Extreme（20°C）		699.2554	715.7282	3.16	0.00378
Extreme（10C）		699.2566	715.7294	1.15	0.00137
Extreme（0°C）		699.2553	715.7281	-3.64	-0.00435
Extreme（-10°C）		699.2548	715.7276	-4.34	-0.00519
Extreme（-20°C）		699.2559	715.7287	-0.35	-0.00042
Extreme（-30°C）		699.2592	715.7324	2.28	0.00273
Extreme（-40°C）		699.2604	715.7332	-3.92	-0.00469
25°C	LV	699.2556	715.7284	-5.58	-0.00667
	HV	699.2562	715.7295	0.20	0.00024
(16QAM, 10MHz BANDWIDTH)					
Condition		699	716	Delta(Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	699.3118	715.6805	0.85	0.00102
Extreme（85°C）		699.3107	715.6794	-0.85	-0.00102
Extreme（80°C）		699.3146	715.6833	-0.21	-0.00025
Extreme（70°C）		699.3127	715.6814	-1.63	-0.00195
Extreme（60°C）		699.3141	715.6828	-1.10	-0.00132
Extreme（50°C）		699.3135	715.6822	0.86	0.00103
Extreme（40°C）		699.3122	715.6809	-1.34	-0.00160
Extreme（30°C）		699.3115	715.6802	-3.09	-0.00369
Extreme（20°C）		699.3136	715.6823	-2.91	-0.00348
Extreme（10C）		699.3124	715.6811	-2.10	-0.00251
Extreme（0°C）		699.3137	715.6824	0.08	0.00010
Extreme（-10°C）		699.3142	715.6829	2.56	0.00306
Extreme（-20°C）		699.3131	715.6818	-1.21	-0.00145
Extreme（-30°C）		699.3098	715.6785	-1.31	-0.00157
Extreme（-40°C）		699.3086	715.6773	0.69	0.00082
25°C	LV	699.3134	715.6821	3.45	0.00412
	HV	699.3128	715.6815	4.51	0.00539

LTE Band 13					
(QPSK, 10MHz BANDWIDTH)					
Condition		777	787	Delta(Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	777.4363	786.5756	2.53	0.00302
Extreme（85°C）		777.4364	786.5755	-5.60	-0.00669
Extreme（80°C）		777.4360	786.5759	12.94	0.01547
Extreme（70°C）		777.4375	786.5744	-4.47	-0.00534
Extreme（60°C）		777.4356	786.5763	0.11	0.00013

Extreme（50°C）		777.4353	786.5766	0.59	0.00071
Extreme（40°C）		777.4368	786.5751	-0.47	-0.00056
Extreme（30°C）		777.4357	786.5762	3.15	0.00377
Extreme（20°C）		777.4354	786.5765	6.52	0.00779
Extreme（10C）		777.4370	786.5749	5.15	0.00616
Extreme（0°C）		777.4361	786.5758	1.84	0.00220
Extreme（-10°C）		777.4356	786.5751	-0.64	-0.00077
Extreme（-20°C）		777.4362	786.5765	-1.12	-0.00134
Extreme（-30°C）		777.4356	786.5763	-1.60	-0.00191
Extreme（-40°C）		777.4362	786.5757	-3.90	-0.00466
25°C	LV	777.4356	786.5755	5.91	0.00707
	HV	777.4362	786.5744	3.58	0.00428
(16QAM, 10MHz BANDWIDTH)					
Condition		777	787	Delta(Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	777.5179	786.5012	-11.34	-0.01356
Extreme（85°C）		777.5180	786.5011	7.20	0.00861
Extreme（80°C）		777.5176	786.5015	-10.21	-0.01221
Extreme（70°C）		777.5191	786.5131	-5.63	-0.00673
Extreme（60°C）		777.5172	786.5019	-5.15	-0.00616
Extreme（50°C）		777.5169	786.5022	-6.21	-0.00742
Extreme（40°C）		777.5184	786.5007	-2.59	-0.00310
Extreme（30°C）		777.5173	786.5018	0.78	0.00093
Extreme（20°C）		777.5170	786.5021	-0.59	-0.00071
Extreme（10C）		777.5186	786.5005	-3.90	-0.00466
Extreme（0°C）		777.5177	786.5014	-6.38	-0.00763
Extreme（-10°C）		777.5176	786.5011	-6.86	-0.00820
Extreme（-20°C）		777.5169	786.5131	-7.34	-0.00877
Extreme（-30°C）		777.5173	786.5018	-9.64	-0.01152
Extreme（-40°C）		777.5186	786.5005	0.17	0.00020
25°C	LV	777.5172	786.5019	-7.34	-0.00877
	HV	777.5178	786.5013	-2.76	-0.00330

LTE Band 66					
(QPSK, 20MHz BANDWIDTH)					
Condition		1710	1780	Delta(Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	1710.3406	1779.6709	3.51	0.00201
Extreme（85°C）		1710.3405	1779.6708	4.90	0.00281
Extreme（80°C）		1710.3403	1779.6703	-2.65	-0.00152
Extreme（70°C）		1710.3421	1779.6723	-1.64	-0.00094
Extreme（60°C）		1710.3418	1779.6721	3.59	0.00206
Extreme（50°C）		1710.3409	1779.6712	-7.62	-0.00437
Extreme（40°C）		1710.3394	1779.6697	-2.49	-0.00143
Extreme（30°C）		1710.3413	1779.6716	-1.06	-0.00061
Extreme（20°C）		1710.3416	1779.6719	6.30	0.00361
Extreme（10C）		1710.3401	1779.6704	-9.93	-0.00569
Extreme（0°C）		1710.3412	1779.6715	5.59	0.00320
Extreme（-10°C）		1710.3415	1779.6718	3.51	0.00201
Extreme（-20°C）		1710.3399	1779.6702	-9.02	-0.00517
Extreme（-30°C）		1710.3409	1779.6712	-7.21	-0.00413
Extreme（-40°C）		1710.3408	1779.6711	-8.13	-0.00466
25°C	LV	1710.3413	1779.6716	3.89	0.00223
	HV	1710.3407	1779.6713	6.47	0.00371
(16QAM, 20MHz BANDWIDTH)					
Condition		1710	1780	Delta(Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	1710.4049	1779.7132	-1.97	-0.00113
Extreme（85°C）		1710.4051	1779.7131	-2.98	-0.00171
Extreme（80°C）		1710.4069	1779.7131	-6.40	-0.00367
Extreme（70°C）		1710.4047	1779.7144	-4.42	-0.00253
Extreme（60°C）		1710.4042	1779.7145	0.08	0.00005
Extreme（50°C）		1710.4046	1779.7135	-0.67	-0.00038
Extreme（40°C）		1710.4061	1779.7123	-8.29	-0.00475
Extreme（30°C）		1710.4042	1779.7139	-1.03	-0.00059
Extreme（20°C）		1710.4039	1779.7142	0.28	0.00016
Extreme（10C）		1710.4054	1779.7127	-4.34	-0.00249
Extreme（0°C）		1710.4043	1779.7138	-2.64	-0.00151
Extreme（-10°C）		1710.4043	1779.7141	-2.85	-0.00163
Extreme（-20°C）		1710.4056	1779.7125	-6.34	-0.00363
Extreme（-30°C）		1710.4046	1779.7135	-2.06	-0.00118
Extreme（-40°C）		1710.4047	1779.7134	-5.29	-0.00303

25°C	LV	1710.4042	1779.7139	-3.54	-0.00203
	HV	1710.4048	1779.7133	-7.00	-0.00401

LTE Band 71					
(QPSK, 20MHz BANDWIDTH)					
Condition		663	698	Delta(Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	663.5332	697.4977	4.02	0.00230
Extreme（85°C）		663.6528	697.6175	6.14	0.00352
Extreme（80°C）		663.5318	697.4965	-2.23	-0.00128
Extreme（70°C）		663.5432	697.5079	-1.56	-0.00089
Extreme（60°C）		663.5391	697.5038	6.49	0.00372
Extreme（50°C）		663.5361	697.5008	-5.08	-0.00291
Extreme（40°C）		663.5318	697.4965	-1.82	-0.00104
Extreme（30°C）		663.5432	697.5079	-0.55	-0.00032
Extreme（20°C）		663.5391	697.5038	7.17	0.00411
Extreme（10C）		663.5321	697.4968	-9.32	-0.00534
Extreme（0°C）		663.5375	697.5022	7.40	0.00424
Extreme（-10°C）		663.5387	697.5034	4.78	0.00274
Extreme（-20°C）		663.5345	697.4992	-8.13	-0.00466
Extreme（-30°C）		663.5361	697.5008	-6.09	-0.00349
Extreme（-40°C）		663.5311	697.4958	-7.05	-0.00404
25°C	LV	663.5326	697.4973	6.36	0.00364
	HV	663.5361	697.5008	7.38	0.00423
(16QAM, 20MHz BANDWIDTH)					
Condition		663	698	Delta(Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	663.5258	697.4905	0.97	0.00056
Extreme（85°C）		663.4064	697.3707	3.93	0.00225
Extreme（80°C）		663.5282	697.4926	1.26	0.00072
Extreme（70°C）		663.5161	697.4808	3.21	0.00184
Extreme（60°C）		663.5199	697.4846	4.58	0.00262
Extreme（50°C）		663.5227	697.4874	2.22	0.00127
Extreme（40°C）		663.5273	697.4917	1.50	0.00086
Extreme（30°C）		663.5156	697.4803	0.31	0.00018
Extreme（20°C）		663.5197	697.4844	3.52	0.00202
Extreme（10C）		663.5267	697.4914	-1.33	-0.00076
Extreme（0°C）		663.5213	697.4867	1.95	0.00112
Extreme（-10°C）		663.5201	697.4848	1.46	0.00084

Extreme（-20°C）		663.5243	697.4891	0.63	0.00036
Extreme（-30°C）		663.5227	697.4874	2.25	0.00129
Extreme（-40°C）		663.5277	697.4924	2.07	0.00119
25°C	LV	663.5262	697.4909	2.96	0.00170
	HV	663.5227	697.4874	0.84	0.00048

5.7 Spurious Emissions at Antenna Terminals

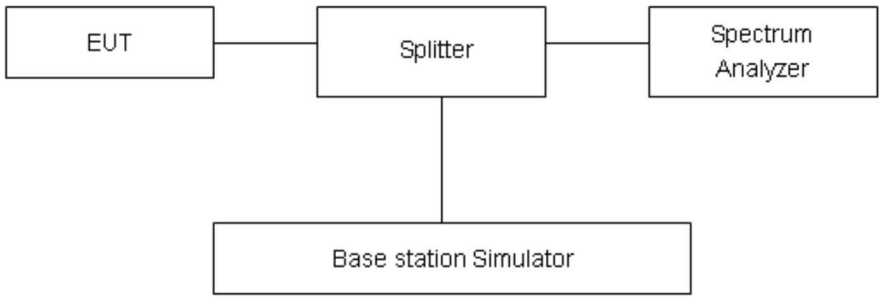
Ambient condition

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 9kHz to the 10th harmonic of the carrier. The peak detector is used.
RBW is set to 100kHz, VBW is set to 300kHz for 30MHz~1GHz
RBW is set to 1MHz, VBW is set to 3MHz for above 1GHz, Sweep is set to ATUO.
Of those disturbances below (limit – 20 dB), the mark is not required for the EUT.
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

LTE -4 Rule Part 27.53(h) specifies that “for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB..”

LTE -12 Rule Part 27.53 (g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

LTE -13 Rule Part 27.53(f) For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent

isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

LTE 13- Part 27.53 (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:
(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;
(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;
(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

Part 27.53(a)/(h)/(g) Limit		-13 dBm
Part 27.53(f) Limit	Limit out of the band 1559-1610 MHz	-13 dBm
	Limit in the band 1559-1610 MHz	-40 dBm

Measurement Uncertainty

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

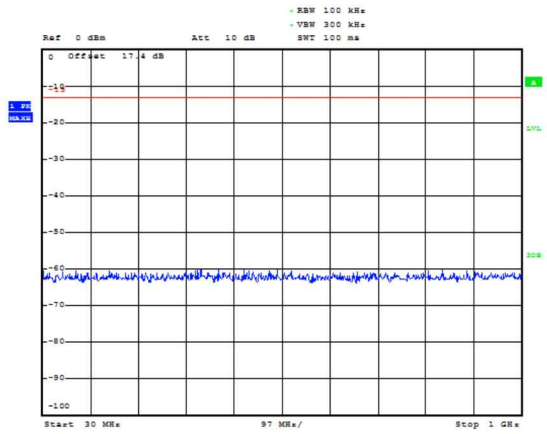
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-27GHz	1.407 dB

Test Result

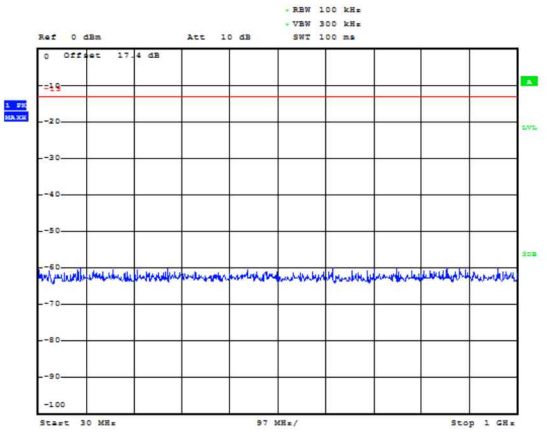
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the limit are not reported.

The signal beyond the limit is carrier.

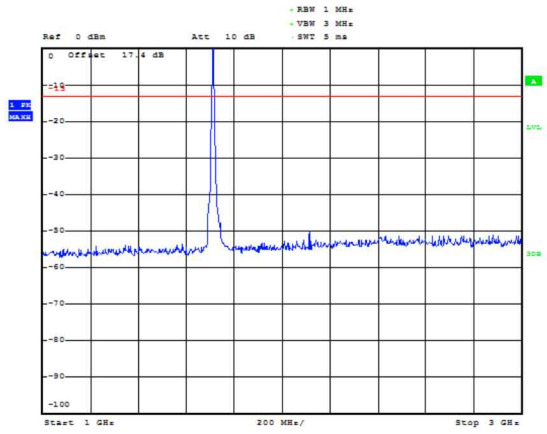
WCDMA Band IV CH-Low 30MHz~1GHz



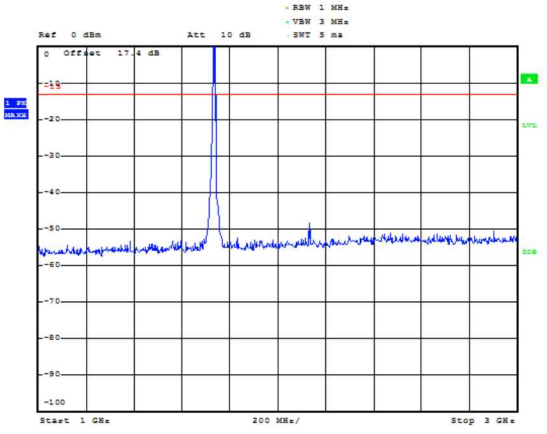
WCDMA Band IV CH-Middle 30MHz~1GHz



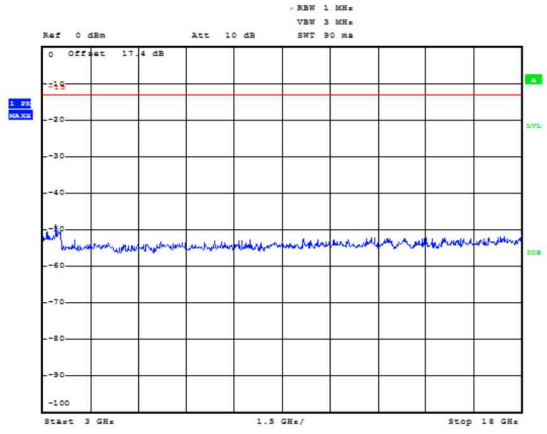
WCDMA Band IV CH-Low 1GHz~3GHz



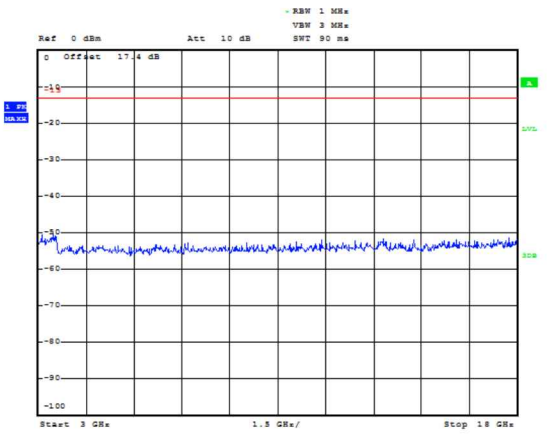
WCDMA Band IV CH-Middle 1GHz~3GHz



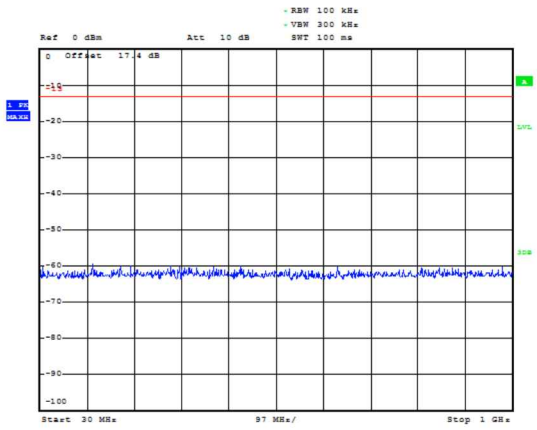
WCDMA Band IV CH-Low 3GHz~18GHz



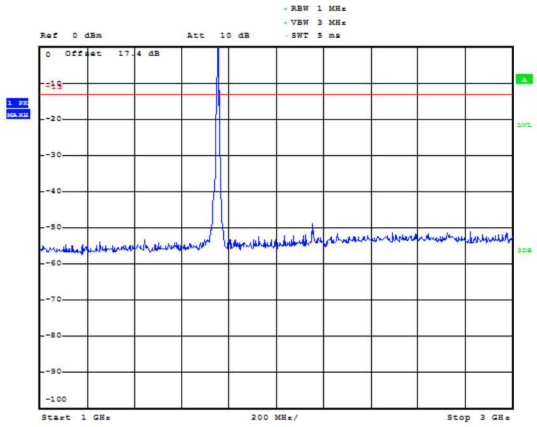
WCDMA Band IV CH-Middle 3GHz~18GHz



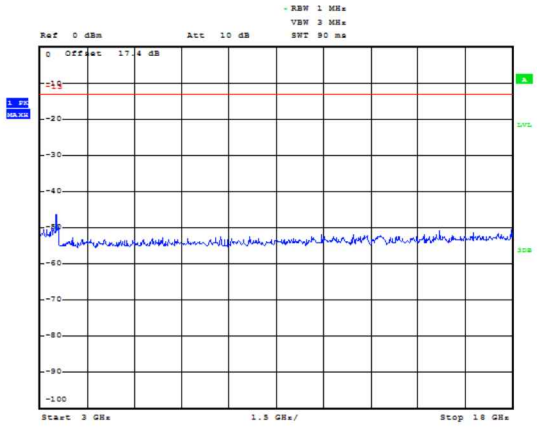
WCDMA Band IV CH-High 30MHz~1GHz



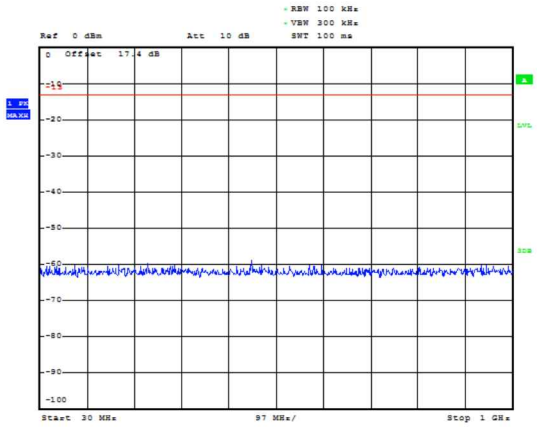
WCDMA Band IV CH-High 1GHz~3GHz



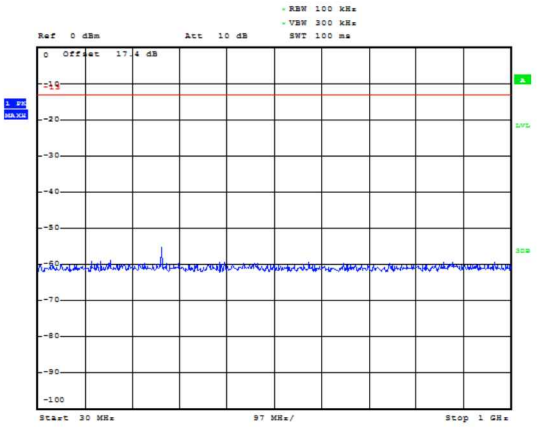
WCDMA Band IV CH-High 3GHz~18GHz



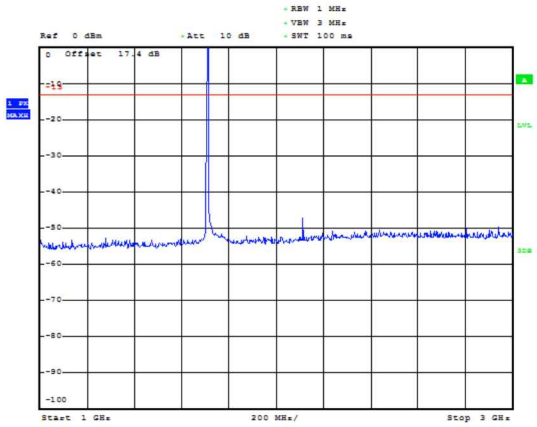
LTE Band 4 1.4MHz CH-Low 30MHz~1GHz



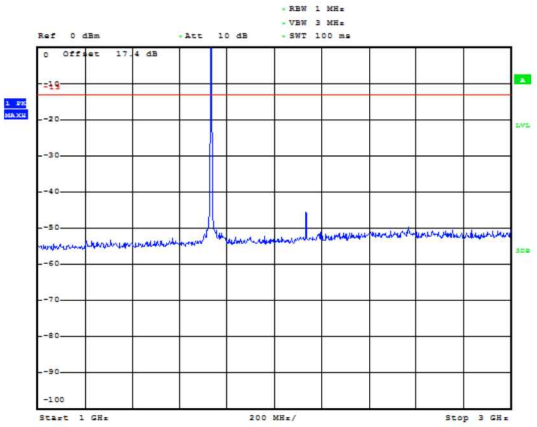
LTE Band 4 1.4MHz CH-Middle 30MHz~1GHz



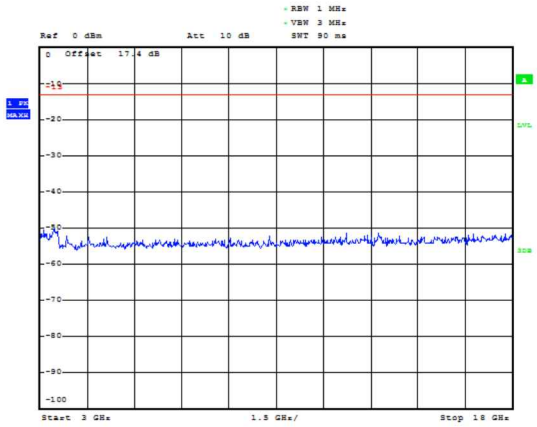
LTE Band 4 1.4MHz CH-Low 1GHz~3GHz



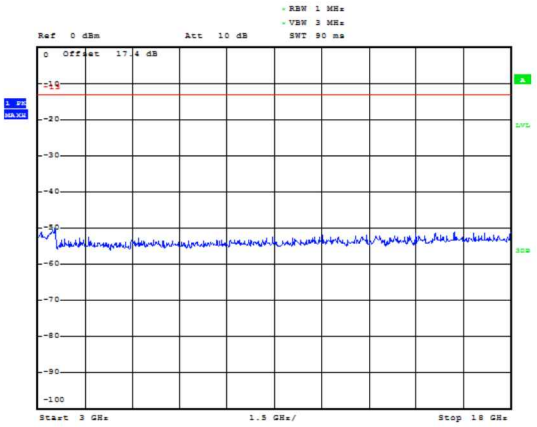
LTE Band 4 1.4MHz CH-Middle 1GHz~3GHz



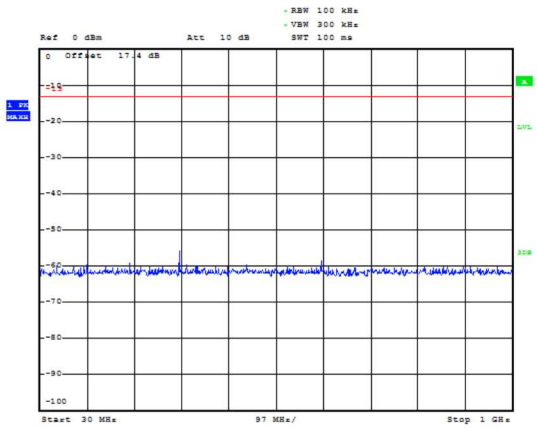
LTE Band 4 1.4MHz CH-Low 3GHz~18GHz



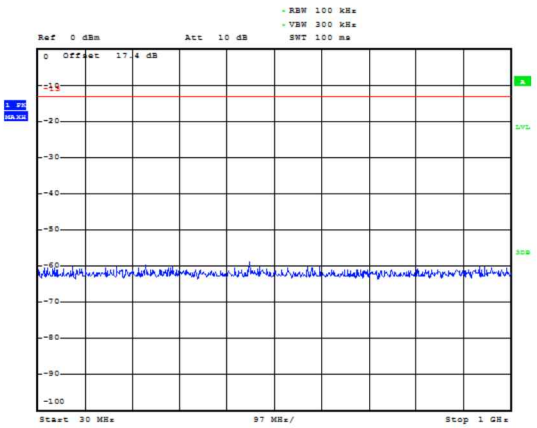
LTE Band 4 1.4MHz CH-Middle 3GHz~18GHz



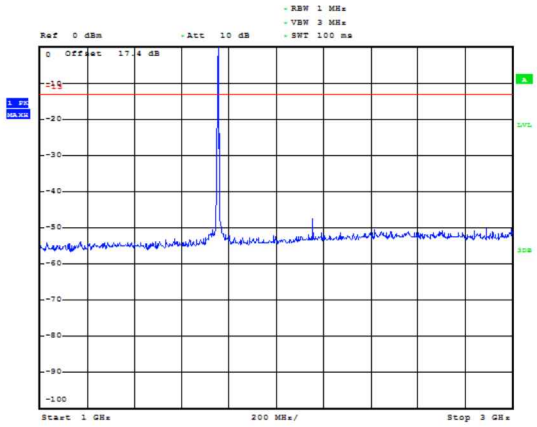
LTE Band 4 1.4MHz CH-High 30MHz~1GHz



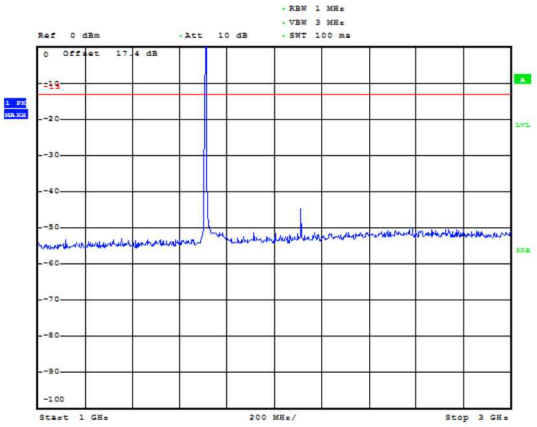
LTE Band 4 3MHz CH-Low 30MHz~1GHz



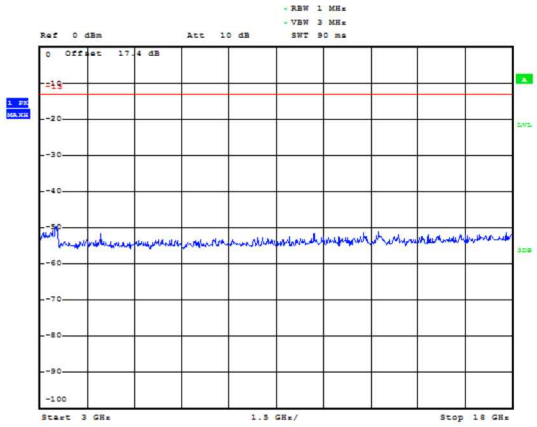
LTE Band 4 1.4MHz CH-High 1GHz~3GHz



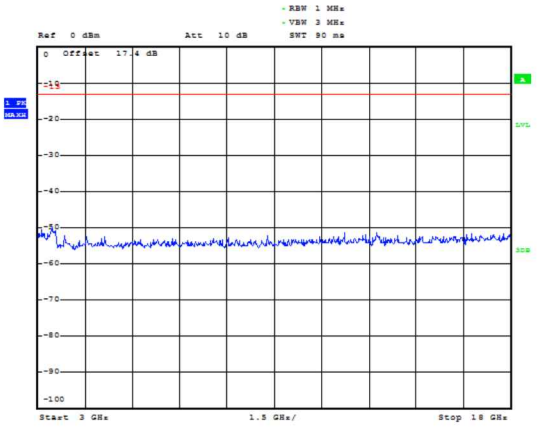
LTE Band 4 3MHz CH-Low 1GHz~3GHz



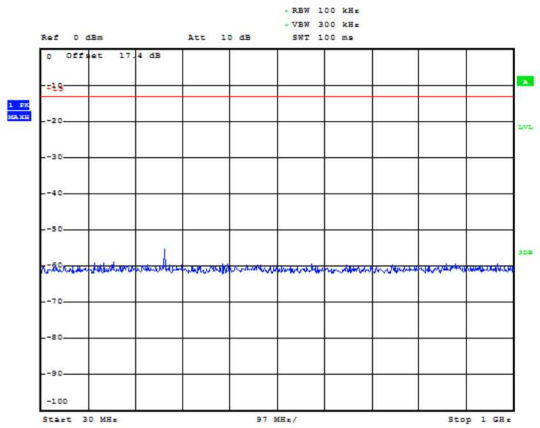
LTE Band 4 1.4MHz CH-High 3GHz~18GHz



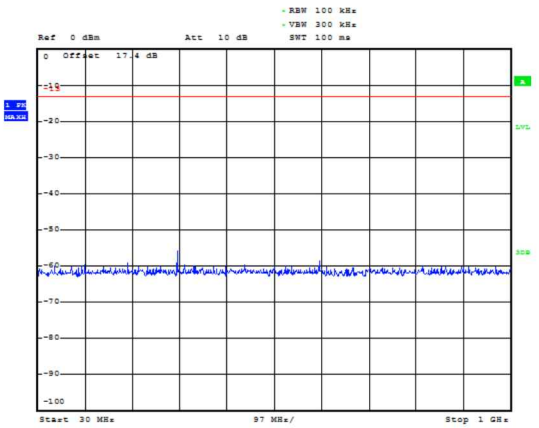
LTE Band 4 3MHz CH-Low 3GHz~18GHz



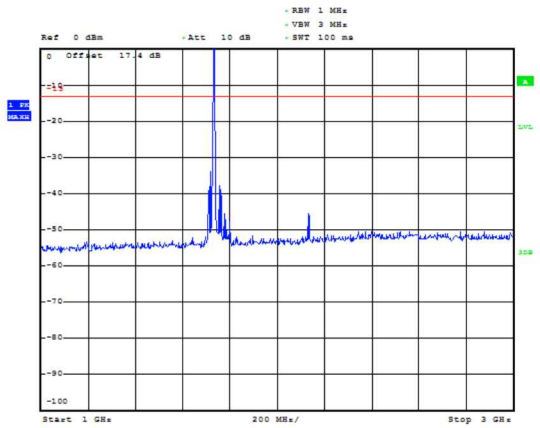
LTE Band 4 3MHz CH-Middle 30MHz~1GHz



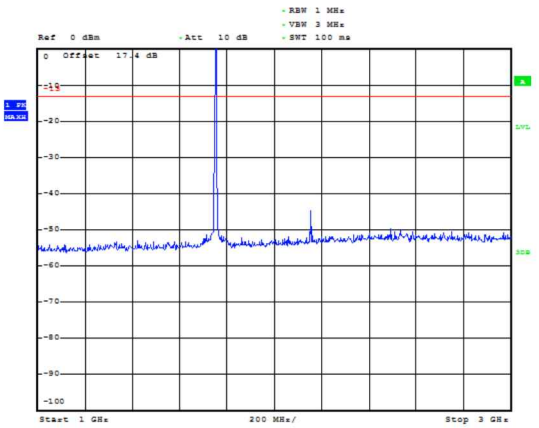
LTE Band 4 3MHz CH-High 30MHz~1GHz



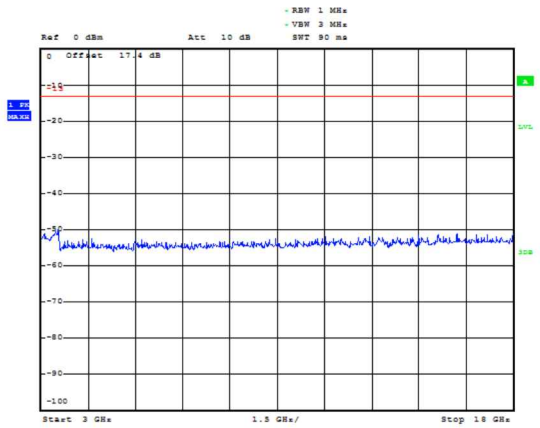
LTE Band 4 3MHz CH-Middle 1GHz~3GHz



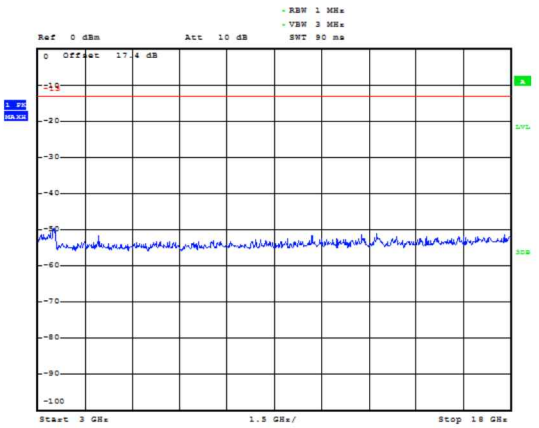
LTE Band 4 3MHz CH-High 1GHz~3GHz



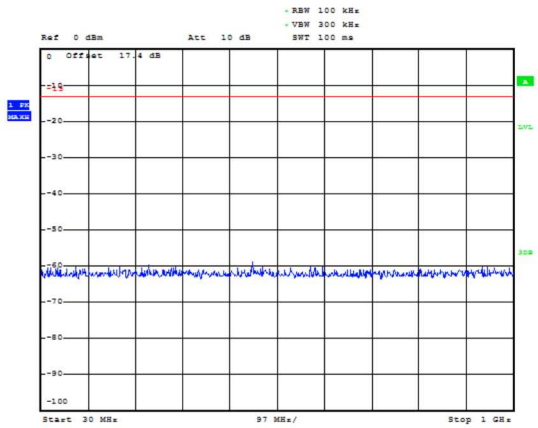
LTE Band 4 3MHz CH-Middle 3GHz~18GHz



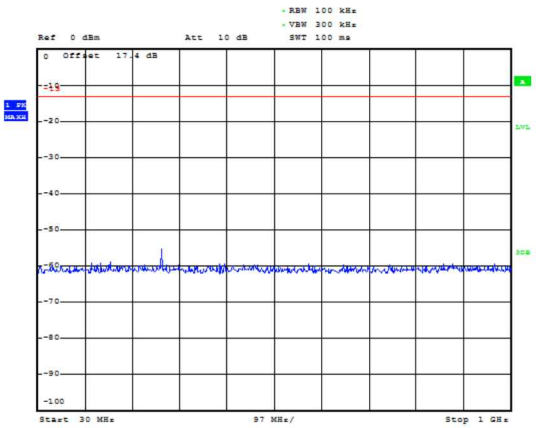
LTE Band 4 3MHz CH-High 3GHz~18GHz



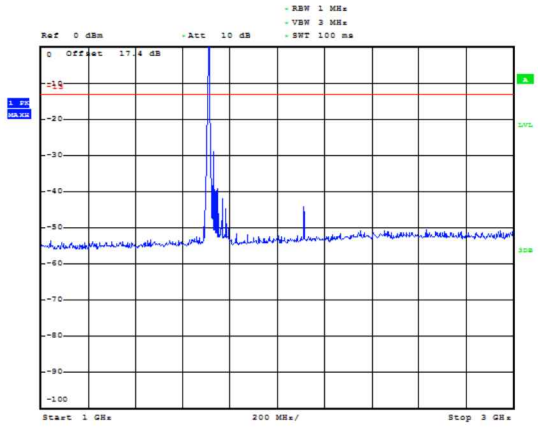
LTE Band 4 5MHz CH-Low 30MHz~1GHz



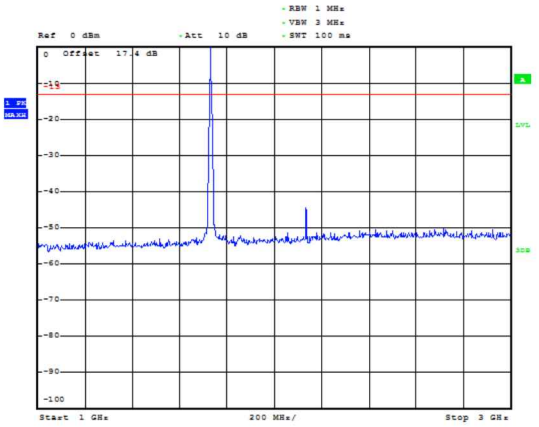
LTE Band 4 5MHz CH-Middle 30MHz~1GHz



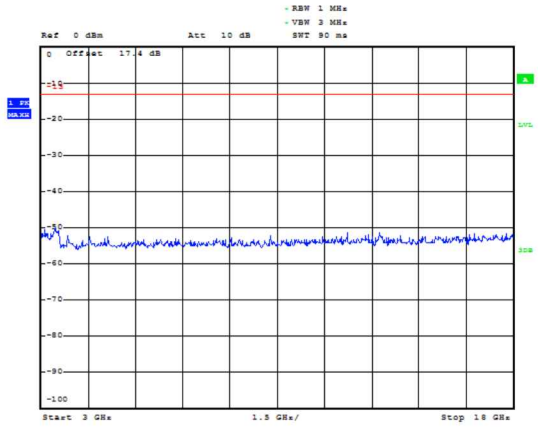
LTE Band 4 5MHz CH-Low 1GHz~3GHz



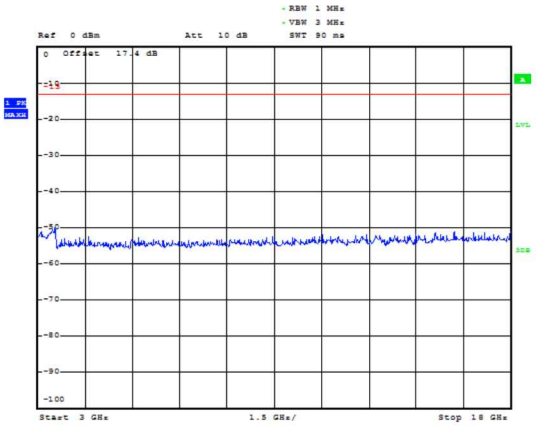
LTE Band 4 5MHz CH-Middle 1GHz~3GHz



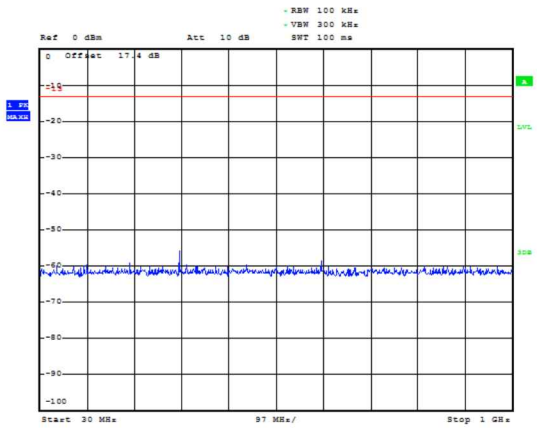
LTE Band 4 5MHz CH-Low 3GHz~18GHz



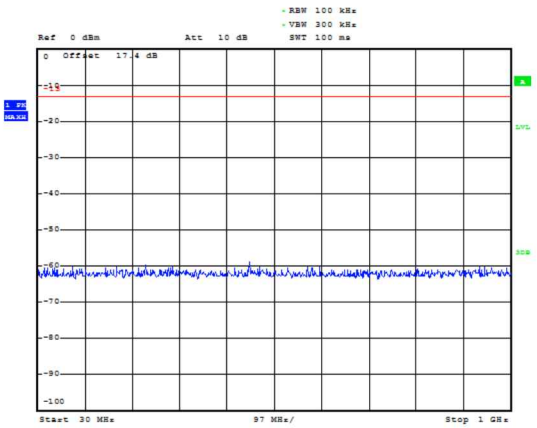
LTE Band 4 5MHz CH-Middle 3GHz~18GHz



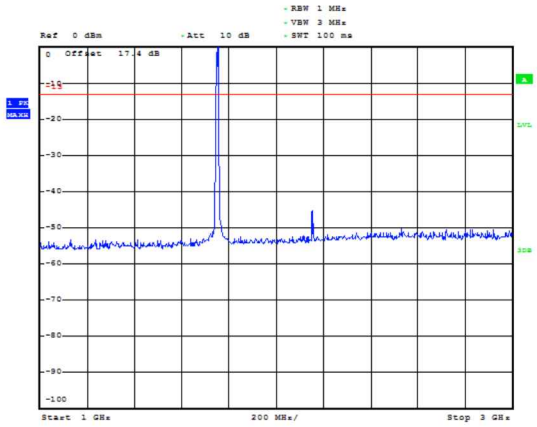
LTE Band 4 5MHz CH-High 30MHz~1GHz



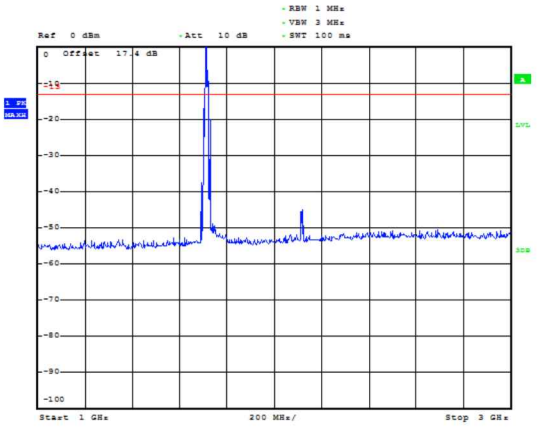
LTE Band 4 10MHz CH-Low 30MHz~1GHz



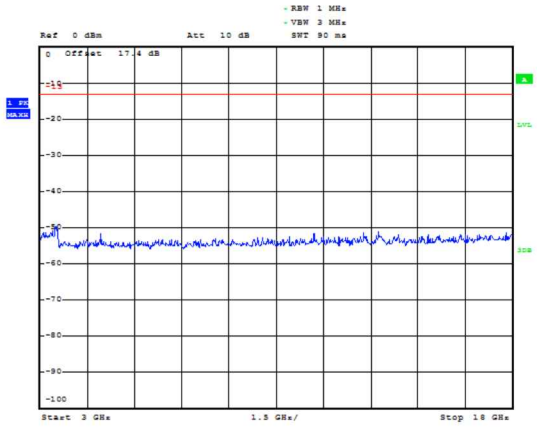
LTE Band 4 5MHz CH-High 1GHz~3GHz



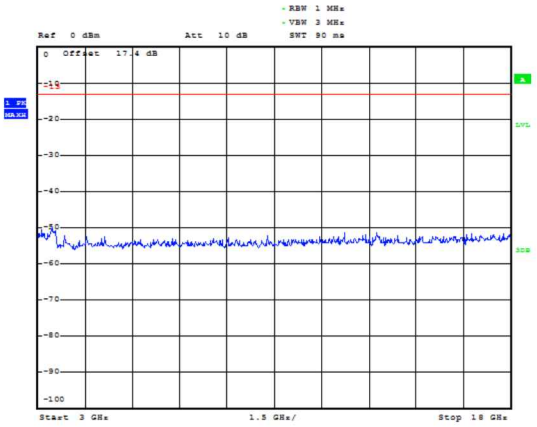
LTE Band 4 10MHz CH-Low 1GHz~3GHz



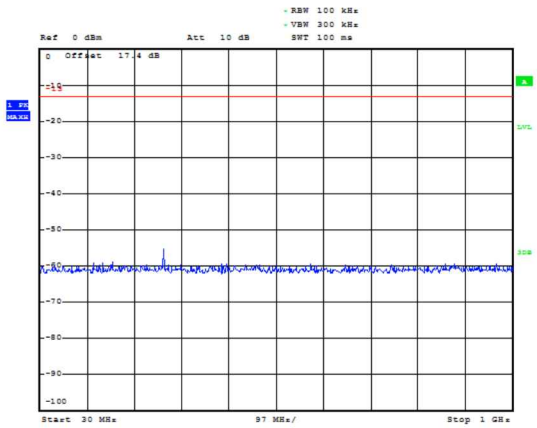
LTE Band 4 5MHz CH-High 3GHz~18GHz



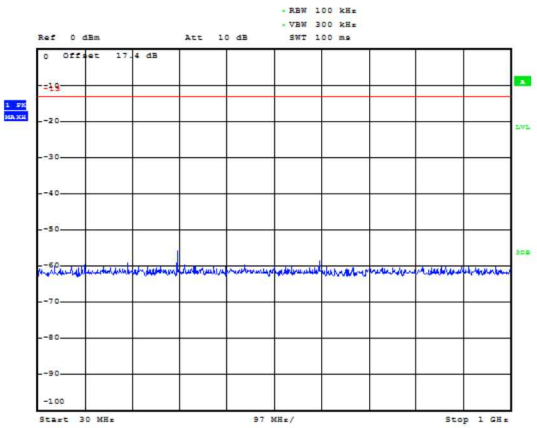
LTE Band 4 10MHz CH-Low 3GHz~18GHz



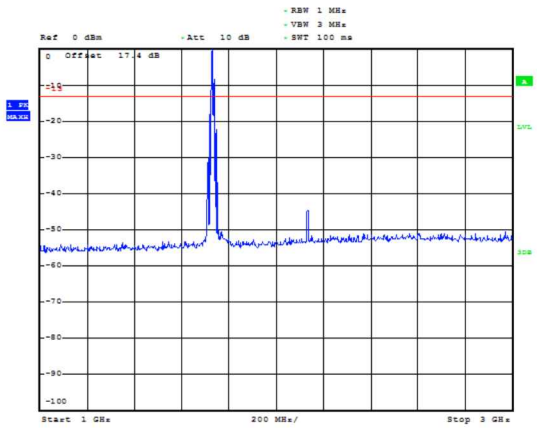
LTE Band 4 10MHz CH-Middle 30MHz~1GHz



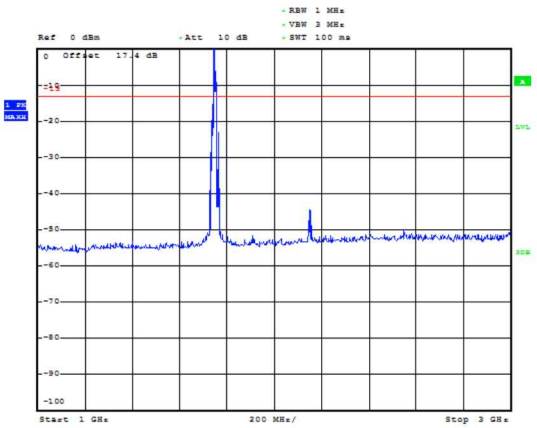
LTE Band 4 10MHz CH-High 30MHz~1GHz



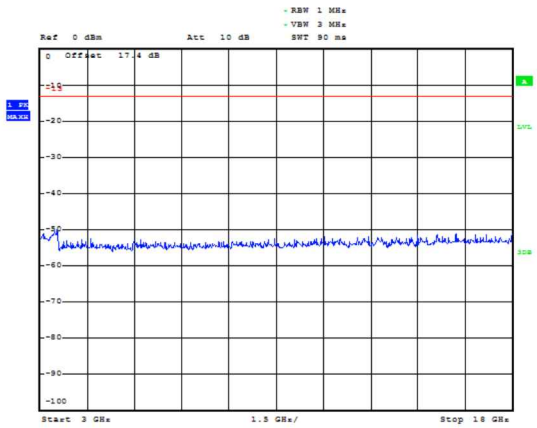
LTE Band 4 10MHz CH-Middle 1GHz~3GHz



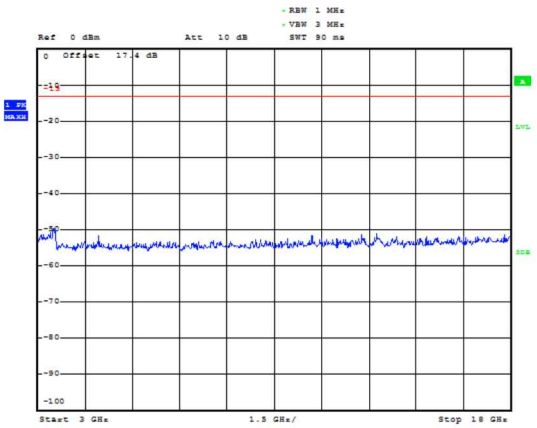
LTE Band 4 10MHz CH-High 1GHz~3GHz



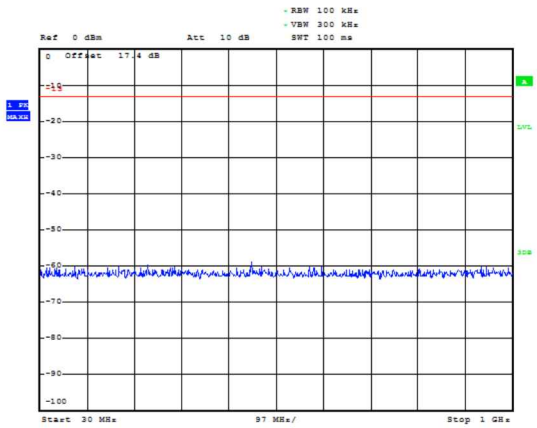
LTE Band 4 10MHz CH-Middle 3GHz~18GHz



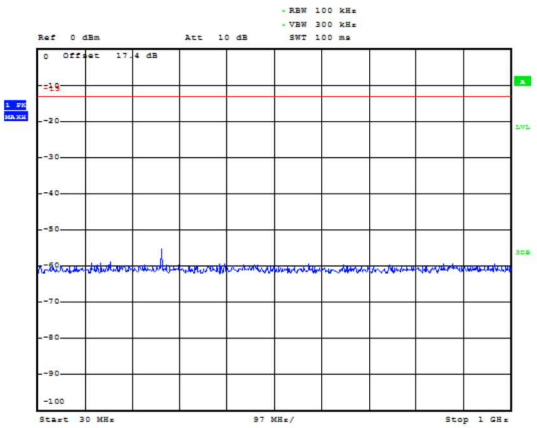
LTE Band 4 10MHz CH-High 3GHz~18GHz



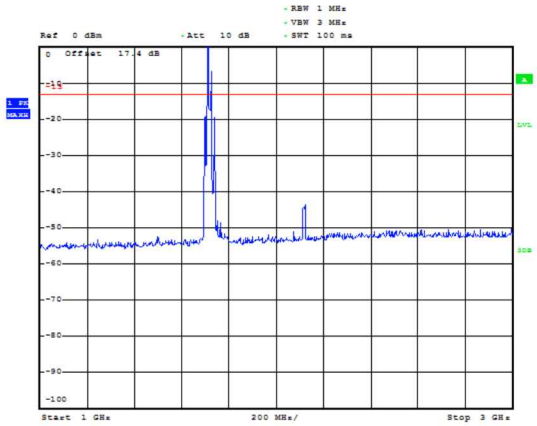
LTE Band 4 15MHz CH-Low 30MHz~1GHz



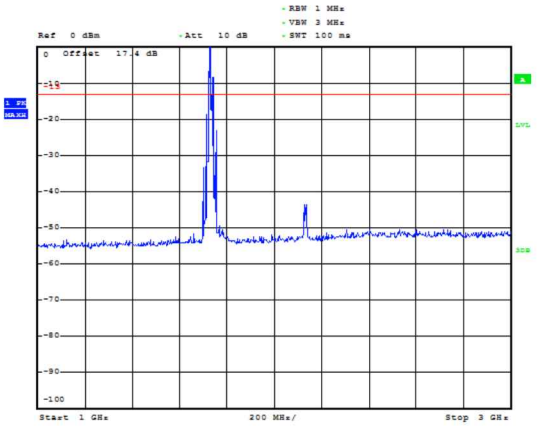
LTE Band 4 15MHz CH-Middle 30MHz~1GHz



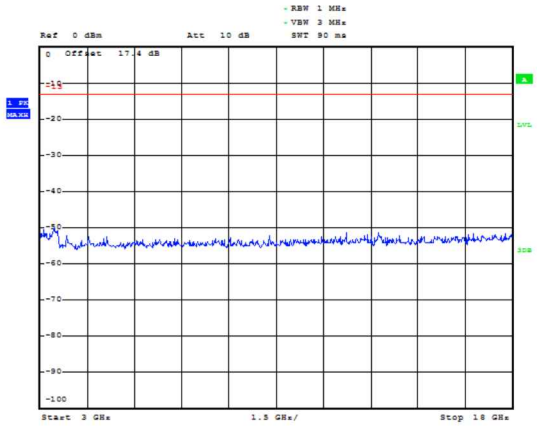
LTE Band 4 15MHz CH-Low 1GHz~3GHz



LTE Band 4 15MHz CH-Middle 1GHz~3GHz



LTE Band 4 15MHz CH-Low 3GHz~18GHz



LTE Band 4 15MHz CH-Middle 3GHz~18GHz