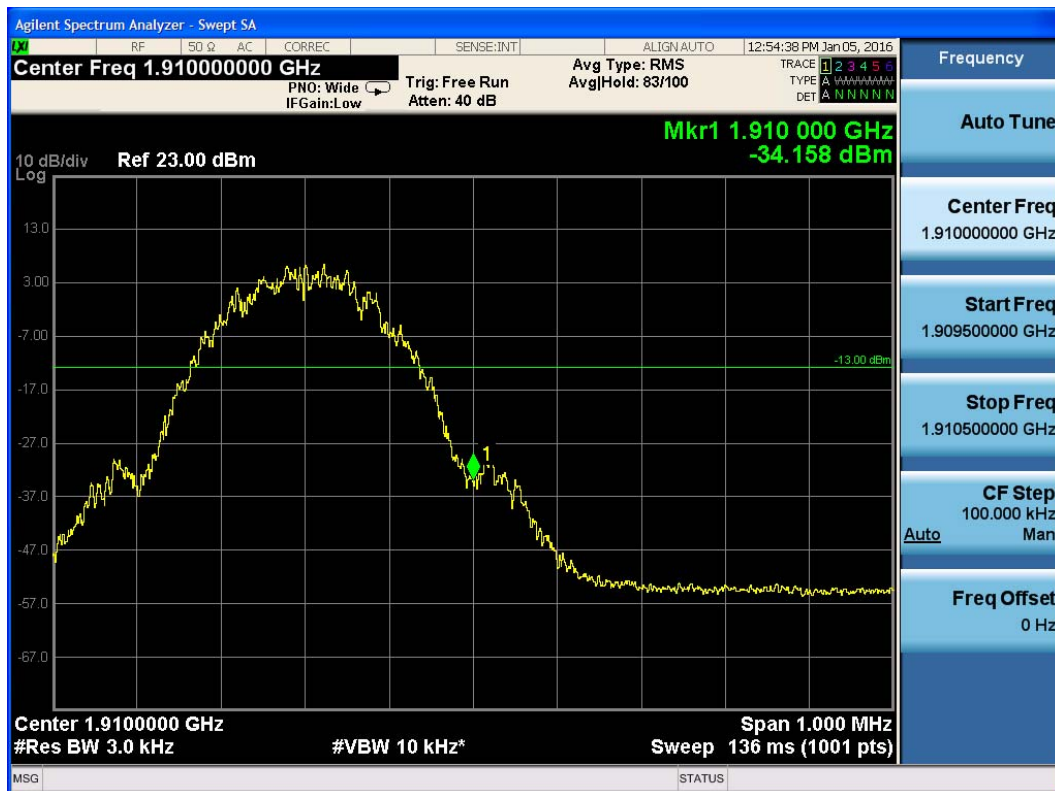
GSM 1900 CH512



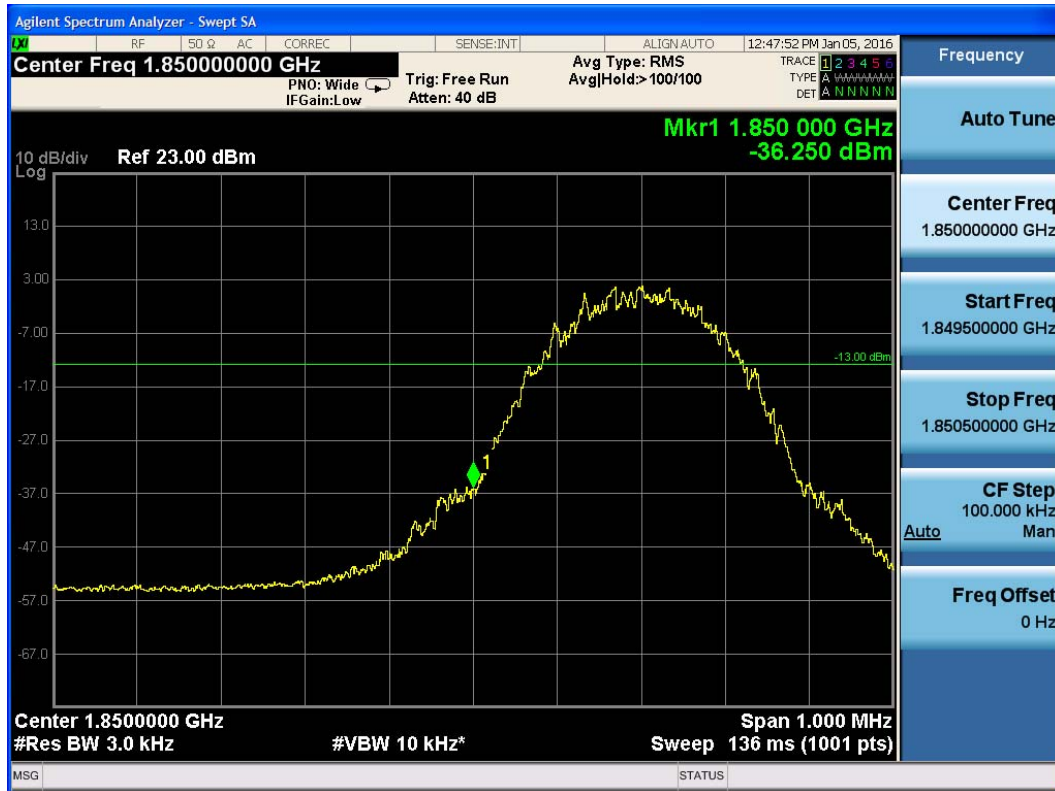
GSM1900 CH810



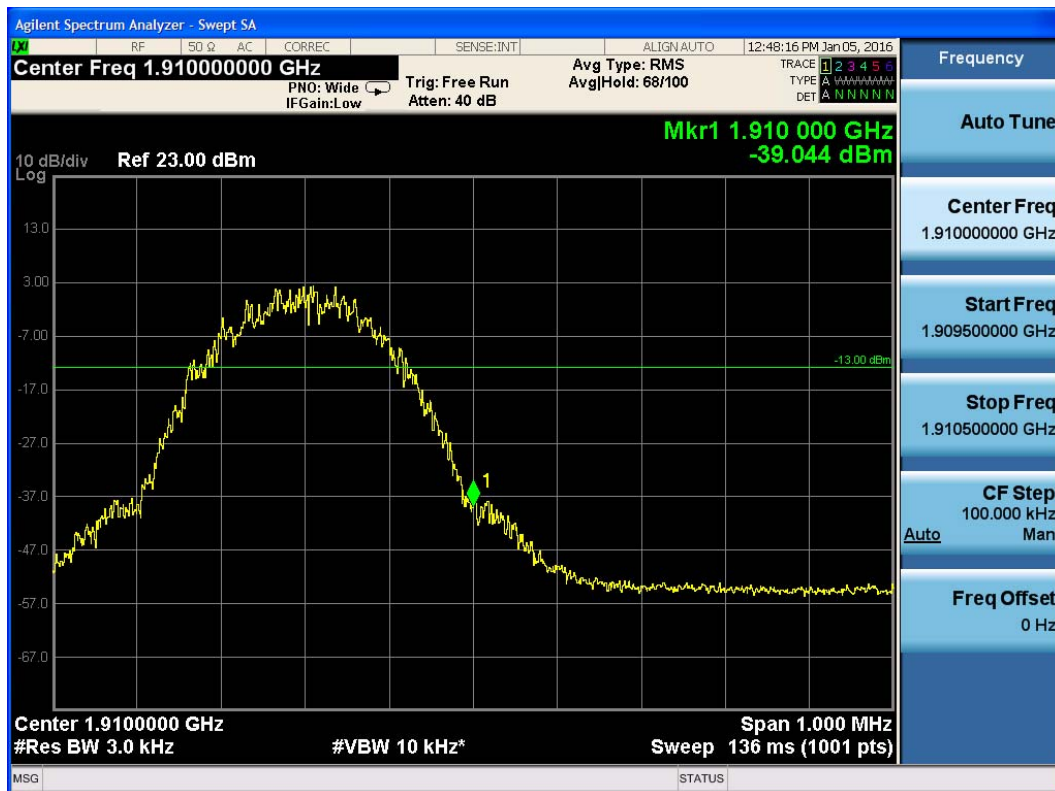
GSM 1900 GPRS CH512



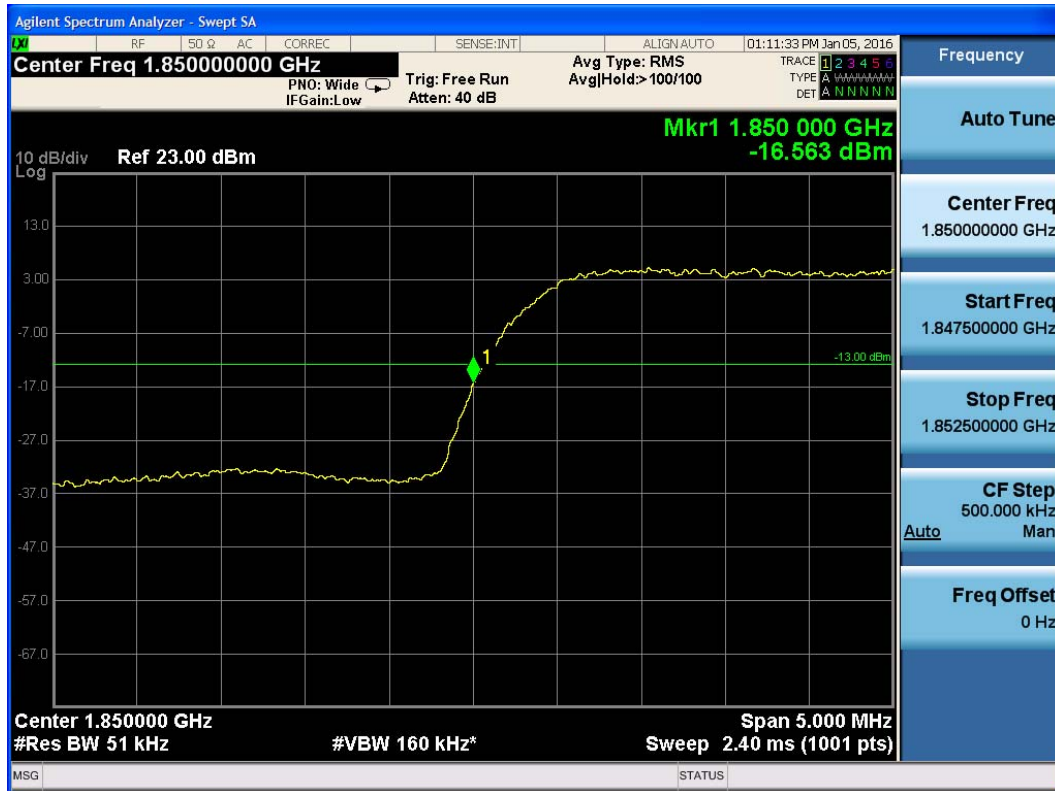
GSM1900 GPRS CH810



GSM 1900 EGPRS CH512



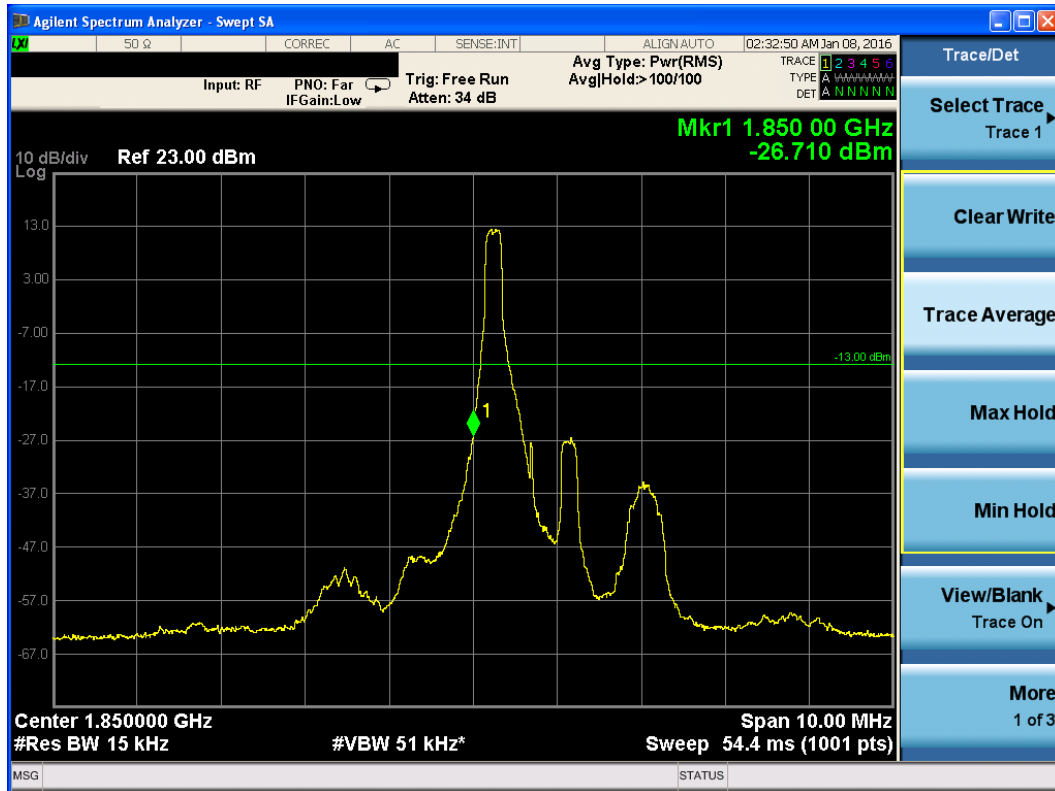
GSM1900 EGPRS CH810



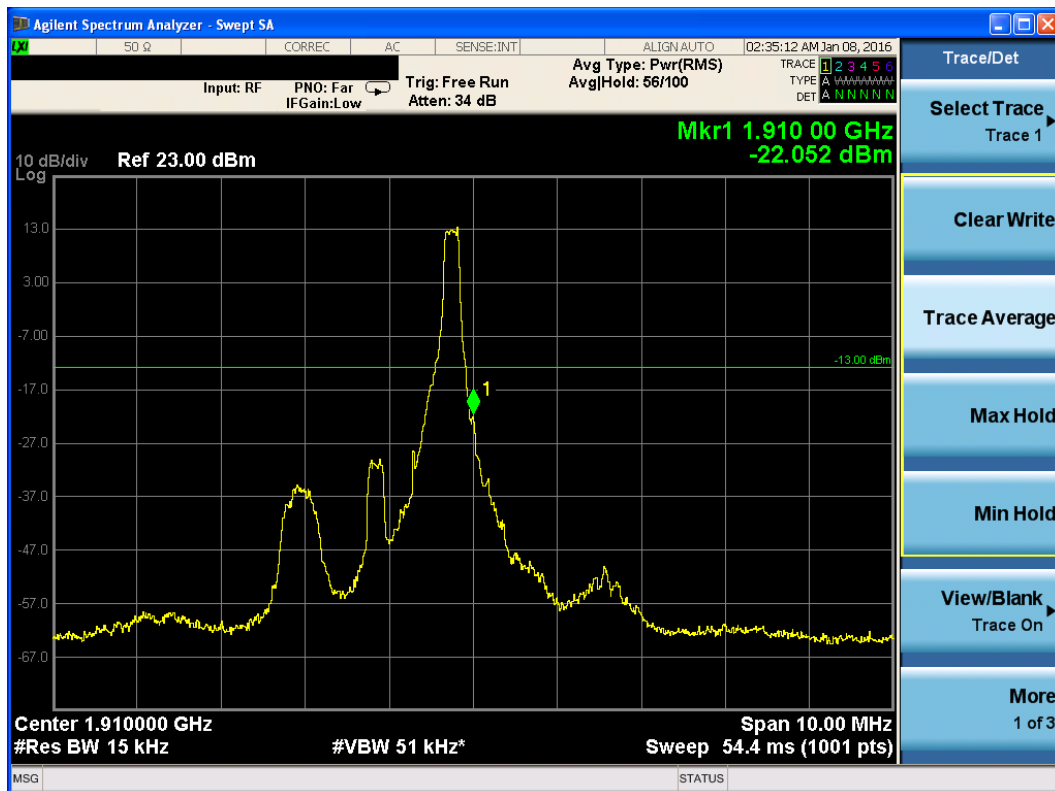
WCDMA Band II CH9262



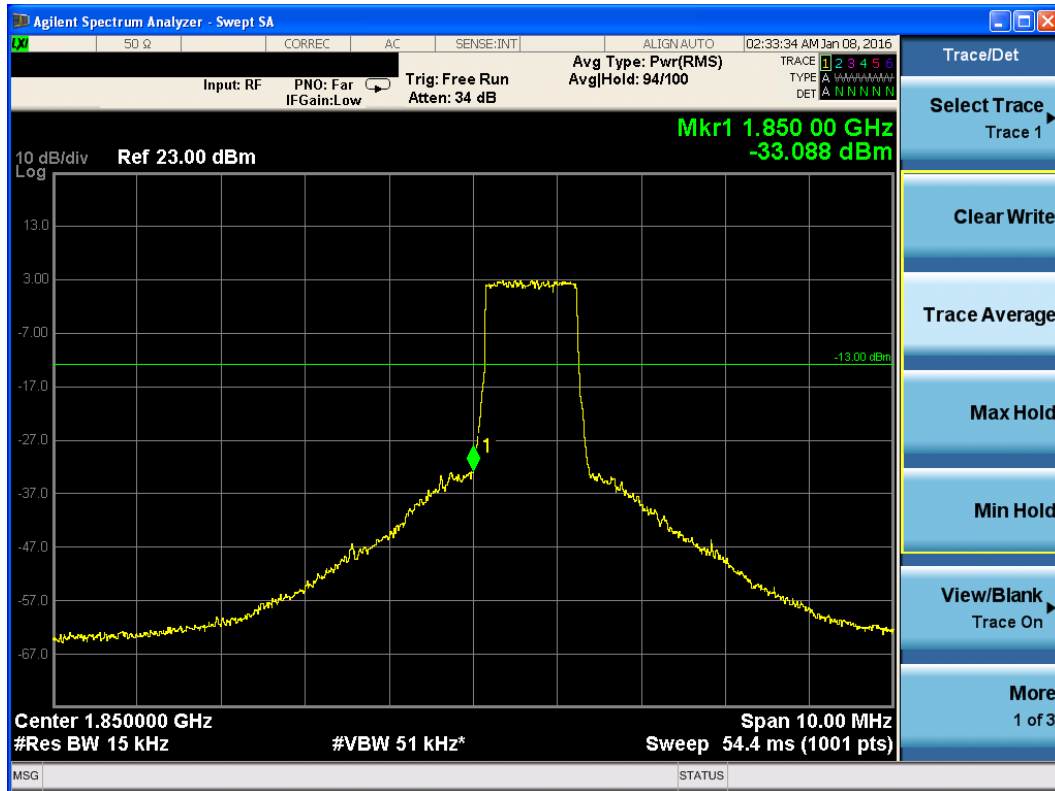
WCDMA Band II CH9538



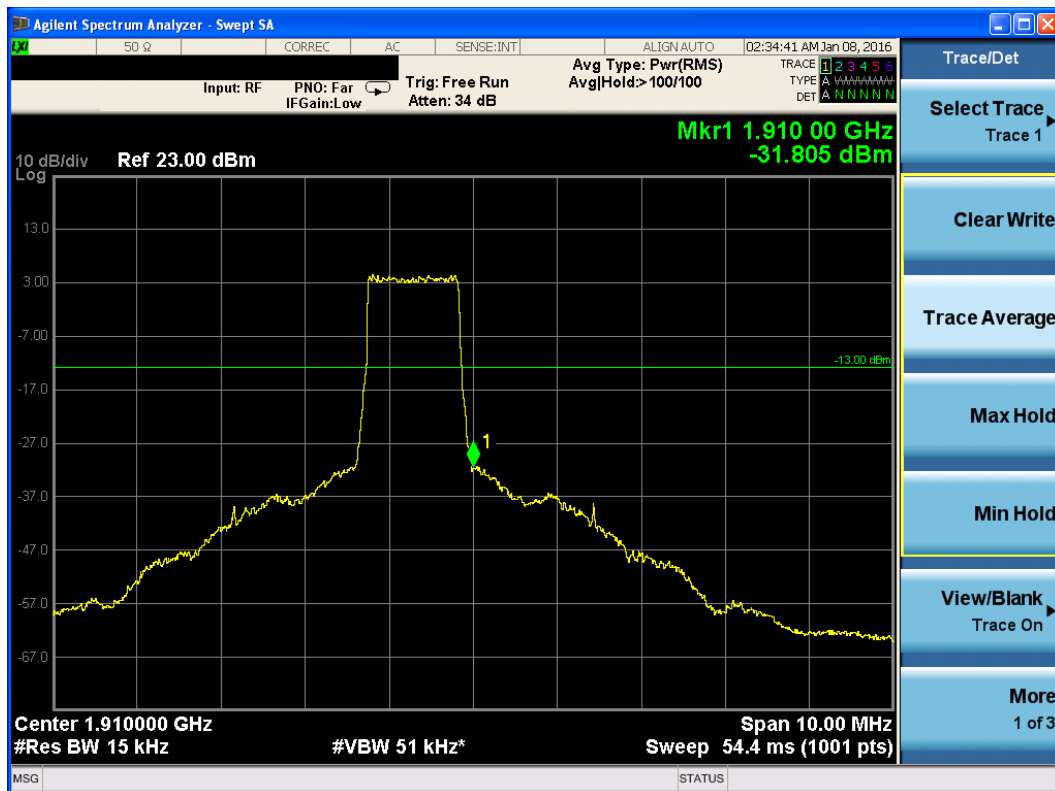
LTE Band II 1.4MHz QPSK 1RB CH18607



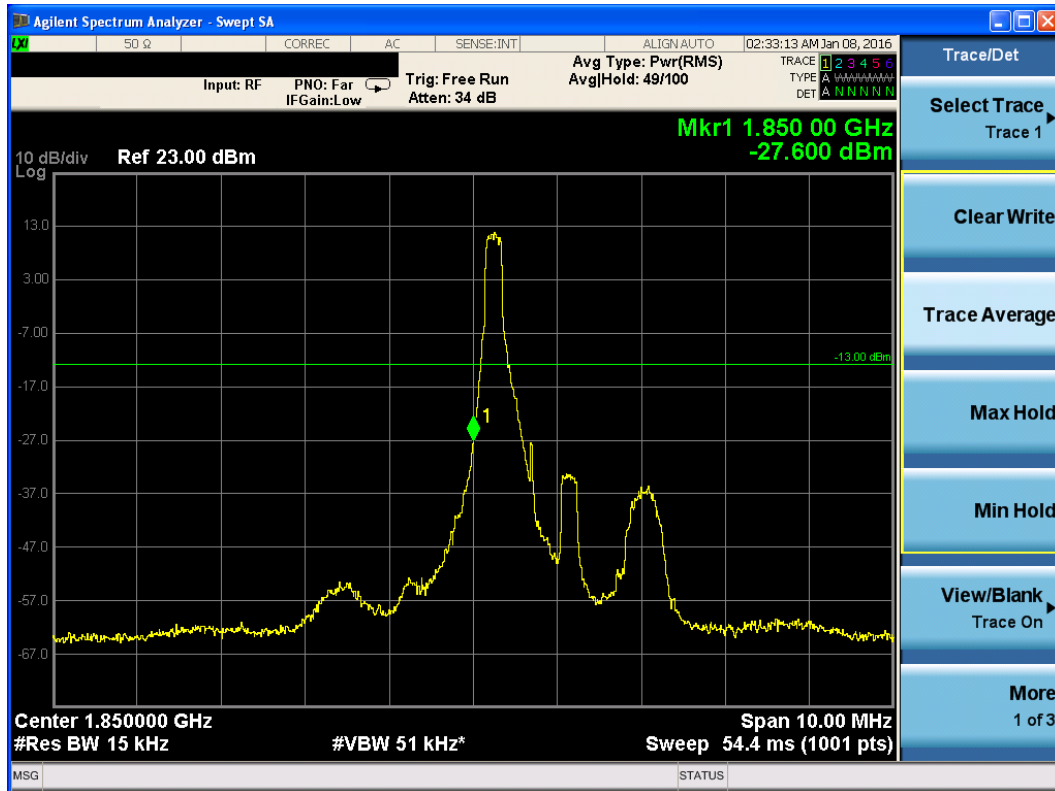
LTE Band II 1.4MHz QPSK 1RB CH19193



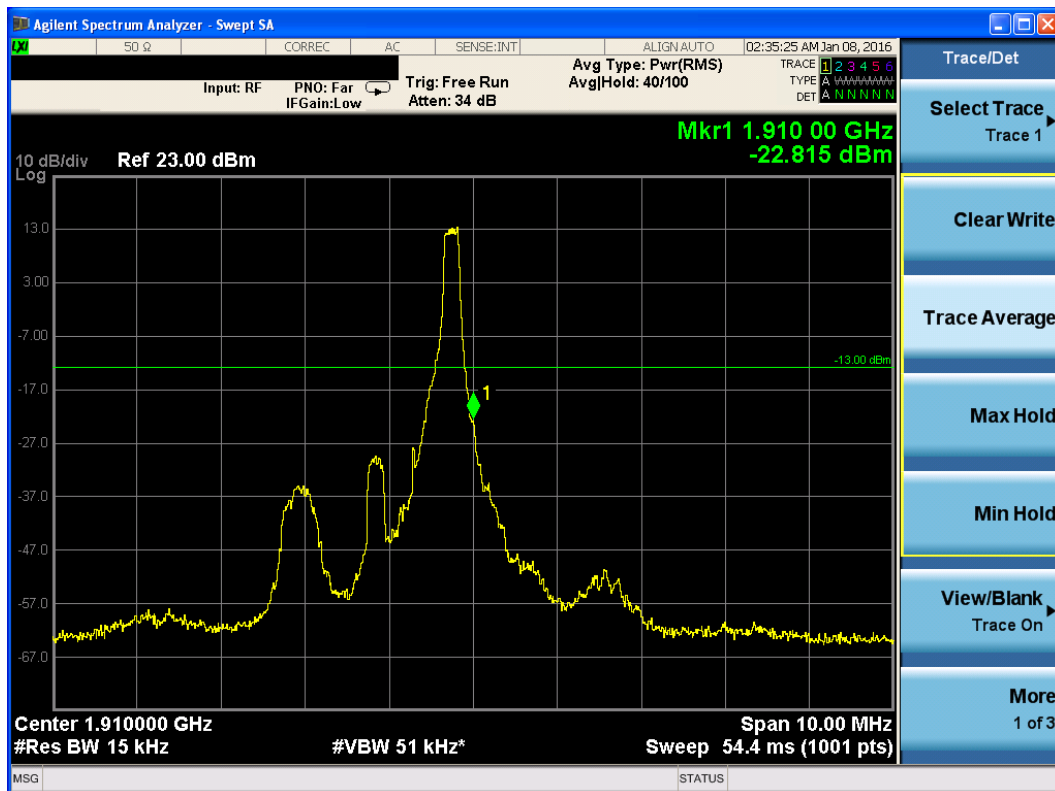
LTE Band II 1.4MHz QPSK 100%RB CH18607



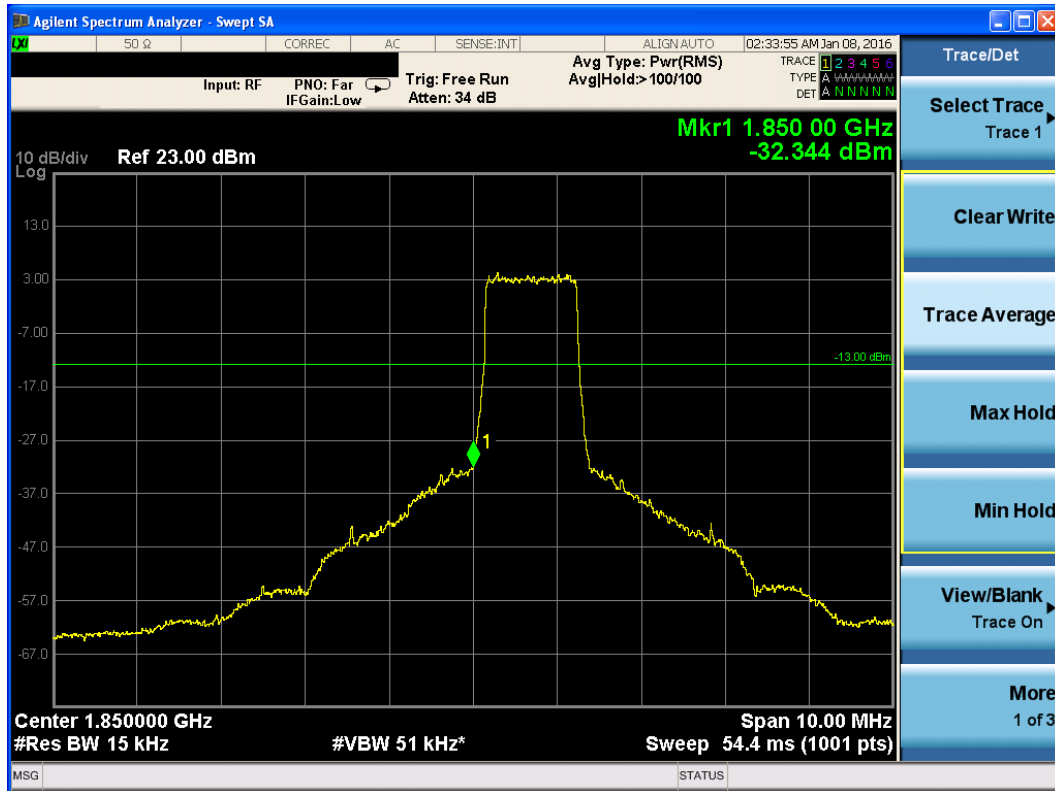
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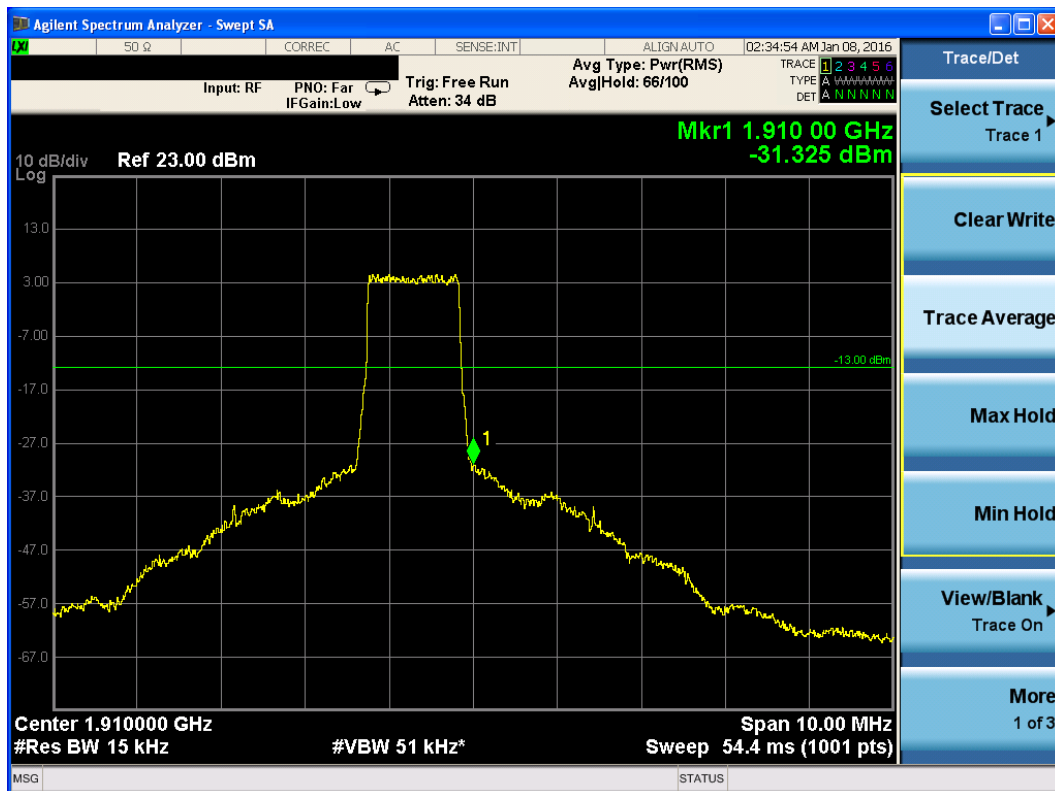
LTE Band II 1.4MHz 16QAM 1RB CH18607



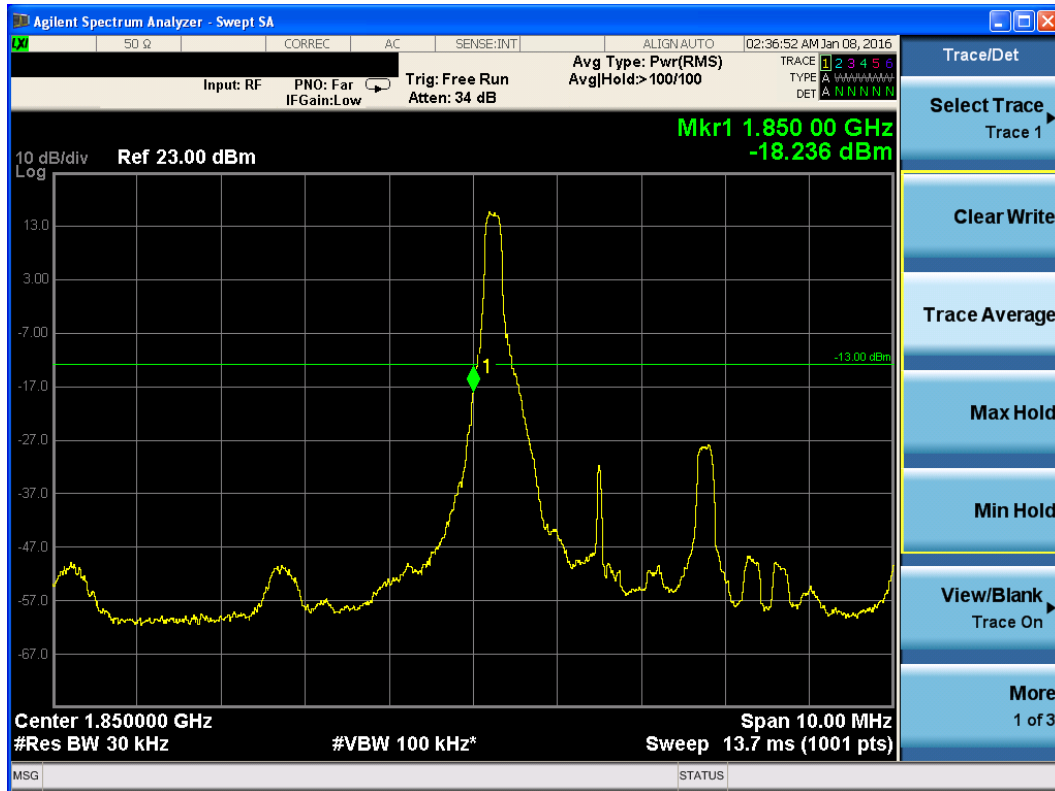
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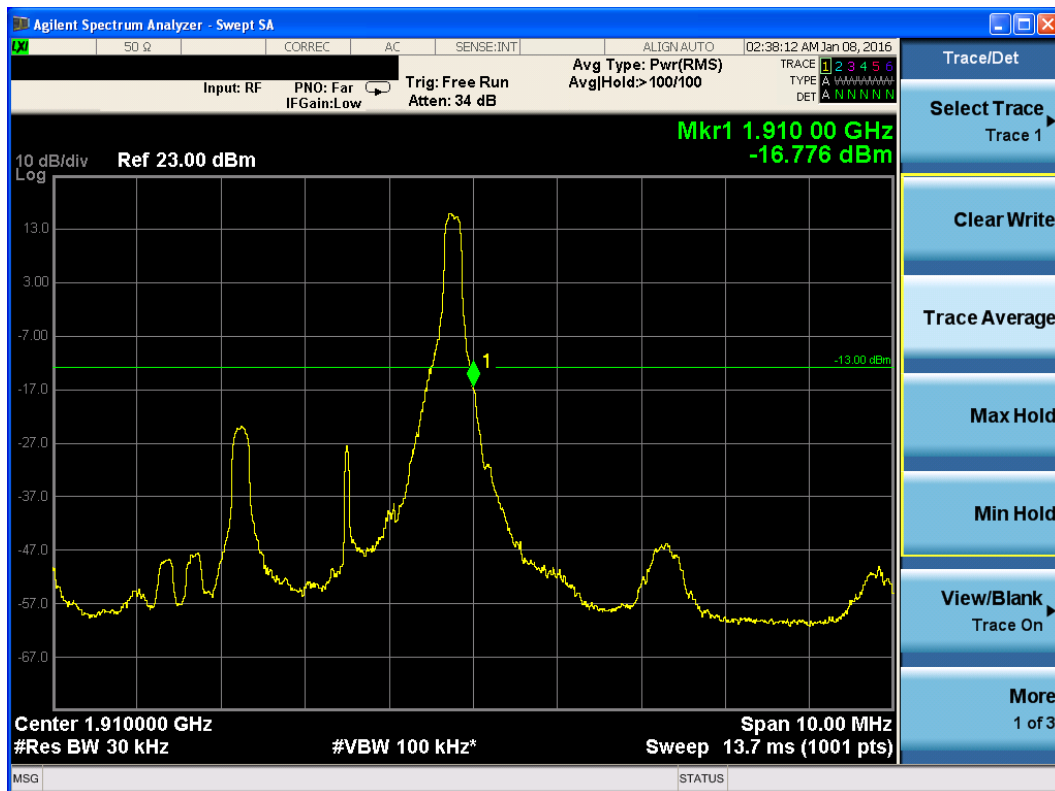
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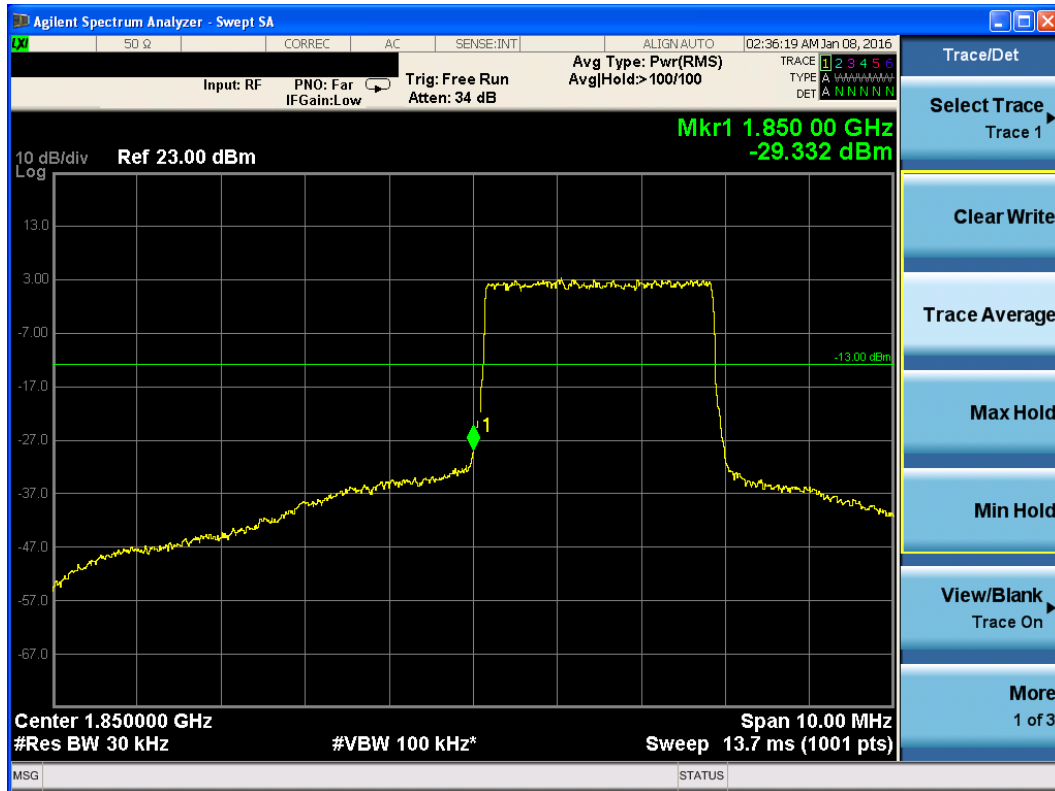
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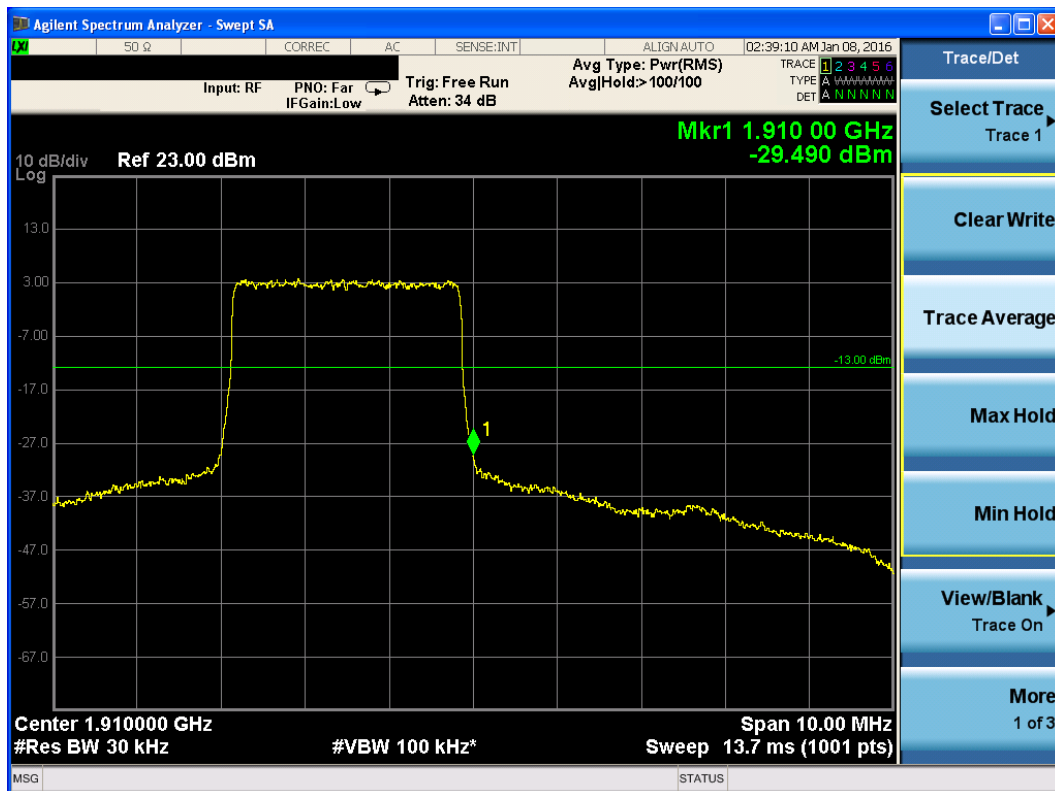
LTE Band II 3MHz QPSK 1RB CH18615



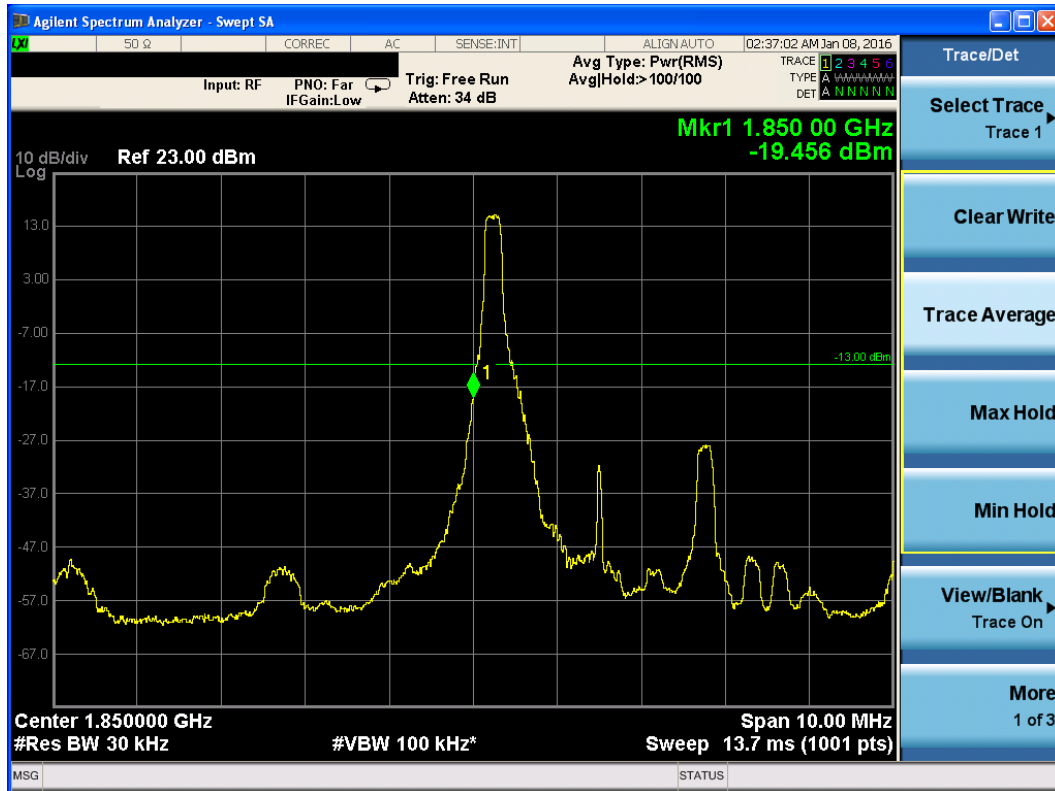
LTE Band II 3MHz QPSK 1RB CH19185



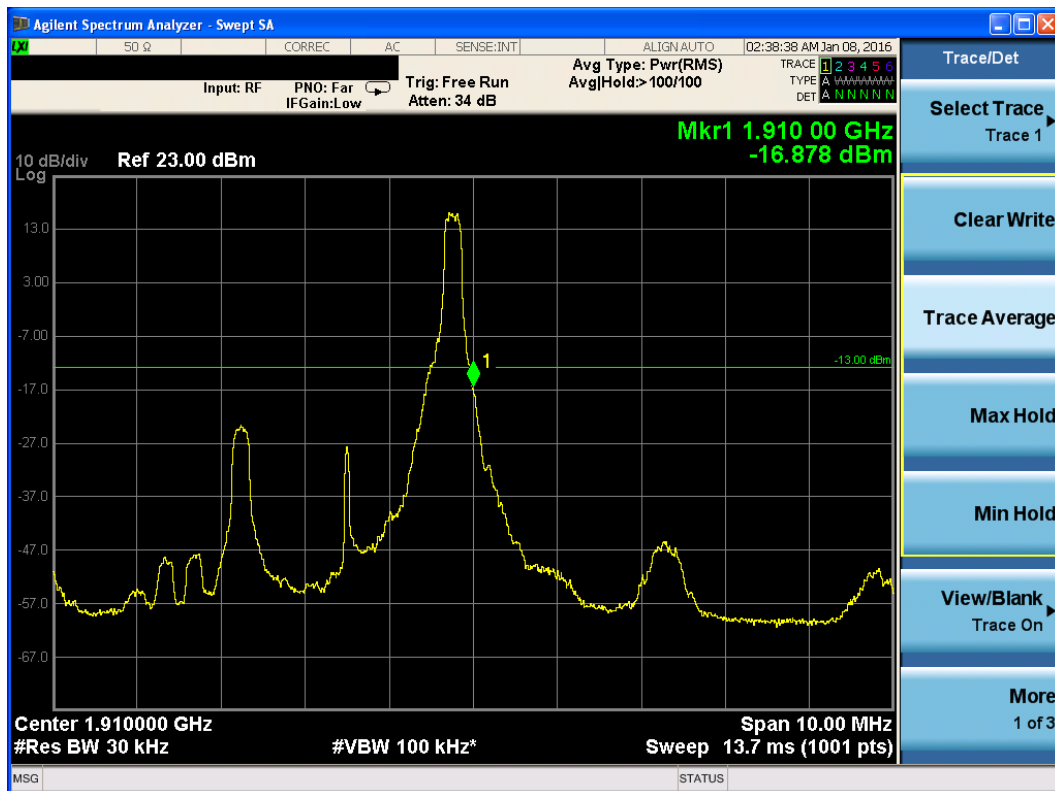
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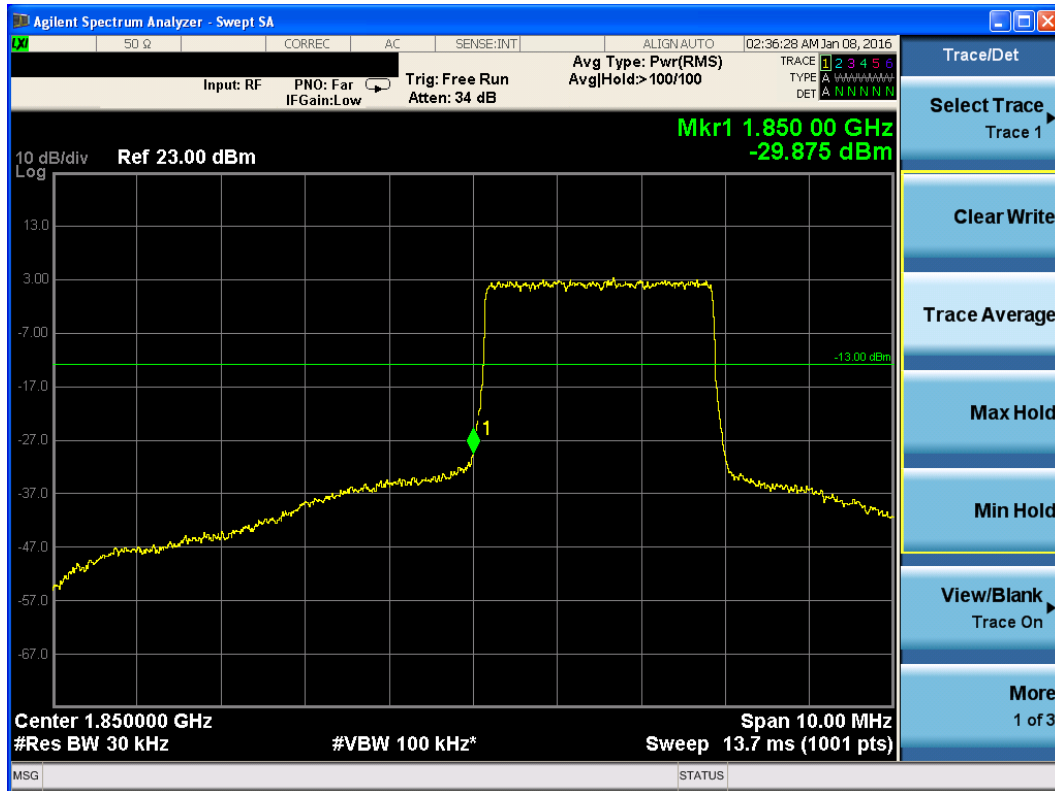
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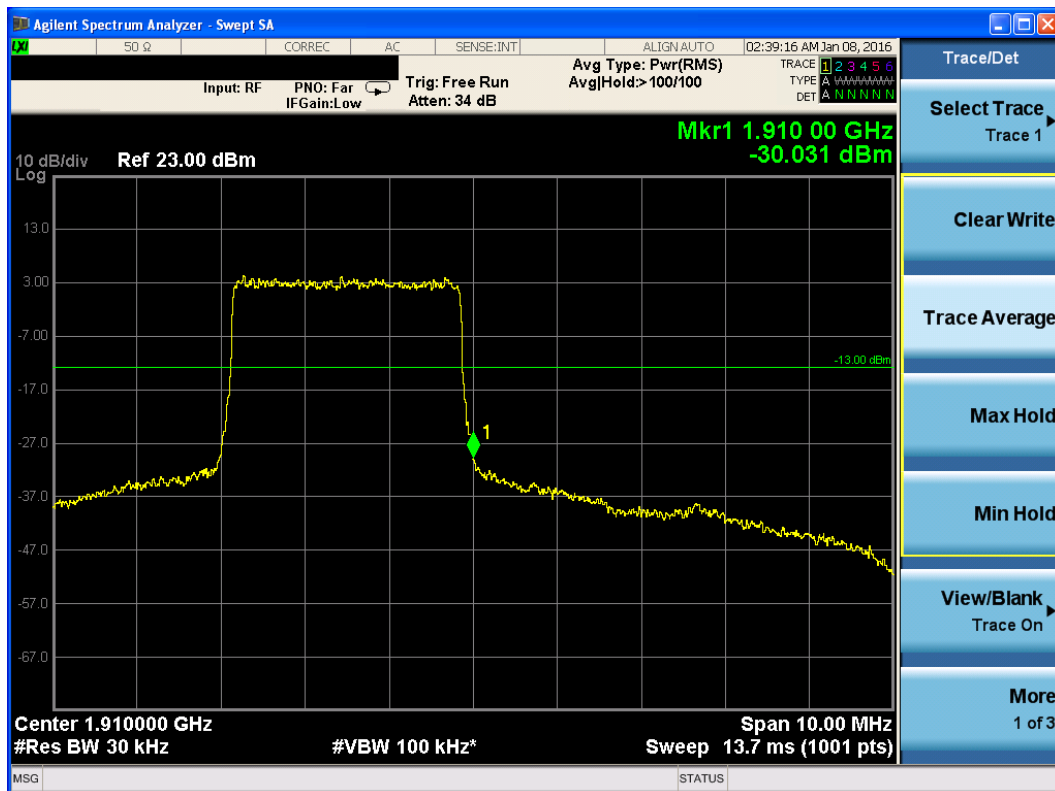
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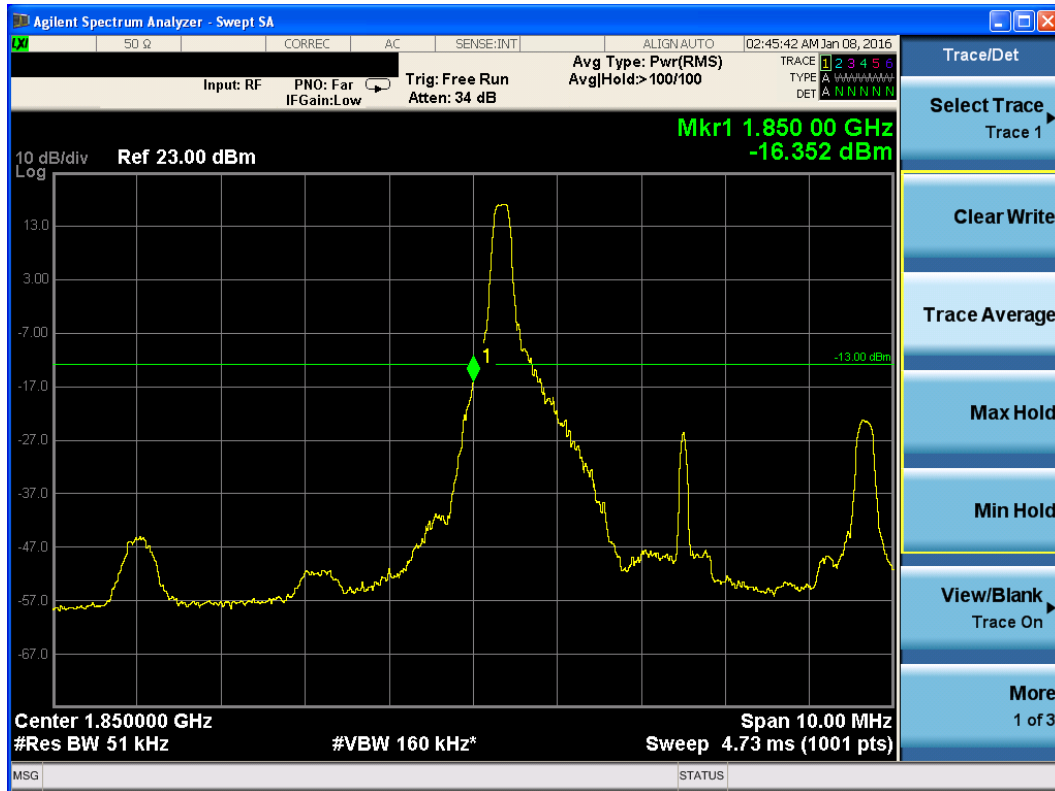
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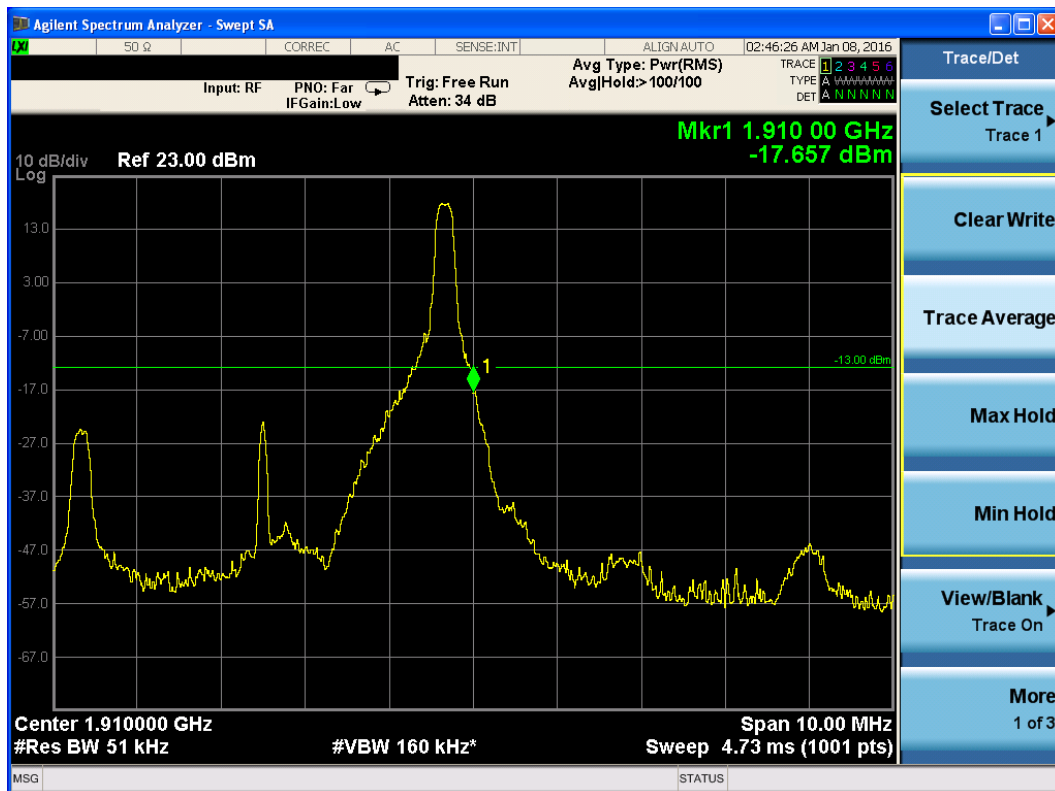
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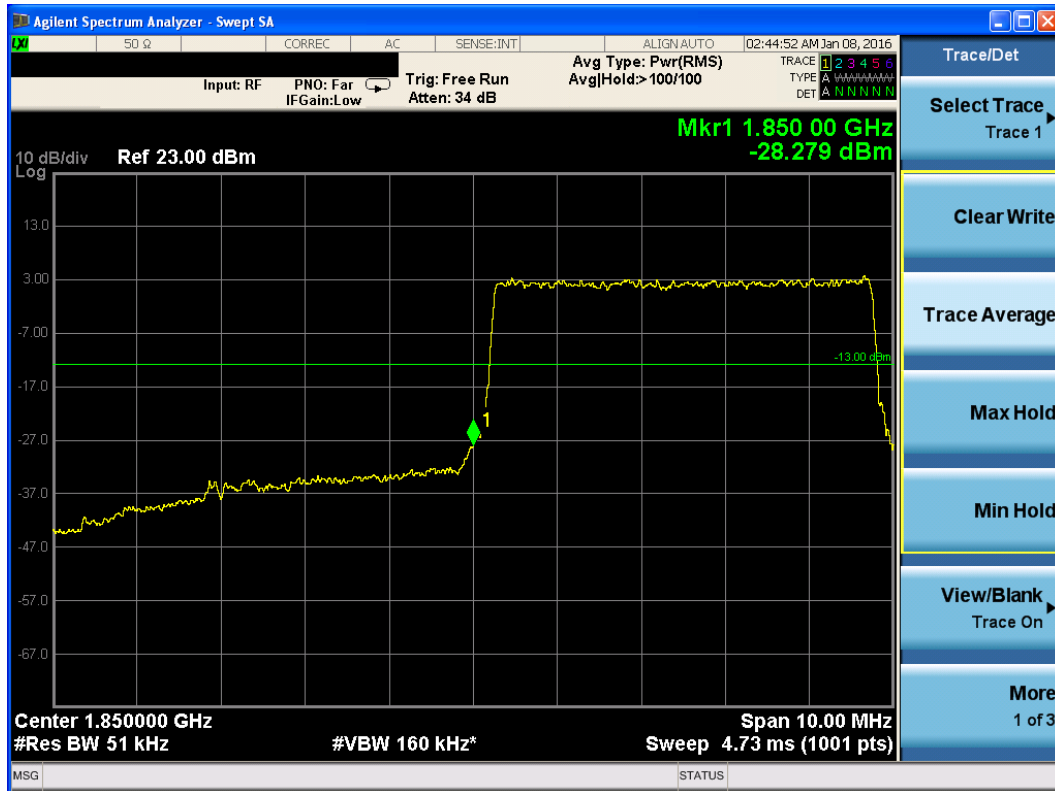
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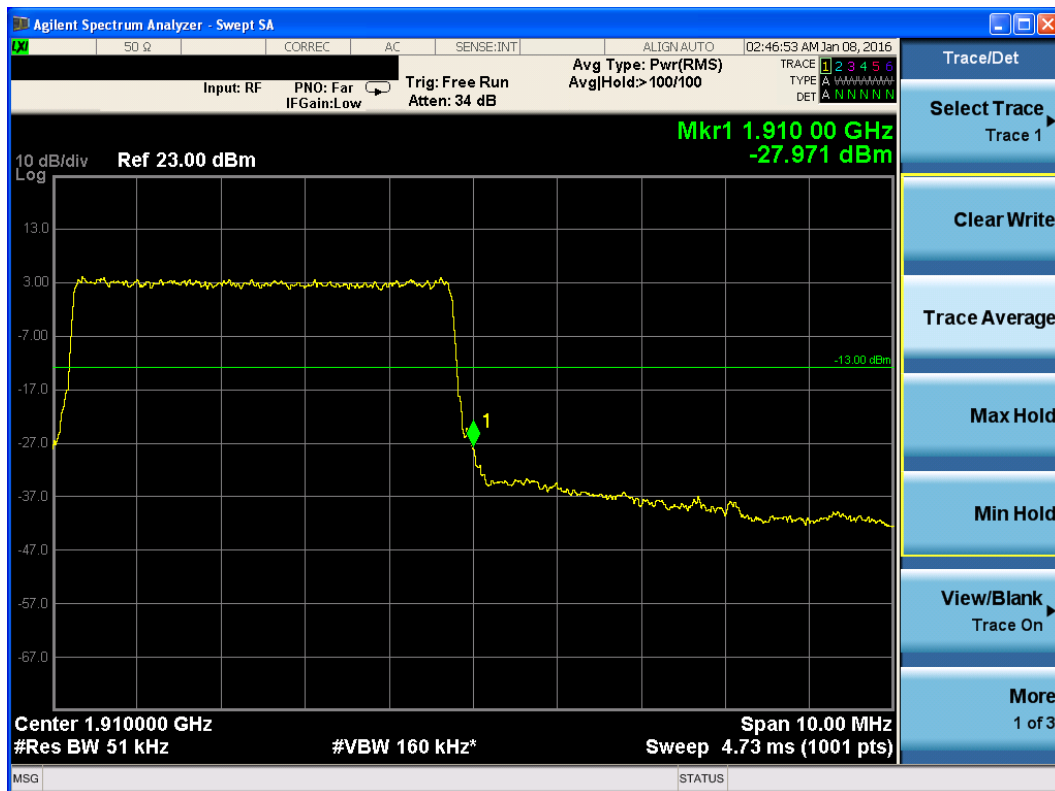
LTE Band II 5MHz QPSK 1RB CH18625



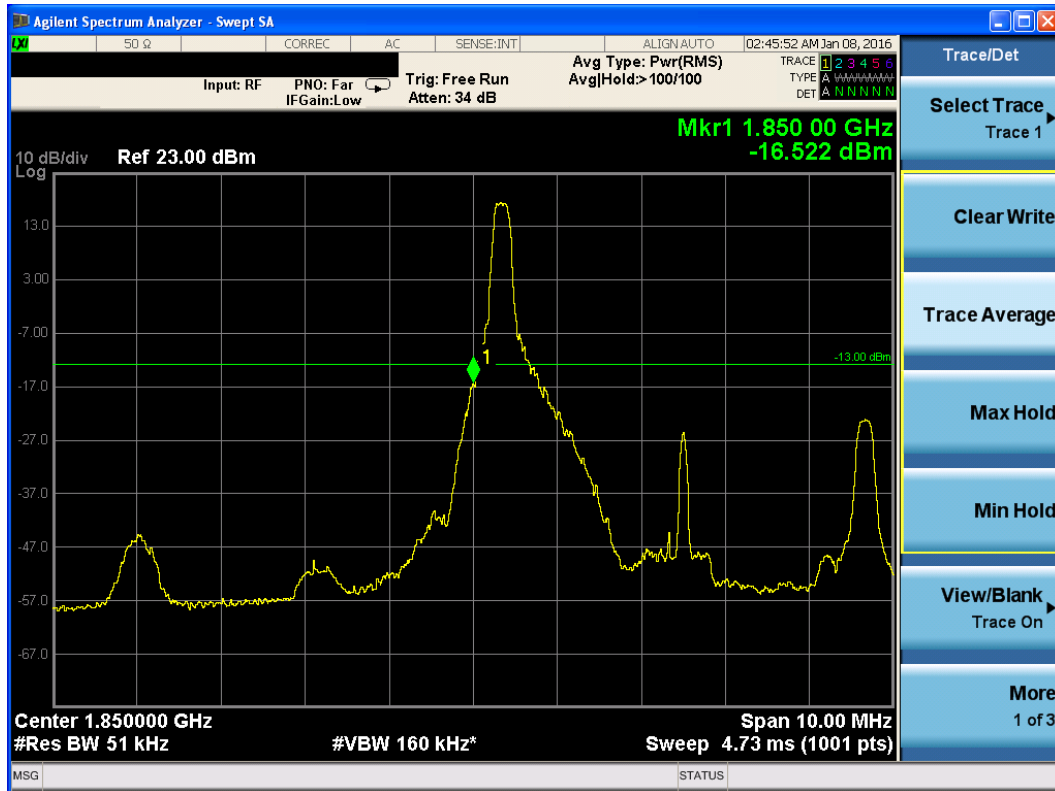
LTE Band II 5MHz QPSK 1RB CH19175



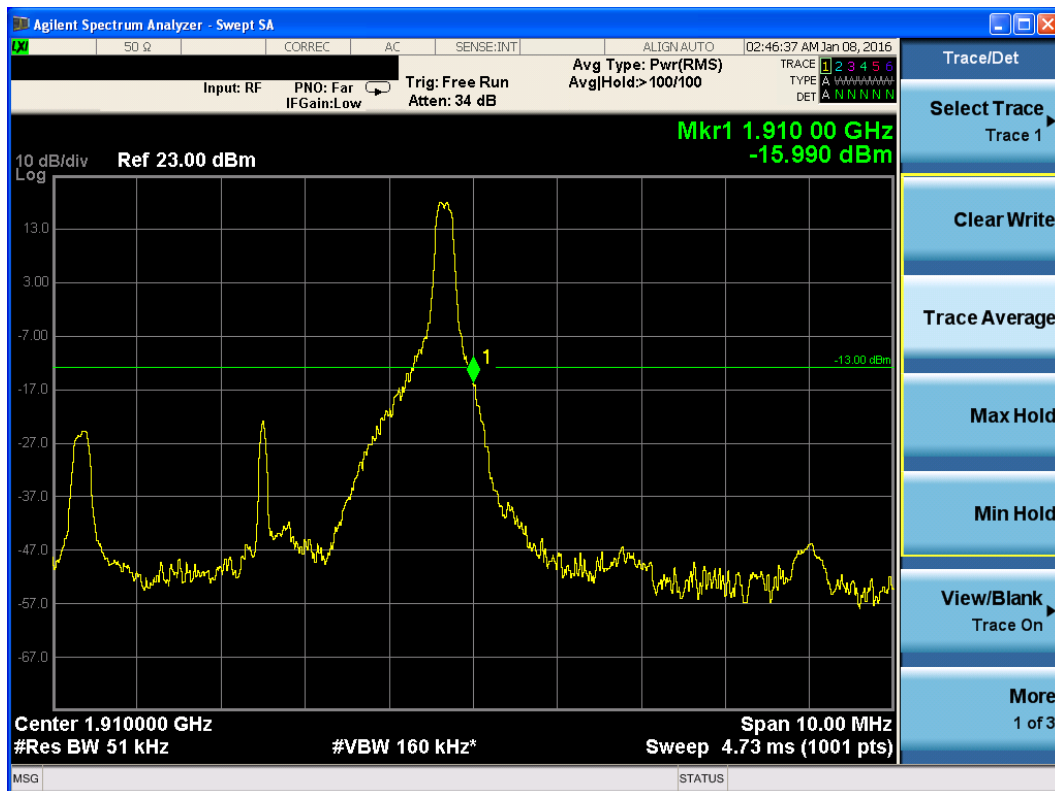
LTE Band II 5MHz QPSK 100%RB CH18625



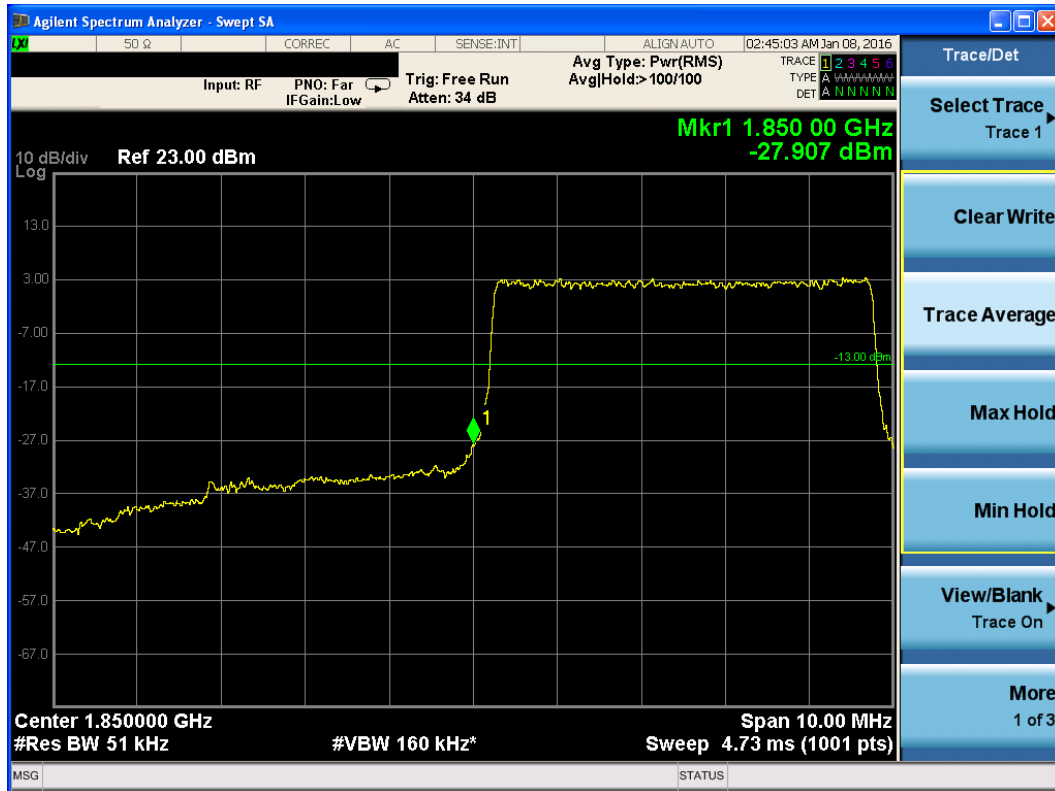
LTE Band II 5MHz QPSK 100%RB CH19175



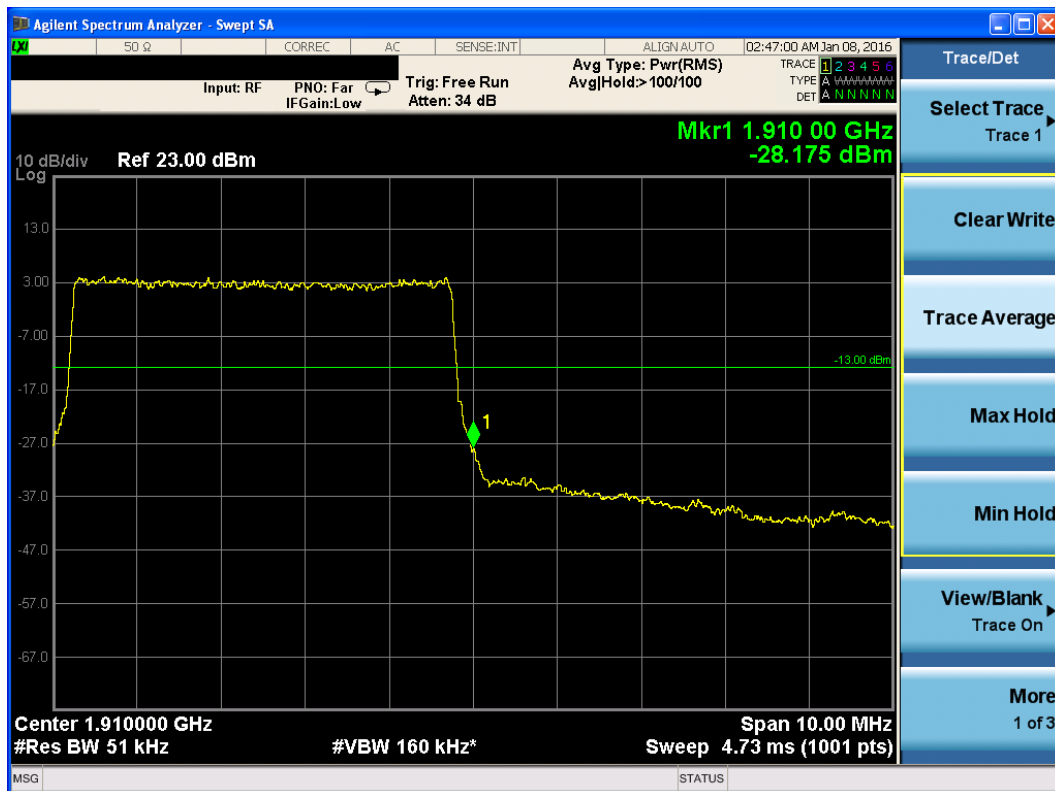
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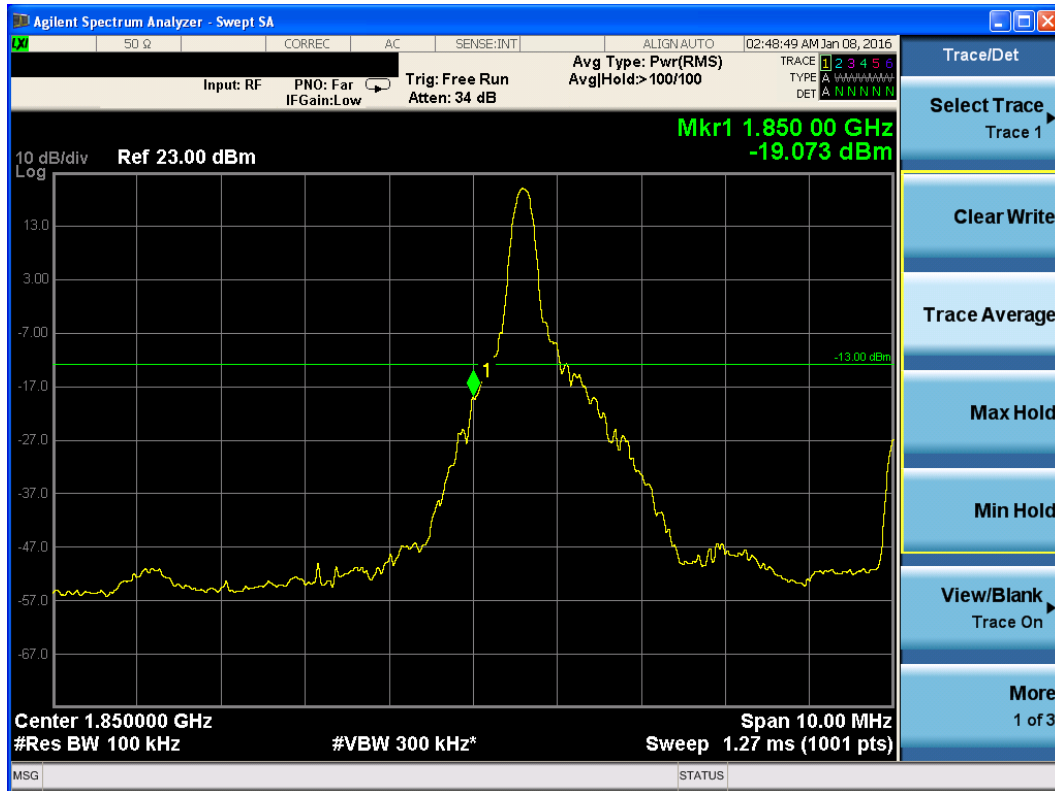
LTE Band II 5MHz 16QAM 1RB CH19175



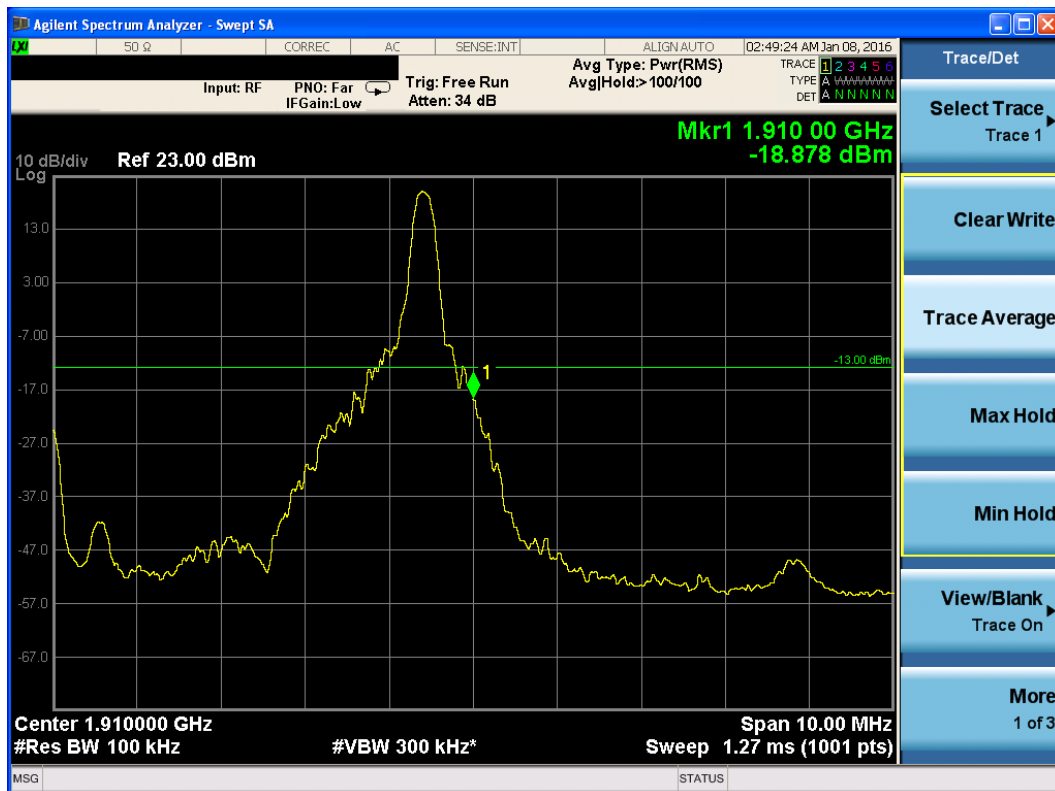
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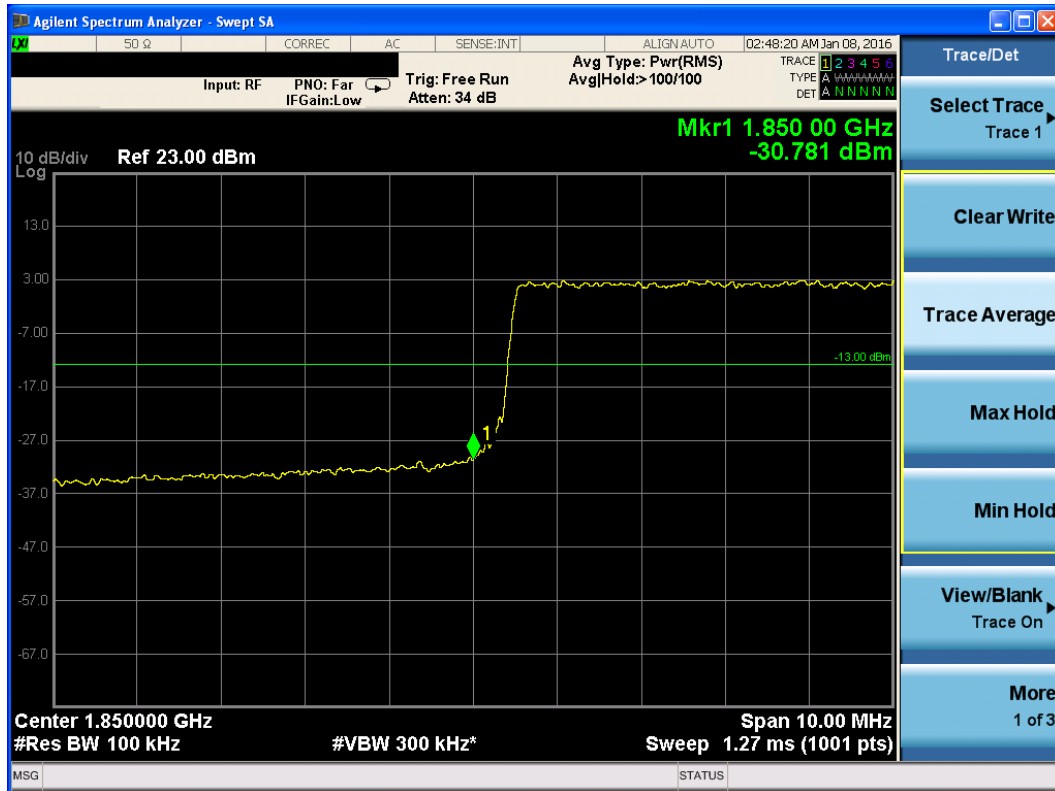
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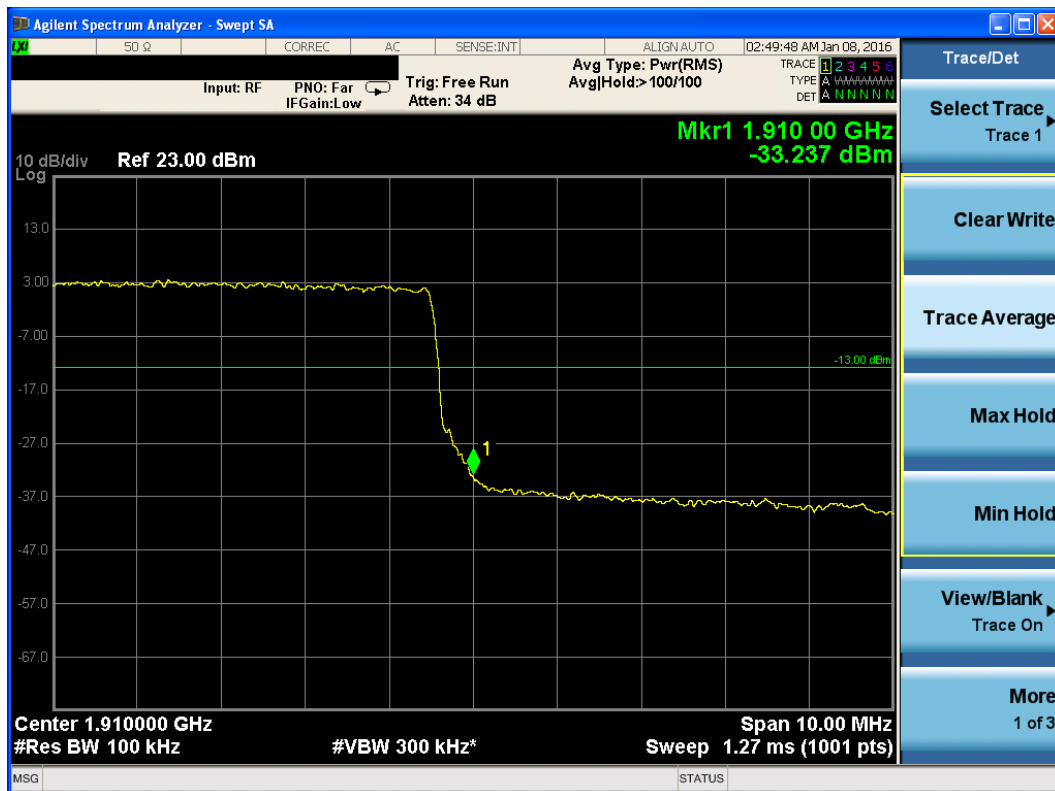
LTE Band II 10MHz QPSK 1RB CH18650



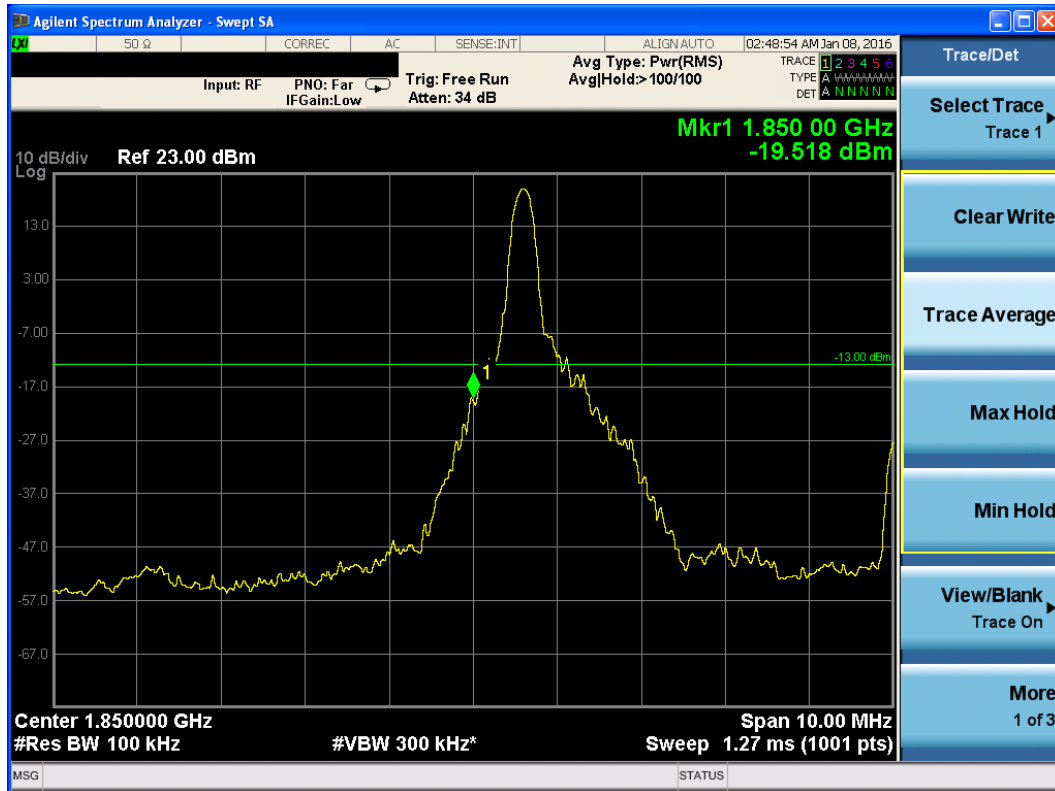
LTE Band II 10MHz QPSK 1RB CH19150



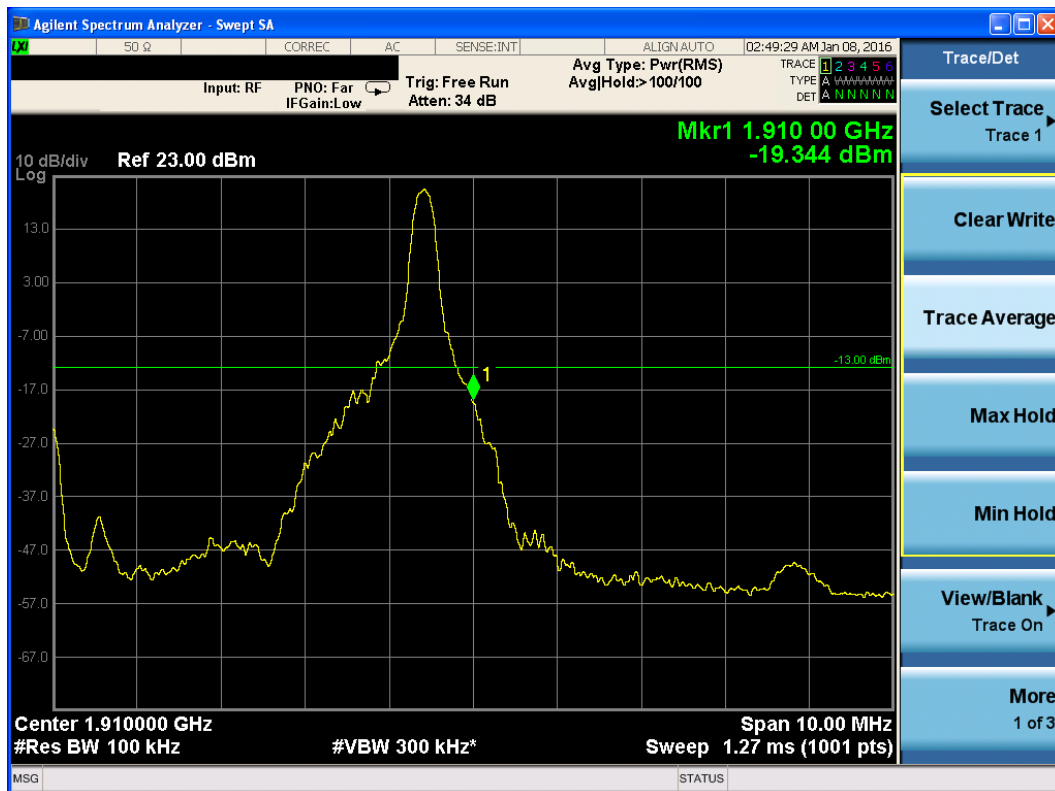
LTE Band II 10MHz QPSK 100%RB CH18650



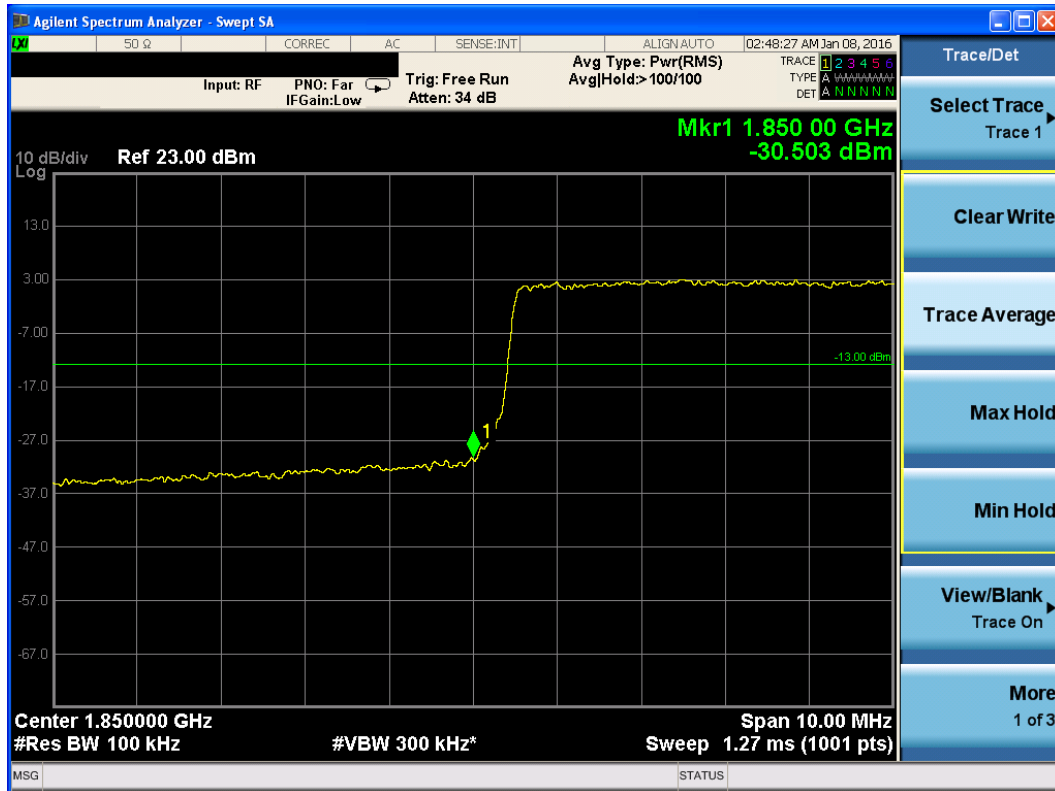
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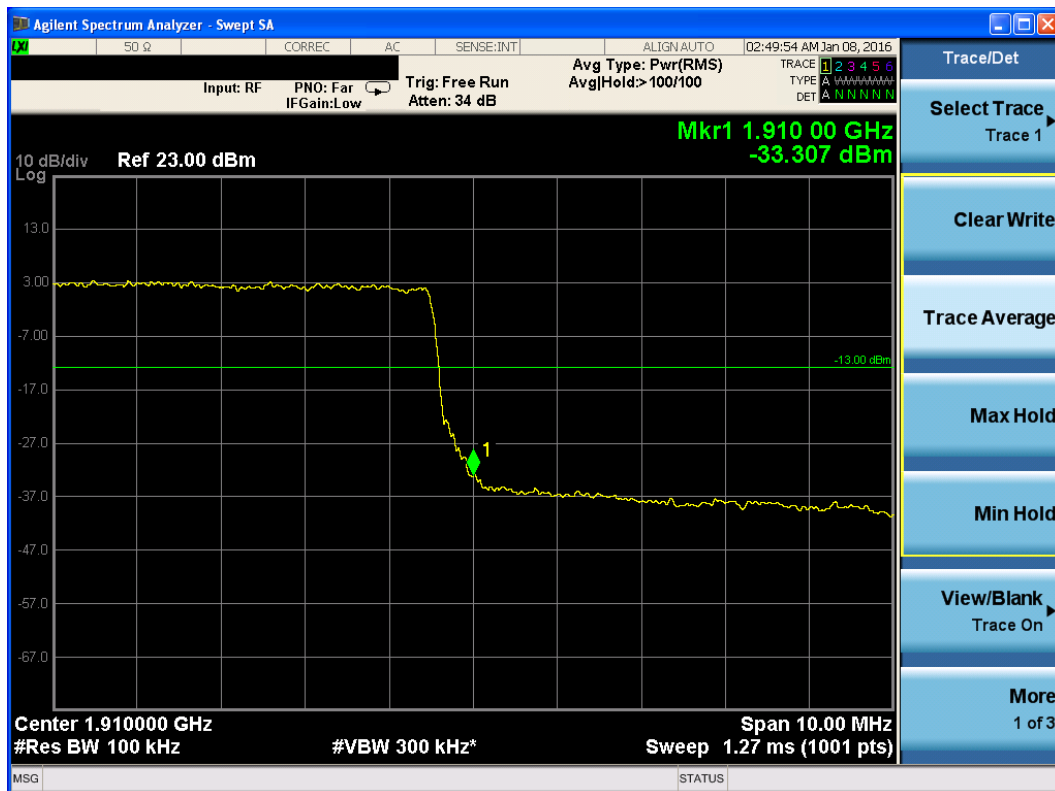
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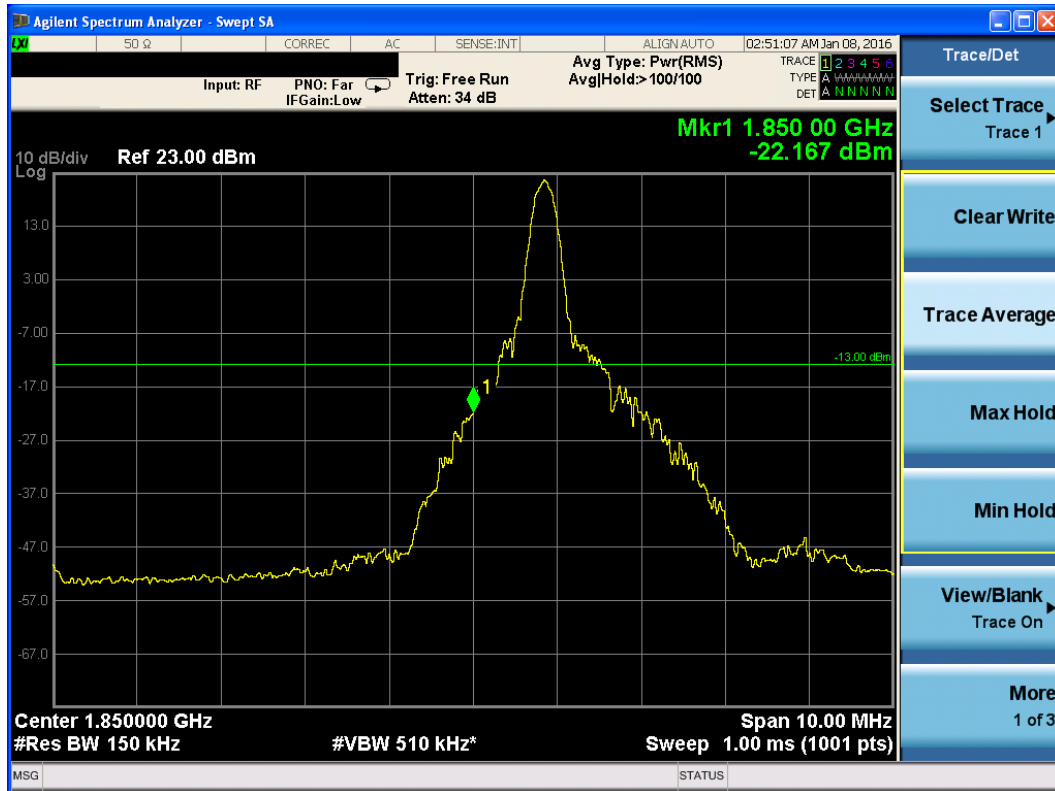
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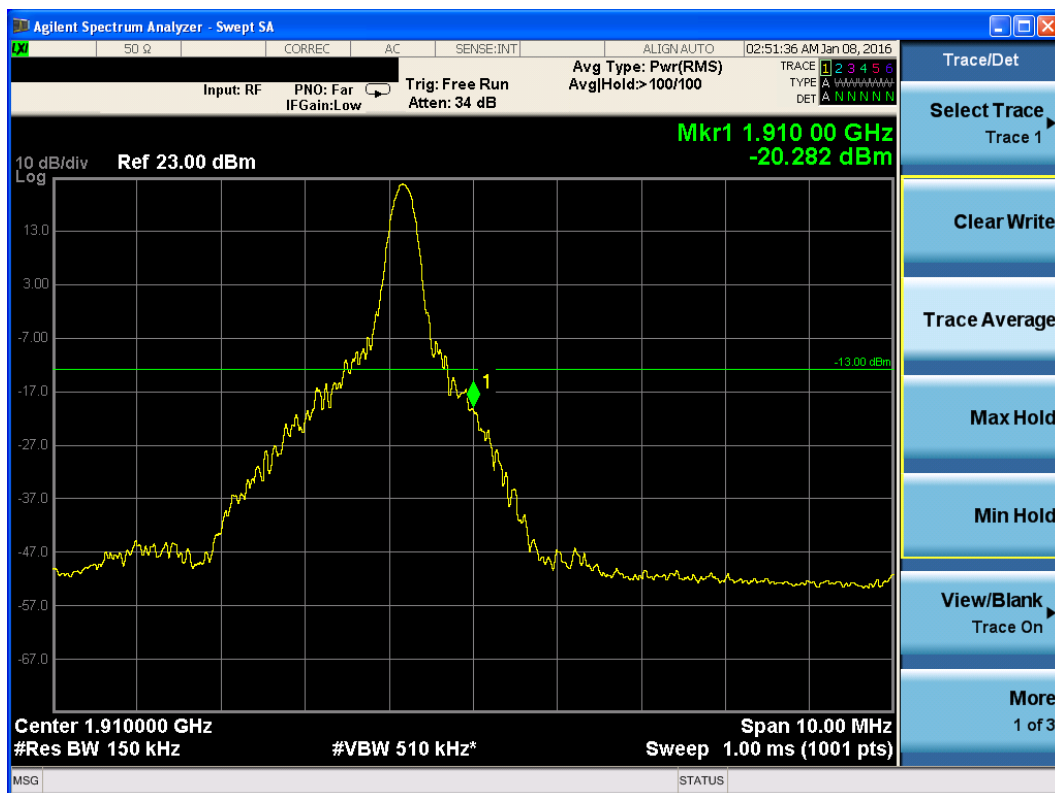
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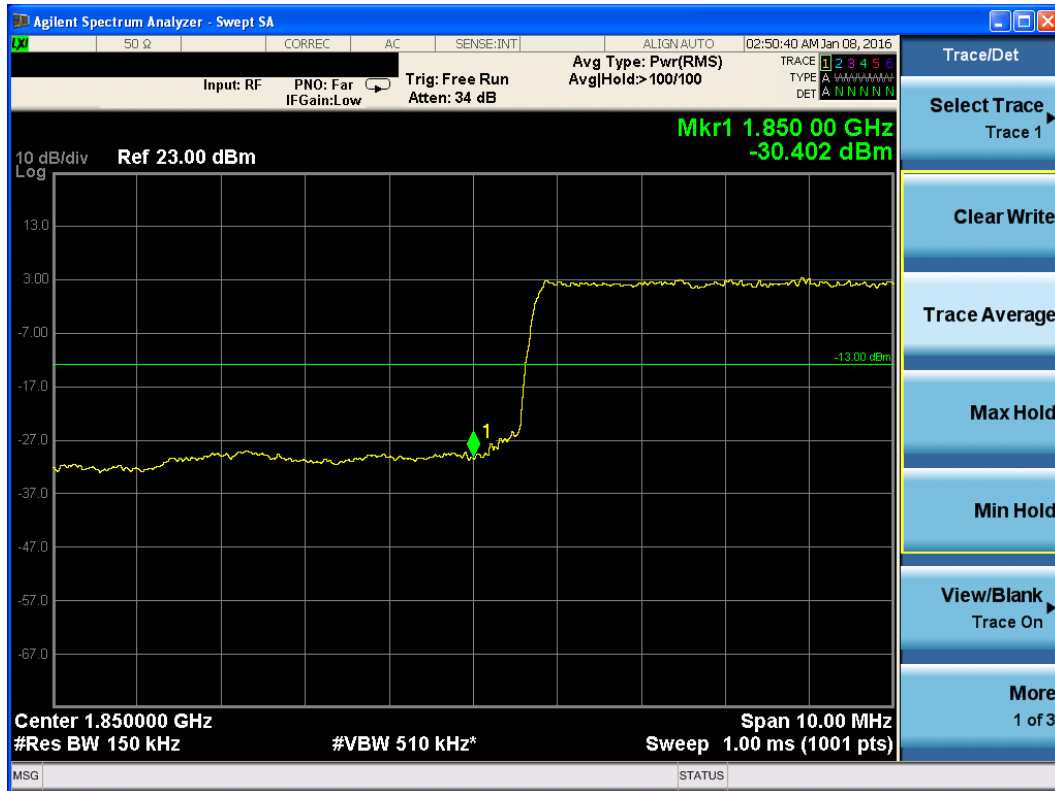
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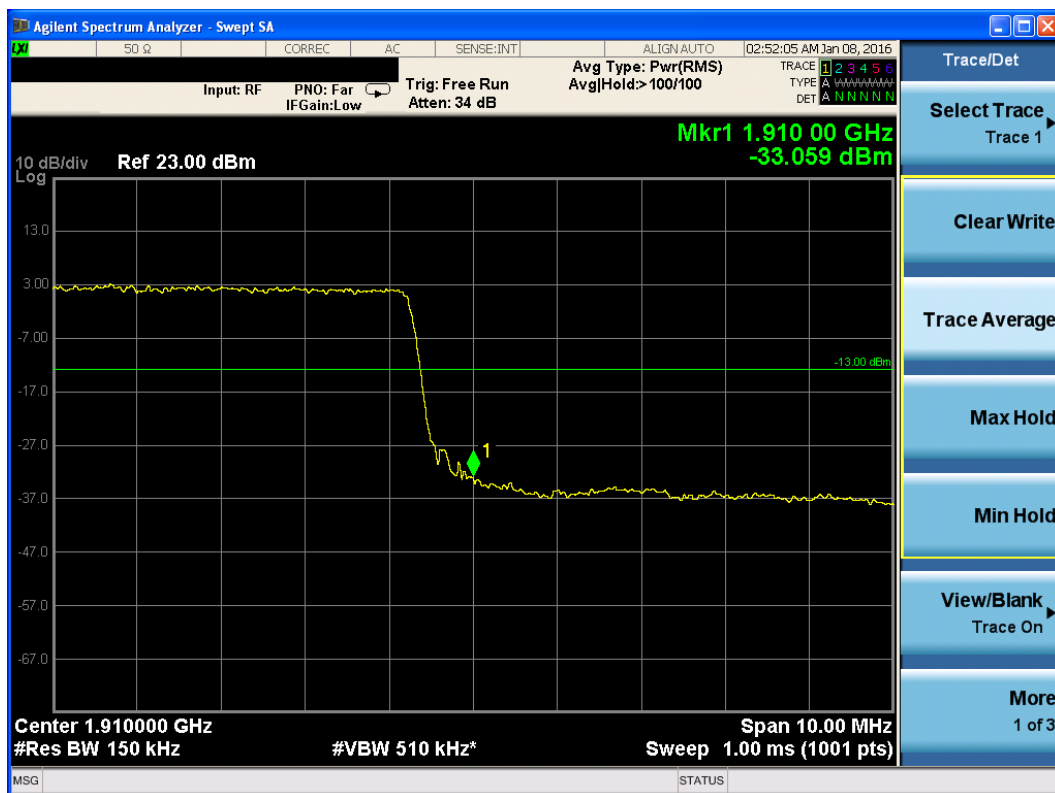
LTE Band II 15MHz QPSK 1RB CH18675



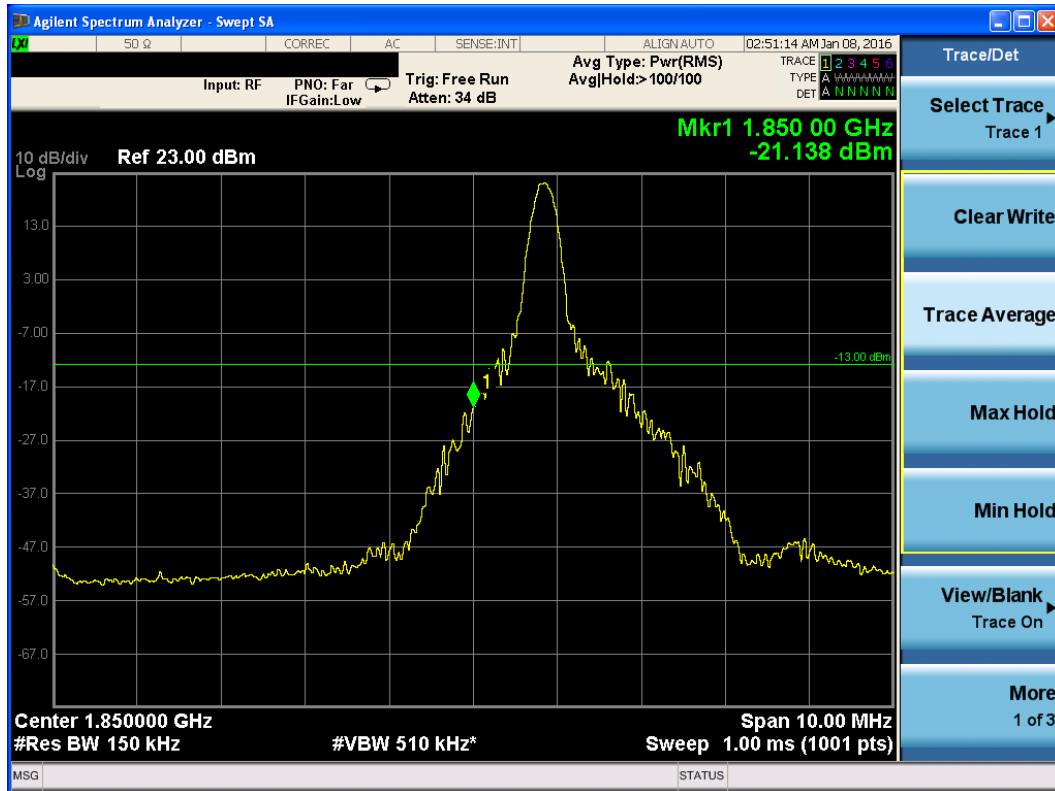
LTE Band II 15MHz QPSK 1RB CH19125



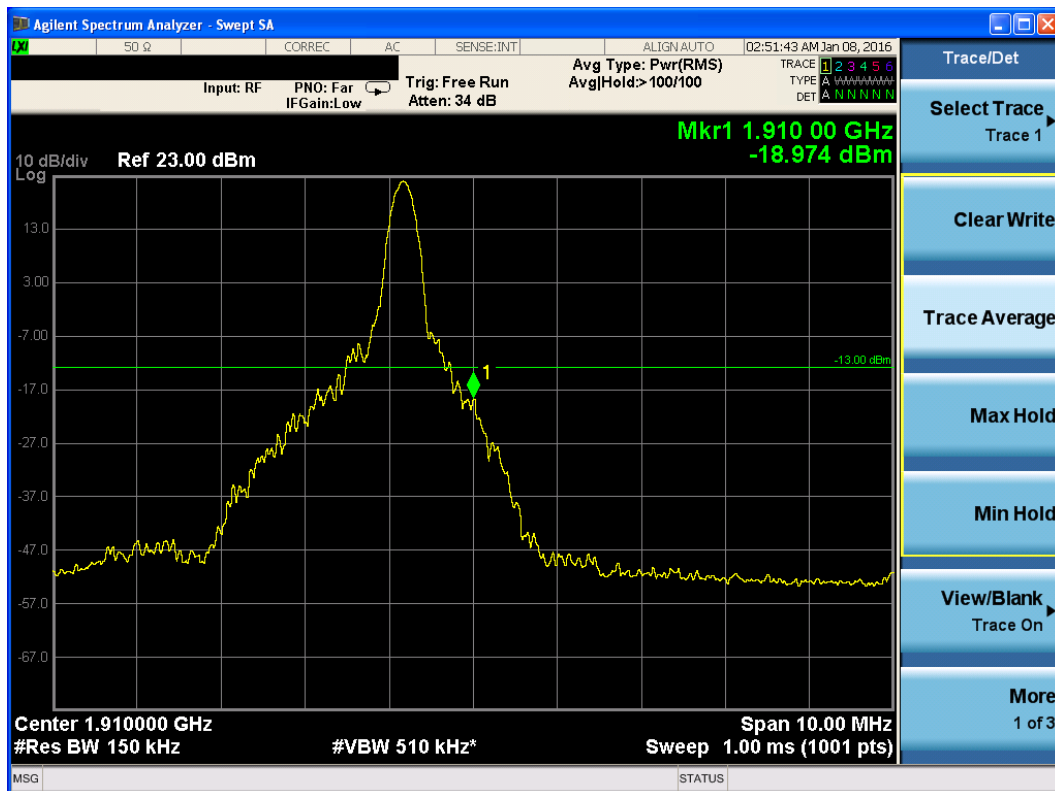
LTE Band II 15MHz QPSK 100%RB CH18675



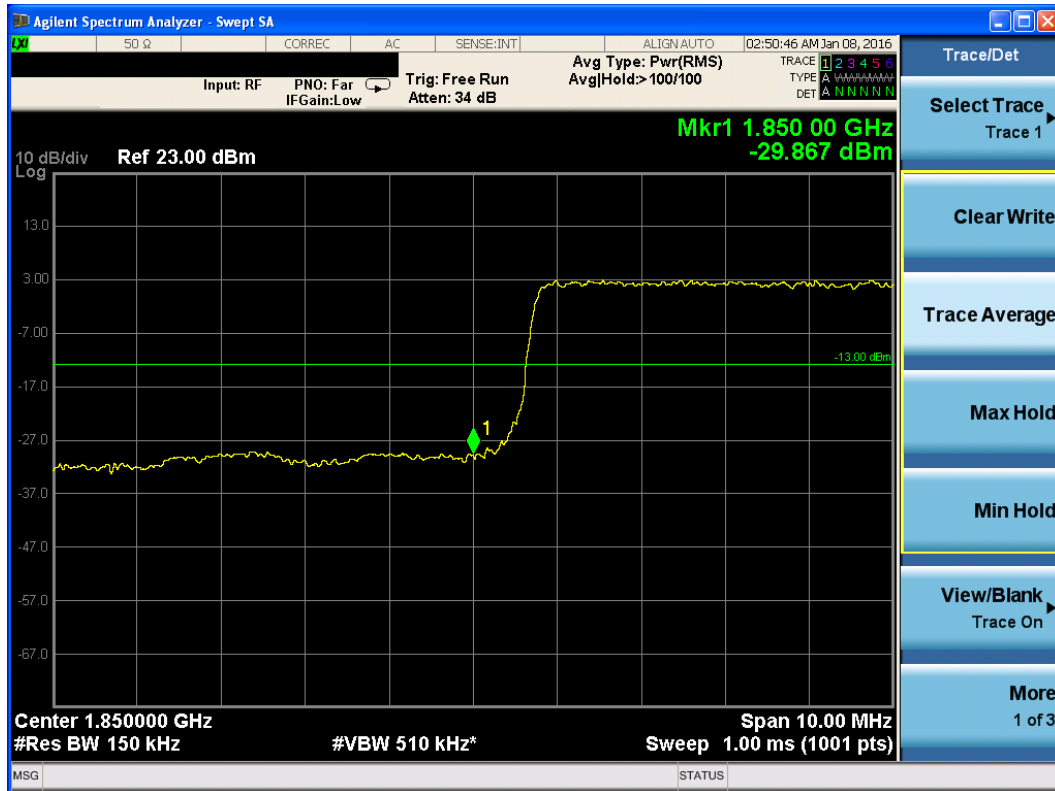
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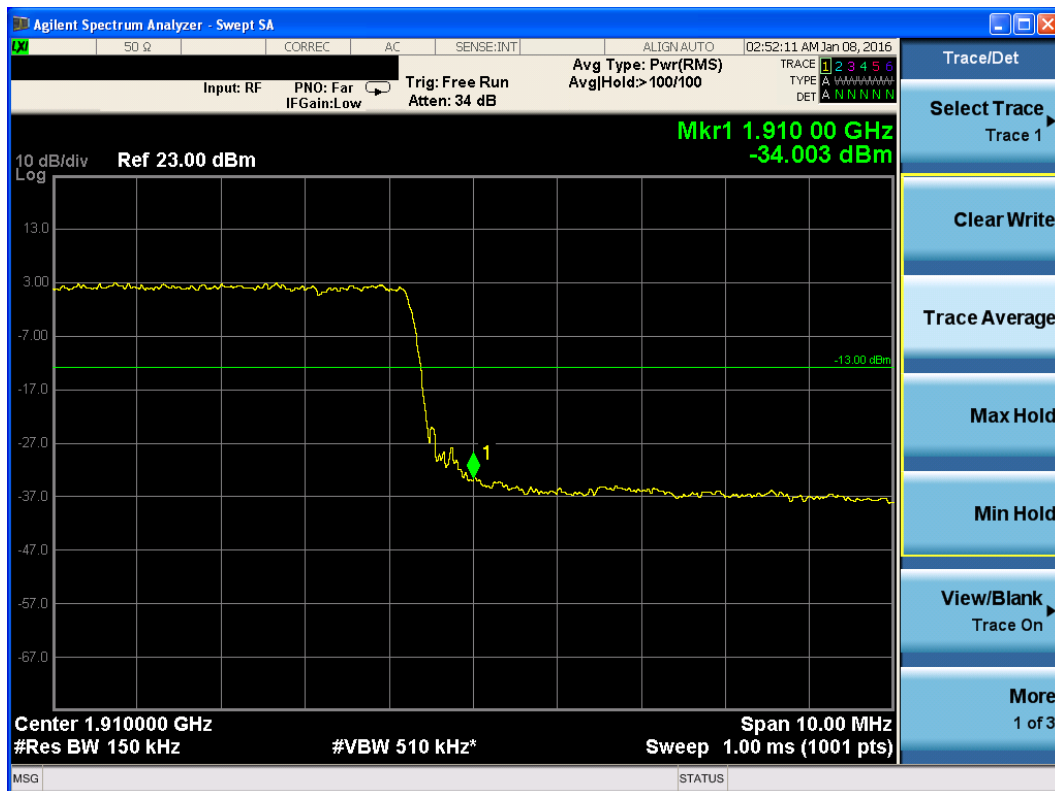
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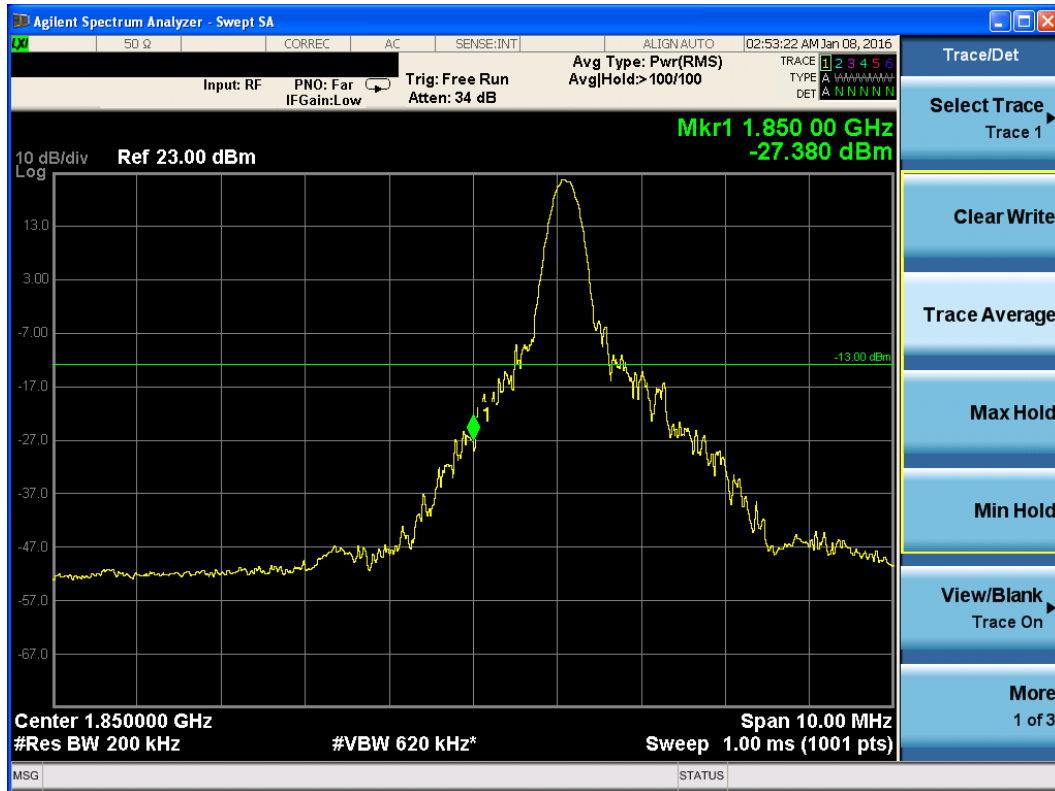
LTE Band II 15MHz 16QAM 1RB CH19125



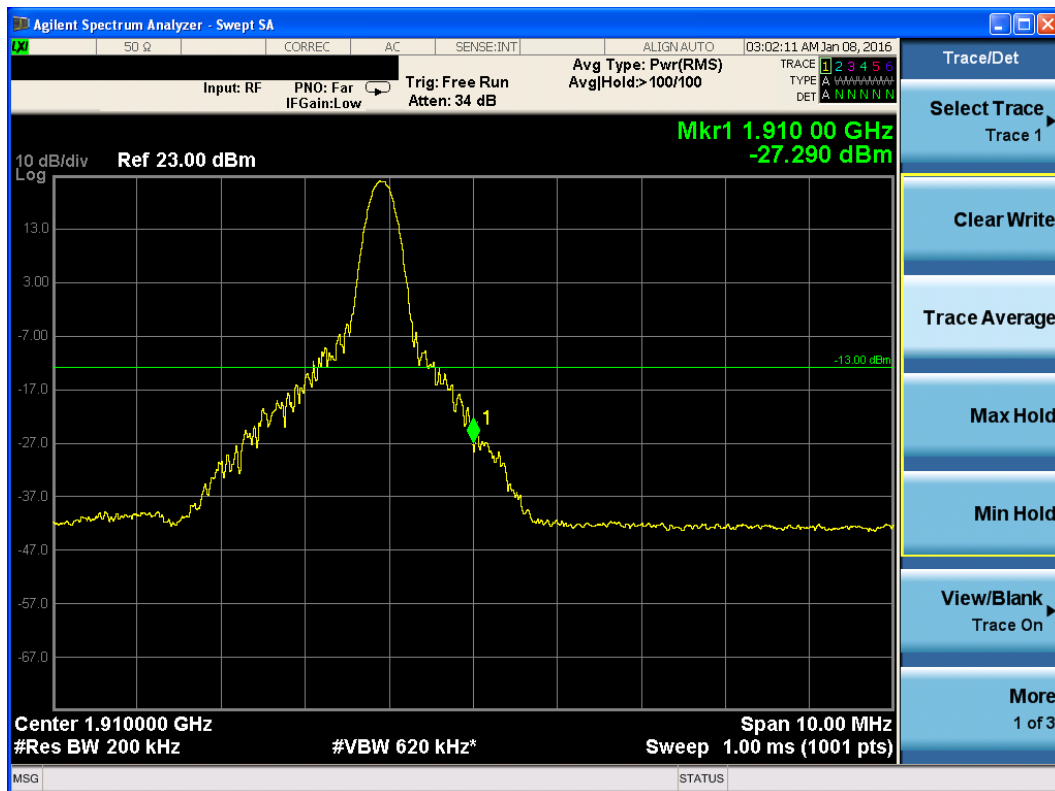
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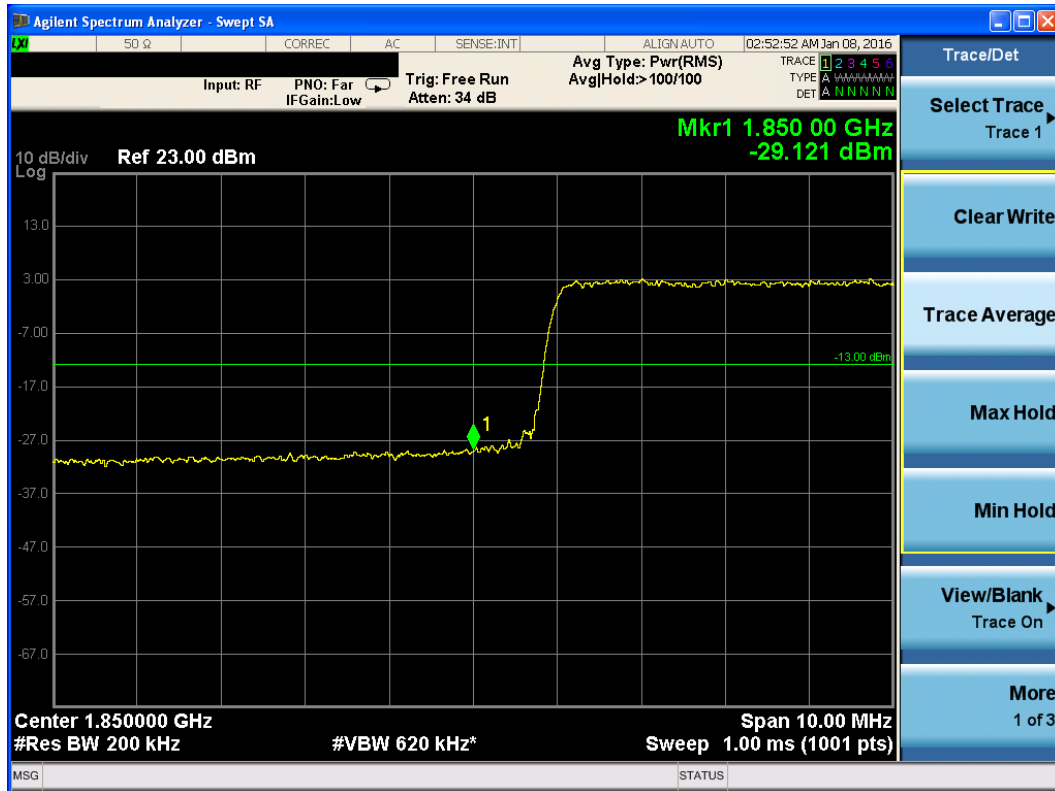
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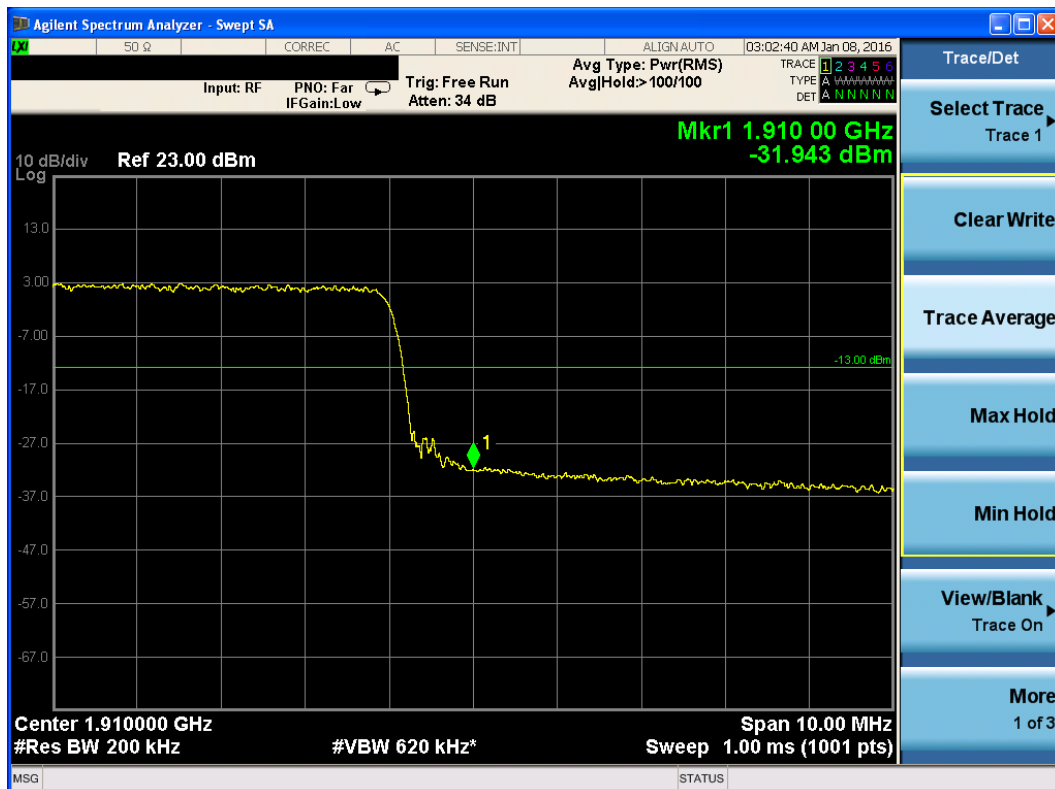
LTE Band II 20MHz QPSK 1RB CH18700



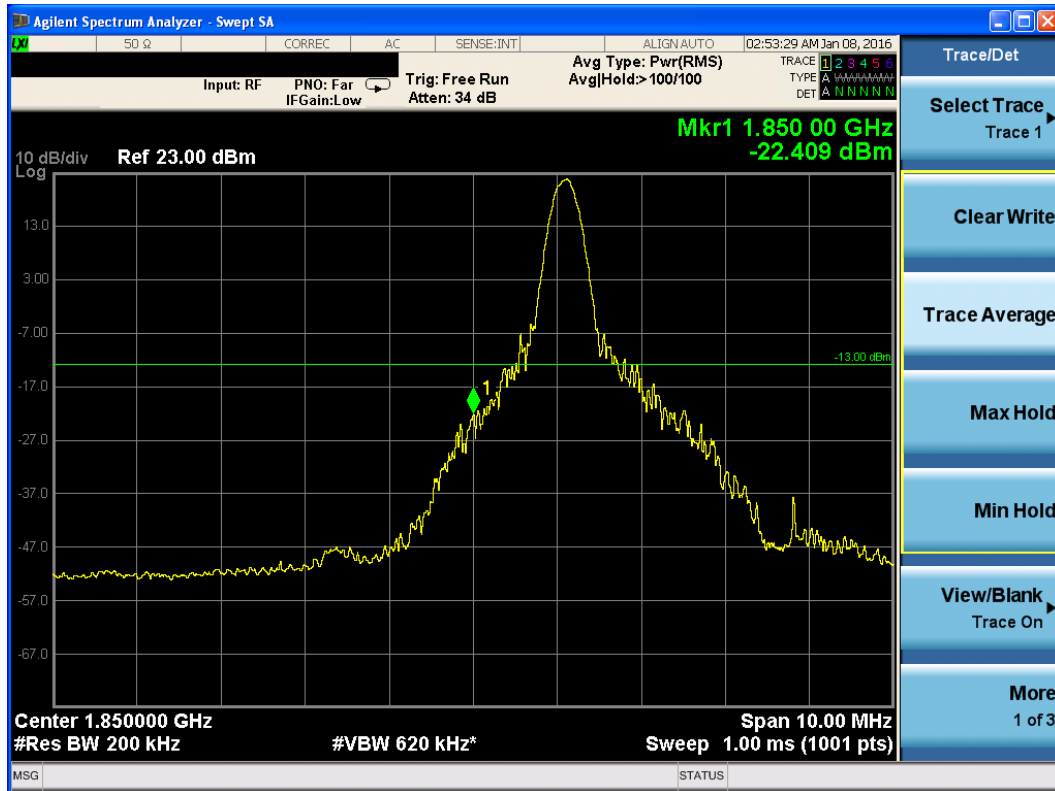
LTE Band II 20MHz QPSK 1RB CH19100



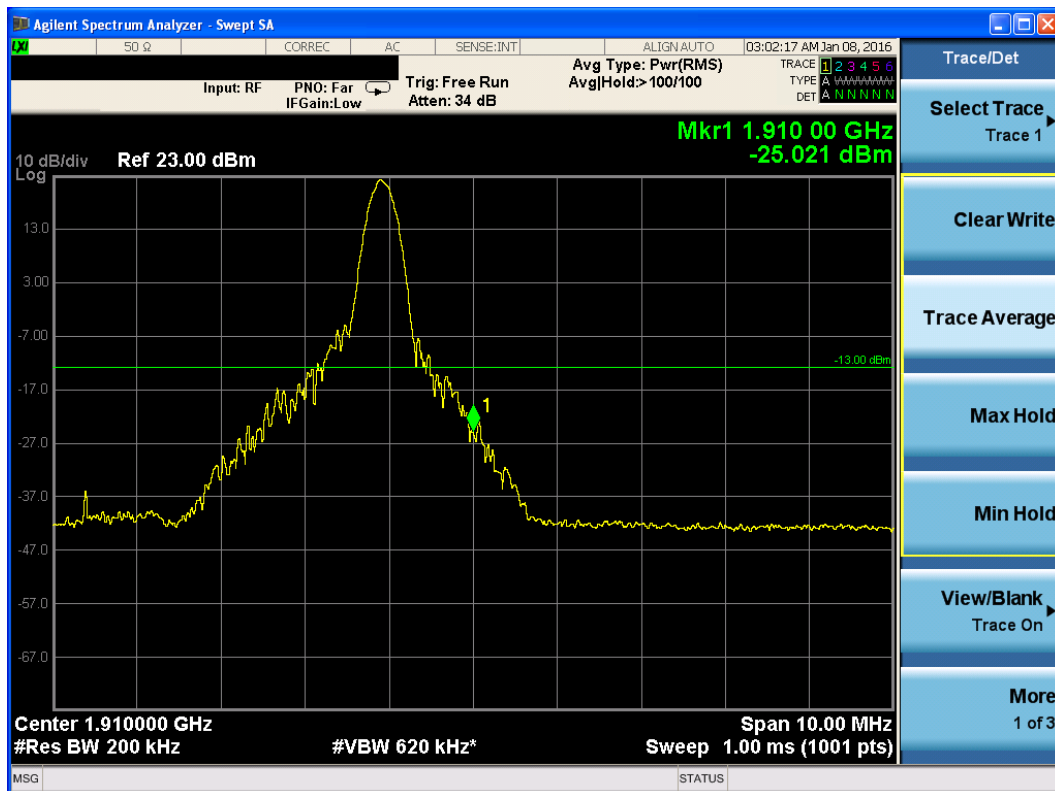
LTE Band II 20MHz QPSK 100%RB CH18700



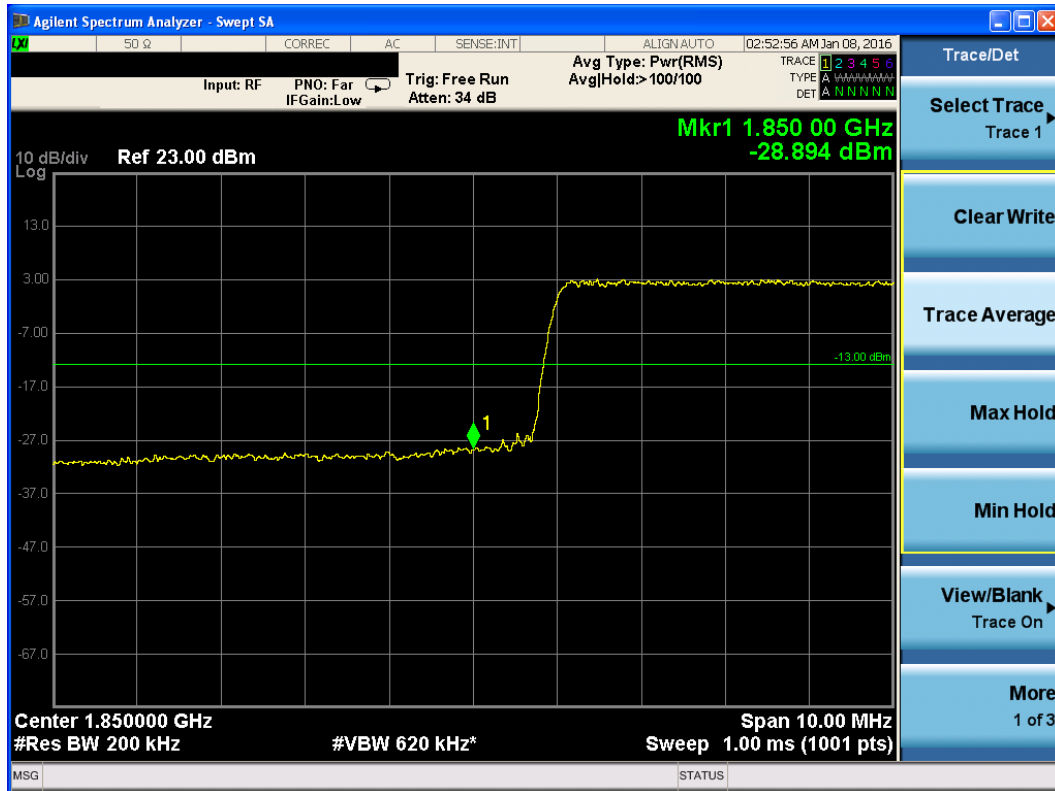
LTE Band II 20MHz QPSK 100%RB CH19100



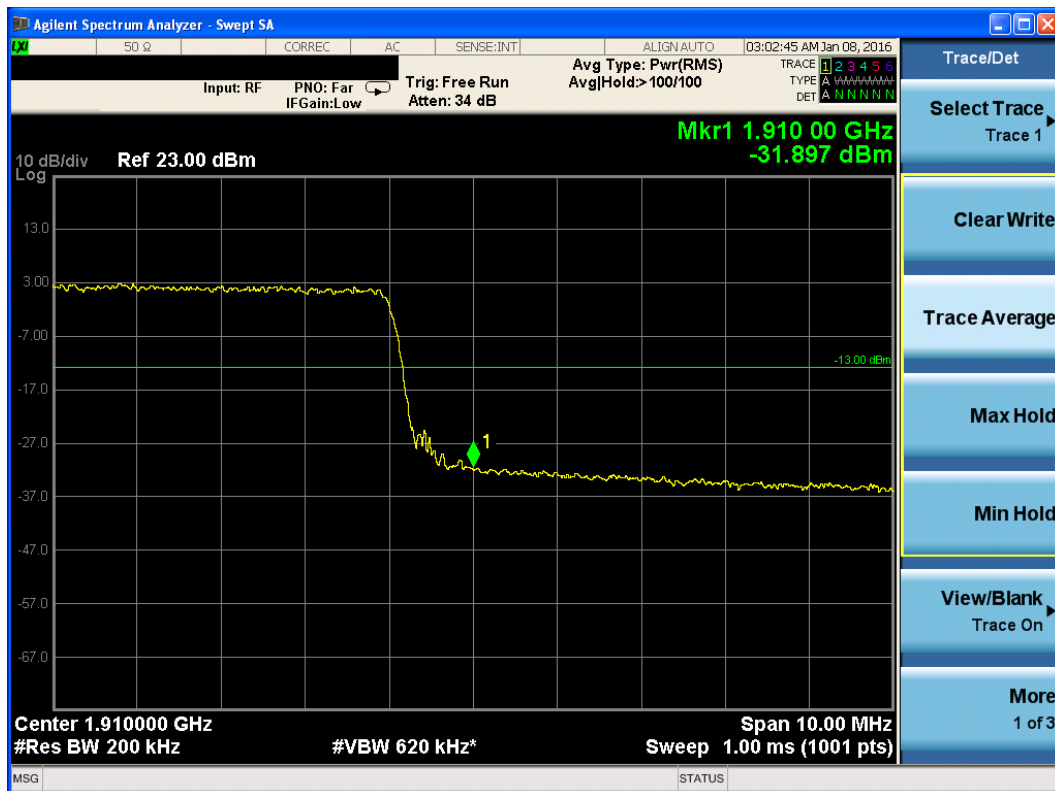
LTE Band II 20MHz 16QAM 1RB CH18700



LTE Band II 20MHz 16QAM 1RB CH19100



LTE Band II 20MHz 16QAM 100%RB CH18700



LTE Band II 20MHz 16QAM 100%RB CH19100

5.5. Peak-to-Average Power Ratio (PAPR)

Ambient condition

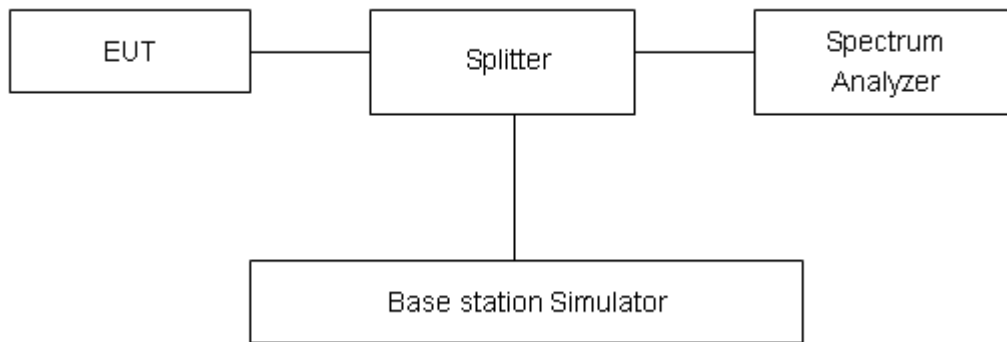
Temperature	Relative humidity
21°C ~25°C	40%~60%

Methods of Measurement

Measure the total peak power and record as PPK. And measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

$PAPR (dB) = PPK (dBm) - PAvg (dBm)$.

Test Setup



Limits

In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB in 24.232(d).

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.

**Test Results**

Mode	Channel	Frequency (MHz)	Peak(dBm)	Avg(dBm)	PAPR(dB)	Conclusion
GSM 1900 (GSM)	512	1850.2	28.95	28.83	0.12	PASS
	661	1880	29.25	29.22	0.03	PASS
	810	1909.8	29.68	29.66	0.02	PASS
GPRS 1900 (GMSK)	512	1850.2	28.84	28.83	0.01	PASS
	661	1880	29.26	29.23	0.03	PASS
	810	1909.8	29.67	29.66	0.01	PASS
EGPRS 1900 (8-PSK)	512	1850.2	24.91	24.88	0.03	PASS
	661	1880	24.79	24.72	0.07	PASS
	810	1909.8	25.25	25.24	0.01	PASS
WCDMA Band II (RMC)	9262	1852.4	24.55	21.73	2.82	PASS
	9400	1880	24.96	21.84	3.12	PASS
	9538	1907.6	24.28	21.47	2.81	PASS

LTE Band II		Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Conclusion
Modulation	Bandwidth						
1.4MHz	QPSK	18607	1850.7	20.86	19.98	0.88	PASS
		18900	1880.0	20.67	20.06	0.61	PASS
		19193	1909.3	20.76	20.03	0.73	PASS
	16QAM	18607	1850.7	19.85	19.04	0.81	PASS
		18900	1880.0	19.99	19.15	0.84	PASS
		19193	1909.3	20.30	19.18	1.12	PASS
3MHz	QPSK	18615	1851.5	20.54	19.89	0.65	PASS
		18900	1880	20.67	19.96	0.71	PASS
		19185	1908.5	21.00	19.93	1.07	PASS
	16QAM	18615	1851.5	19.66	18.94	0.72	PASS
		18900	1880	19.73	19.05	0.68	PASS
		19185	1908.5	19.81	19.09	0.72	PASS
5MHz	QPSK	18625	1852.5	20.79	19.92	0.87	PASS
		18900	1880	20.81	19.99	0.82	PASS
		19175	1907.5	20.50	19.96	0.54	PASS
	16QAM	18625	1852.5	19.86	18.98	0.88	PASS
		18900	1880	20.11	19.08	1.03	PASS
		19175	1907.5	19.98	19.12	0.86	PASS
10MHz	QPSK	18650	1855	21.09	19.93	1.16	PASS
		18900	1880	21.14	20.01	1.13	PASS
		19150	1905	21.17	19.98	1.19	PASS
	16QAM	18650	1855	20.18	18.99	1.19	PASS
		18900	1880	20.44	19.10	1.34	PASS
		19150	1905	20.30	19.13	1.17	PASS
15MHz	QPSK	18675	1857.5	21.22	19.95	1.27	PASS
		18900	1880	21.35	20.03	1.32	PASS
		19125	1902.5	21.21	20.00	1.21	PASS
	16QAM	18675	1857.5	20.36	19.01	1.35	PASS
		18900	1880	20.33	19.12	1.21	PASS
		19125	1902.5	20.45	19.16	1.29	PASS
20MHz	QPSK	18700	1860	21.32	19.97	1.35	PASS
		18900	1880	21.26	20.04	1.22	PASS
		19100	1900	21.16	20.01	1.15	PASS
	16QAM	18700	1860	20.25	19.02	1.23	PASS
		18900	1880	20.40	19.13	1.27	PASS
		19100	1900	20.34	19.17	1.17	PASS

5.6.Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

1. Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from 0°C to +50°C in 10°C step size,

(1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from 0°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

2. Frequency Stability (Voltage Variation)

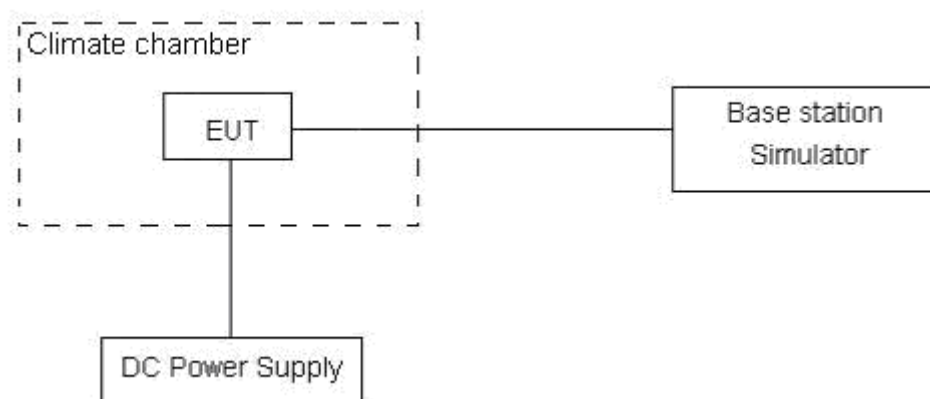
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.6 V and 4.35 V, with a nominal voltage of 3.8V.

Test setup



Limits

No specific frequency stability requirements in part 24.235

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 3$, $U = 0.01\text{ppm}$.

Test Result

Mode	Test status	Test Results (ppm)			Conclusion
		GSM(GMSK)	GPRS(GMSK)	EGPRS(8PSK)	
GSM 1900 Channel 661	0°C/3.8 V	0.0110	0.0065	0.0100	PASS
	10°C/3.8 V	0.0040	0.0073	0.0081	PASS
	20°C/3.8 V	0.0070	0.0094	0.0100	PASS
	30°C/3.8 V	0.0052	0.0130	0.0101	PASS
	40°C/3.8 V	0.0054	0.0031	0.0091	PASS
	50°C/3.8 V	0.0044	0.0102	0.0106	PASS
	20°C/3.6 V	0.0110	0.0101	0.0094	PASS
	20°C/4.35 V	0.0103	0.0088	0.0095	PASS
/	/	RMC			/
WCDMA Band II Channel 9400	0°C/3.8 V	-0.002242			PASS
	10°C/3.8 V	-0.001377			PASS
	20°C/3.8 V	-0.001705			PASS
	30°C/3.8 V	-0.002121			PASS
	40°C/3.8 V	-0.001813			PASS
	50°C/3.8 V	-0.002533			PASS
	20°C/3.6 V	-0.002568			PASS
	20°C/4.35 V	-0.001516			PASS

Bandwith	Test status	LTE Band II Channel 18900		Conclusion
		Test Results (ppm)		
		QPSK	16QAM	
1.4MHz	0°C/3.8 V	0.00234	-0.00436	PASS
	10°C/3.8 V	0.00500	-0.00521	PASS
	20°C/3.8 V	0.00441	-0.00144	PASS
	30°C/3.8 V	0.00787	-0.00319	PASS
	40°C/3.8 V	0.00399	-0.00101	PASS
	50°C /3.8 V	0.00548	-0.00197	PASS
	20°C/3.6 V	0.00468	-0.00367	PASS
	20°C/4.35 V	0.00255	-0.00495	PASS
3MHz	0°C/3.8 V	0.00394	-0.00234	PASS
	10°C/3.8 V	0.00266	-0.00138	PASS
	20°C/3.8 V	0.00447	-0.00261	PASS
	30°C/3.8 V	0.00484	-0.00447	PASS
	40°C/3.8 V	0.00702	-0.00622	PASS
	50°C /3.8 V	0.00580	-0.00505	PASS
	20°C/3.6 V	0.00298	0.00851	PASS
	20°C/4.35 V	0.00617	0.00463	PASS
5MHz	0°C/3.8 V	0.00271	0.00532	PASS
	10°C/3.8 V	0.00170	0.00319	PASS
	20°C/3.8 V	0.00521	0.00298	PASS
	30°C/3.8 V	0.00154	0.00564	PASS
	40°C/3.8 V	0.00324	0.00505	PASS
	50°C /3.8 V	0.00245	0.00420	PASS
	20°C/3.6 V	0.00351	0.00548	PASS
	20°C/4.35 V	0.00239	0.00766	PASS
10MHz	0°C/3.8 V	-0.00410	0.00436	PASS
	10°C/3.8 V	-0.00191	0.00755	PASS
	20°C/3.8 V	0.00223	0.00457	PASS
	30°C/3.8 V	0.00122	0.00330	PASS
	40°C/3.8 V	0.00340	0.00511	PASS
	50°C /3.8 V	0.00293	0.00388	PASS
	20°C/3.6 V	-0.00612	0.00293	PASS
	20°C/4.35 V	-0.00234	0.00463	PASS
15MHz	0°C/3.8 V	-0.00537	0.00489	PASS
	10°C/3.8 V	-0.00713	0.00378	PASS
	20°C/3.8 V	-0.00457	0.00410	PASS



	30°C/3.8 V	-0.00585	0.00309	PASS
	40°C/3.8 V	-0.00527	0.00660	PASS
	50°C /3.8 V	-0.00415	0.00346	PASS
	20°C/3.6 V	-0.00229	0.00261	PASS
	20°C/4.35 V	-0.00351	0.00479	PASS
20MHz	0°C/3.8 V	0.00676	-0.00676	PASS
	10°C/3.8 V	0.00617	-0.00298	PASS
	20°C/3.8 V	0.00963	-0.00473	PASS
	30°C/3.8 V	0.00574	-0.00255	PASS
	40°C/3.8 V	-0.00324	0.00362	PASS
	50°C /3.8 V	0.00521	-0.00601	PASS
	20°C/3.6 V	0.00431	-0.00649	PASS
	20°C/4.35 V	0.00410	-0.00590	PASS

5.7. Spurious Emissions at Antenna Terminals

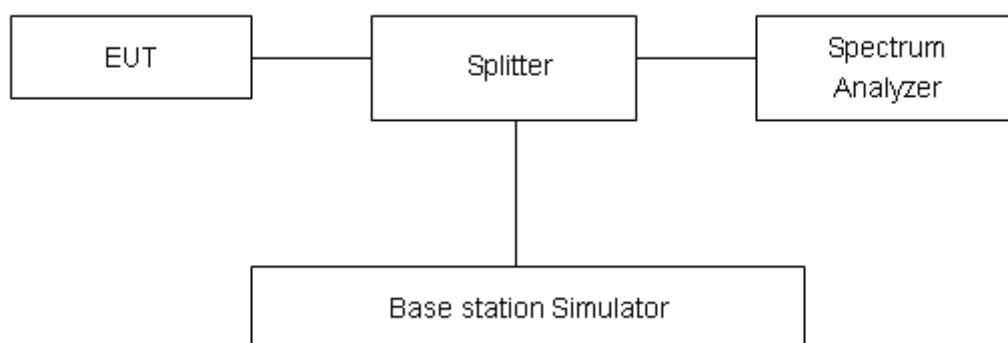
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used. RBW and VBW are set to 100 kHz for the carrier frequency, or RBW and VBW are set to 1MHz (other frequency), Sweep is set to ATUO.

Test setup



Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee’s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10} (P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

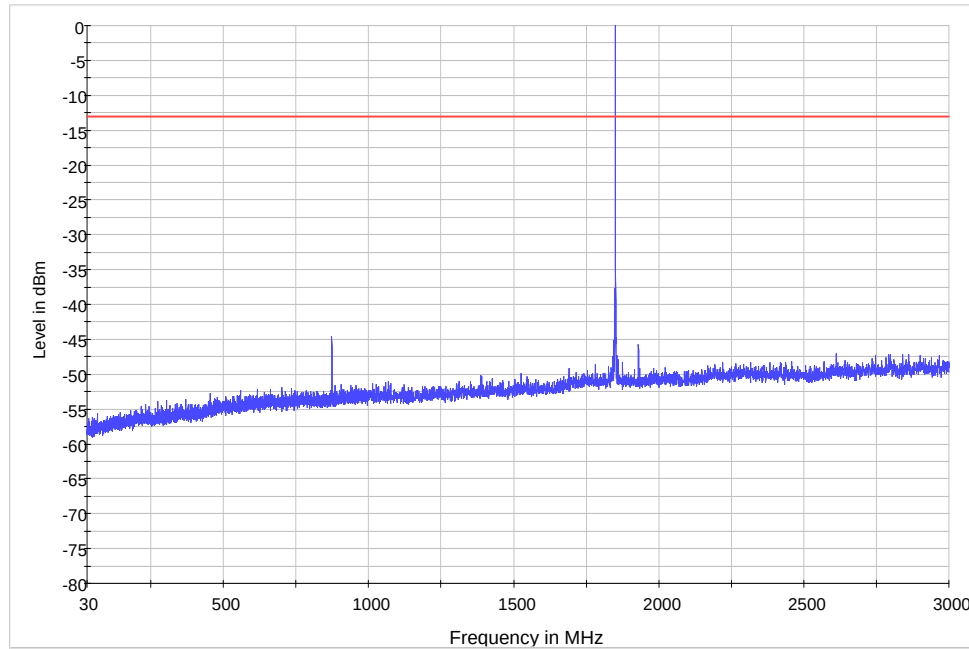
The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-18GHz	1.407 dB

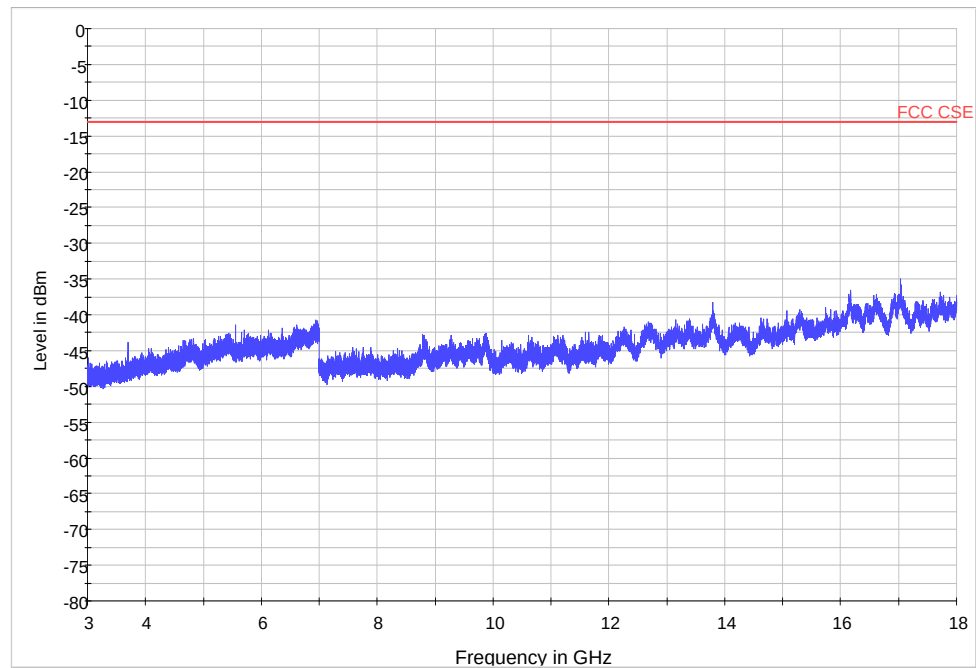
Test Result

If disturbances were found more than 20dB below limit line, the mark is not required for the EUT.

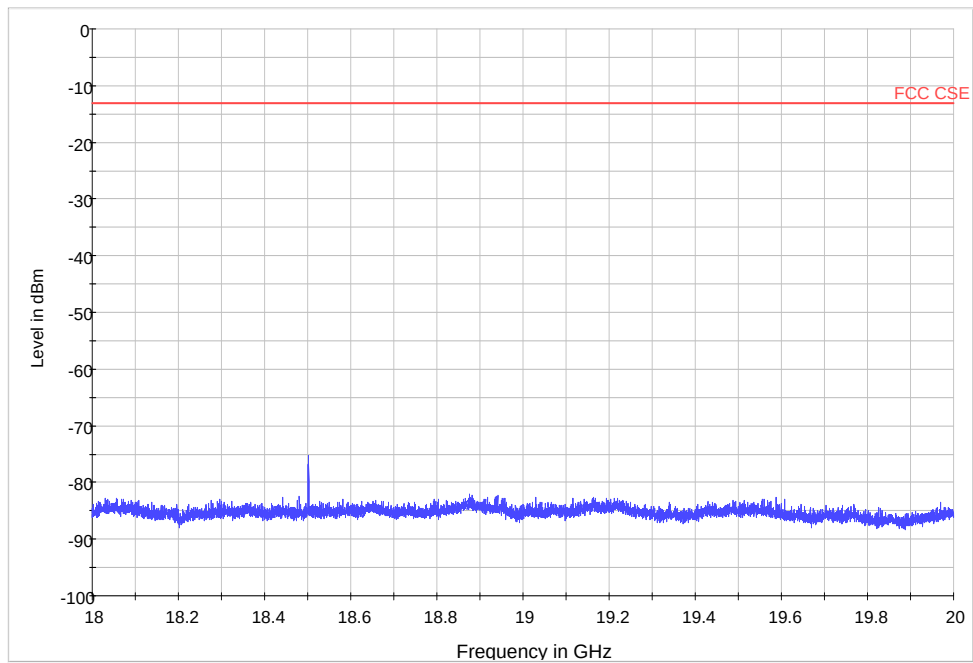
GSM 1900 CH 512



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

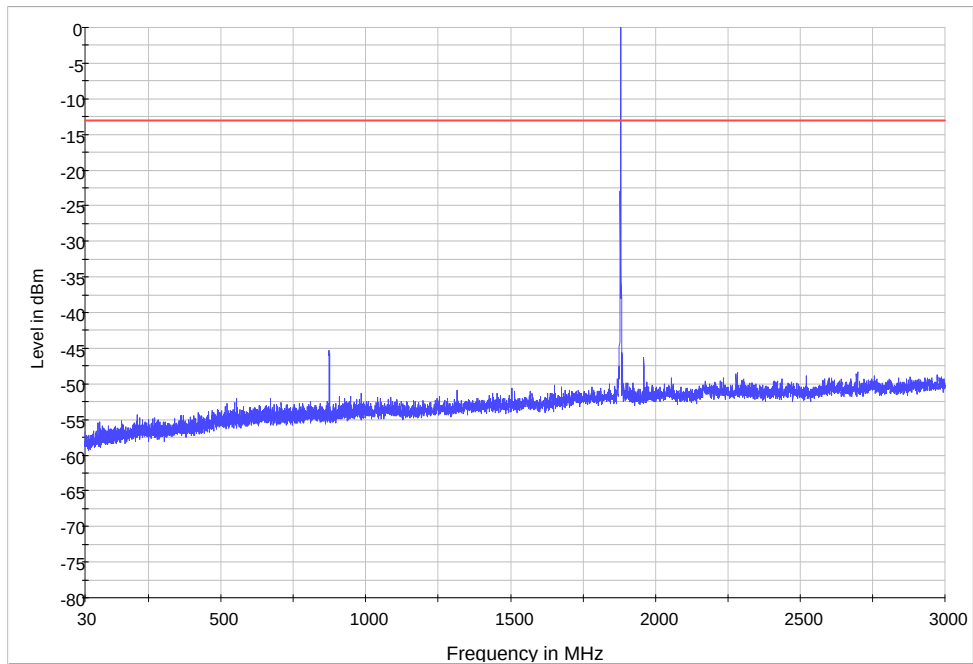


Spurious conducted emissions from 3GHz~18GHz



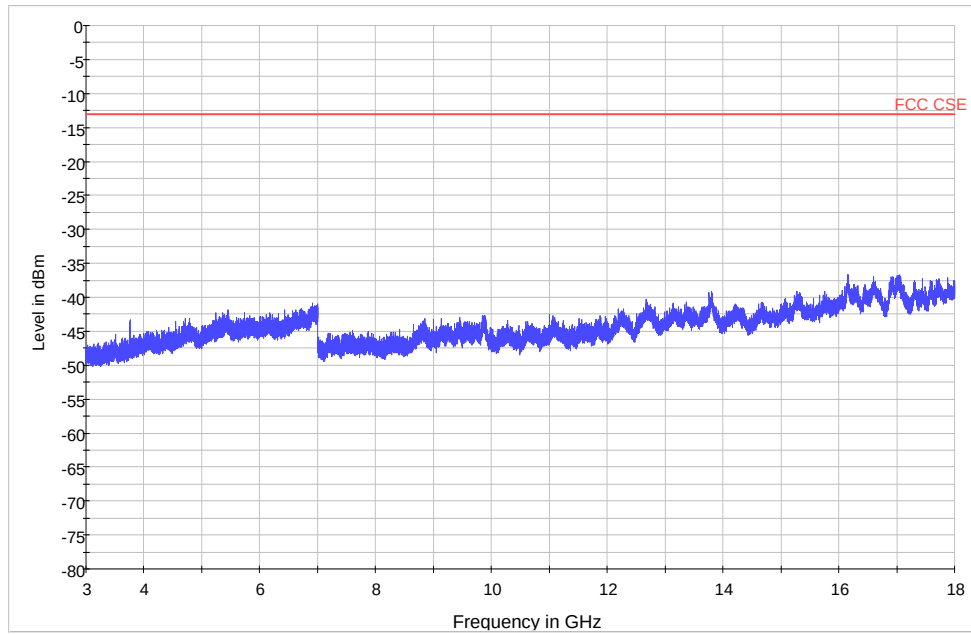
Spurious conducted emissions from 18GHz~20GHz

GSM 1900 CH 661

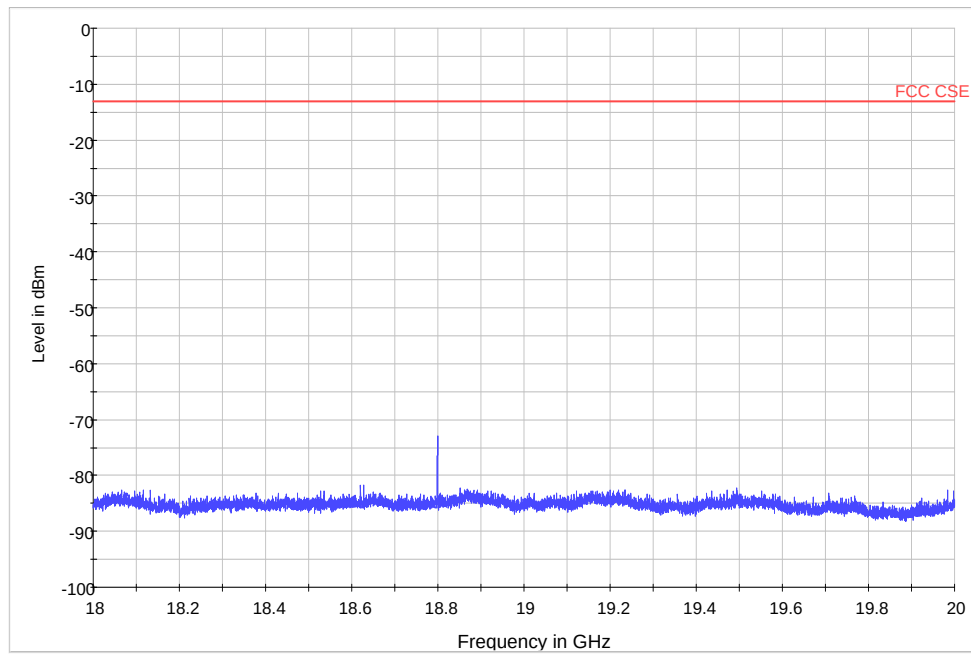


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz

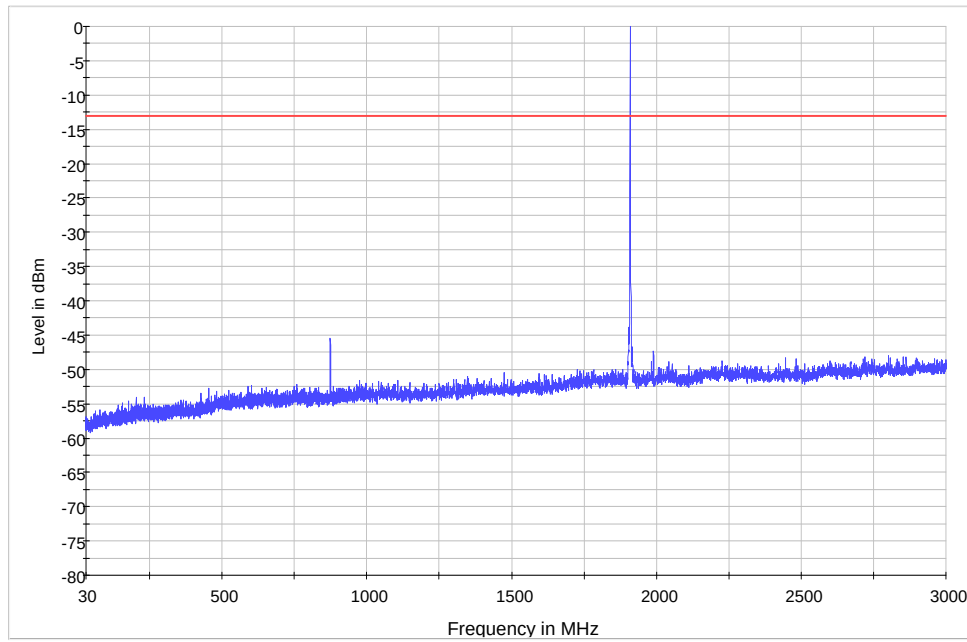


Spurious conducted emissions from 3GHz~18GHz

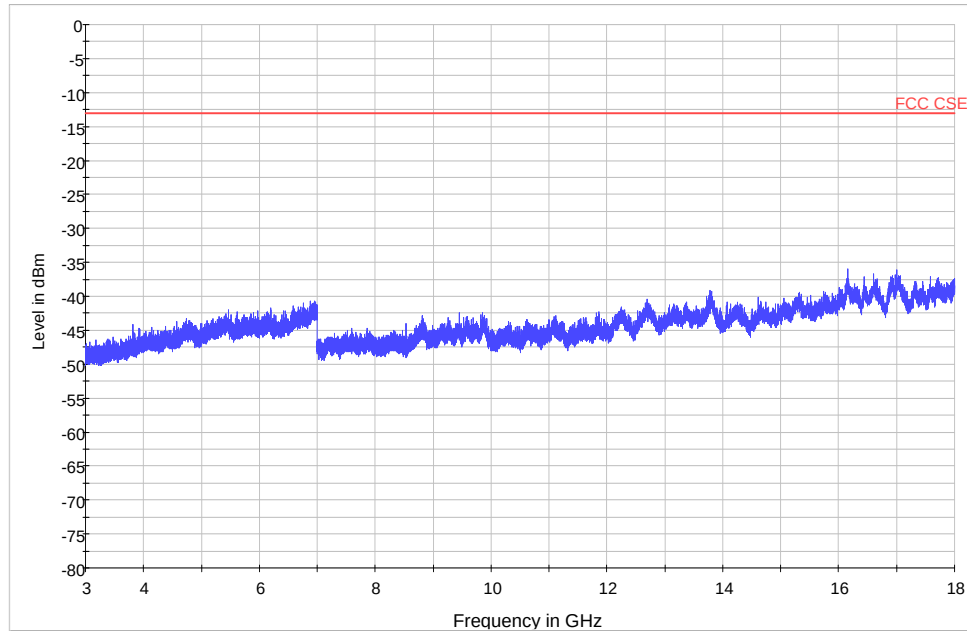


Spurious conducted emissions from 18GHz~20GHz

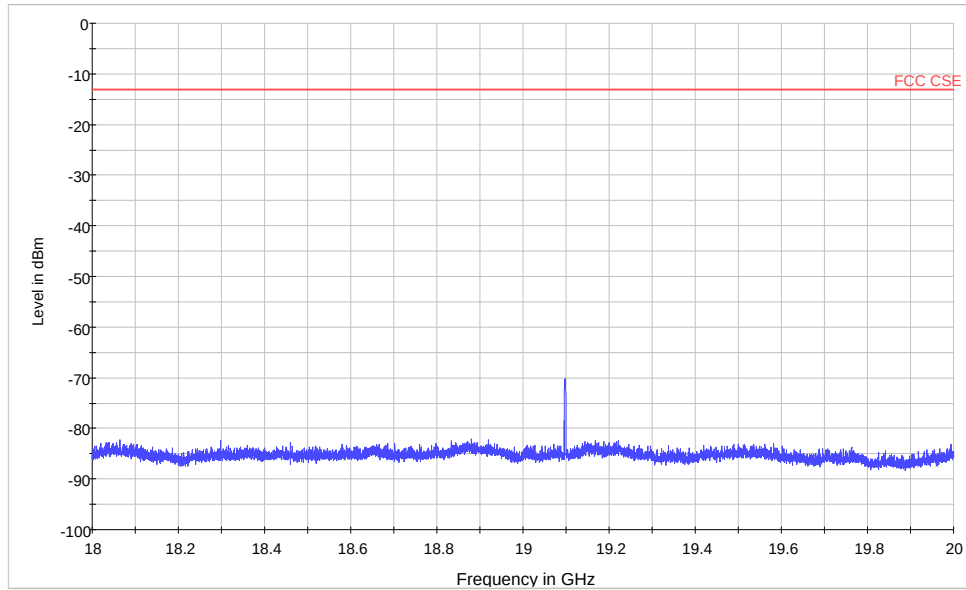
GSM 1900 CH 810



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

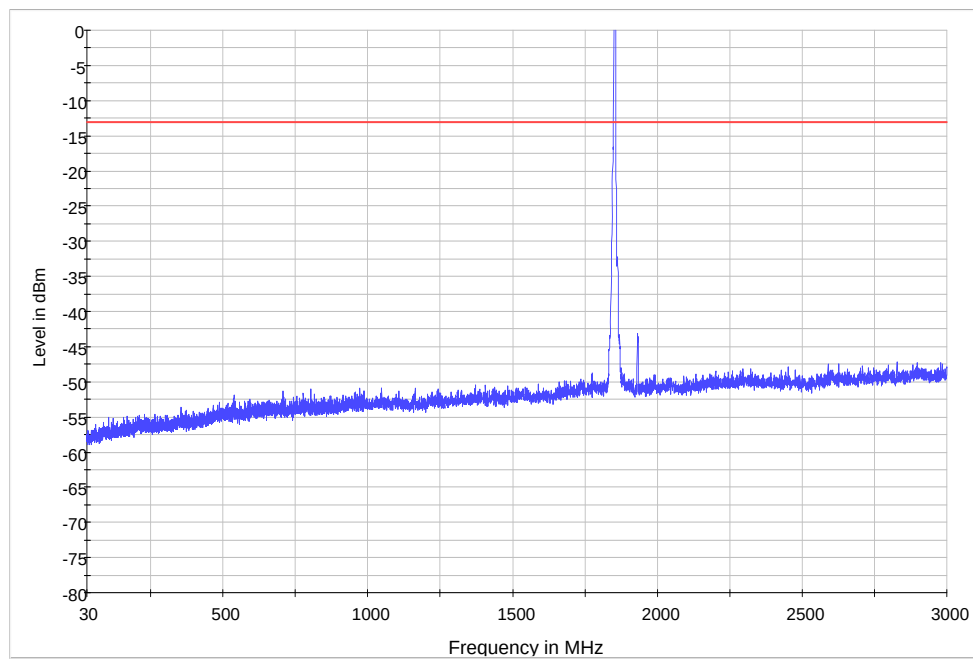


Spurious conducted emissions from 3GHz~18GHz



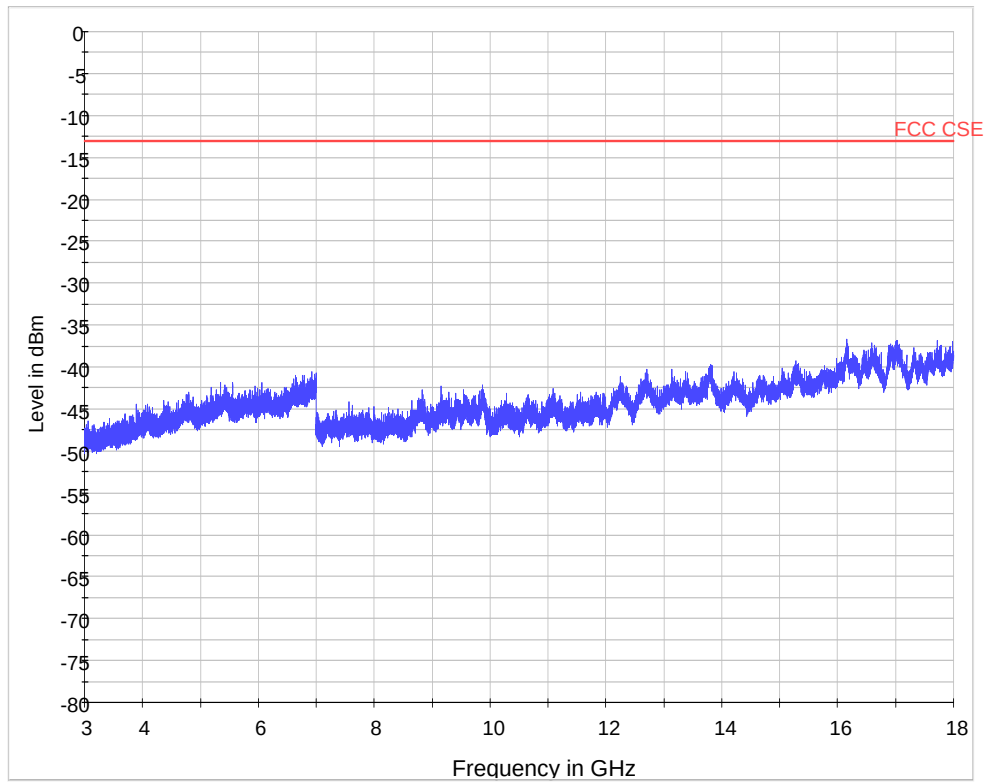
Spurious conducted emissions from 18GHz~20GHz

WCDMA Band II CH9262

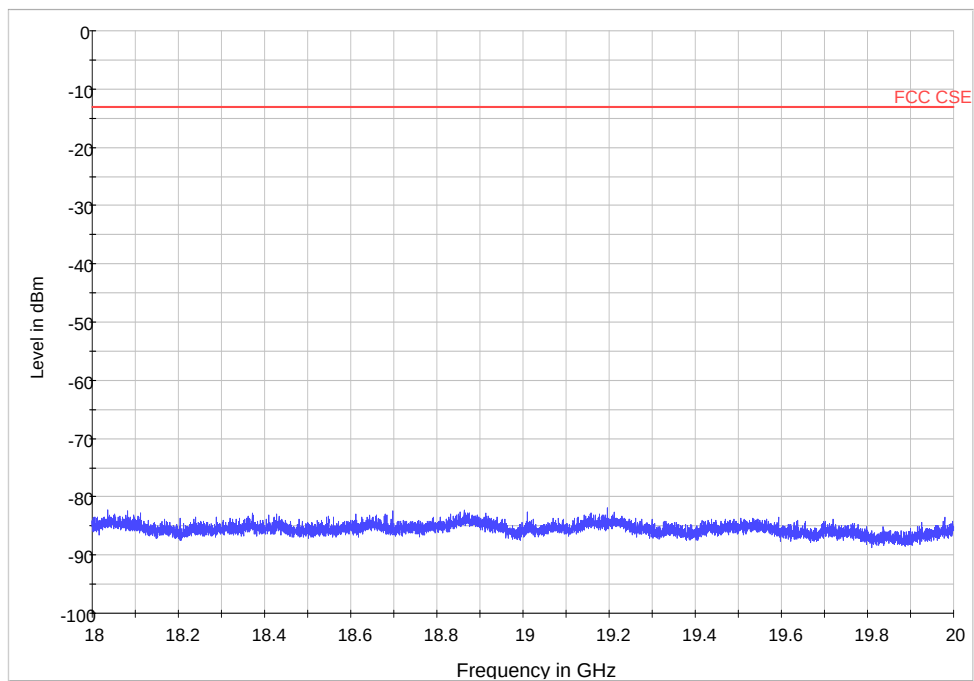


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz

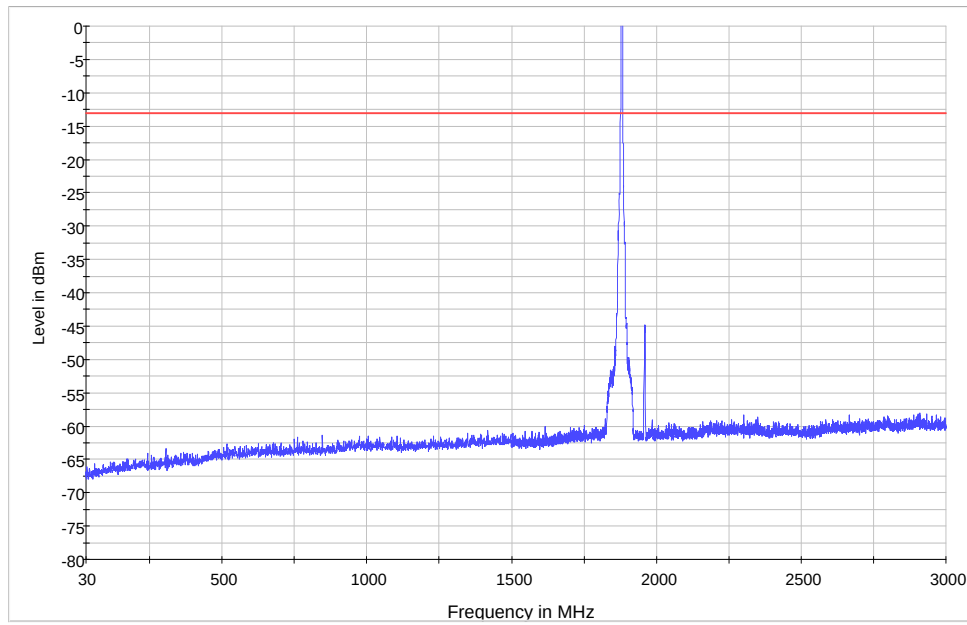


Spurious conducted emissions from 3GHz~18GHz

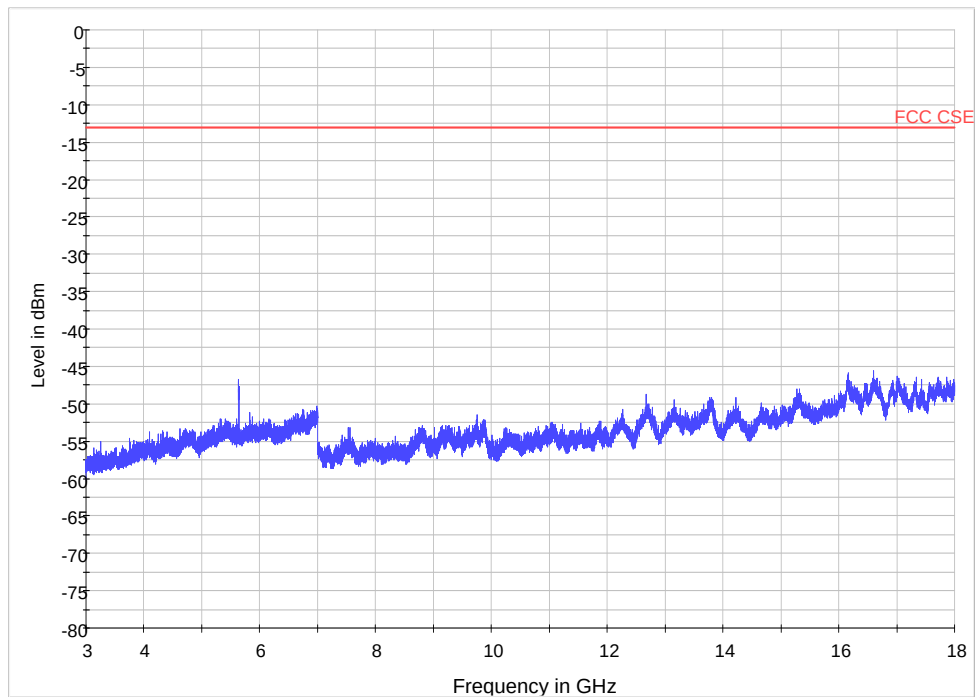


Spurious conducted emissions from 18GHz~20GHz

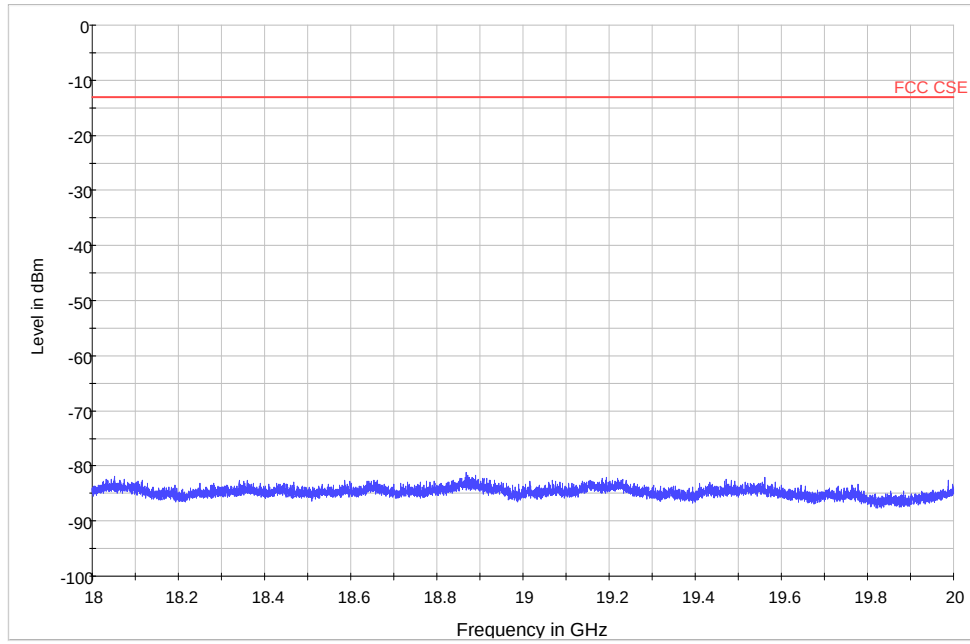
WCDMA Band II CH9400



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

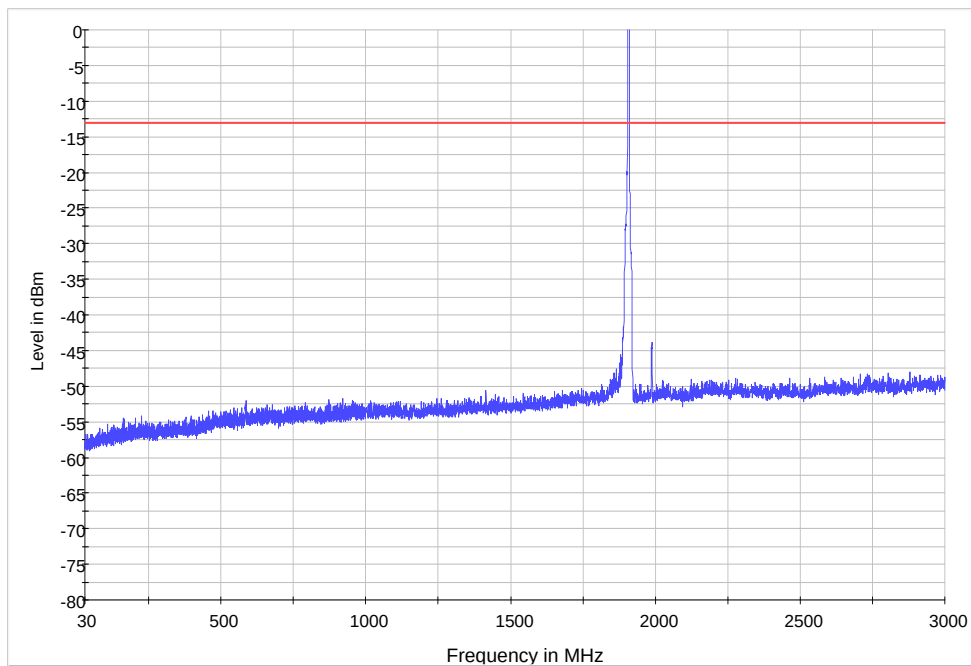


Spurious conducted emissions from 3GHz~18GHz



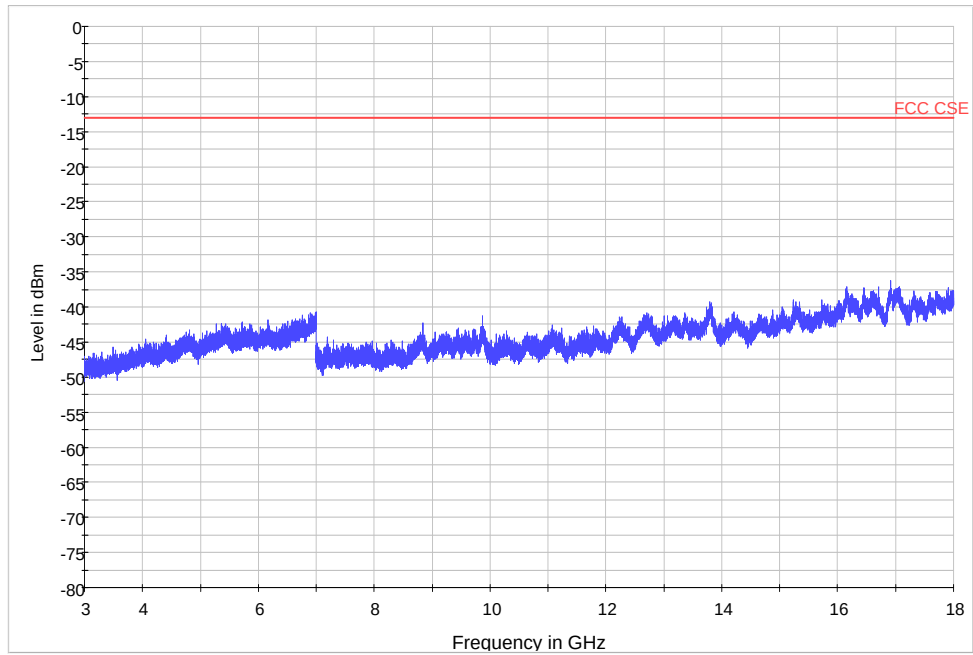
Spurious conducted emissions from 18GHz~20GHz

WCDMA Band II CH9538

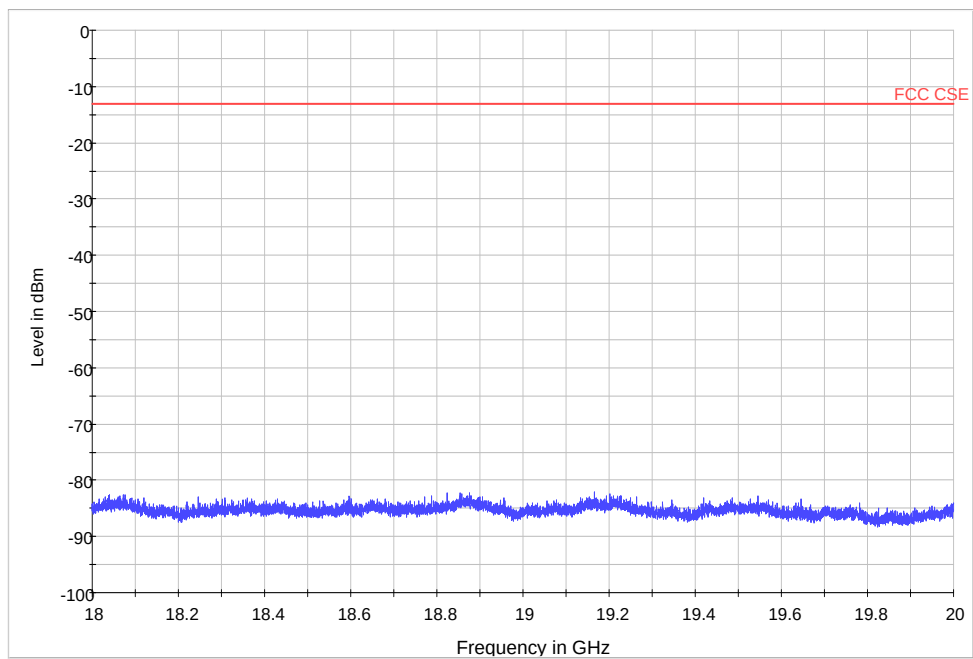


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz

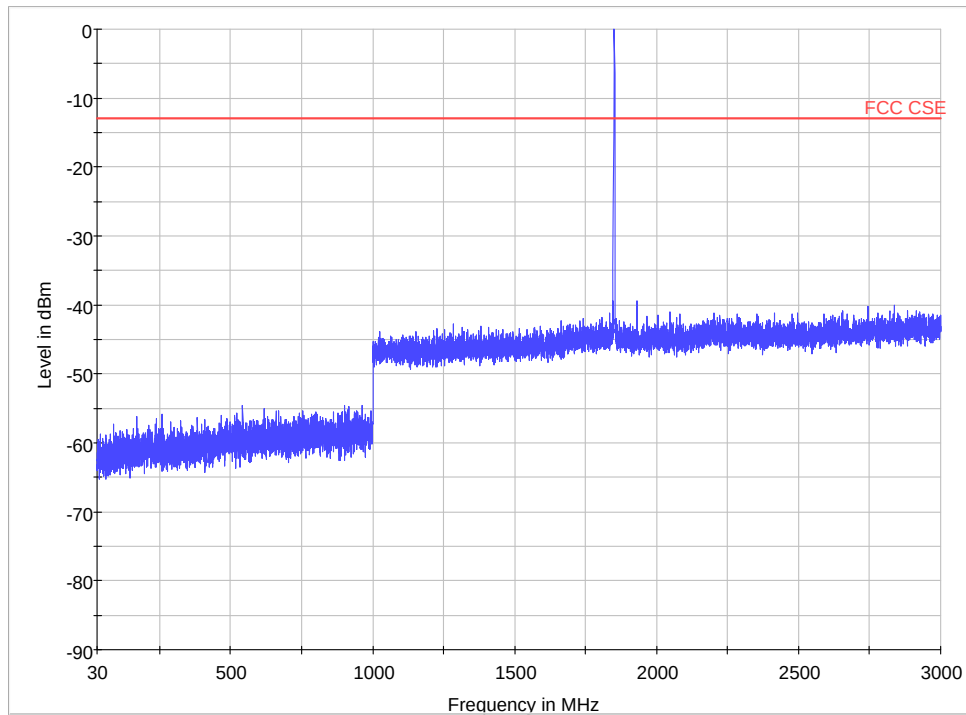


Spurious conducted emissions from 3GHz~18GHz

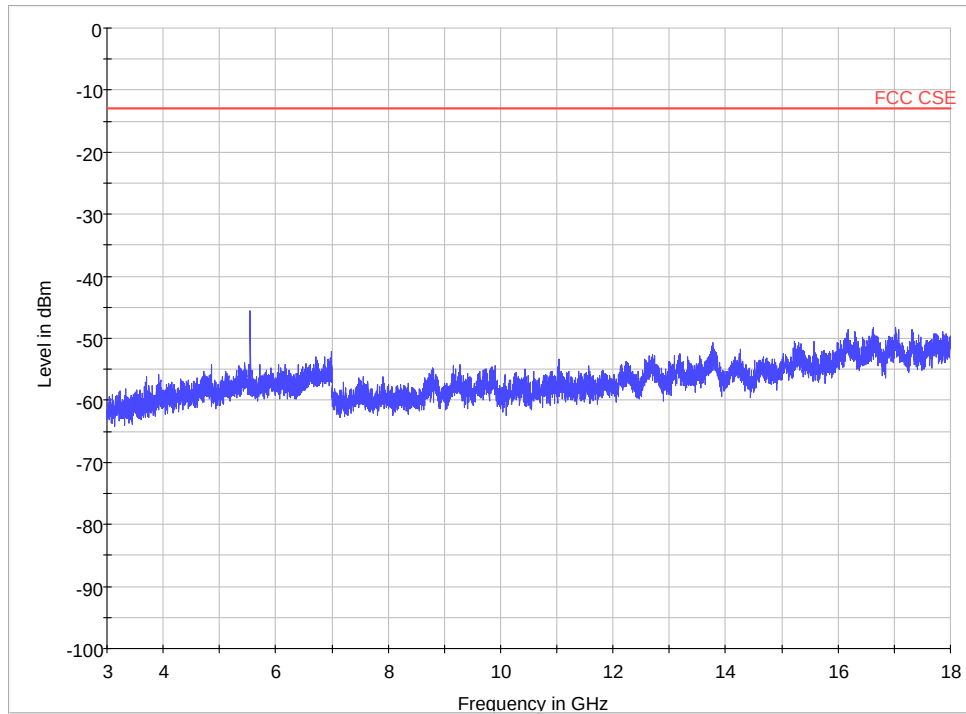


Spurious conducted emissions from 18GHz~20GHz

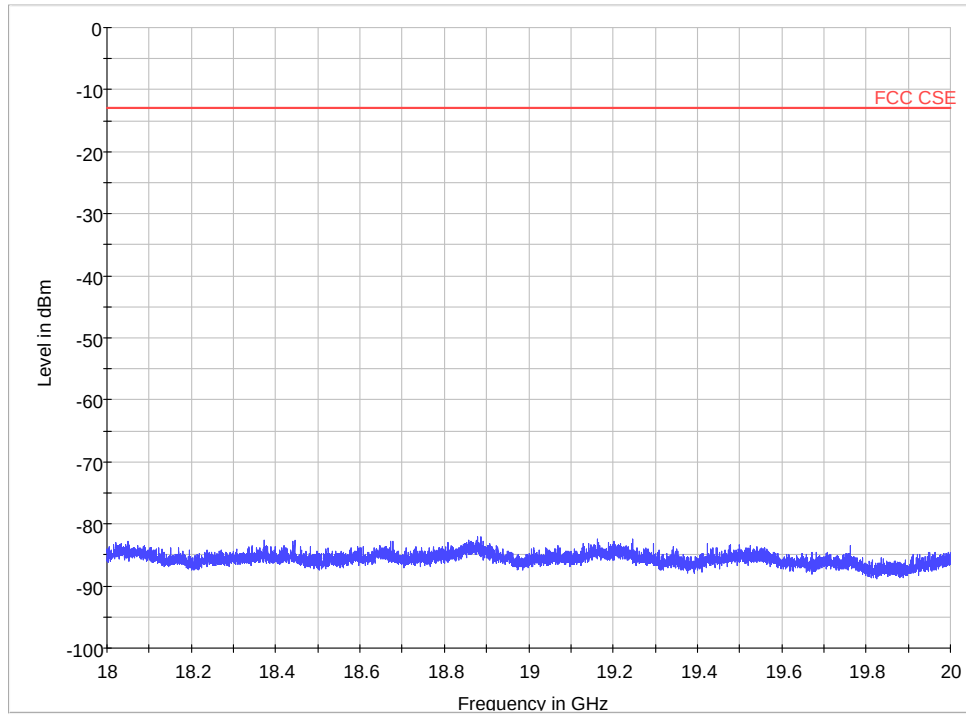
LTE Band II 1.4MHz CH18607



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

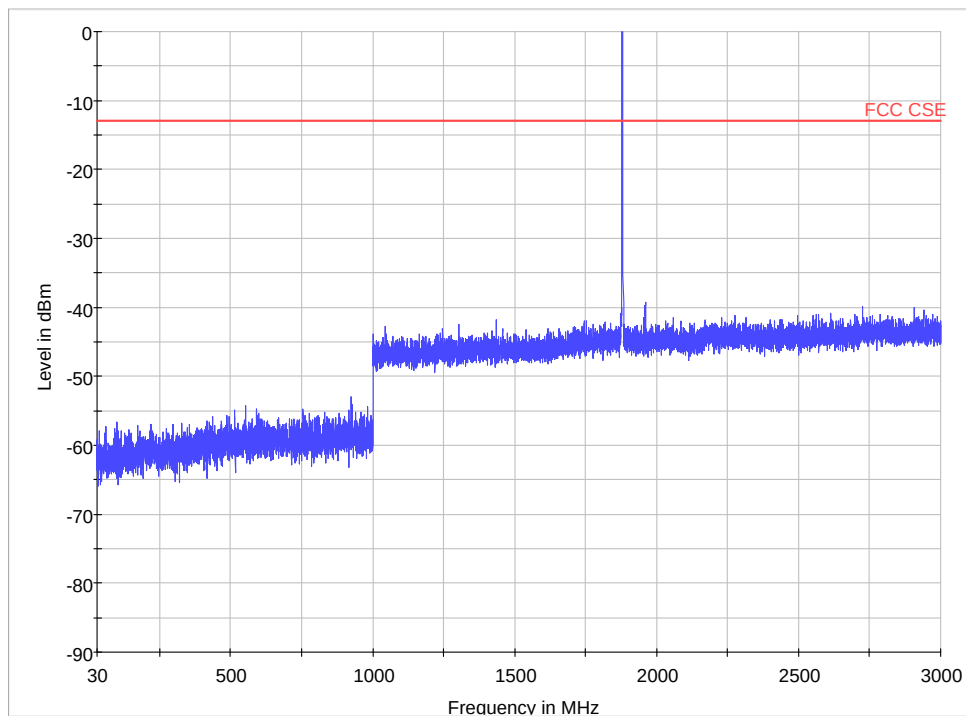


Spurious conducted emissions from 3GHz~18GHz



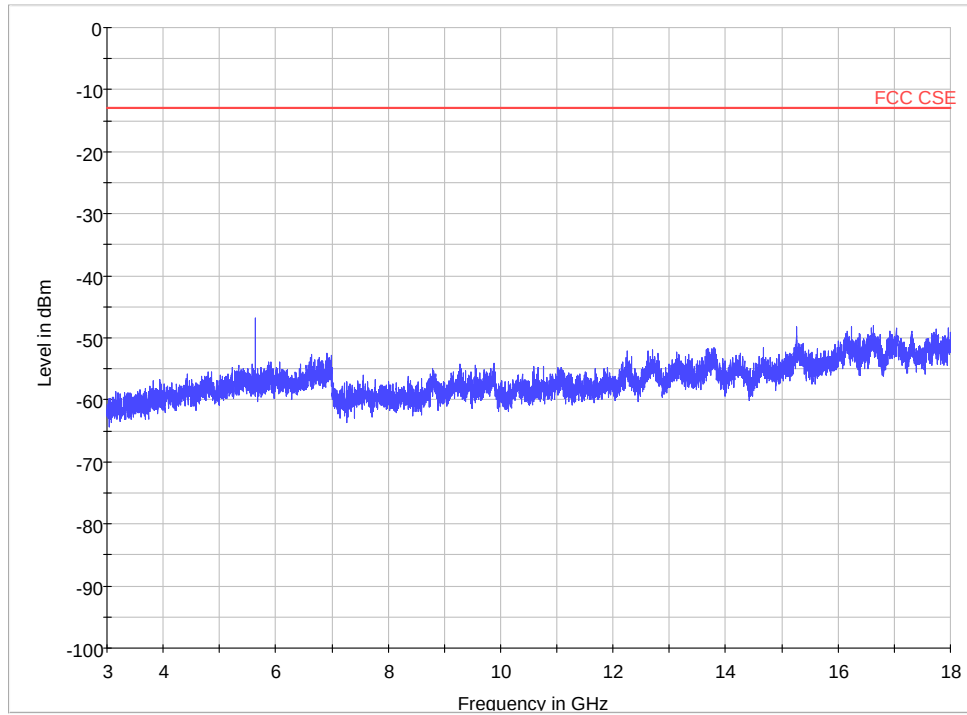
Spurious conducted emissions from 18GHz~20GHz

LTE Band II 1.4MHz CH18900

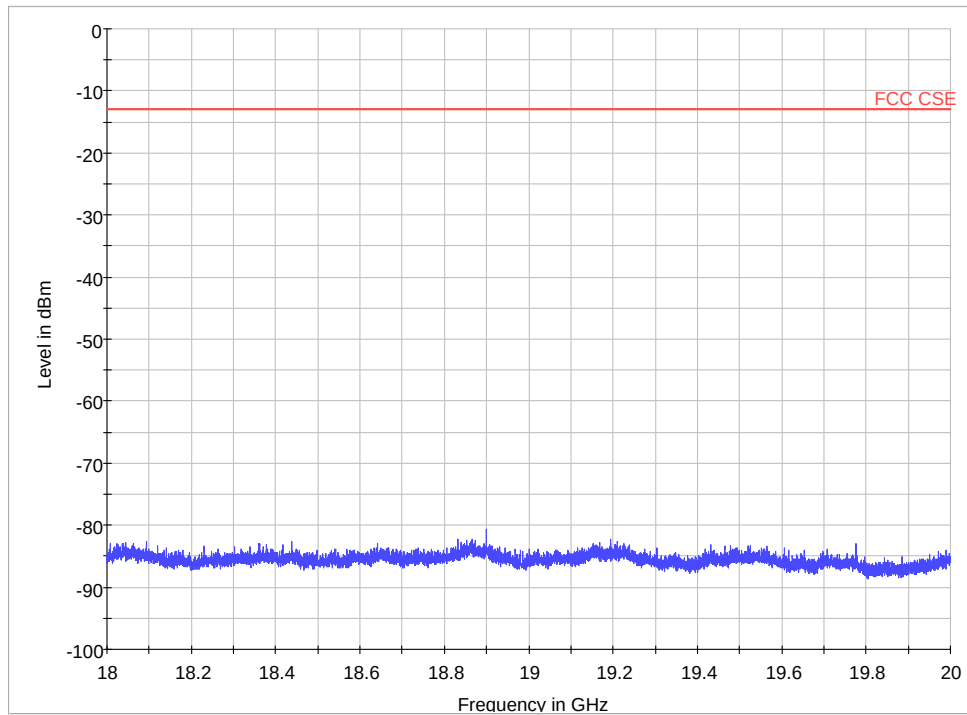


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz

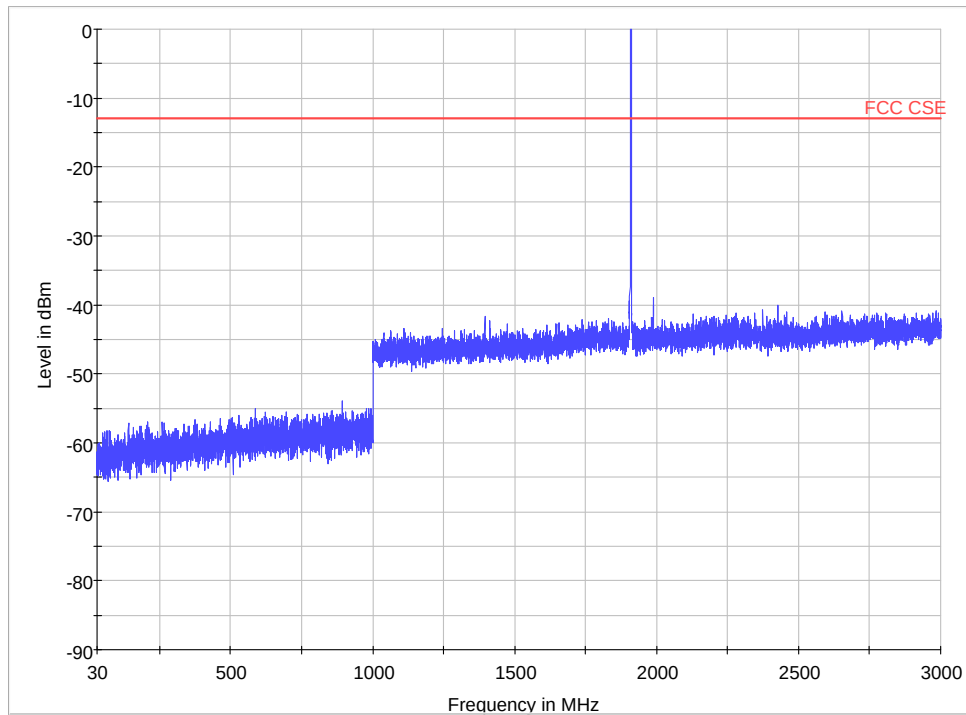


Spurious conducted emissions from 3GHz~18GHz

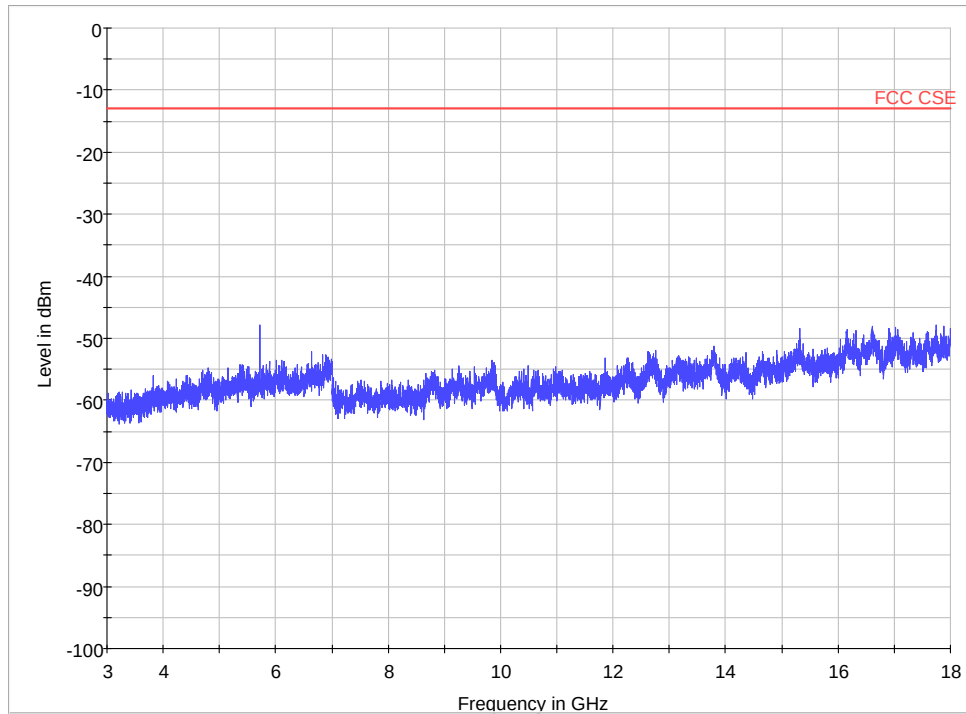


Spurious conducted emissions from 18GHz~20GHz

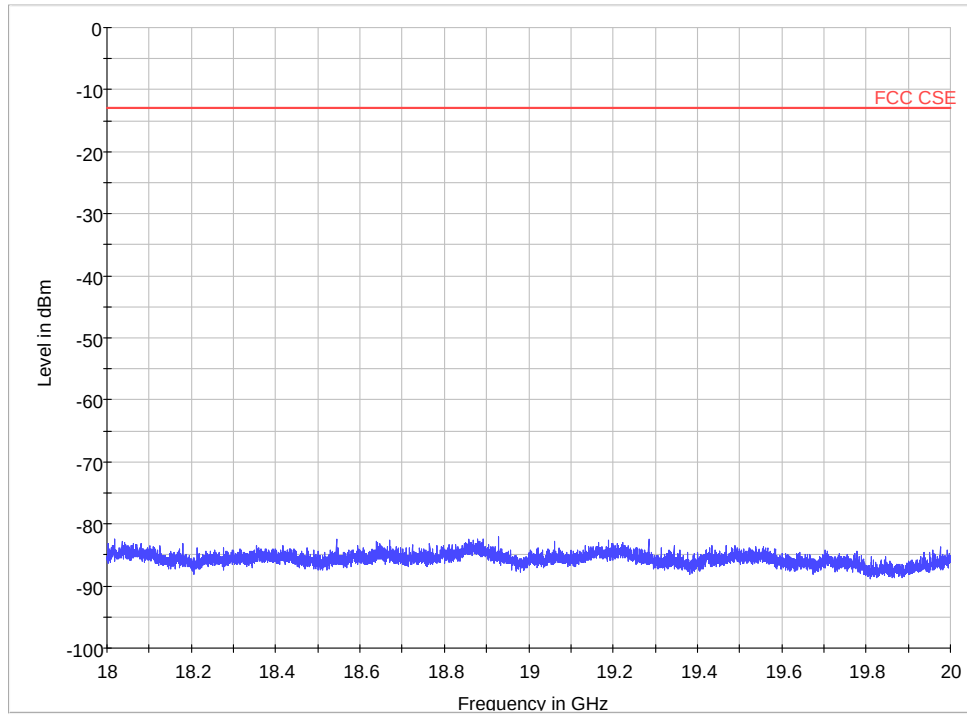
LTE Band II 1.4MHz CH19193



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

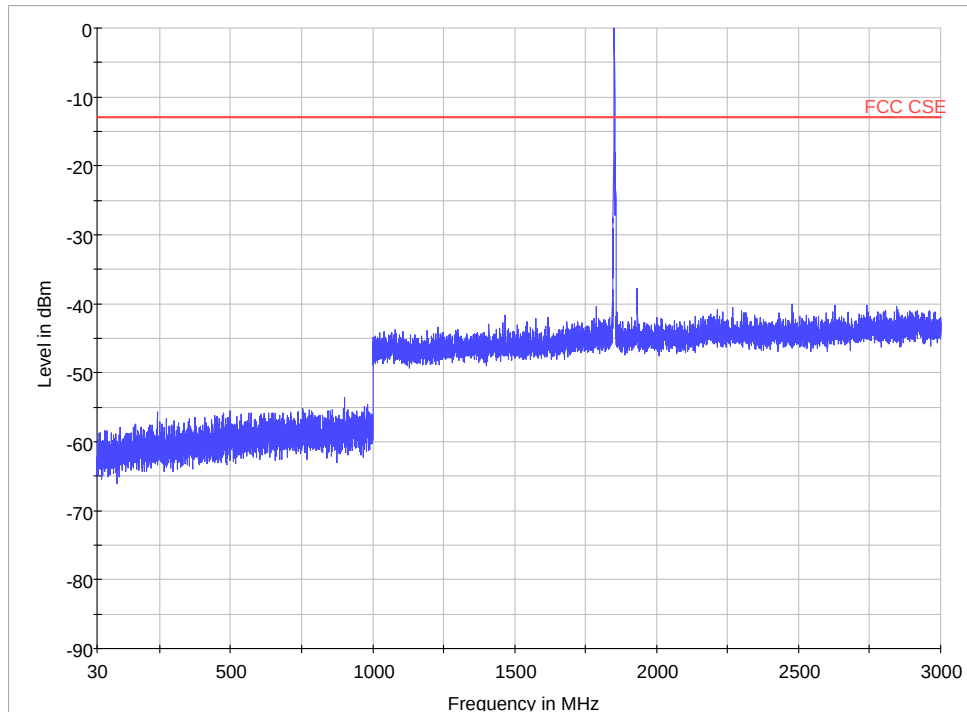


Spurious conducted emissions from 3GHz~18GHz



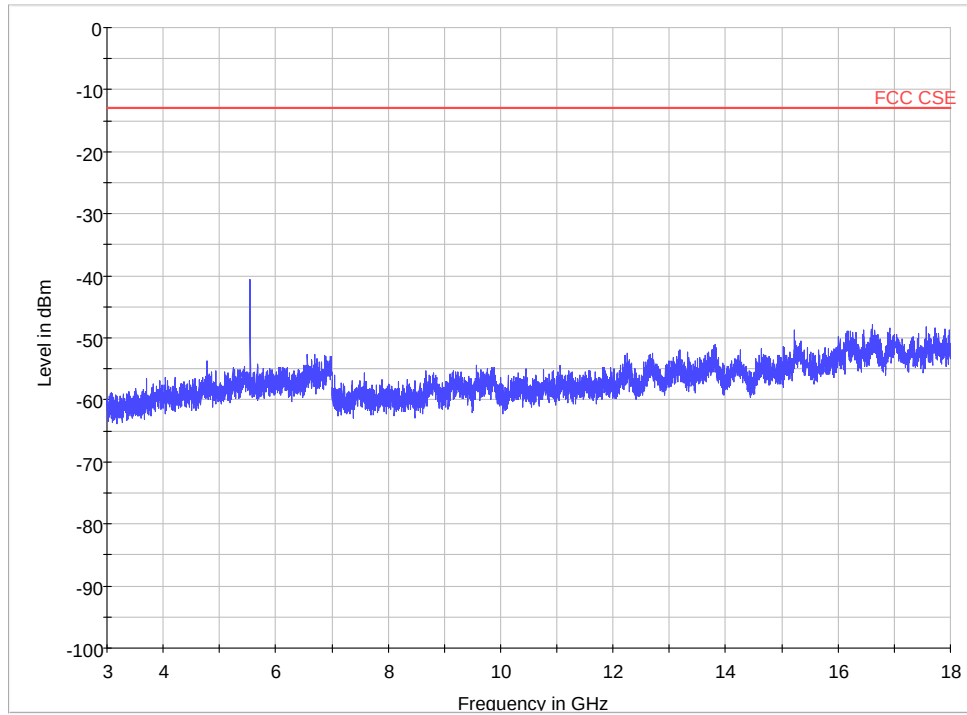
Spurious conducted emissions from 18GHz~20GHz

LTE Band II 3MHz CH18615

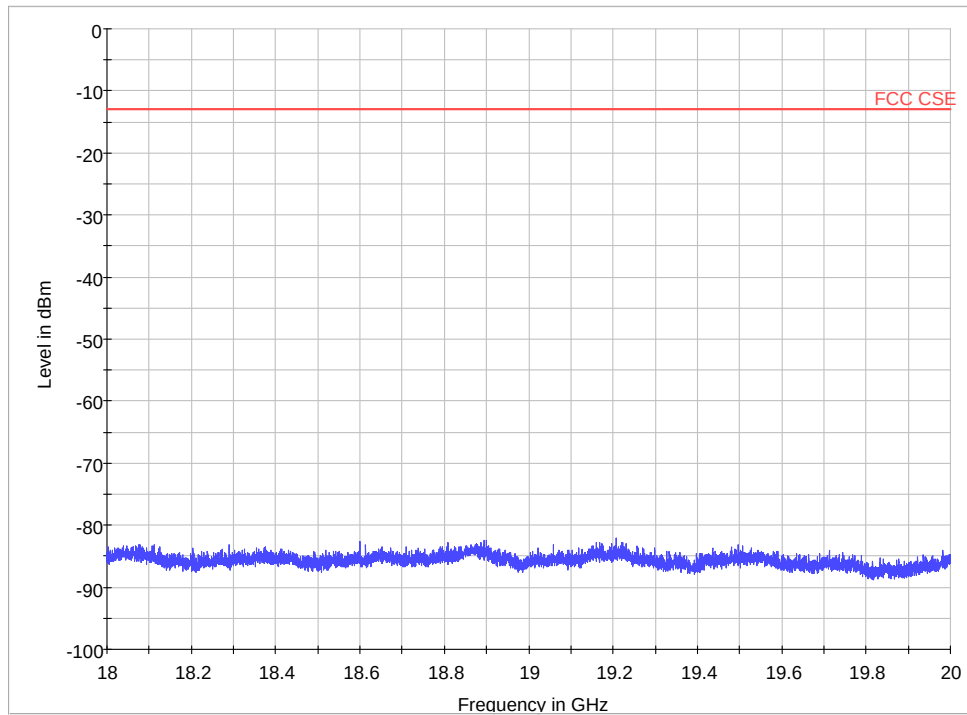


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz

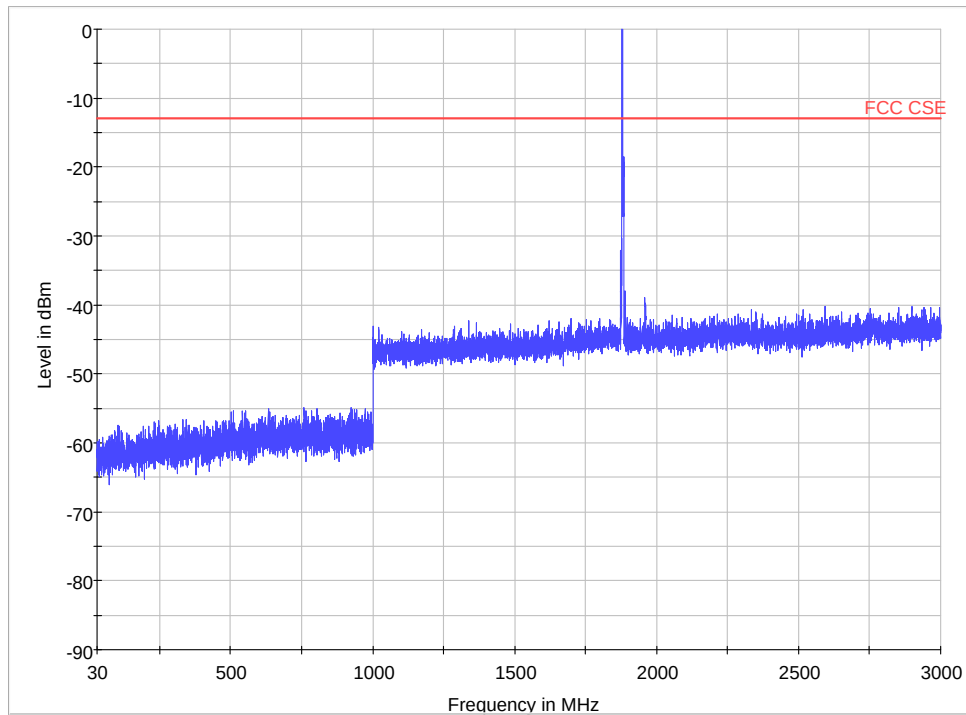


Spurious conducted emissions from 3GHz~18GHz

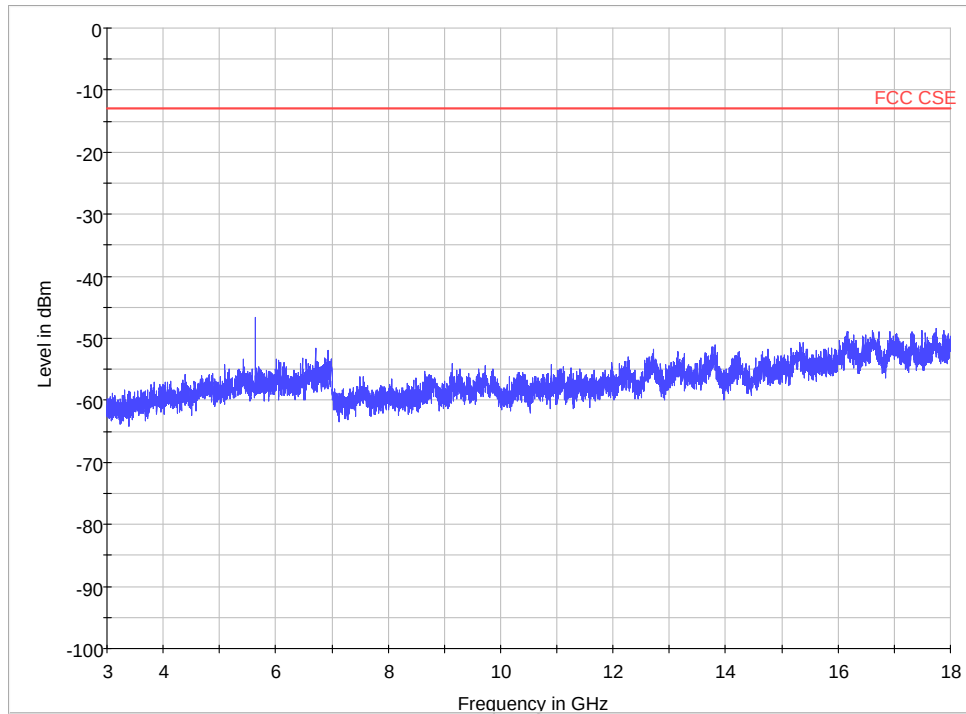


Spurious conducted emissions from 18GHz~20GHz

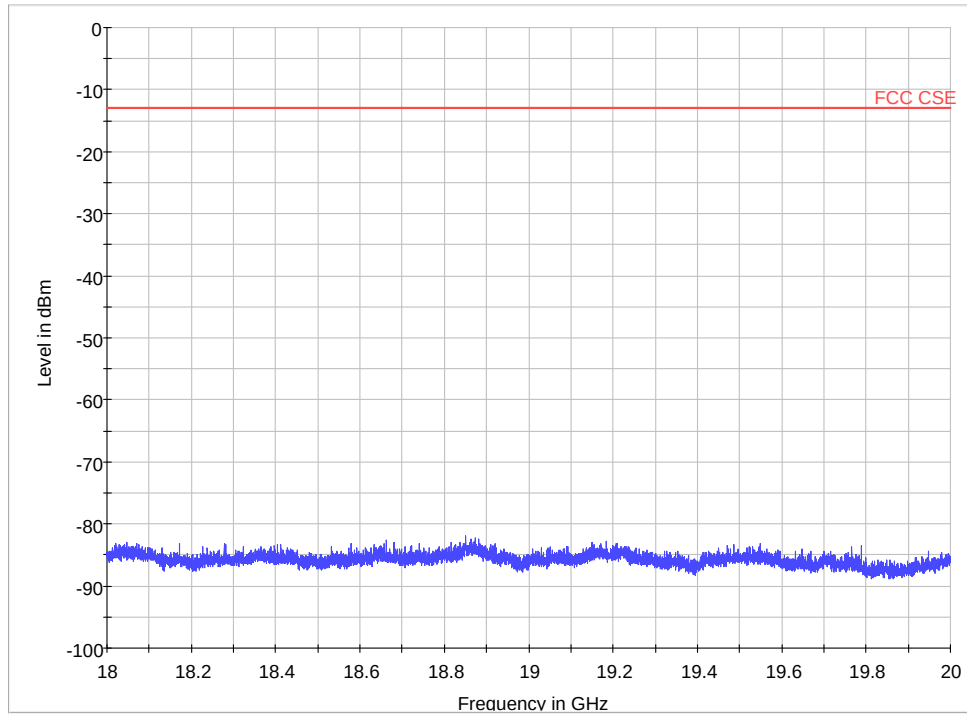
LTE Band II 3MHz CH18900



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

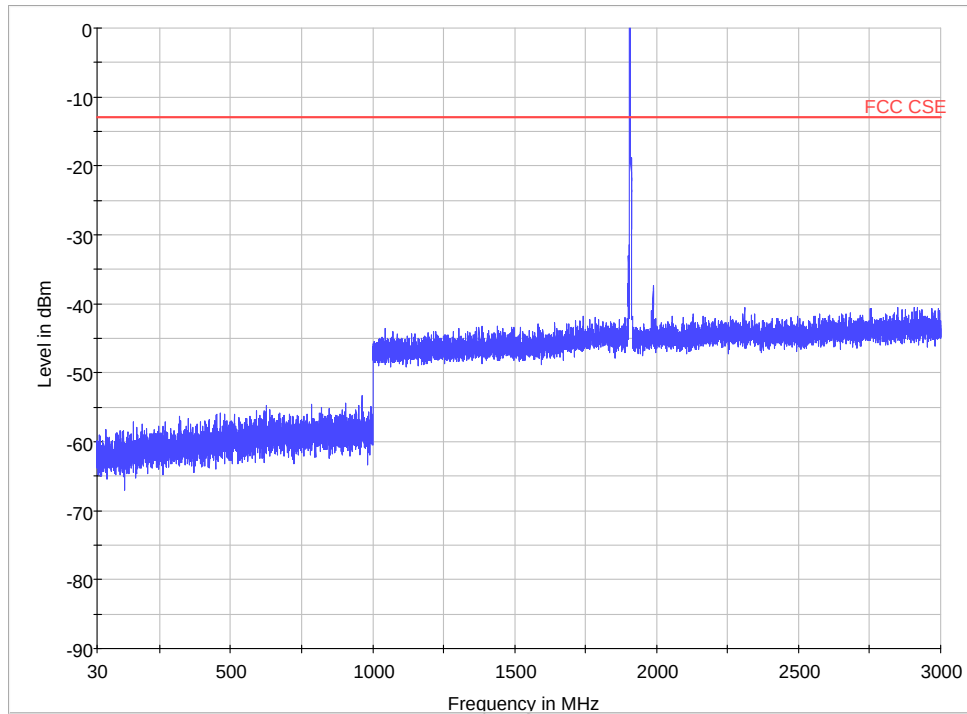


Spurious conducted emissions from 3GHz~18GHz



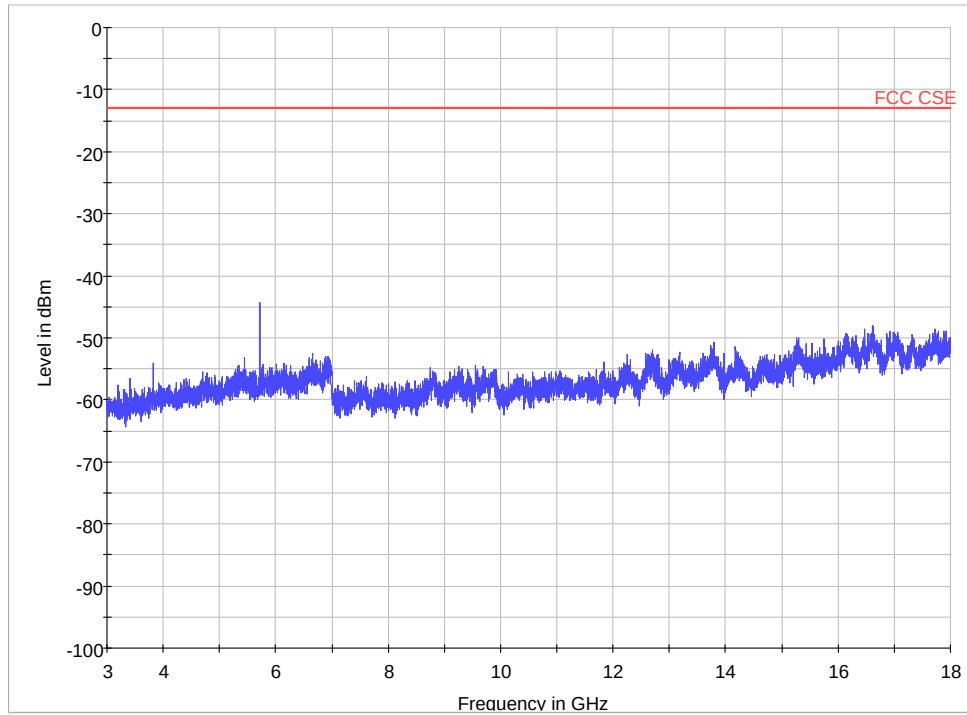
Spurious conducted emissions from 18GHz~20GHz

LTE Band II 3MHz CH19185

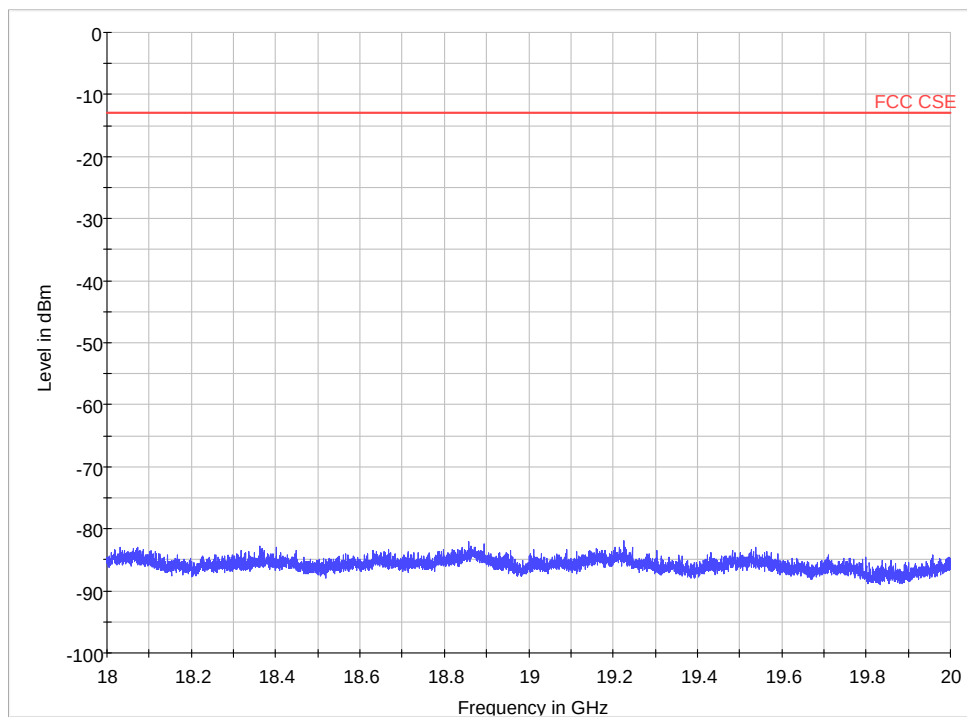


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz

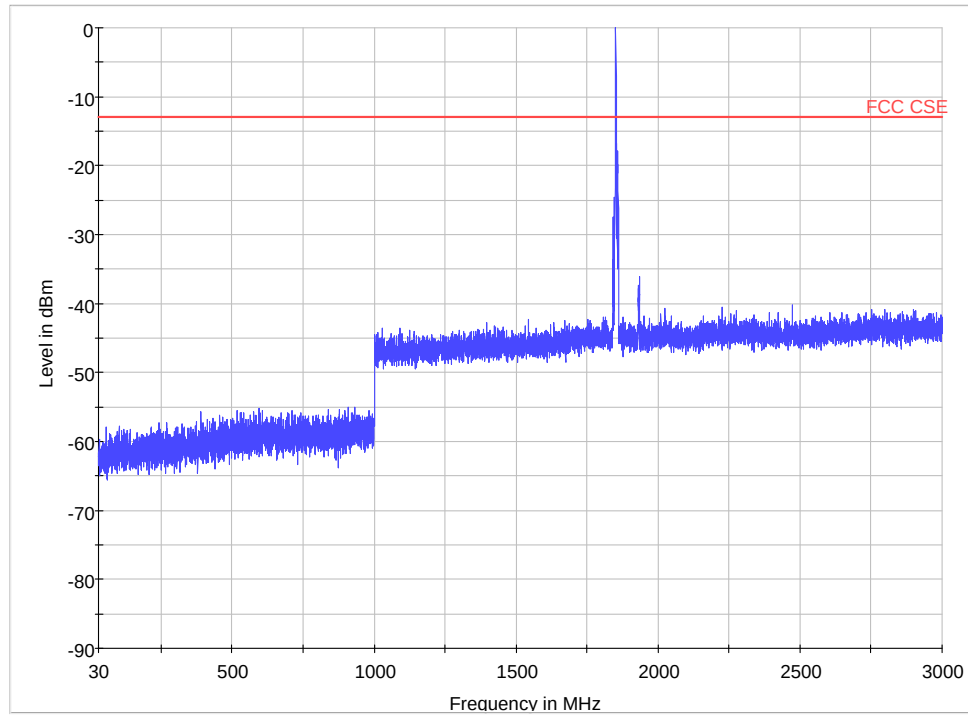


Spurious conducted emissions from 3GHz~18GHz

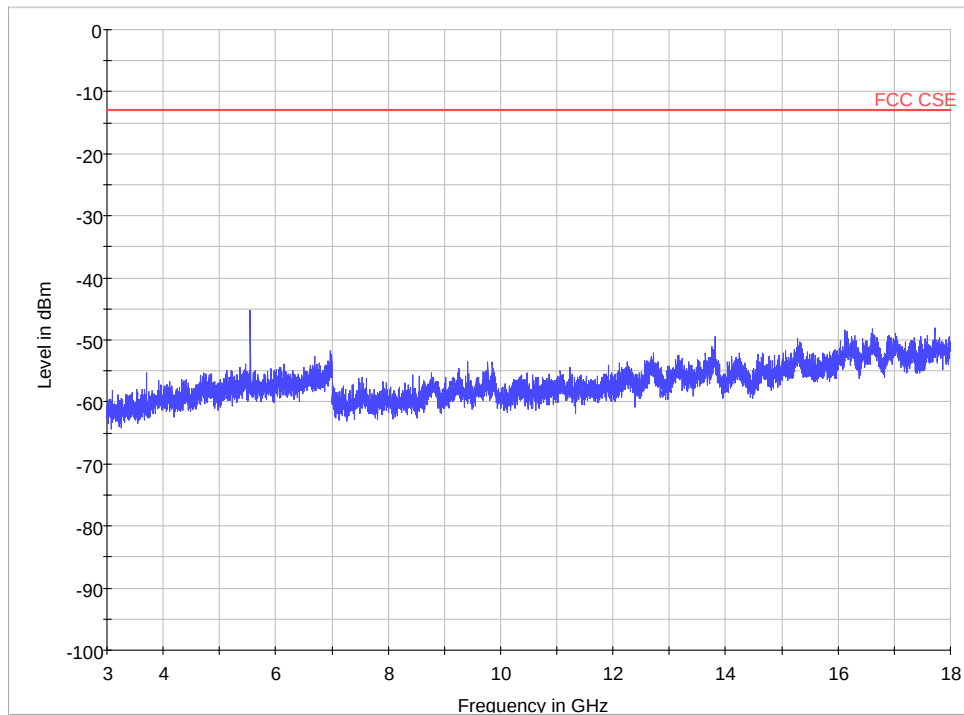


Spurious conducted emissions from 18GHz~20GHz

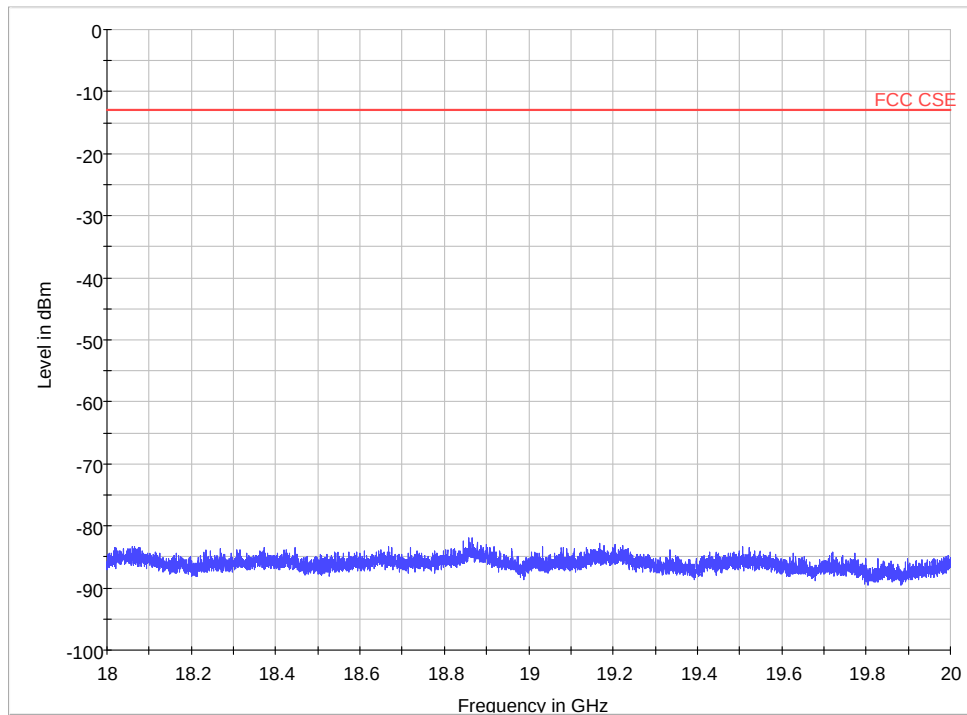
LTE Band II 5MHz CH18625



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

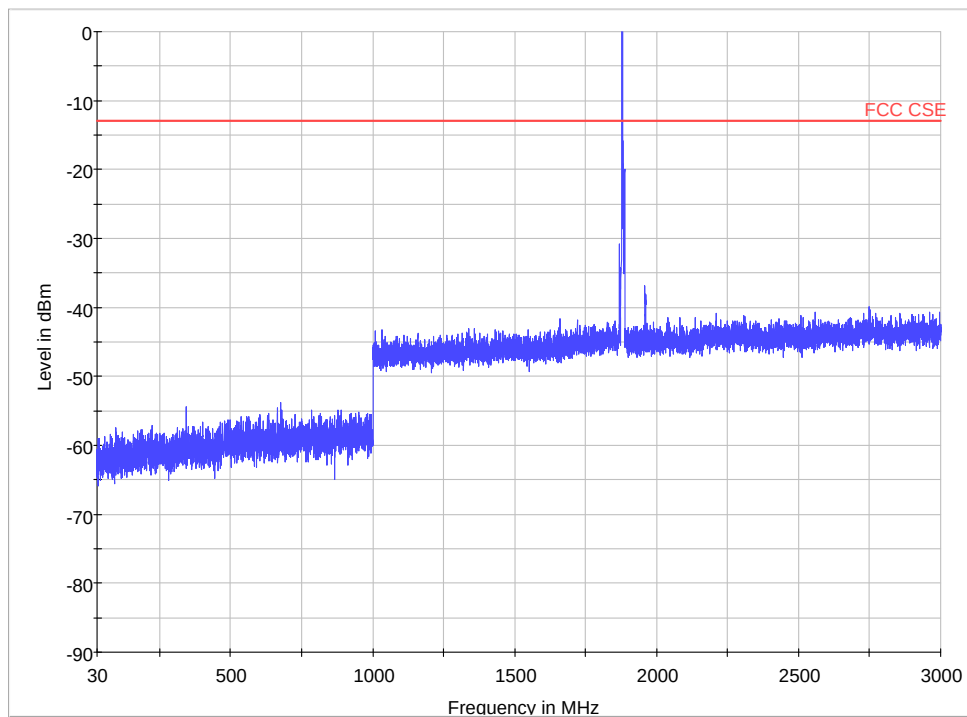


Spurious conducted emissions from 3GHz~18GHz



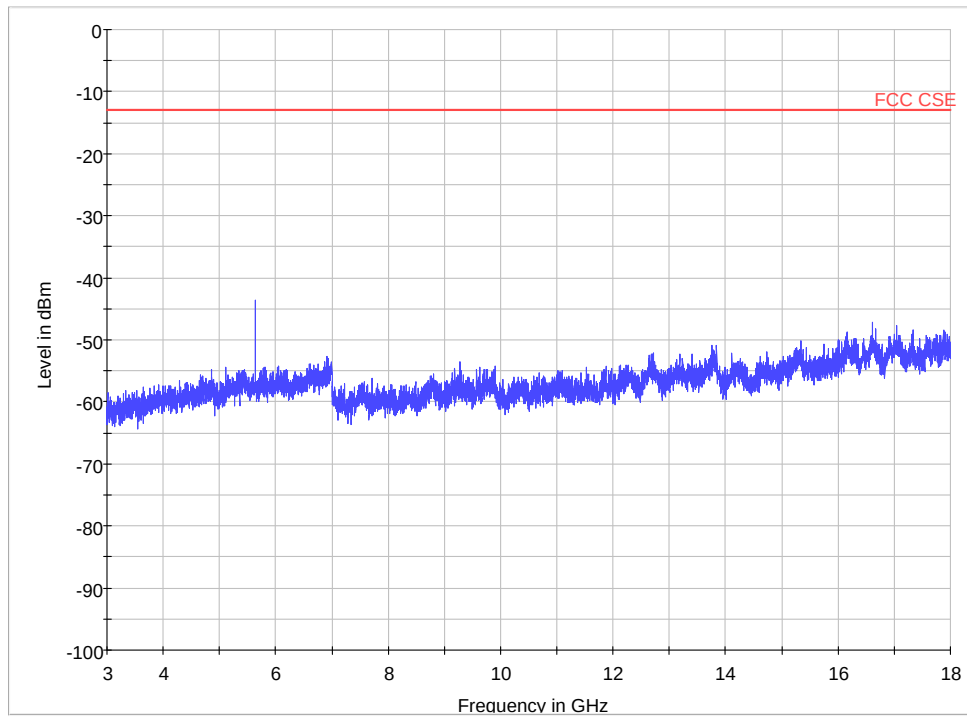
Spurious conducted emissions from 18GHz~20GHz

LTE Band II 5MHz CH18900

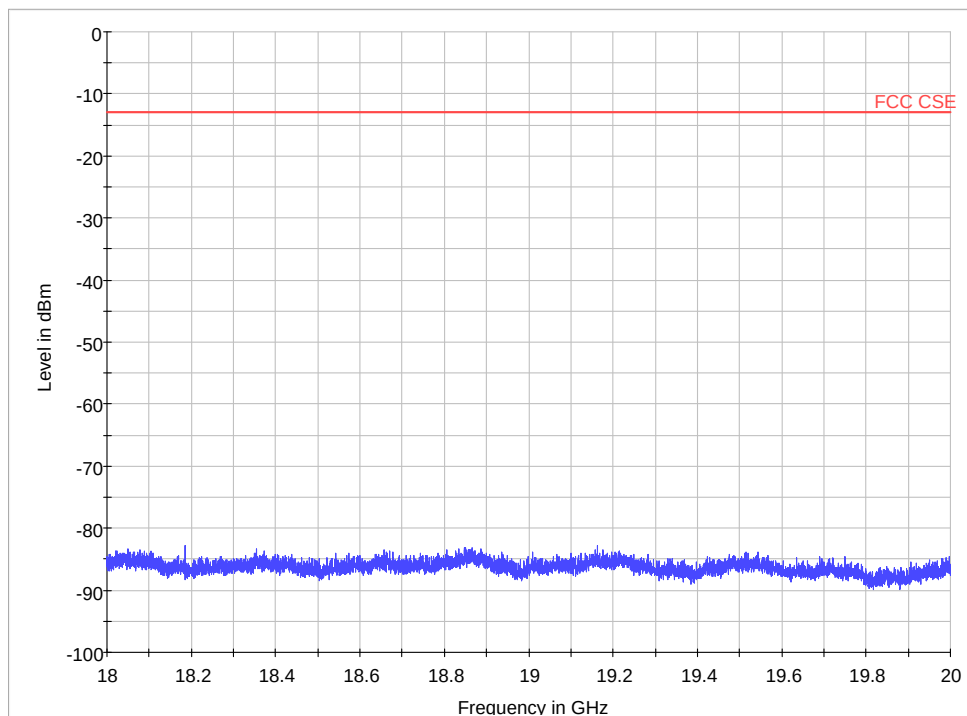


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz

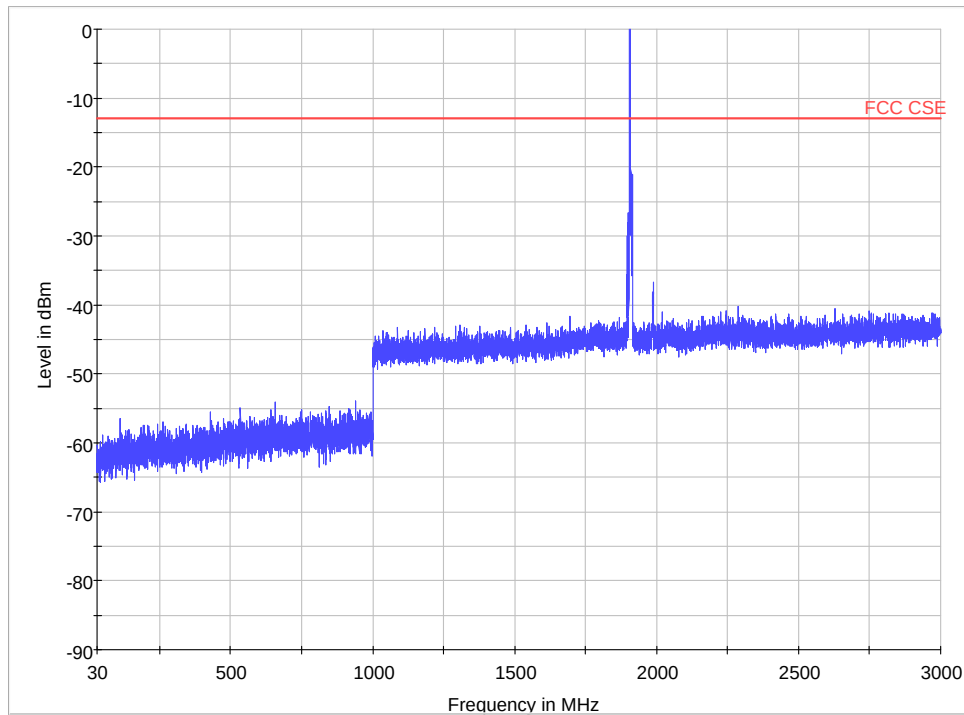


Spurious conducted emissions from 3GHz~18GHz

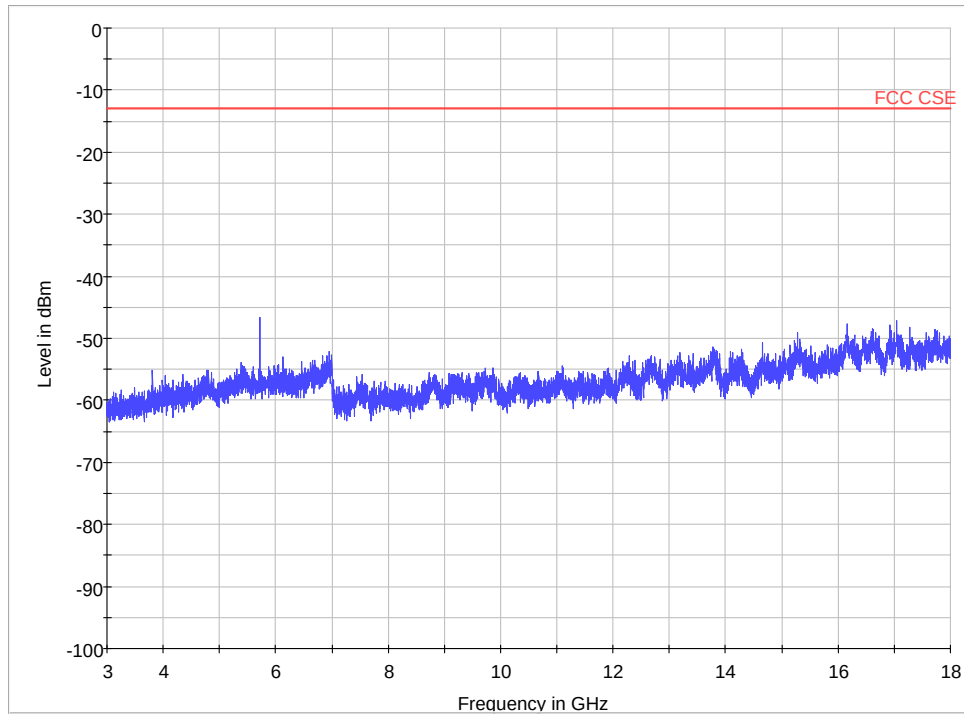


Spurious conducted emissions from 18GHz~20GHz

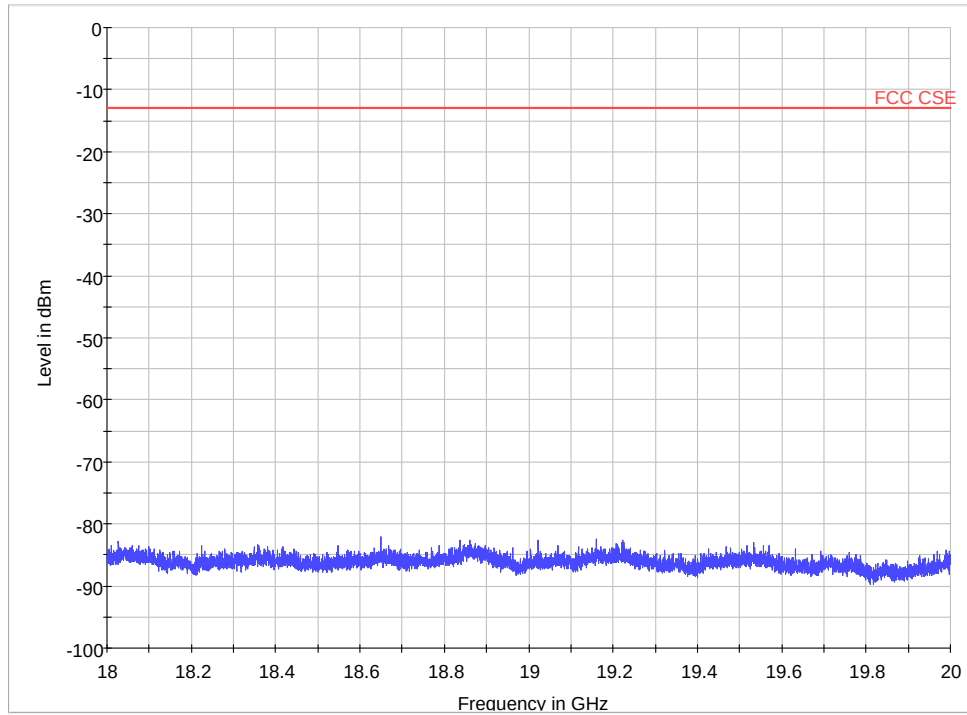
LTE Band II 5MHz CH19175



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

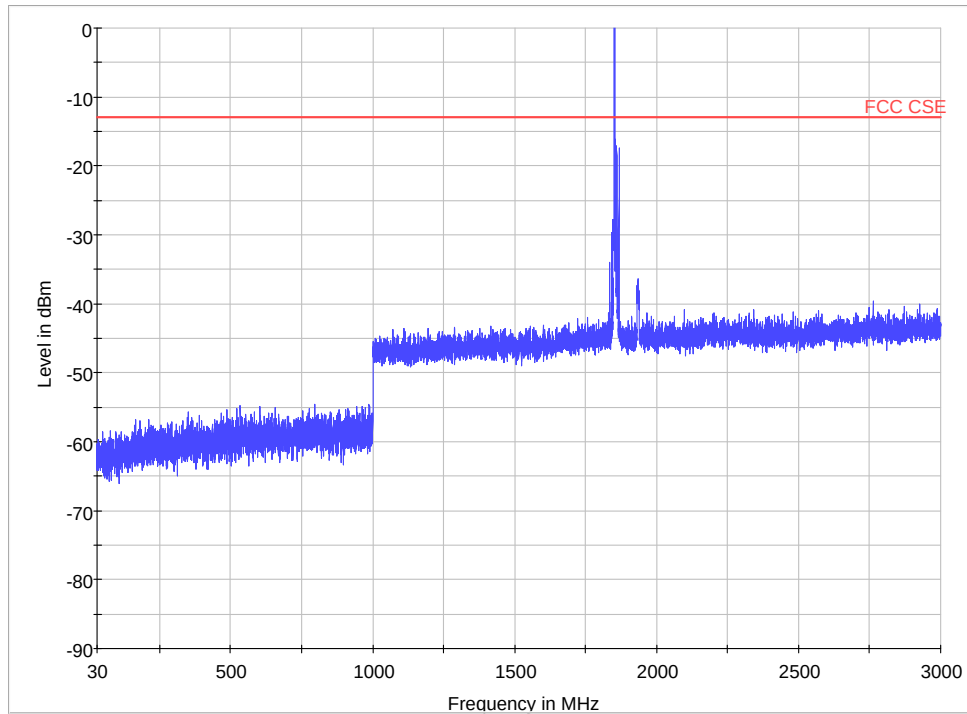


Spurious conducted emissions from 3GHz~18GHz



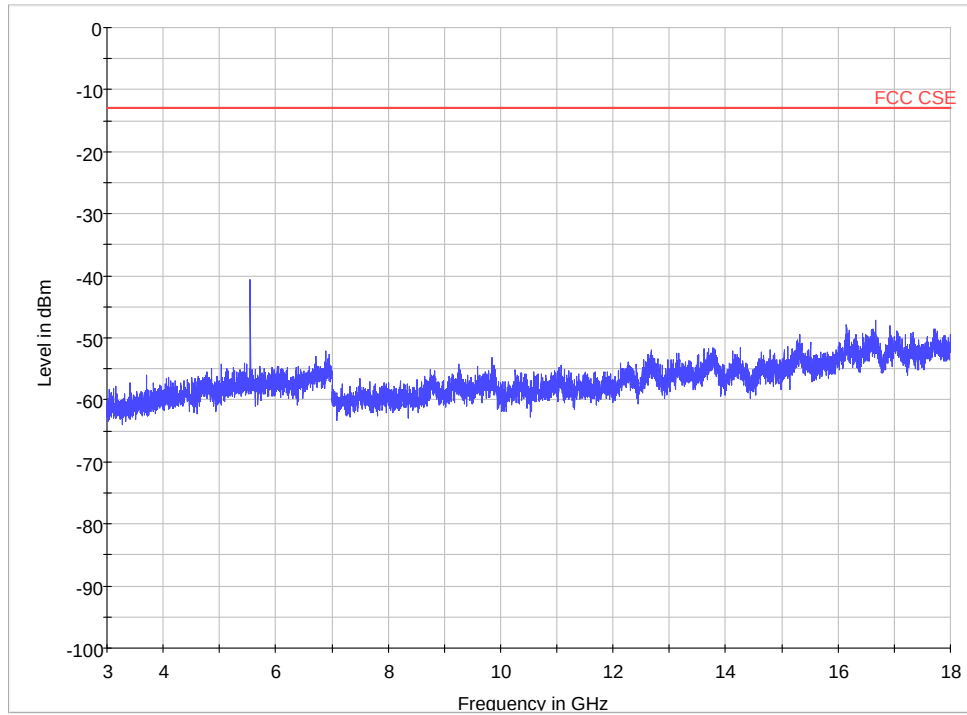
Spurious conducted emissions from 18GHz~20GHz

LTE Band II 10MHz CH18650

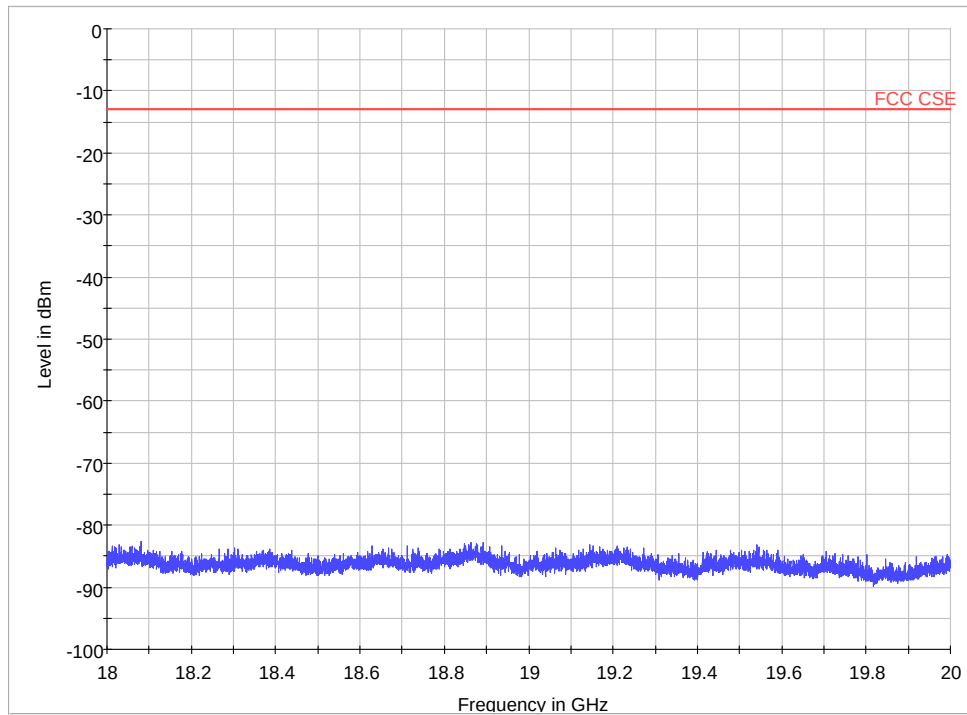


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz

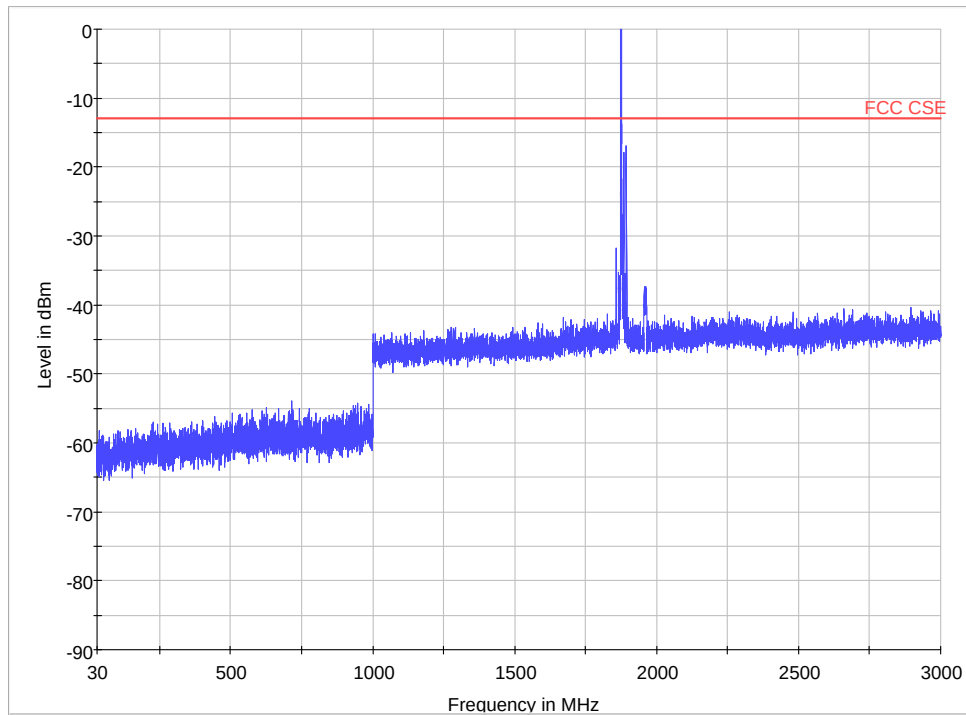


Spurious conducted emissions from 3GHz~18GHz

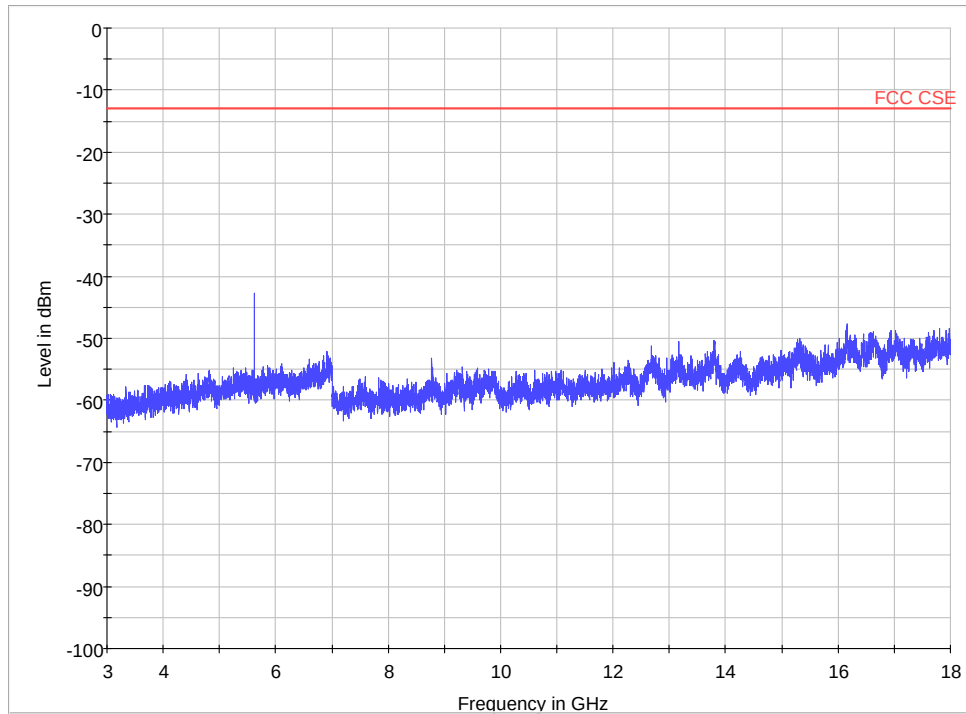


Spurious conducted emissions from 18GHz~20GHz

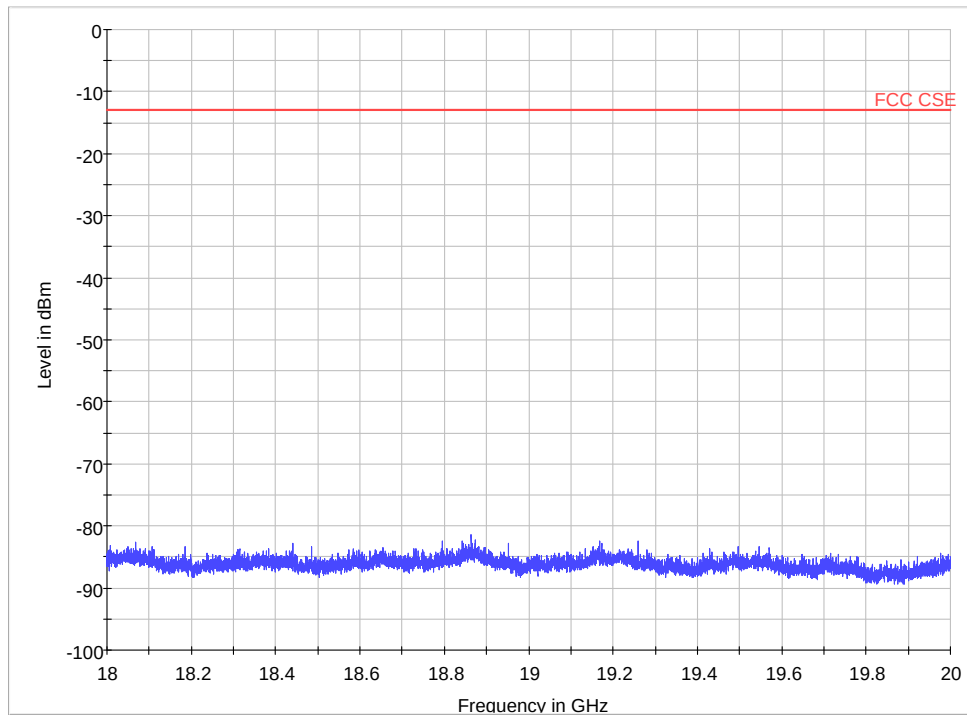
LTE Band II 10MHz CH18900



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

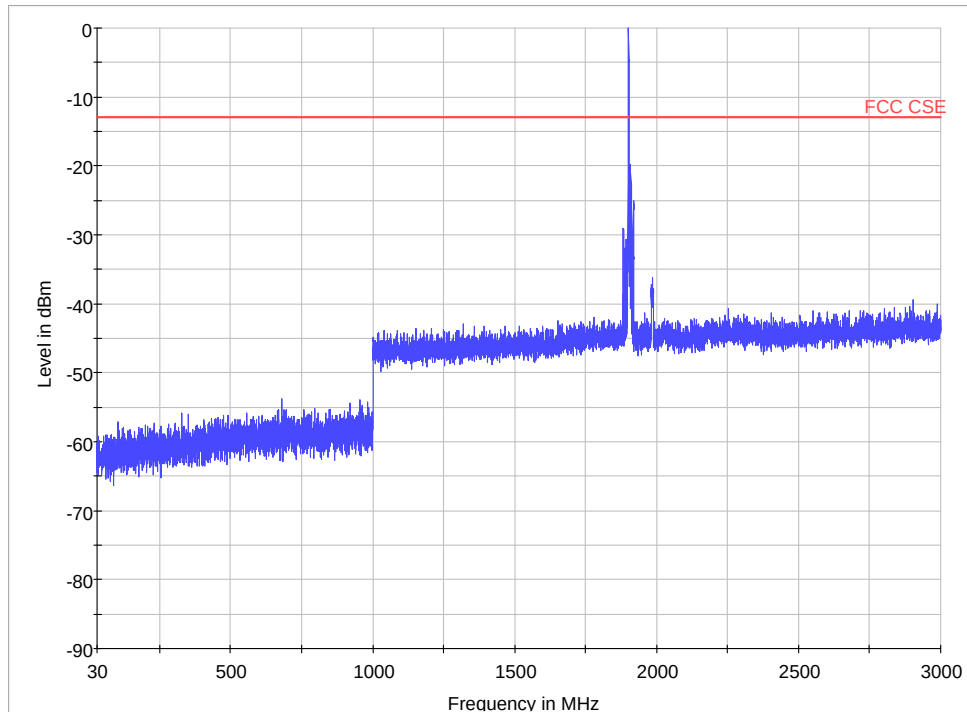


Spurious conducted emissions from 3GHz~18GHz



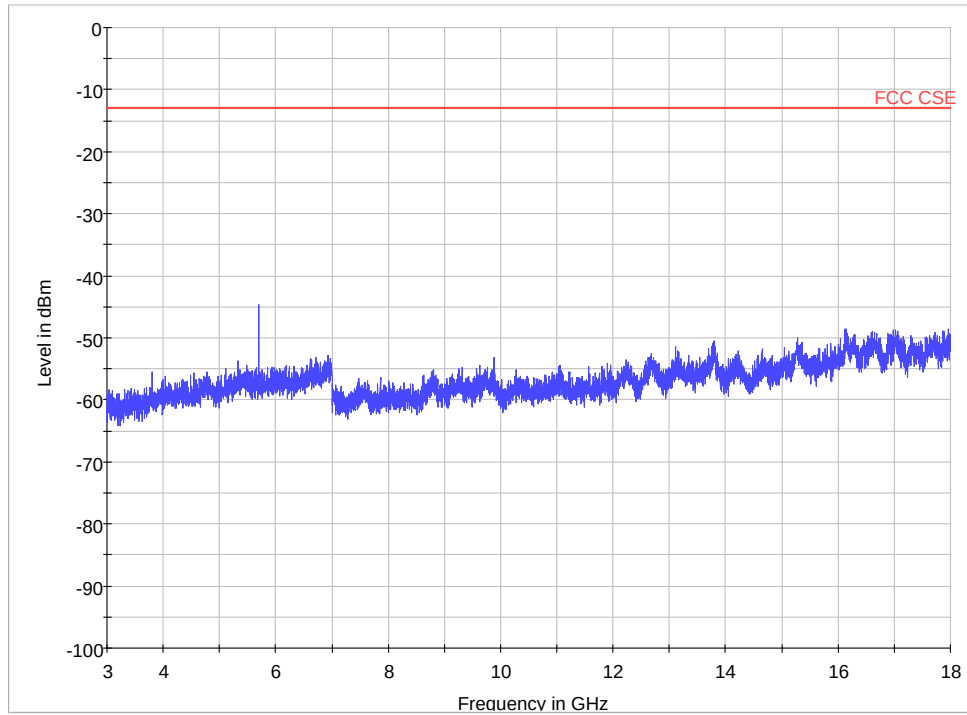
Spurious conducted emissions from 18GHz~20GHz

LTE Band II 10MHz CH19150

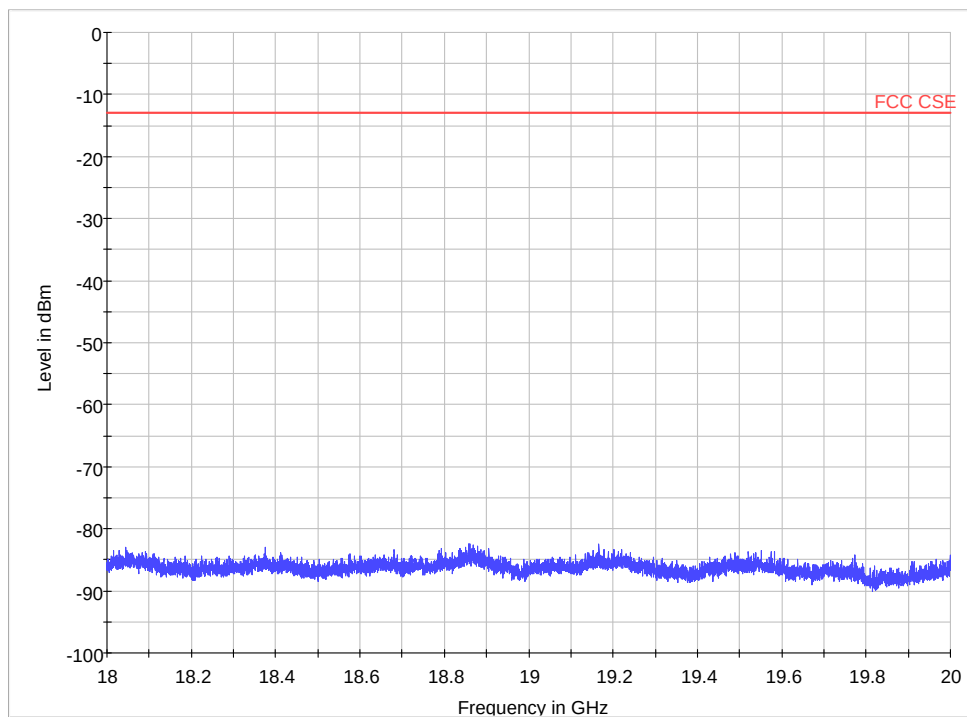


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz

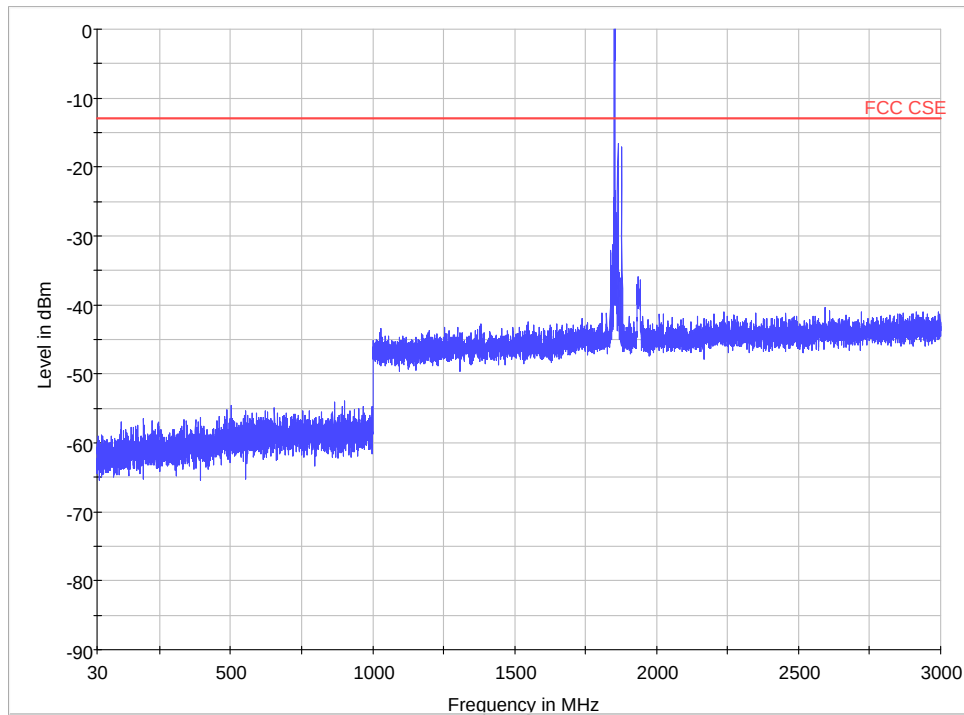


Spurious conducted emissions from 3GHz~18GHz

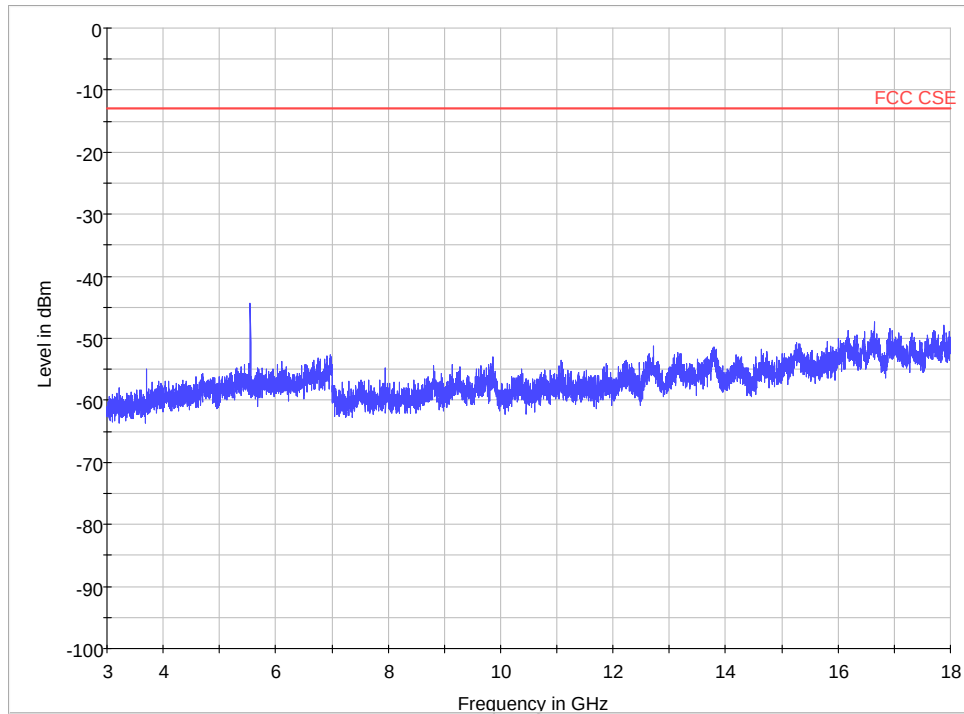


Spurious conducted emissions from 18GHz~20GHz

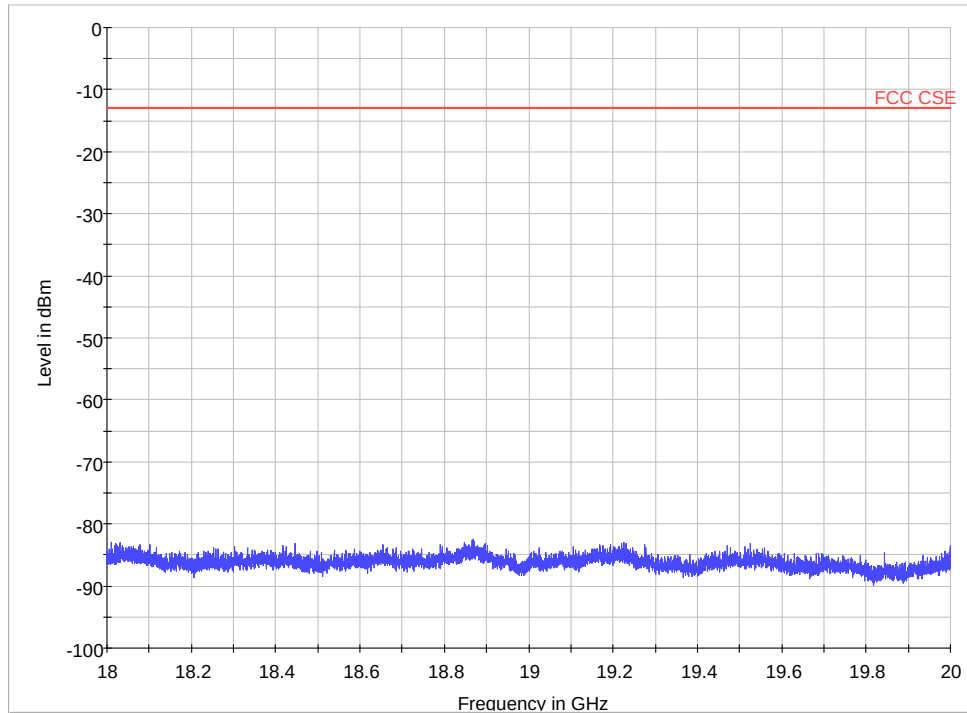
LTE Band II 15MHz CH18675



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

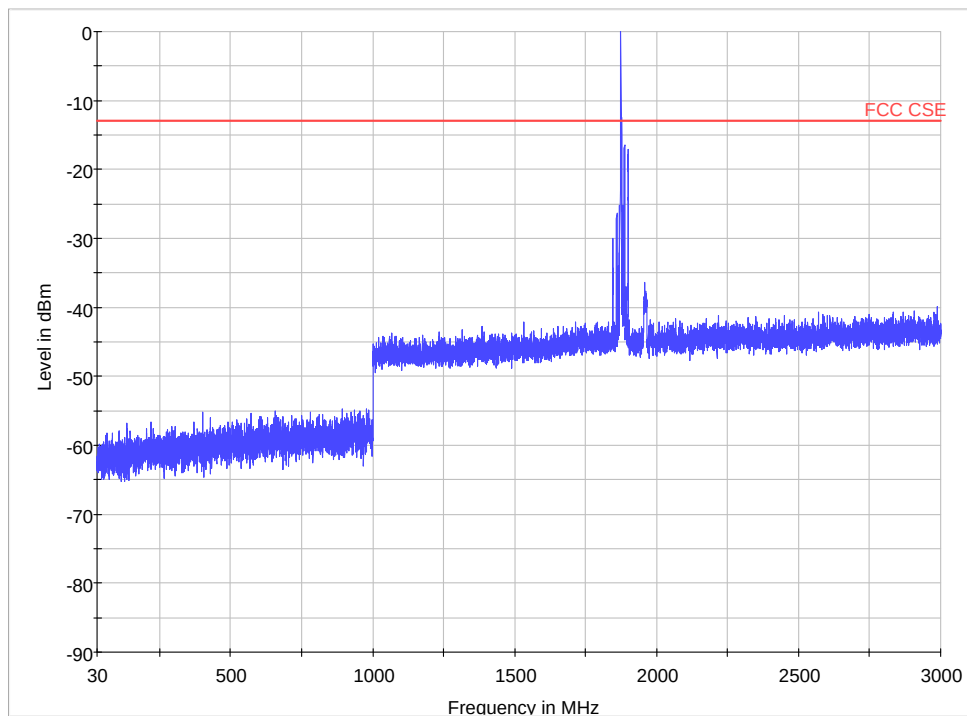


Spurious conducted emissions from 3GHz~18GHz



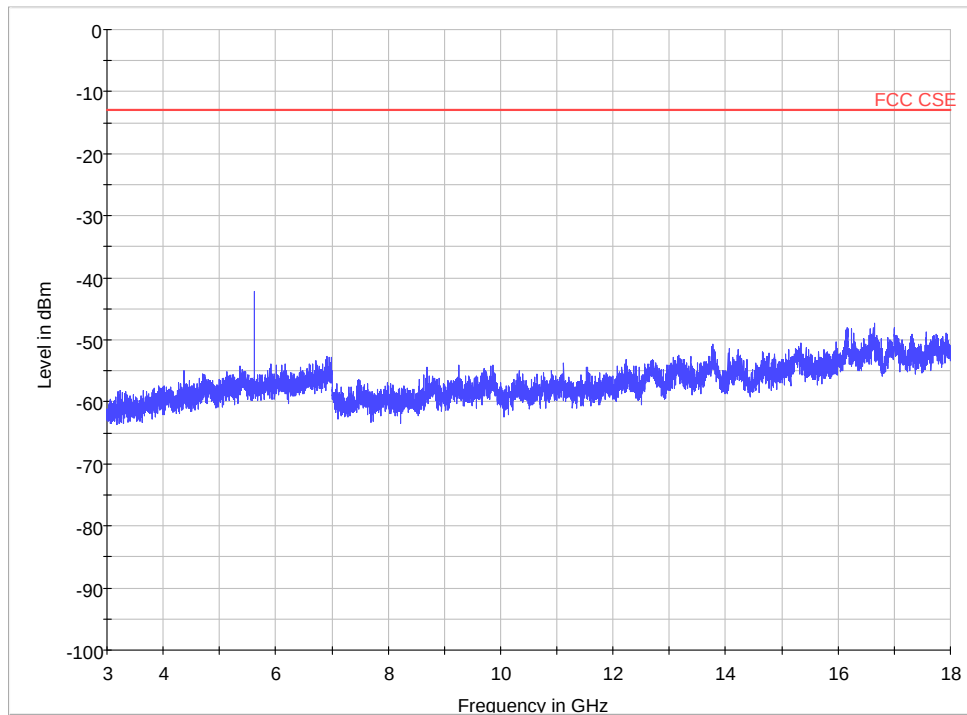
Spurious conducted emissions from 18GHz~20GHz

LTE Band II 15MHz CH18900

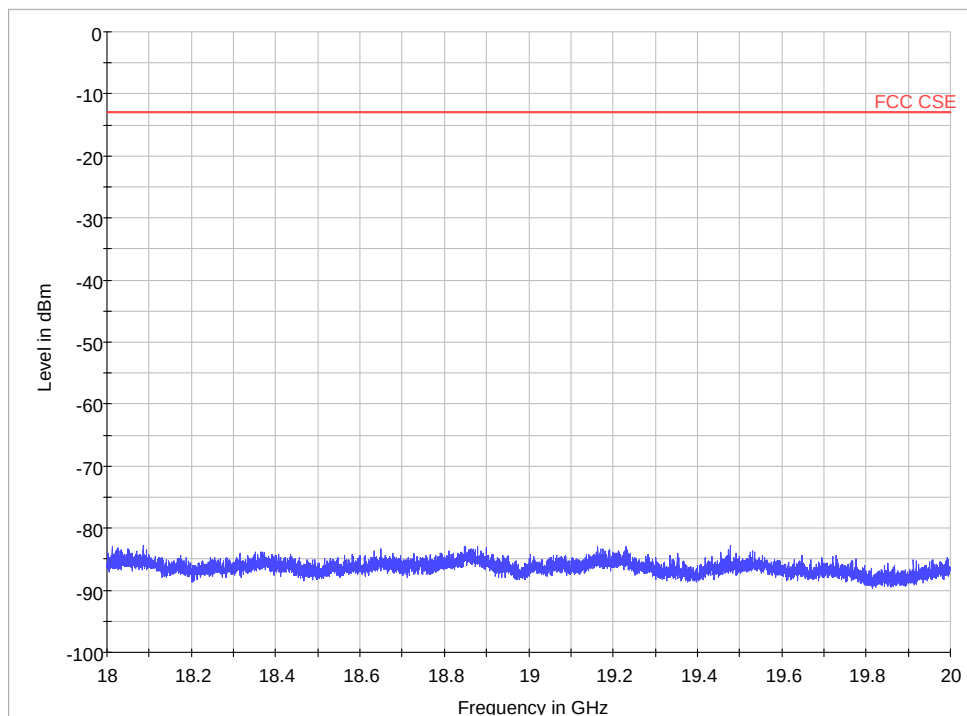


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz

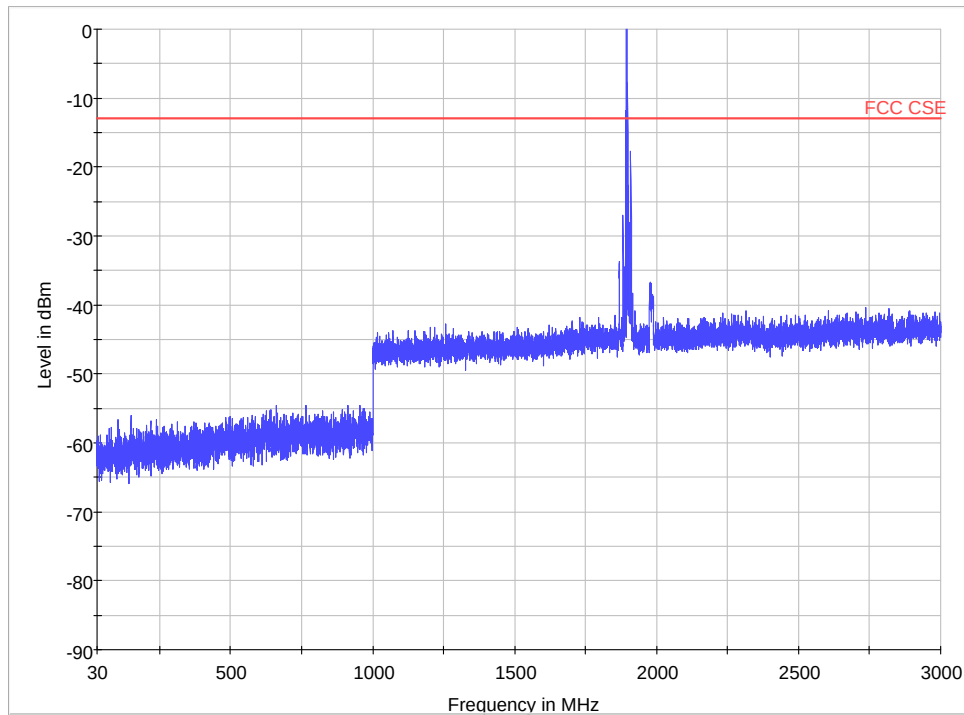


Spurious conducted emissions from 3GHz~18GHz

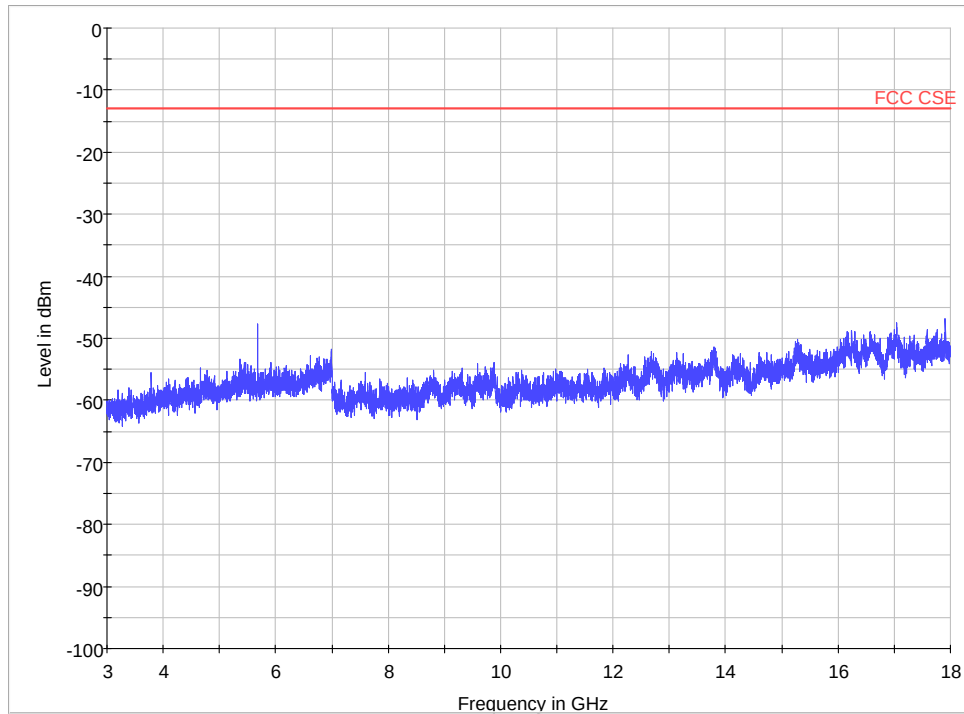


Spurious conducted emissions from 18GHz~20GHz

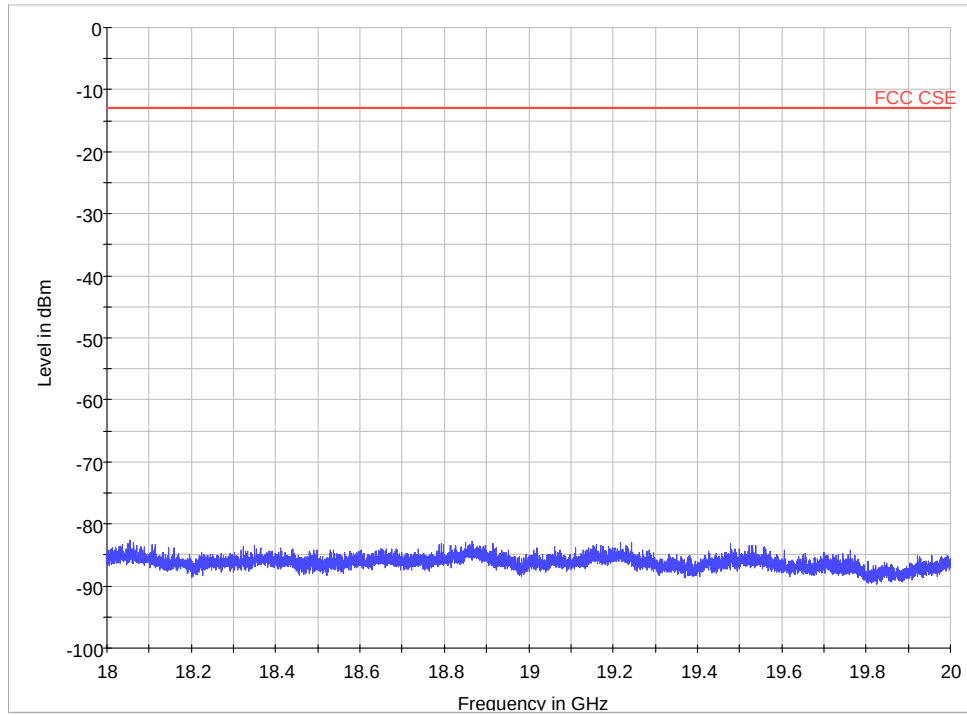
LTE Band II 15MHz CH19125



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

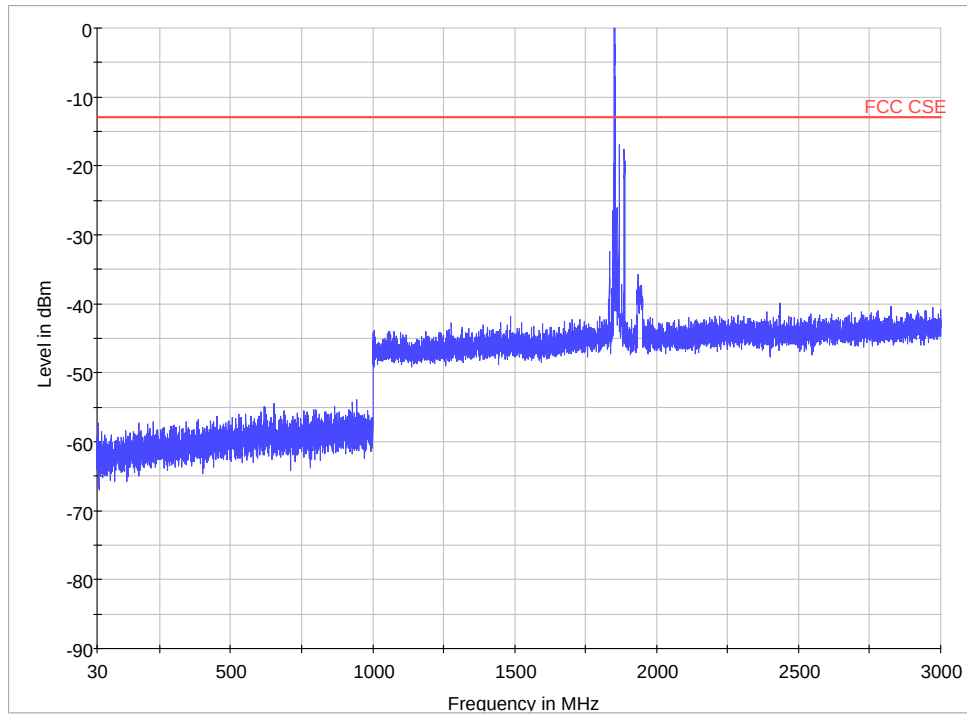


Spurious conducted emissions from 3GHz~18GHz



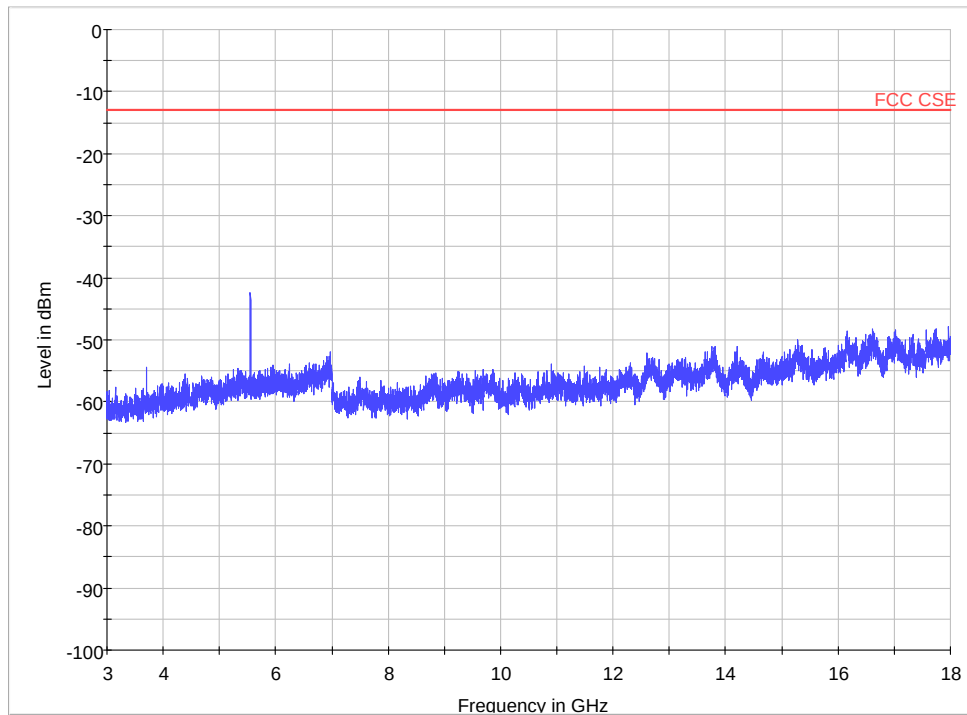
Spurious conducted emissions from 18GHz~20GHz

LTE Band II 20MHz CH18700

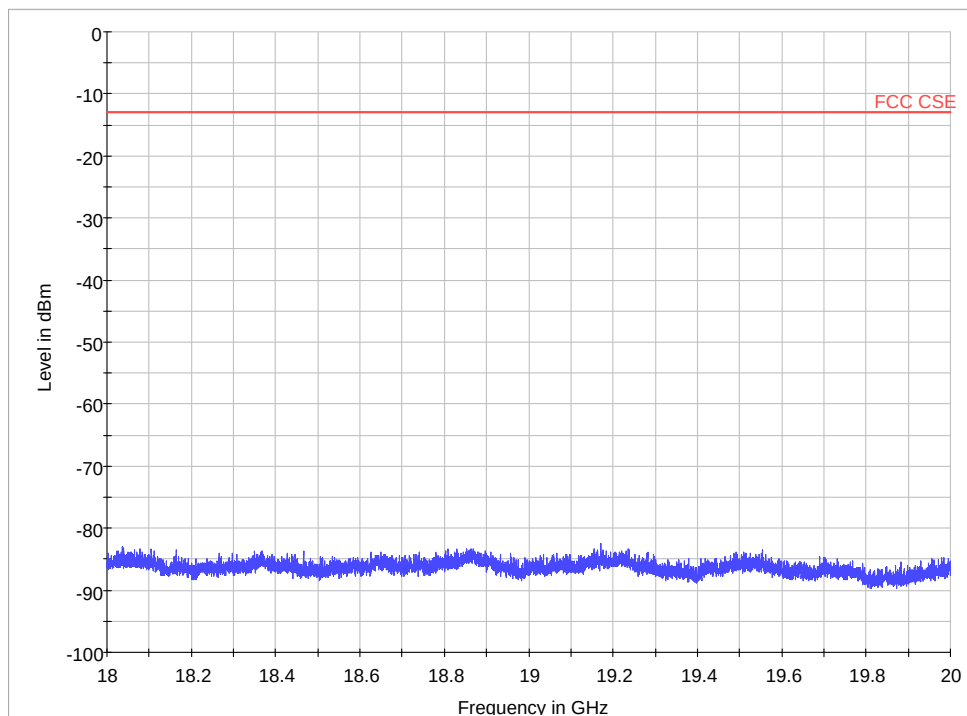


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz

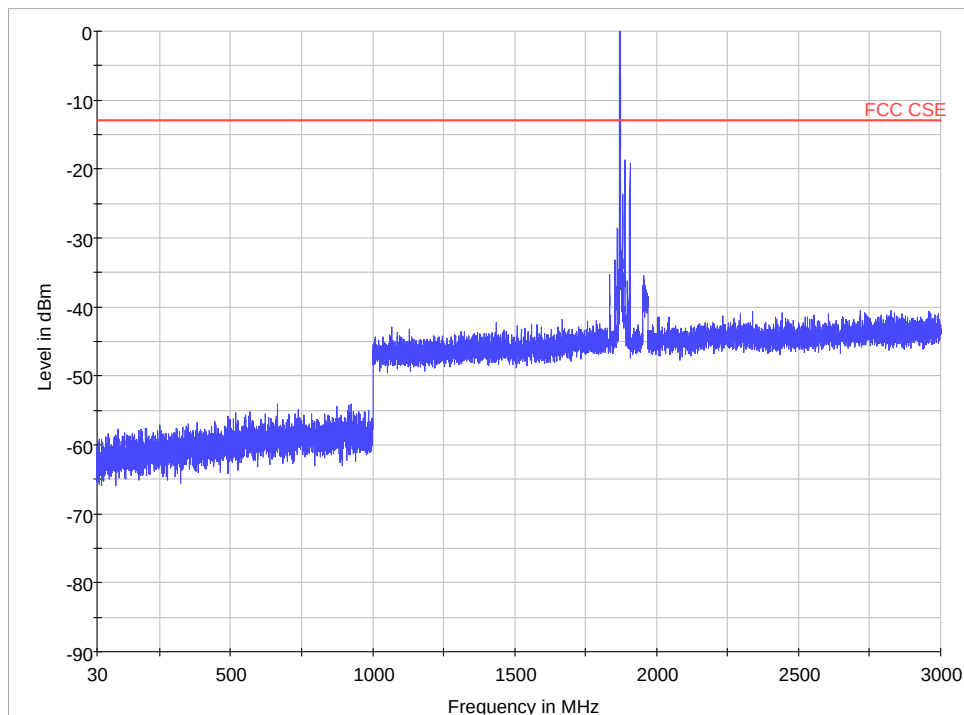


Spurious conducted emissions from 3GHz~18GHz

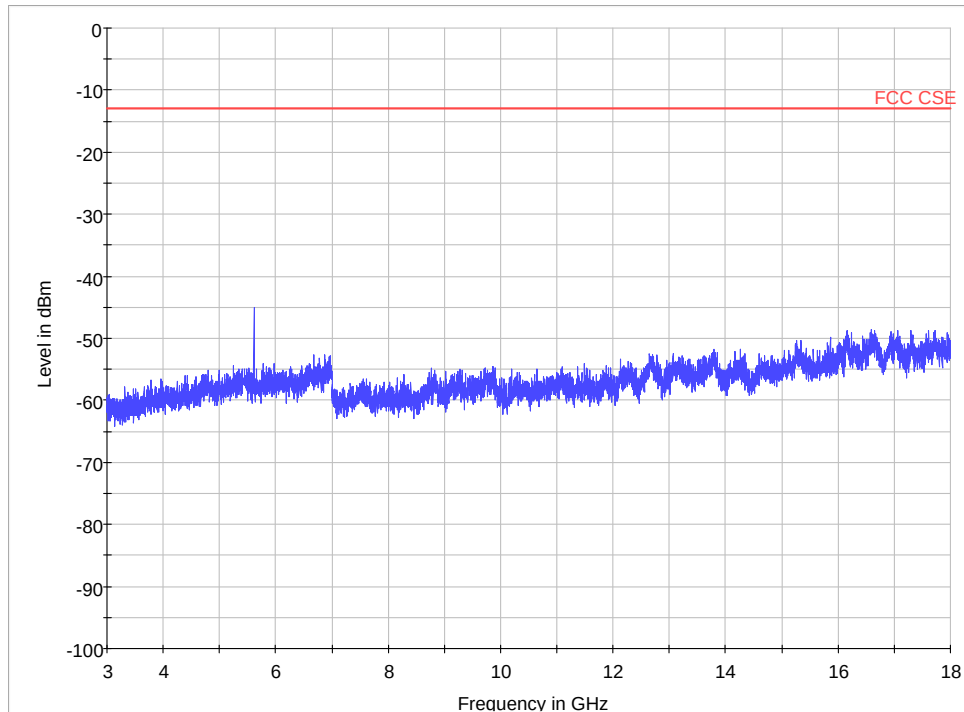


Spurious conducted emissions from 18GHz~20GHz

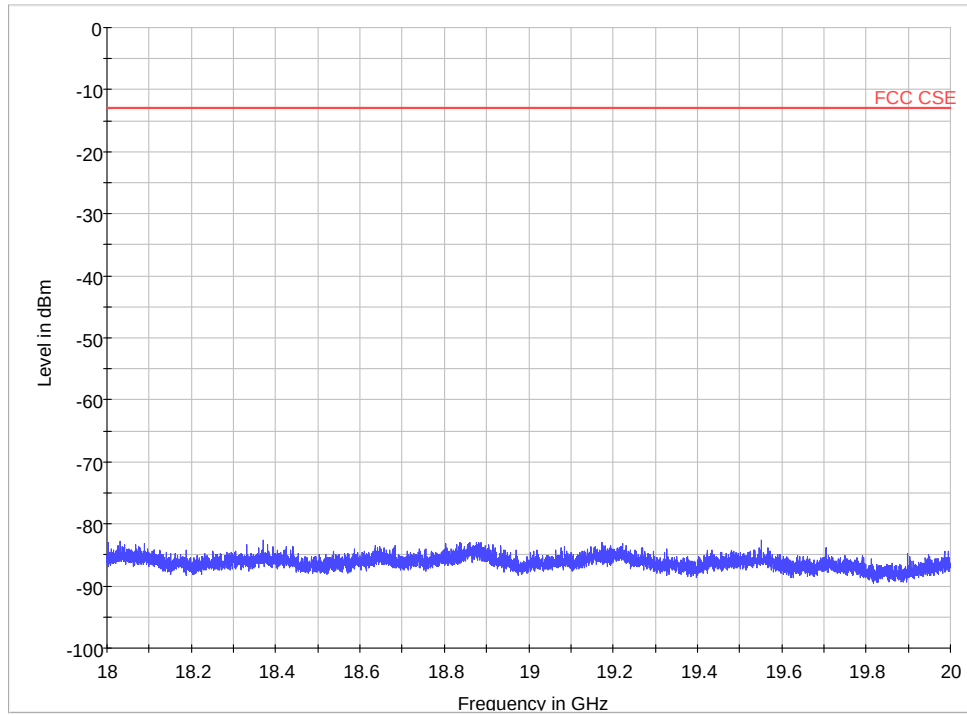
LTE Band II 20MHz CH18900



Note: The signal beyond the limit is carrier.
Spurious conducted emissions from 30MHz~3GHz

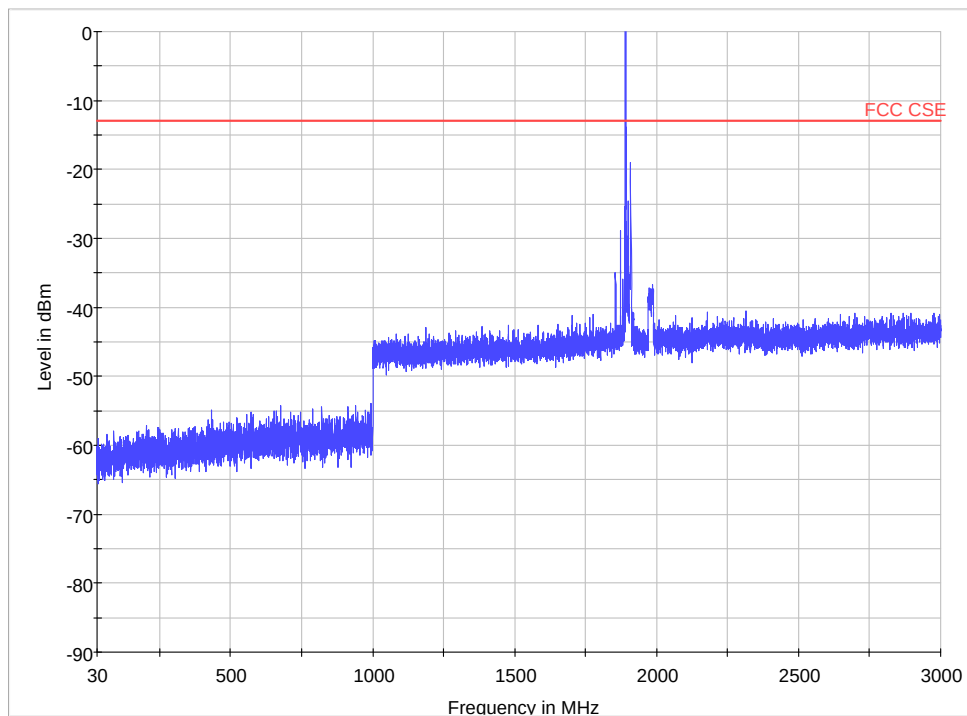


Spurious conducted emissions from 3GHz~18GHz



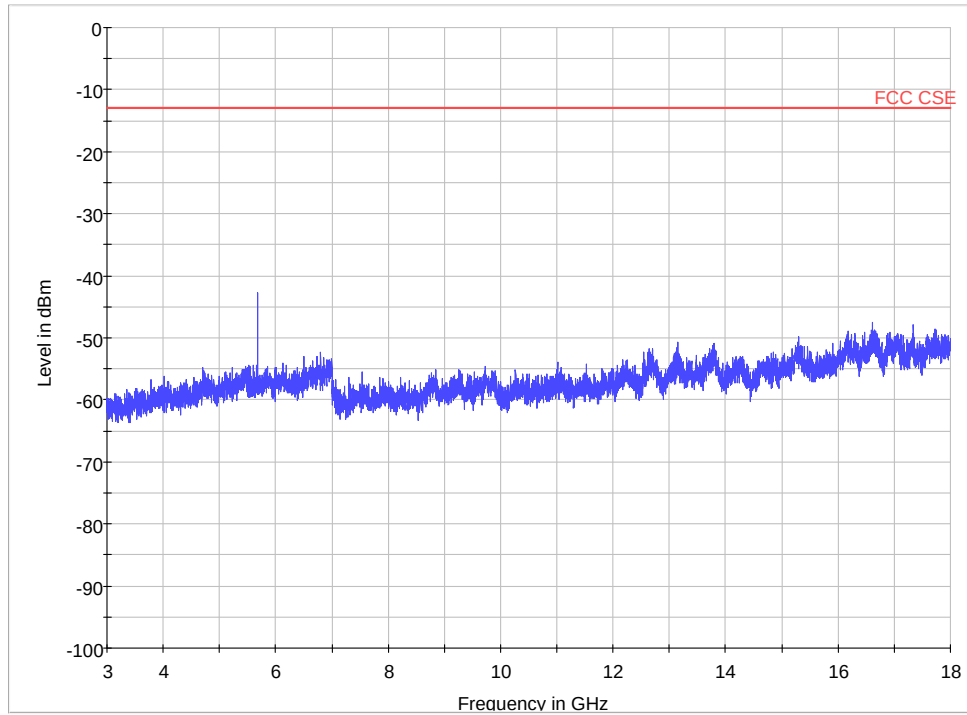
Spurious conducted emissions from 18GHz~20GHz

LTE Band II 20MHz CH19100

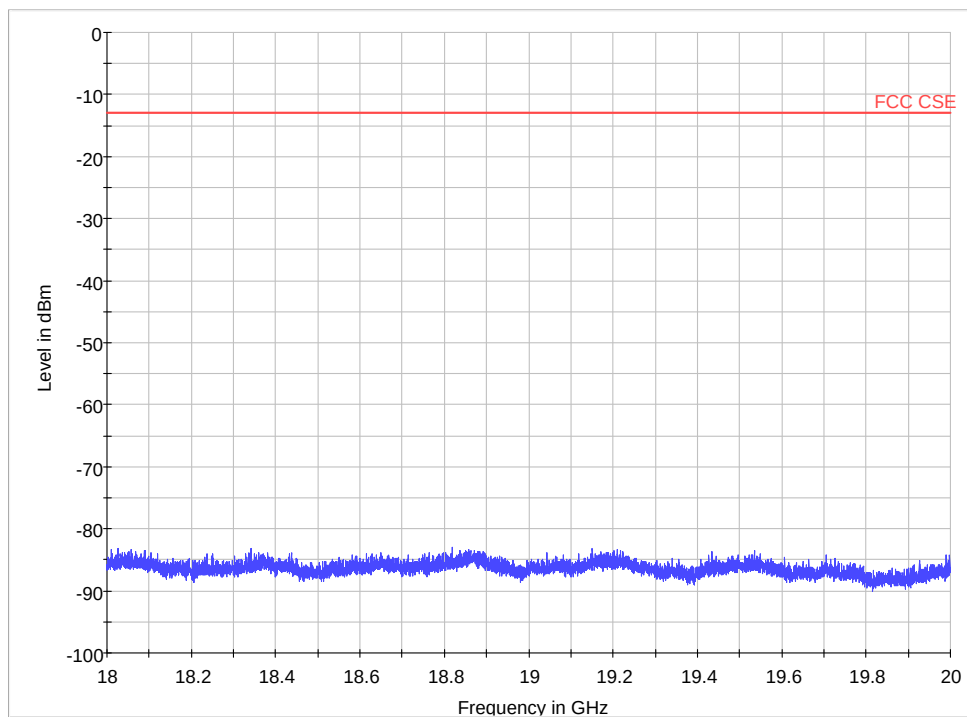


Note: The signal beyond the limit is carrier.

Spurious conducted emissions from 30MHz~3GHz



Spurious conducted emissions from 3GHz~18GHz



Spurious conducted emissions from 18GHz~20GHz

5.8.Radiates Spurious Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The measurements procedures in ANSI/TIA 603-D are used.

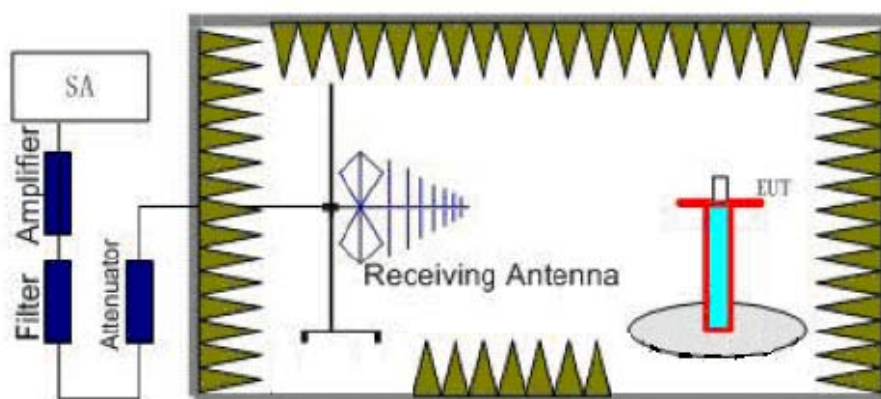
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment.

The emissions less than 20 dB below the permissible value are reported.

The procedure of Radiates Spurious Emission is as follows:

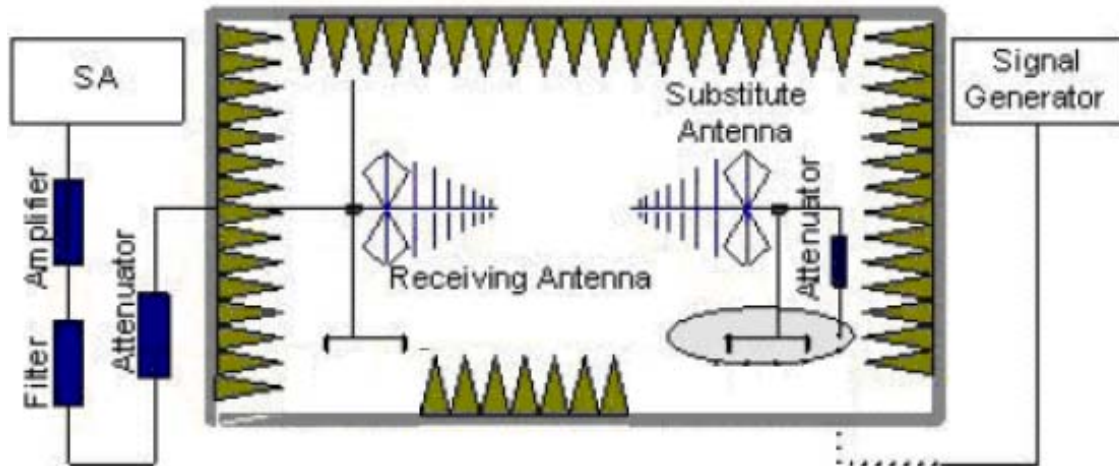
Step 1:

The measurement is carried out in the semi-anechoic chamber. EUT was placed on a 1.5 meters high non-conductive table at a 3 meters test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A peak detector is used while RBW and VBW are both set to 3MHz. During the measurement, the highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna moved up and down over a range from 1 to 4 meters in both horizontally and vertically polarized orientations. The test setup refers to figure below.



Step 2:

A dipole antenna shall be substituted in place of the EUT. The antenna will be driven by a signal generator with a adjustable S.G. applied through a Tx cable. Adjust the level of the signal generator output until the value of the receiver reach the previously recorded analyzer power level (LVL).Then The E.R.P. /E.I.R.P. of the EUT can be calculated through the level of the signal generator, Tx cable loss and the gain of the substitution antenna. The test setup refers to figure below.



E.R.P (peak power) =S.G. - Tx Cable loss + Substitution antenna gain – 2.15.

EIRP= E.R.P+2.15

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization(horizontal and vertical), The worst emission was found in position (Z axis, vertical polarization) and the worst case was recorded.

Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.

Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10} (P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 3.55$ dB.

Test Result

GSM 1900 CH 512

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3700	-48.22	5.1	11.05	vertical	-42.27	-13.00	29.27	0
3	5550.8	-57.57	5.42	12.65	vertical	-50.34	-13.00	37.34	135
4	7401	-58.53	6.7	13.85	vertical	-51.38	-13.00	38.38	45
5	9251	-58.00	7.01	14.75	vertical	-50.26	-13.00	37.26	180
6	11101	-58.50	7.48	15.95	vertical	-50.03	-13.00	37.03	90
7	12951	-56.48	7.51	16.55	vertical	-47.44	-13.00	34.44	135
8	14802	-51.31	8.24	15.35	vertical	-44.20	-13.00	31.20	0
9	16652	-48.71	8.41	14.95	vertical	-42.17	-13.00	29.17	45
10	18502	-47.32	8.54	15.45	vertical	-40.41	-13.00	27.41	180

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

GSM 1900 CH 661

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760	-46.34	5.1	11.05	vertical	-40.39	-13.00	27.39	90
3	5639.6	-57.68	5.42	12.65	vertical	-50.45	-13.00	37.45	135
4	7520	-59.43	6.7	13.85	vertical	-52.28	-13.00	39.28	270
5	9400	-58.90	7.01	14.75	vertical	-51.16	-13.00	38.16	180
6	11280	-58.70	7.48	15.95	vertical	-50.23	-13.00	37.23	135
7	13160	-57.58	7.51	16.55	vertical	-48.54	-13.00	35.54	270
8	15040	-52.81	8.24	15.35	vertical	-45.70	-13.00	32.70	0
9	16920	-50.11	8.41	14.95	vertical	-43.57	-13.00	30.57	180
10	18800	-48.22	8.54	15.45	vertical	-41.31	-13.00	28.31	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2. The worst emission was found in the antenna is vertical position.

GSM 1900 CH 810

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3819	-45.57	5.1	11.05	vertical	-39.62	-13.00	26.62	225
3	5729.6	-58.31	5.42	12.65	vertical	-51.08	-13.00	38.08	135
4	7639	-60.03	6.7	13.85	vertical	-52.88	-13.00	39.88	135
5	9549	-59.36	7.01	14.75	vertical	-51.62	-13.00	38.62	45
6	11459	-60.00	7.48	15.95	vertical	-51.53	-13.00	38.53	180
7	13369	-55.78	7.51	16.55	vertical	-46.74	-13.00	33.74	90
8	15278	-52.31	8.24	15.35	vertical	-45.20	-13.00	32.20	135
9	17188	-50.21	8.41	14.95	vertical	-43.67	-13.00	30.67	0
10	19098	-47.86	8.54	15.45	vertical	-40.95	-13.00	27.95	45

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is vertical position.

WCDMA Band II CH9662

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3705	-55.34	5.1	11.05	vertical	-49.39	-13.00	36.39	180
3	5554.5	-57.01	5.42	12.65	vertical	-49.78	-13.00	36.78	180
4	7410	-57.71	6.7	13.85	vertical	-50.56	-13.00	37.56	225
5	9262	-57.19	7.01	14.75	vertical	-49.45	-13.00	36.45	270
6	11114	-58.06	7.48	15.95	vertical	-49.59	-13.00	36.59	180
7	12967	-55.84	7.51	16.55	vertical	-46.8	-13.00	33.80	135
8	14819	-51.22	8.24	15.35	vertical	-44.11	-13.00	31.11	270
9	16672	-48.62	8.41	14.95	vertical	-42.08	-13.00	29.08	0
10	18524	-47.00	8.54	15.45	vertical	-40.09	-13.00	27.09	135

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.
2.The worst emission was found in the antenna is vertical position.

WCDMA Band II CH9800

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760	-55.82	5.1	11.05	vertical	-49.87	-13.00	36.87	0
3	5636.3	-53.87	5.42	12.65	vertical	-46.64	-13.00	33.64	180
4	7520	-61.04	6.7	13.85	vertical	-53.89	-13.00	40.89	180
5	9400	-61.18	7.01	14.75	vertical	-53.44	-13.00	40.44	90
6	11280	-55.33	7.48	15.95	vertical	-46.86	-13.00	33.86	225
7	13160	-55.08	7.51	16.55	vertical	-46.04	-13.00	33.04	270
8	15040	-52.51	8.24	15.35	vertical	-45.4	-13.00	32.40	180
9	16920	-48.33	8.41	14.95	vertical	-41.79	-13.00	28.79	135
10	18502	-50.75	8.54	15.45	vertical	-43.84	-13.00	30.84	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

WCDMA Band II CH9938

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3815	-57.44	5.1	11.05	vertical	-51.49	-13.00	38.49	0
3	5719.5	-54.91	5.42	12.65	vertical	-47.68	-13.00	34.68	180
4	7630	-55.78	6.7	13.85	vertical	-48.63	-13.00	35.63	90
5	9538	-58.98	7.01	14.75	vertical	-51.24	-13.00	38.24	225
6	11446	-55.44	7.48	15.95	vertical	-46.97	-13.00	33.97	270
7	13353	-55.63	7.51	16.55	vertical	-46.59	-13.00	33.59	135
8	15261	-49.39	8.24	15.35	vertical	-42.28	-13.00	29.28	45
9	17168	-48.02	8.41	14.95	vertical	-41.48	-13.00	28.48	225
10	19076	-49.01	8.54	15.45	vertical	-42.1	-13.00	29.10	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 1.4MHz CH607

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3701	-58.84	5.1	11.05	vertical	-52.89	-13.00	39.89	270
3	5552	-55.57	5.42	12.65	vertical	-48.34	-13.00	35.34	180
4	7403	-62.57	6.7	13.85	vertical	-55.42	-13.00	42.42	135
5	9253.1	-49.27	7.01	14.75	vertical	-41.53	-13.00	28.53	180
6	11104	-70.28	7.48	15.95	vertical	-61.81	-13.00	48.81	0
7	12955	-68.84	7.51	16.55	vertical	-59.8	-13.00	46.80	180
8	14806	-64.52	8.24	15.35	vertical	-57.41	-13.00	44.41	90
9	16656	-61.73	8.41	14.95	vertical	-55.19	-13.00	42.19	225
10	18507	-59.10	8.54	15.45	vertical	-52.19	-13.00	39.19	180

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 1.4MHz CH900

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760	-60.11	5.10	11.05	vertical	-54.16	-13.00	41.16	0
3	5640	-55.83	5.42	12.65	vertical	-48.60	-13.00	35.60	135
4	7520	-62.37	6.70	13.85	vertical	-55.22	-13.00	42.22	0
5	9399.4	-56.03	7.01	14.75	vertical	-48.29	-13.00	35.29	180
6	11280	-70.42	7.48	15.95	vertical	-61.95	-13.00	48.95	0
7	13160	-68.94	7.51	16.55	vertical	-59.90	-13.00	46.90	45
8	15040	-63.62	8.24	15.35	vertical	-56.51	-13.00	43.51	180
9	16920	-61.21	8.41	14.95	vertical	-54.67	-13.00	41.67	90
10	18800	-62.11	8.54	15.45	vertical	-55.20	-13.00	42.20	225

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 1.4MHz CH1193

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3819	-60.40	5.10	11.05	vertical	-54.45	-13.00	41.45	270
3	5728.1	-56.06	5.42	12.65	vertical	-48.83	-13.00	35.83	125
4	7637	-60.04	6.70	13.85	vertical	-52.89	-13.00	39.89	135
5	9547	-60.25	7.01	14.75	vertical	-52.51	-13.00	39.51	270
6	11456	-69.25	7.48	15.95	vertical	-60.78	-13.00	47.78	0
7	13365	-67.69	7.51	16.55	vertical	-58.65	-13.00	45.65	180
8	15274	-62.82	8.24	15.35	vertical	-55.71	-13.00	42.71	90
9	17184	-61.02	8.41	14.95	vertical	-54.48	-13.00	41.48	225
10	19093	-59.29	8.54	15.45	vertical	-52.38	-13.00	39.38	180

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 3MHz CH615

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3703	-70.15	5.10	11.05	vertical	-64.2	-13.00	51.20	270
3	5555	-63.52	5.42	12.65	vertical	-56.29	-13.00	43.29	45
4	7406	-70.96	6.70	13.85	vertical	-63.81	-13.00	50.81	0
5	9250.9	-46.14	7.01	14.75	vertical	-38.40	-13.00	25.40	180
6	11109	-70.83	7.48	15.95	vertical	-62.36	-13.00	49.36	315
7	12961	-67.94	7.51	16.55	vertical	-58.9	-13.00	45.90	225
8	14812	-64.15	8.24	15.35	vertical	-57.04	-13.00	44.04	135
9	16664	-61.36	8.41	14.95	vertical	-54.82	-13.00	41.82	270
10	18515	-60.89	8.54	15.45	vertical	-53.98	-13.00	40.98	0

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 3MHz CH900

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760	-60.23	5.10	11.05	vertical	-54.28	-13.00	41.28	135
3	5640	-55.22	5.42	12.65	vertical	-47.99	-13.00	34.99	0
4	7520	-63.23	6.70	13.85	vertical	-56.08	-13.00	43.08	135
5	9393.8	-52.75	7.01	14.75	vertical	-45.01	-13.00	32.01	180
6	11280	-68.06	7.48	15.95	vertical	-59.59	-13.00	46.59	45
7	13160	-68.48	7.51	16.55	vertical	-59.44	-13.00	46.44	180
8	15040	-63.91	8.24	15.35	vertical	-56.8	-13.00	43.80	90
9	16920	-60.32	8.41	14.95	vertical	-53.78	-13.00	40.78	225
10	18800	-59.42	8.54	15.45	vertical	-52.51	-13.00	39.51	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 3MHz CH1185

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3817	-62.33	5.10	11.05	vertical	-56.38	-13.00	43.38	225
3	5726	-54.41	5.42	12.65	vertical	-47.18	-13.00	34.18	135
4	7634	-61.74	6.70	13.85	vertical	-54.59	-13.00	41.59	270
5	9535.5	-55.86	7.01	14.75	vertical	-48.12	-13.00	35.12	180
6	11451	-68.96	7.48	15.95	vertical	-60.49	-13.00	47.49	135
7	13360	-67.54	7.51	16.55	vertical	-58.5	-13.00	45.50	0
8	15268	-63.22	8.24	15.35	vertical	-56.11	-13.00	43.11	45
9	17177	-61.14	8.41	14.95	vertical	-54.6	-13.00	41.60	180
10	19085	-60.11	8.54	15.45	vertical	-53.2	-13.00	40.20	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 5MHz CH625

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3705	-59.07	5.10	11.05	vertical	-53.12	-13.00	40.12	225
3	5558	-56.71	5.42	12.65	vertical	-49.48	-13.00	36.48	270
4	7410	-64.17	6.70	13.85	vertical	-57.02	-13.00	44.02	180
5	9250.9	-45.14	7.01	14.75	vertical	-37.40	-13.00	24.40	180
6	11115	-71.55	7.48	15.95	vertical	-63.08	-13.00	50.08	270
7	12968	-68.54	7.51	16.55	vertical	-59.5	-13.00	46.50	0
8	14820	-64.09	8.24	15.35	vertical	-56.98	-13.00	43.98	180
9	16673	-60.98	8.41	14.95	vertical	-54.44	-13.00	41.44	90
10	18525	-59.74	8.54	15.45	vertical	-52.83	-13.00	39.83	180

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 5MHz CH900

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3989.3	-50.95	5.10	11.05	vertical	-45.00	-13.00	32.00	180
3	5640	-55.48	5.42	12.65	vertical	-48.25	-13.00	35.25	225
4	7520	-64.17	6.70	13.85	vertical	-57.02	-13.00	44.02	270
5	9400	-60.24	7.01	14.75	vertical	-52.5	-13.00	39.50	135
6	11280	-69.47	7.48	15.95	vertical	-61	-13.00	48.00	45
7	13160	-68.40	7.51	16.55	vertical	-59.36	-13.00	46.36	0
8	15040	-63.07	8.24	15.35	vertical	-55.96	-13.00	42.96	270
9	16920	-61.24	8.41	14.95	vertical	-54.7	-13.00	41.70	315
10	18800	-62.19	8.54	15.45	vertical	-55.28	-13.00	42.28	180

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 5MHz CH1175

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3815	-61.92	5.10	11.05	vertical	-55.97	-13.00	42.97	270
3	5723	-53.53	5.42	12.65	vertical	-46.3	-13.00	33.30	135
4	7630	-62.37	6.70	13.85	vertical	-55.22	-13.00	42.22	45
5	9526.5	-55.32	7.01	14.75	vertical	-47.58	-13.00	34.58	180
6	11445	-69.54	7.48	15.95	vertical	-61.07	-13.00	48.07	270
7	13353	-67.97	7.51	16.55	vertical	-58.93	-13.00	45.93	315
8	15260	-62.56	8.24	15.35	vertical	-55.45	-13.00	42.45	225
9	17168	-60.90	8.41	14.95	vertical	-54.36	-13.00	41.36	135
10	19075	-64.78	8.54	15.45	vertical	-57.87	-13.00	44.87	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 10MHz CH650

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3710	-59.65	5.10	11.05	vertical	-53.70	-13.00	40.70	0
3	5565	-55.62	5.42	12.65	vertical	-48.39	-13.00	35.39	135
4	7420	-63.62	6.70	13.85	vertical	-56.47	-13.00	43.47	0
5	9252.0	-47.06	7.01	14.75	vertical	-39.32	-13.00	26.32	180
6	11130	-71.03	7.48	15.95	vertical	-62.56	-13.00	49.56	90
7	12985	-67.90	7.51	16.55	vertical	-58.86	-13.00	45.86	225
8	14840	-64.28	8.24	15.35	vertical	-57.17	-13.00	44.17	270
9	16695	-60.86	8.41	14.95	vertical	-54.32	-13.00	41.32	180
10	18550	-62.77	8.54	15.45	vertical	-55.86	-13.00	42.86	135

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 10MHz CH900

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760	-59.12	5.10	11.05	vertical	-53.17	-13.00	40.17	270
3	5640	-53.80	5.42	12.65	vertical	-46.57	-13.00	33.57	0
4	7520	-64.17	6.70	13.85	vertical	-57.02	-13.00	44.02	180
5	9378.0	-51.44	7.01	14.75	vertical	-43.70	-13.00	30.70	180
6	11280	-69.82	7.48	15.95	vertical	-61.35	-13.00	48.35	180
7	13160	-68.22	7.51	16.55	vertical	-59.18	-13.00	46.18	90
8	15040	-63.45	8.24	15.35	vertical	-56.34	-13.00	43.34	225
9	16920	-60.44	8.41	14.95	vertical	-53.9	-13.00	40.90	270
10	18800	-61.16	8.54	15.45	vertical	-54.25	-13.00	41.25	135

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 10MHz CH1150

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3810	-58.81	5.10	11.05	vertical	-52.86	39.86	-13.00	45
3	5715	-54.55	5.42	12.65	vertical	-47.32	34.32	-13.00	0
4	7620	-63.44	6.70	13.85	vertical	-56.29	43.29	-13.00	225
5	9502.9	-54.73	7.01	14.75	vertical	-46.99	-13.00	33.99	180
6	11430	-69.27	7.48	15.95	vertical	-60.8	47.80	-13.00	270
7	13335	-67.77	7.51	16.55	vertical	-58.73	45.73	-13.00	0
8	15240	-62.71	8.24	15.35	vertical	-55.6	42.60	-13.00	135
9	17145	-61.25	8.41	14.95	vertical	-54.71	41.71	-13.00	0
10	19050	-65.14	8.54	15.45	vertical	-58.23	45.23	-13.00	45

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 15MHz CH675

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3715.0	-59.09	5.10	11.05	vertical	-53.14	40.14	-13.00	90
3	5572.5	-56.48	5.42	12.65	vertical	-49.25	36.25	-13.00	225
4	7430.0	-63.98	6.70	13.85	vertical	-56.83	43.83	-13.00	270
5	9253.1	-45.60	7.01	14.75	vertical	-37.86	-13.00	24.86	180
6	11145.0	-69.05	7.48	15.95	vertical	-60.58	47.58	-13.00	135
7	13002.5	-67.78	7.51	16.55	vertical	-58.74	45.74	-13.00	270
8	14860.0	-63.61	8.24	15.35	vertical	-56.5	43.50	-13.00	0
9	16717.5	-61.37	8.41	14.95	vertical	-54.83	41.83	-13.00	90
10	18575.0	-63.20	8.54	15.45	vertical	-56.29	43.29	-13.00	180

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 15MHz CH900

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.0	-59.08	5.10	11.05	vertical	-53.13	40.13	-13.00	90
3	5640.0	-54.27	5.42	12.65	vertical	-47.04	34.04	-13.00	225
4	7520.0	-64.38	6.70	13.85	vertical	-57.23	44.23	-13.00	270
5	9366.8	-49.09	7.01	14.75	vertical	-41.35	-13.00	28.35	180
6	11280.0	-69.20	7.48	15.95	vertical	-60.73	47.73	-13.00	45
7	13160.0	-68.06	7.51	16.55	vertical	-59.02	46.02	-13.00	0
8	15040.0	-63.29	8.24	15.35	vertical	-56.18	43.18	-13.00	225
9	16920.0	-60.44	8.41	14.95	vertical	-53.9	40.90	-13.00	135
10	18800.0	-61.53	8.54	15.45	vertical	-54.62	41.62	-13.00	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 15MHz CH1125

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3805.0	-57.18	5.10	11.05	vertical	-51.23	38.23	-13.00	0
3	5687.6	-55.27	5.42	12.65	vertical	-48.04	-13.00	35.04	180
4	7610.0	-63.69	6.70	13.85	vertical	-56.54	43.54	-13.00	0
5	9478.1	-54.56	7.01	14.75	vertical	-46.82	-13.00	33.82	225
6	11415.0	-69.85	7.48	15.95	vertical	-61.38	48.38	-13.00	90
7	13317.5	-68.33	7.51	16.55	vertical	-59.29	46.29	-13.00	135
8	15220.0	-62.75	8.24	15.35	vertical	-55.64	42.64	-13.00	0
9	17122.5	-61.26	8.41	14.95	vertical	-54.72	41.72	-13.00	45
10	19025.0	-65.15	8.54	15.45	vertical	-58.24	45.24	-13.00	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 20MHz CH700

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3720.0	-57.67	5.10	11.05	vertical	-51.72	-13.00	38.72	180
3	5553.0	-56.66	5.42	12.65	vertical	-49.43	-13.00	36.43	180
4	7440.0	-56.13	6.70	13.85	vertical	-48.98	-13.00	35.98	180
5	9255.4	-52.80	7.01	14.75	vertical	-45.06	-13.00	32.06	180
6	11160.0	-69.75	7.48	15.95	vertical	-61.28	48.28	-13.00	270
7	13020.0	-68.02	7.51	16.55	vertical	-58.98	45.98	-13.00	0
8	14880.0	-63.74	8.24	15.35	vertical	-56.63	43.63	-13.00	90
9	16740.0	-61.76	8.41	14.95	vertical	-55.22	42.22	-13.00	180
10	18600.0	-60.17	8.54	15.45	vertical	-53.26	40.26	-13.00	90

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 20MHz CH900

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3760.0	-58.09	5.10	11.05	vertical	-52.14	39.14	-13.00	225
3	5613.8	-54.95	5.42	12.65	vertical	-47.72	-13.00	34.72	180
4	7520.0	-64.29	6.70	13.85	vertical	-57.14	44.14	-13.00	135
5	9355.5	-52.80	7.01	14.75	vertical	-45.06	-13.00	32.06	180
6	11280.0	-68.99	7.48	15.95	vertical	-60.52	47.52	-13.00	135
7	13160.0	-67.67	7.51	16.55	vertical	-58.63	45.63	-13.00	270
8	15040.0	-62.91	8.24	15.35	vertical	-55.8	42.80	-13.00	0
9	16920.0	-60.60	8.41	14.95	vertical	-54.06	41.06	-13.00	135
10	18800.0	-62.60	8.54	15.45	vertical	-55.69	42.69	-13.00	0

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

LTE Band II 20MHz CH1100

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3922.9	-60.15	5.10	11.05	vertical	-54.20	-13.00	41.20	180
3	5673.8	-56.18	5.42	12.65	vertical	-48.95	-13.00	35.95	180
4	7600.0	-63.09	6.70	13.85	vertical	-55.94	42.94	-13.00	135
5	9454.5	-49.55	7.01	14.75	vertical	-41.81	-13.00	28.81	180
6	11400.0	-69.44	7.48	15.95	vertical	-60.97	47.97	-13.00	45
7	13300.0	-67.55	7.51	16.55	vertical	-58.51	45.51	-13.00	90
8	15200.0	-63.28	8.24	15.35	vertical	-56.17	43.17	-13.00	225
9	17100.0	-61.94	8.41	14.95	vertical	-55.4	42.40	-13.00	270
10	19000.0	-60.54	8.54	15.45	vertical	-53.63	40.63	-13.00	180

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

6. Main Test Instruments

Name	Type	Manufacturer	Serial Number	Calibration Date	Expiration Time
Base Station Simulator	CMU200	R&S	118133	2015-05-22	2016-05-21
Power Splitter	SHX-GF2-2-13	Hua Xiang	10120101	NA	NA
Spectrum Analyzer	E4445A	Agilent	MY46181146	2015-05-22	2016-05-21
Spectrum Analyzer	N9010A	Agilent	MY47191109	2015-05-22	2016-05-21
Universal Radio Communication Tester	E5515C	Agilent	MY48367192	2015-12-17	2016-12-16
Signal Analyzer	FSV30	R&S	100815	2015-12-17	2016-12-16
Signal generator	SMB 100A	R&S	102594	2015-05-22	2016-05-21
Signal generator	SMR27	R&S	100365	2015-05-22	2016-05-21
EMI Test Receiver	ESCI	R&S	100948	2015-05-22	2016-05-21
Trilog Antenna	VUBL 9163	SCHWARZBECK	9163-201	2014-12-06	2017-12-05
Trilog Antenna	VUBL 9163	SCHWARZBECK	9163-391	2014-12-06	2017-12-05
Horn Antenna	HF907	R&S	100126	2014-12-06	2017-12-05
Horn Antenna	HF907	R&S	100125	2014-12-06	2017-12-05
Climatic Chamber	PT-30B	Re Ce	20101891	2015-07-18	2018-07-17
Horn Antenna	3160-09	ETS-Lindgren	00102643	2014-12-06	2017-12-05
Horn Antenna	3160-09	ETS-Lindgren	00102644	2014-12-06	2017-12-05
RF Cable	SMA 15cm	Agilent	0001	2015-12-09	2016-02-08

*****END OF REPORT *****

ANNEX A: EUT Appearance and Test Setup

A.1 EUT Appearance

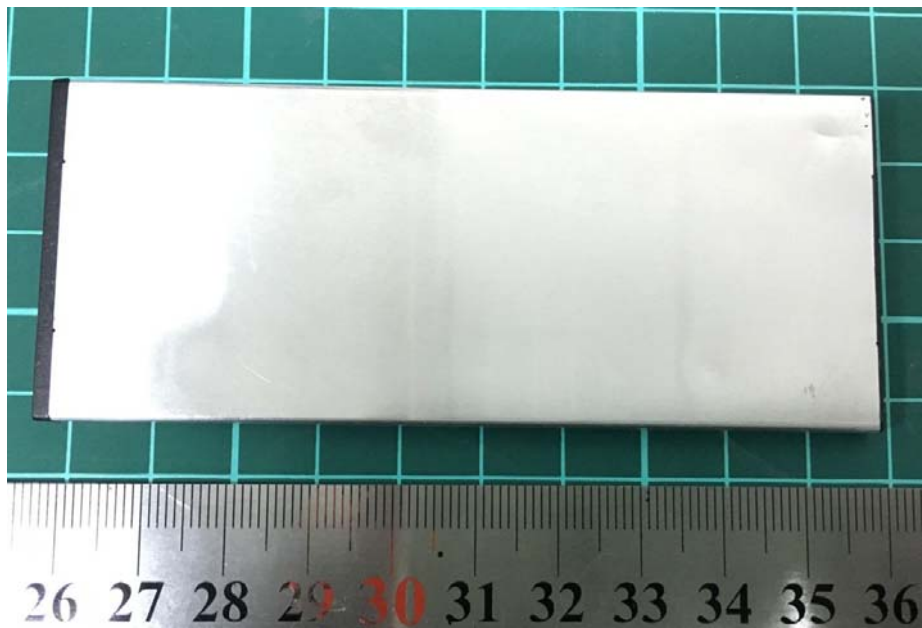


Front Side



Back Side

a: EUT



b: Battery

Picture 1 EUT and Auxiliary

A.2 Test Setup



Picture 2: Radiated Spurious Emissions Test setup