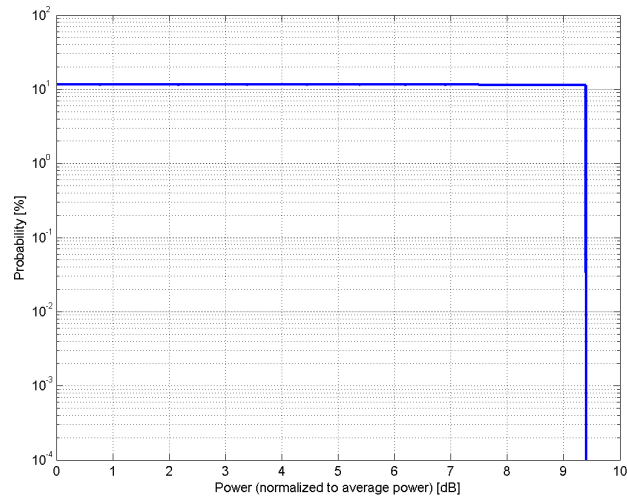


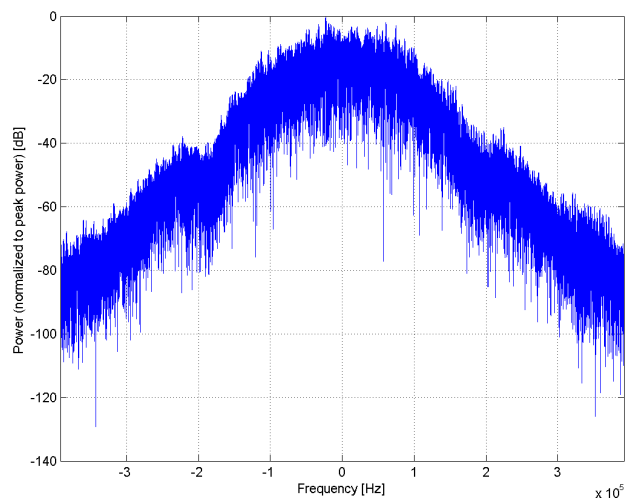
**Calibration Laboratory of**  
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**Engineering AG**  
**Zeughausstrasse 43, 8004 Zurich, Switzerland**

|                         |                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:                   | <b>GSM-FDD (TDMA, GMSK)</b>                                                                                                                                                                                                                                                                                                                                                                            |
| Group:                  | GSM                                                                                                                                                                                                                                                                                                                                                                                                    |
| UID:                    | 10021-DAC                                                                                                                                                                                                                                                                                                                                                                                              |
| PAR: <sup>1</sup>       | <b>9.39 dB</b>                                                                                                                                                                                                                                                                                                                                                                                         |
| MIF: <sup>2</sup>       | <b>3.63 dB</b>                                                                                                                                                                                                                                                                                                                                                                                         |
| Standard Reference:     | ETSI TS 100 909 V8.9.0 (2005-01)<br>FCC OET KDB 941225, D03 and D04                                                                                                                                                                                                                                                                                                                                    |
| Category:               | Periodic pulsed modulation                                                                                                                                                                                                                                                                                                                                                                             |
| Modulation:             | GMSK                                                                                                                                                                                                                                                                                                                                                                                                   |
| Frequency Band:         | GSM 450 (450.4 - 457.6 MHz)<br>GSM 480 (478.8 - 486.0 MHz)<br>GSM 710 (698.0 - 716.0 MHz)<br>GSM 750 (747.0 - 763.0 MHz)<br>GSM 850 (824.0 - 849.0 MHz)<br>P-GSM 900 (890.0 - 915.0 MHz)<br>E-GSM 900 (880.0 - 915.0 MHz)<br>R-GSM 900 (876.0 - 915.0 MHz)<br>DCS 1800 (1710.0 - 1785.0 MHz)<br>PCS 1900 (1850.0 - 1910.0 MHz)<br>ER-GSM 900 (873.0 - 915.0 MHz)<br>Validation band (0.0 - 6000.0 MHz) |
| Detailed Specification: | Active Slot: TN0<br>Data: PN9 continuous<br>Frame: composed out of 8 Slots<br>Multiframe: 26th (IDLE) Frame set blank<br>Slottype & -timing: Normal burst for GMSK                                                                                                                                                                                                                                     |
| Bandwidth:              | 0.2 MHz                                                                                                                                                                                                                                                                                                                                                                                                |
| Integration Time:       | 120.0 ms                                                                                                                                                                                                                                                                                                                                                                                               |

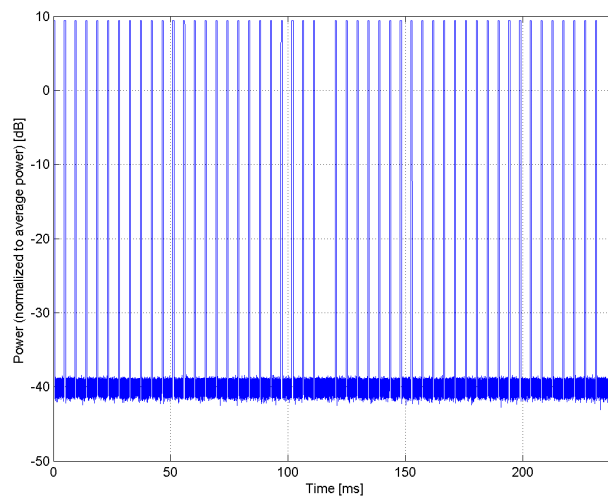
<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"  
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



### Complementary Cumulative Distribution Function (CCDF)



### Frequency Domain



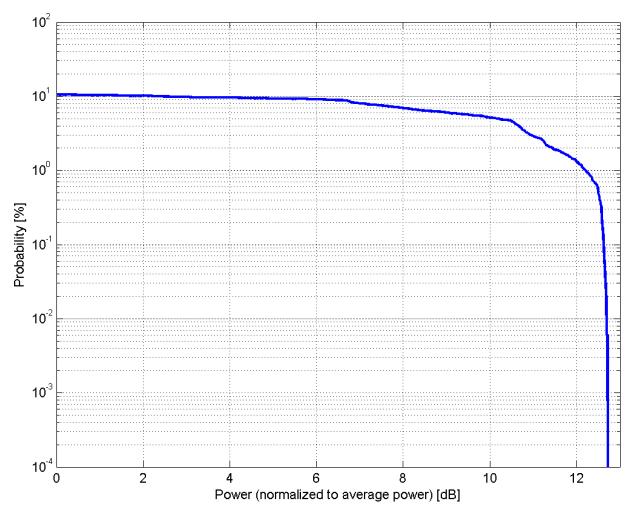
### Time Domain

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**Engineering AG**  
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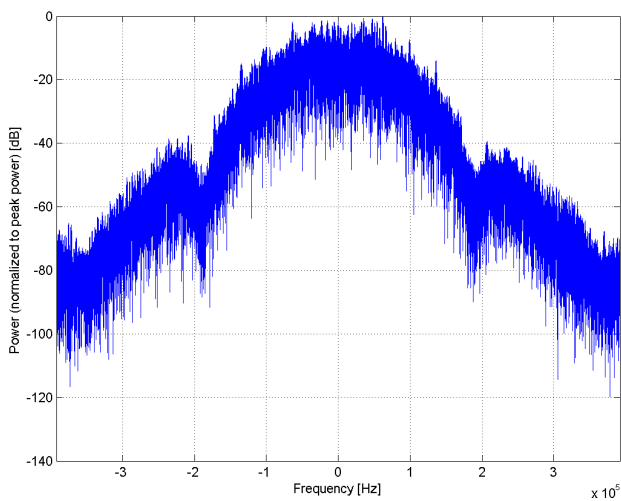
|                         |                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:                   | <b>EDGE-FDD (TDMA, 8PSK, TN 0)</b>                                                                                                                                                                                                                                                                                                                                                                     |
| Group:                  | GSM                                                                                                                                                                                                                                                                                                                                                                                                    |
| UID:                    | 10025-DAC                                                                                                                                                                                                                                                                                                                                                                                              |
| PAR: <sup>1</sup>       | <b>12.62 dB</b>                                                                                                                                                                                                                                                                                                                                                                                        |
| MIF: <sup>2</sup>       | <b>3.75 dB</b>                                                                                                                                                                                                                                                                                                                                                                                         |
| Standard Reference:     | ETSI TS 100 909 V8.9.0 (2005-01)<br>FCC OET KDB 941225, D03 and D04                                                                                                                                                                                                                                                                                                                                    |
| Category:               | Periodic pulsed modulation                                                                                                                                                                                                                                                                                                                                                                             |
| Modulation:             | 8PSK                                                                                                                                                                                                                                                                                                                                                                                                   |
| Frequency Band:         | GSM 450 (450.4 - 457.6 MHz)<br>GSM 480 (478.8 - 486.0 MHz)<br>GSM 710 (698.0 - 716.0 MHz)<br>GSM 750 (747.0 - 763.0 MHz)<br>GSM 850 (824.0 - 849.0 MHz)<br>P-GSM 900 (890.0 - 915.0 MHz)<br>E-GSM 900 (880.0 - 915.0 MHz)<br>R-GSM 900 (876.0 - 915.0 MHz)<br>DCS 1800 (1710.0 - 1785.0 MHz)<br>PCS 1900 (1850.0 - 1910.0 MHz)<br>ER-GSM 900 (873.0 - 915.0 MHz)<br>Validation band (0.0 - 6000.0 MHz) |
| Detailed Specification: | Active Slot: TN0<br>Data: PN9 continuous<br>Frame: composed out of 8 Slots<br>Multiframe: 13th (PTCCH) and 26th (IDLE) Frame set blank<br>Slottype & -timing: Normal burst for 8PSK                                                                                                                                                                                                                    |
| Bandwidth:              | 0.2 MHz                                                                                                                                                                                                                                                                                                                                                                                                |
| Integration Time:       | 60.0 ms                                                                                                                                                                                                                                                                                                                                                                                                |

<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"

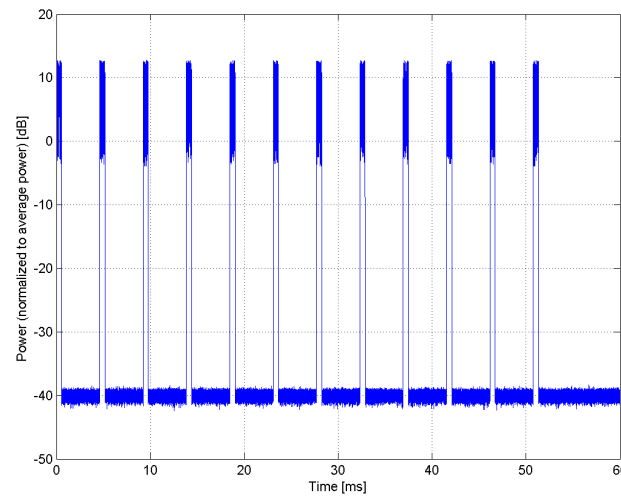
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



Complementary Cumulative Distribution Function (CCDF)



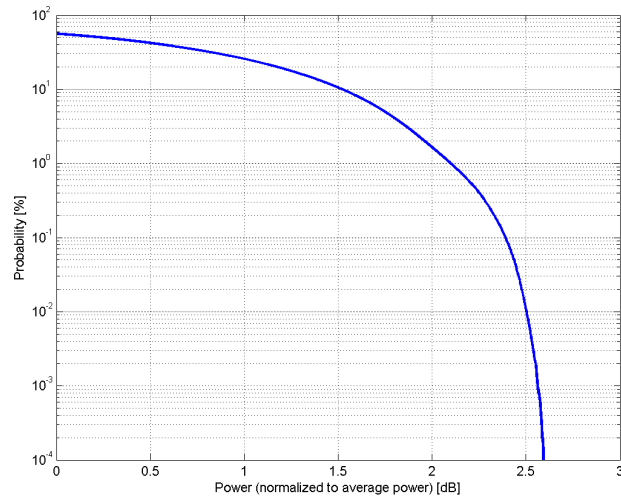
Frequency Domain



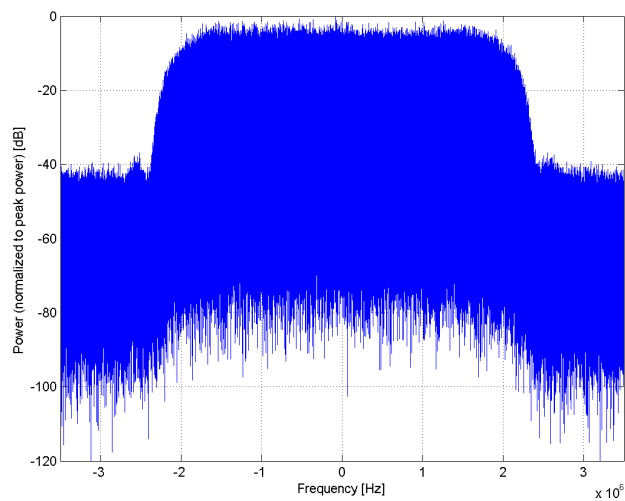
Time Domain

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:                   | <b>UMTS-FDD (WCDMA, AMR)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Group:                  | WCDMA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| UID:                    | 10460-AAA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| PAR: <sup>1</sup>       | <b>2.39 dB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| MIF: <sup>2</sup>       | <b>-25.43 dB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Standard Reference:     | FCC OET KDB 941225 D01 SAR test for 3G devices v03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Category:               | Random amplitude modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Modulation:             | QPSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Frequency Band:         | Band 1, UTRA/FDD (1920.0-1980.0 MHz, 20000)<br>Band 2, UTRA/FDD (1850.0-1910.0 MHz, 20001)<br>Band 3, UTRA/FDD (1710.0-1785.0 MHz, 20002)<br>Band 4, UTRA/FDD (1710.0-1755.0 MHz, 20003)<br>Band 5, UTRA/FDD (824.0-849.0 MHz, 20004)<br>Band 6, UTRA/FDD (830.0-840.0 MHz, 20005)<br>Band 7, UTRA/FDD (2500.0-2570.0 MHz, 20006)<br>Band 8, UTRA/FDD (880.0-915.0 MHz, 20007)<br>Band 9, UTRA/FDD (1749.9-1784.9 MHz, 20008)<br>Band 10, UTRA/FDD (1710.0-1770.0 MHz, 20009)<br>Band 11, UTRA/FDD (1427.9-1452.9 MHz, 20010)<br>Band 12, UTRA/FDD (698.0-716.0 MHz, 20011)<br>Band 13, UTRA/FDD (777.0-787.0 MHz, 20012)<br>Band 14, UTRA/FDD (788.0-798.0 MHz, 20013)<br>Band 19, UTRA/FDD (830.0-845.0 MHz, 20130)<br>Band 20, UTRA/FDD (832.0-862.0 MHz, 20131)<br>Band 21, UTRA/FDD (1447.9-1462.9 MHz, 20132)<br>Band 22, UTRA/FDD (3410.0-3490.0 MHz, 20217)<br>Band 25, UTRA/FDD (1850.0-1915.0 MHz, 20218)<br>Band 26, UTRA/FDD (814.0-849.0 MHz, 20219) |
| Detailed Specification: | Dedicated Channel Type: 12.2 kbps AMR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Bandwidth:              | 3.4 kbps SRB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Integration Time:       | 5.0 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                         | 100.0 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

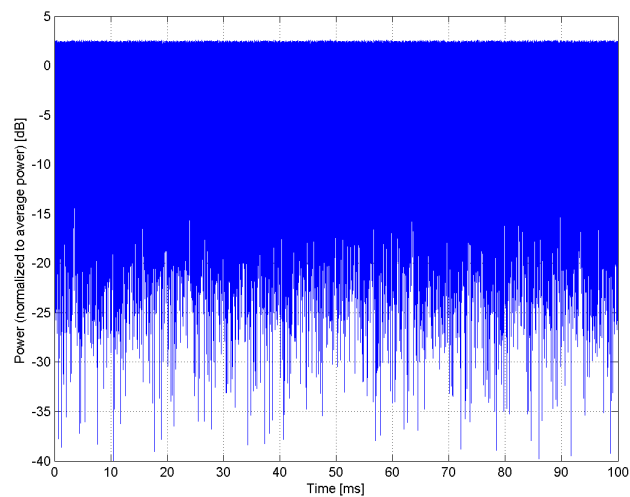
<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"  
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



### Complementary Cumulative Distribution Function (CCDF)



### Frequency Domain

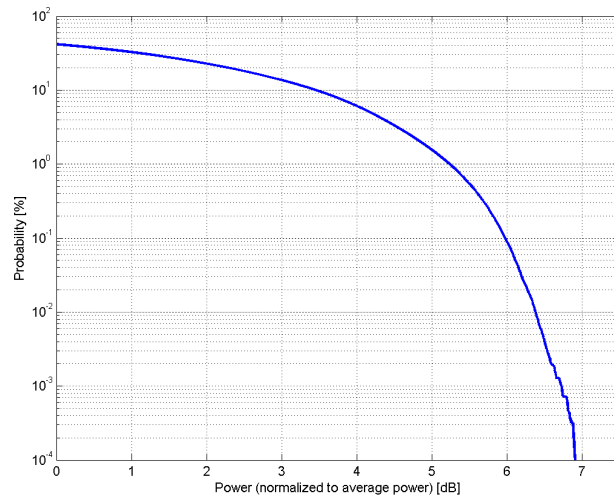


### Time Domain

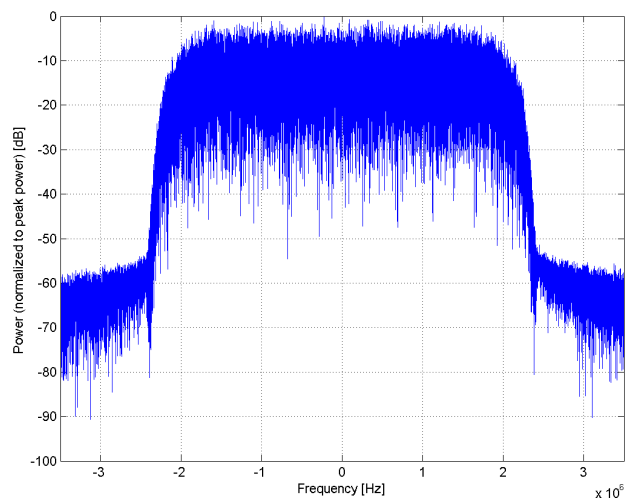
|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:                   | <b>UMTS-FDD (HSPA+)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Group:                  | WCDMA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| UID:                    | 10225-CAB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| PAR: <sup>1</sup>       | <b>5.97 dB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| MIF: <sup>2</sup>       | <b>-20.39 dB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Standard Reference:     | 3GPP Rel 7 TS 34.121<br>FCC OET KDB 941225 D01 SAR test for 3G devices v02<br>FCC OET KDB 941225 D02 Guidance for 3GPP R6 and R7 HSPA v02v01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Category:               | Random amplitude modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Modulation:             | 16QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Frequency Band:         | Band 1, UTRA/FDD (1920.0-1980.0 MHz, 20000)<br>Band 2, UTRA/FDD (1850.0-1910.0 MHz, 20001)<br>Band 3, UTRA/FDD (1710.0-1785.0 MHz, 20002)<br>Band 4, UTRA/FDD (1710.0-1755.0 MHz, 20003)<br>Band 5, UTRA/FDD (824.0-849.0 MHz, 20004)<br>Band 6, UTRA/FDD (830.0-840.0 MHz, 20005)<br>Band 7, UTRA/FDD (2500.0-2570.0 MHz, 20006)<br>Band 8, UTRA/FDD (880.0-915.0 MHz, 20007)<br>Band 9, UTRA/FDD (1749.9-1784.9 MHz, 20008)<br>Band 10, UTRA/FDD (1710.0-1770.0 MHz, 20009)<br>Band 11, UTRA/FDD (1427.9-1452.9 MHz, 20010)<br>Band 12, UTRA/FDD (698.0-716.0 MHz, 20011)<br>Band 13, UTRA/FDD (777.0-787.0 MHz, 20012)<br>Band 14, UTRA/FDD (788.0-798.0 MHz, 20013)<br>Band 19, UTRA/FDD (830.0-845.0 MHz, 20130)<br>Band 20, UTRA/FDD (832.0-862.0 MHz, 20131)<br>Band 21, UTRA/FDD (1447.9-1462.9 MHz, 20132)<br>Band 22, UTRA/FDD (3410.0-3490.0 MHz, 20217)<br>Band 25, UTRA/FDD (1850.0-1915.0 MHz, 20218)<br>Band 26, UTRA/FDD (814.0-849.0 MHz, 20219) |
| Detailed Specification: | 12.2 kbps RMC, FRC H-Set 2<br>CQI value: 2<br>Sub-test 2 Conditions:<br>DPCCH gain factor (Beta <sub>c</sub> ) = 6/15<br>DPDCH gain factor (Beta <sub>d</sub> ): 15/15<br>E-DPDCH Settings:<br>Symbol Rate: 2x1960 Mbps<br>Modulation 4PAM<br>Data Type: PN9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Bandwidth:              | 5.0 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Integration Time:       | 100.0 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"

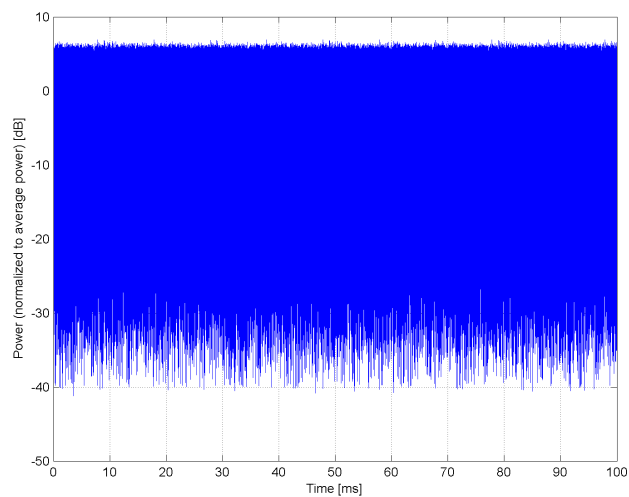
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



### Complementary Cumulative Distribution Function (CCDF)



### Frequency Domain

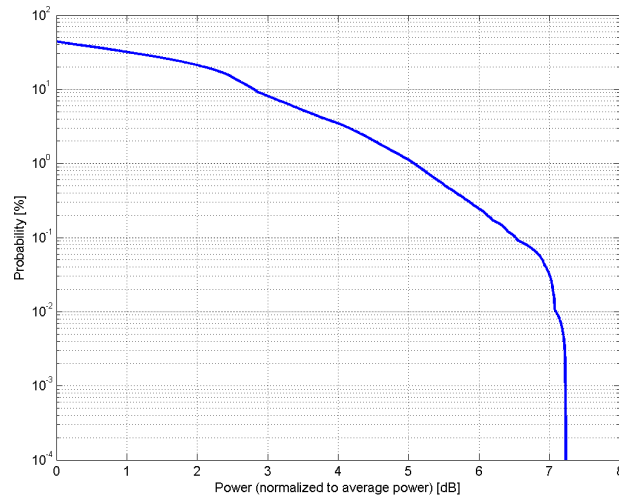


### Time Domain

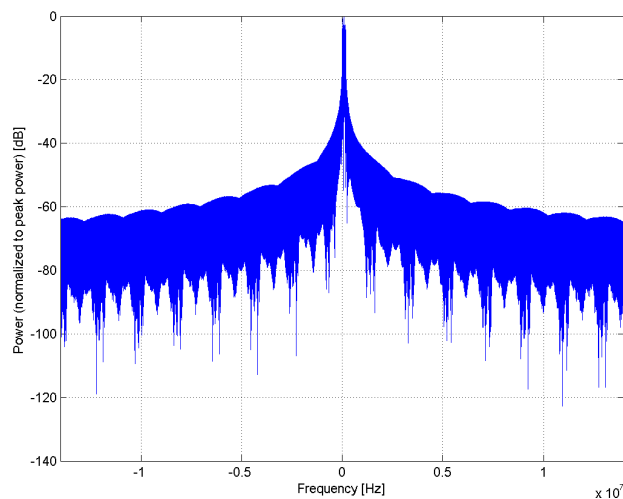
**Calibration Laboratory of**  
**Schmid & Partner**  
**Engineering AG**  
**Zeughausstrasse 43, 8004 Zurich, Switzerland**

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:                   | <b>LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Group:                  | LTE-FDD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| UID:                    | 10170-CAE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| PAR: <sup>1</sup>       | <b>6.52 dB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| MIF: <sup>2</sup>       | <b>-9.76 dB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Standard Reference:     | 3GPP / ETSI TS 136.101 V8.4.0<br>3GPP / ETSI TS 136.213 V8.4.0<br>FCC OET KDB 941225 D05 SAR for LTE Devices v01<br>Random amplitude modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Category:               | 16-QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Modulation:             | Band 1, E-UTRA/FDD (1920.0 - 1980.0 MHz)<br>Band 2, E-UTRA/FDD (1850.0 - 1910.0 MHz)<br>Band 3, E-UTRA/FDD (1710.0 - 1785.0 MHz)<br>Band 4, E-UTRA/FDD (1710.0 - 1755.0 MHz)<br>Band 7, E-UTRA/FDD (2500.0 - 2570.0 MHz)<br>Band 9, E-UTRA/FDD (1749.9 - 1784.9 MHz)<br>Band 10, E-UTRA/FDD (1710.0 - 1770.0 MHz)<br>Band 20, E-UTRA/FDD (832.0 - 862.0 MHz)<br>Band 22, E-UTRA/FDD (3410.0 - 3490.0 MHz)<br>Band 23, E-UTRA/FDD (2000.0 - 2020.0 MHz)<br>Band 25, E-UTRA/FDD (1850.0 - 1915.0 MHz)<br>Band 28 E-UTRA/FDD (703.0 - 748.0 MHz)<br>Band 65, E-UTRA/FDD (1920.0 - 2010.0 MHz)<br>Band 66, E-UTRA/FDD (1710.0 - 1780.0 MHz)<br>Band 70, E-UTRA/FDD (1695.0 - 1710.0 MHz)<br>Band 71, E-UTRA/FDD (663.0 - 698.0 MHz)<br>Band 74, E-UTRA/FDD (1427.0 - 1470.0 MHz)<br>Validation band (0.0 - 6000.0 MHz) |
| Frequency Band:         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Detailed Specification: | Modulation Scheme: SC-FDMA<br>Number of PUSCHs: 1<br>Settings for Subframe #0 to #9:<br>Modulation Scheme: 16QAM<br>Data Type: UL-SCH<br>Number RB: 1<br>Transport Block Size: 256<br>TBS Index: 14<br>MCS Index: 15<br>Data Type: PN9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Bandwidth:              | 20.0 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Integration Time:       | 10.0 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

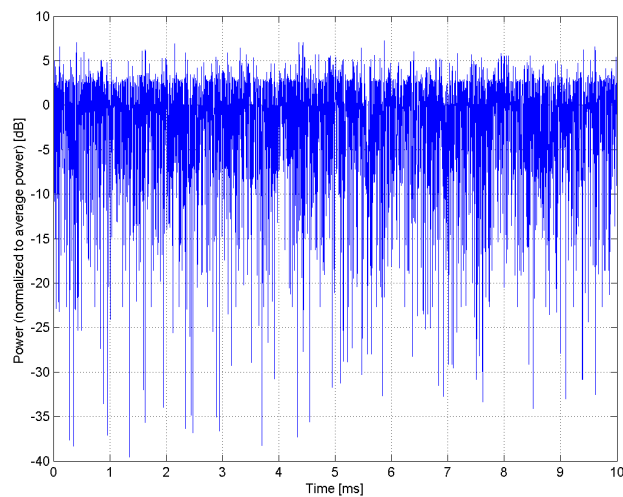
<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"  
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



### Complementary Cumulative Distribution Function (CCDF)



### Frequency Domain



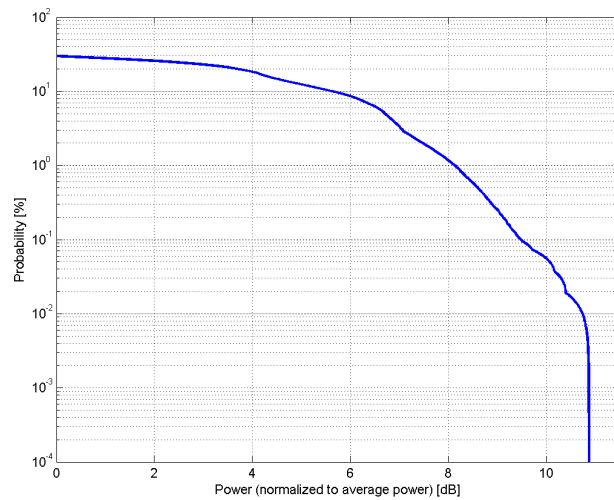
### Time Domain

# Calibration Laboratory of Schmid & Partner Engineering AG

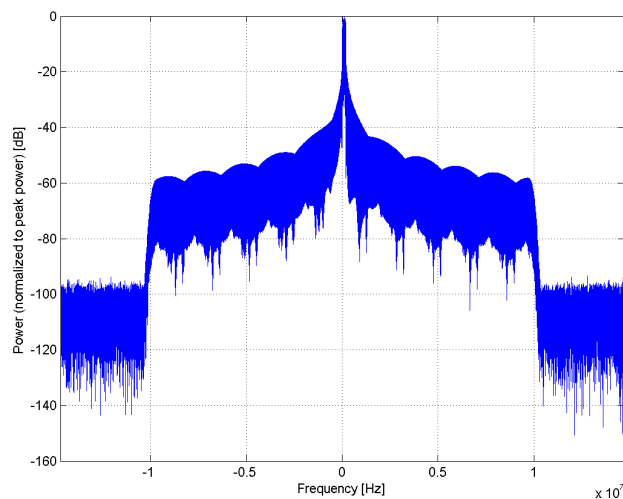
Zeughausstrasse 43, 8004 Zurich, Switzerland

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:                   | <b>LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Group:                  | LTE-TDD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| UID:                    | 10173-CAG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| PAR: <sup>1</sup>       | <b>9.48 dB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| MIF: <sup>2</sup>       | <b>-1.44 dB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Standard Reference:     | 3GPP / ETSI TS 136.101 V8.4.0<br>3GPP / ETSI TS 136.213 V8.4.0<br>FCC OET KDB 941225 D05 SAR for LTE Devices v02<br>Random amplitude modulation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Category:               | 16-QAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Modulation:             | Band 33, E-UTRA/TDD (1900.0 - 1920.0 MHz)<br>Band 35, E-UTRA/TDD (1850.0 - 1910.0 MHz)<br>Band 36, E-UTRA/TDD (1930.0 - 1990.0 MHz)<br>Band 37, E-UTRA/TDD (1910.0 - 1930.0 MHz)<br>Band 38, E-UTRA/TDD (2570.0 - 2620.0 MHz)<br>Band 39, E-UTRA/TDD (1880.0 - 1920.0 MHz)<br>Band 40, E-UTRA/TDD (2300.0 - 2400.0 MHz)<br>Band 41, E-UTRA/TDD (2496.0 - 2690.0 MHz)<br>Band 42, E-UTRA/TDD (3400.0 - 3600.0 MHz)<br>Band 43, E-UTRA/TDD (3600.0 - 3800.0 MHz)<br>Band 44, E-UTRA/TDD (703.0 - 803.0 MHz)<br>Band 45, E-UTRA/FDD (1447.0 - 1467.0 MHz)<br>Band 46, E-UTRA/FDD (5150.0 - 5925.0 MHz)<br>Band 47, E-UTRA/TDD (5855.0 - 5925.0 MHz)<br>Band 48, E-UTRA/TDD (3550.0 - 3700.0 MHz)<br>Band 49, E-UTRA/TDD (3550.0 - 3700.0 MHz)<br>Band 50, E-UTRA/TDD (1432.0 - 1517.0 MHz)<br>Band 76, E-UTRA/FDD (3300.0 - 3400.0 MHz)<br>Validation band (0.0 - 6000.0 MHz) |
| Frequency Band:         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Detailed Specification: | Modulation Scheme: SC-FDMA<br>Uplink-downlink configuration: 1<br>Special Subframe configuration: 4<br>Number of Frames: 1<br>Settings for UL Subframe 2,3,7,8:<br>Number of PUSCHs: 1<br>Modulation Scheme: 16QAM<br>Allocated RB: 1<br>Start Number of RB: 50<br>Data Type: PN9fix                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Bandwidth:              | 20.0 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Integration Time:       | 6.0 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

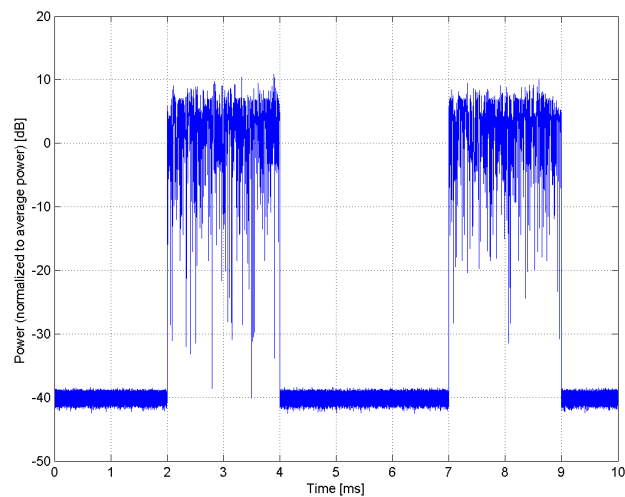
<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"  
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



### Complementary Cumulative Distribution Function (CCDF)



### Frequency Domain



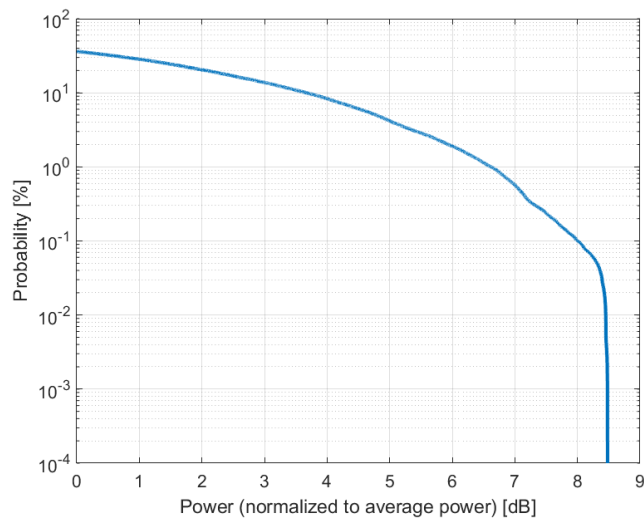
### Time Domain

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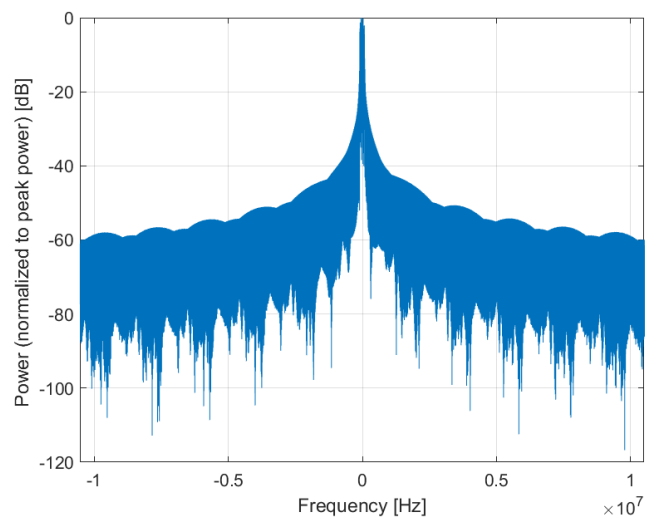
|                         |                                                                                                                                                                                                                                                                                                                                                |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:                   | <b>5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)</b>                                                                                                                                                                                                                                                                                             |
| Group:                  | 5G NR FR1 TDD                                                                                                                                                                                                                                                                                                                                  |
| UID:                    | 10769-AAD                                                                                                                                                                                                                                                                                                                                      |
| PAR: <sup>1</sup>       | <b>8.01 dB</b>                                                                                                                                                                                                                                                                                                                                 |
| MIF: <sup>2</sup>       | <b>-12.08 dB</b>                                                                                                                                                                                                                                                                                                                               |
| Standard Reference:     | SPEAG                                                                                                                                                                                                                                                                                                                                          |
| Category:               | Random amplitude modulation                                                                                                                                                                                                                                                                                                                    |
| Modulation:             | QPSK                                                                                                                                                                                                                                                                                                                                           |
| Frequency Band:         | Band n34 (2010 - 2025 MHz)<br>Band n38 (2570 - 2620 MHz)<br>Band n39 (1880 - 1920 MHz)<br>Band n40 (2300 - 2400 MHz)<br>Band n41 (2496 - 2690 MHz)<br>Band n48 (3550 - 3700 MHz)<br>Band n50 (1432 - 1517 MHz)<br>Band n77 (3300 - 4200 MHz)<br>Band n78 (3300 - 3800 MHz)<br>Band n90 (2496 - 2690 MHz)<br>Validation band (0.0 - 6000.0 MHz) |
| Detailed Specification: | Multiplexing Scheme: CP-OFDM<br>Modulation Scheme: QPSK<br>Subcarrier Spacing: 15 kHz<br>Number RBs: 1<br>Slot Format Index: 1<br>Data Type: PN9                                                                                                                                                                                               |
| Bandwidth:              | 15.0 MHz                                                                                                                                                                                                                                                                                                                                       |
| Integration Time:       | 10.0 ms                                                                                                                                                                                                                                                                                                                                        |

<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"

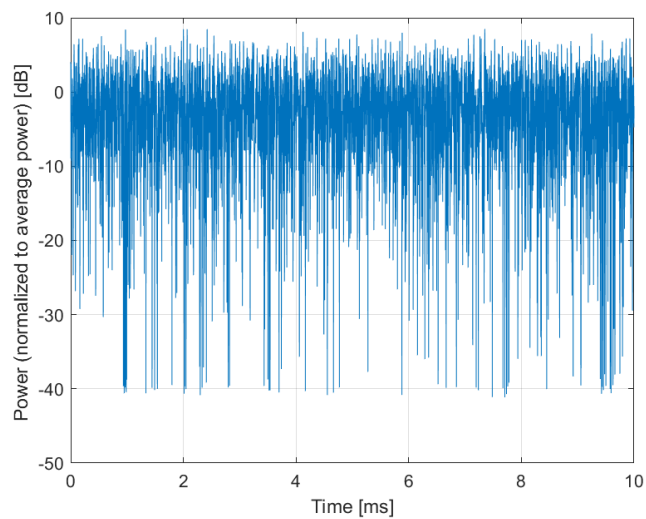
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



**Complementary Cumulative Distribution Function (CCDF)**



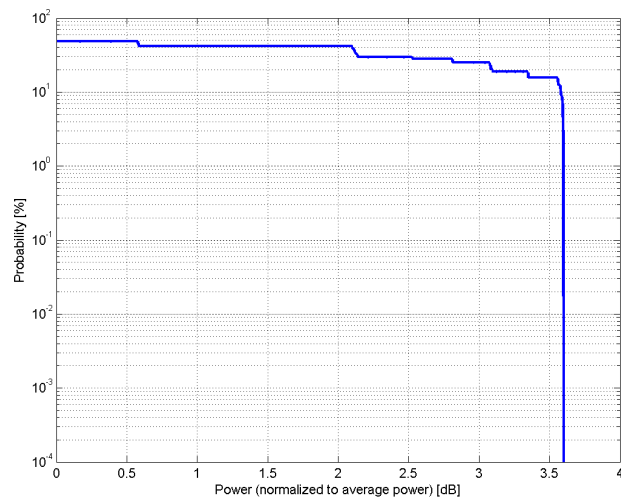
**Frequency Domain**



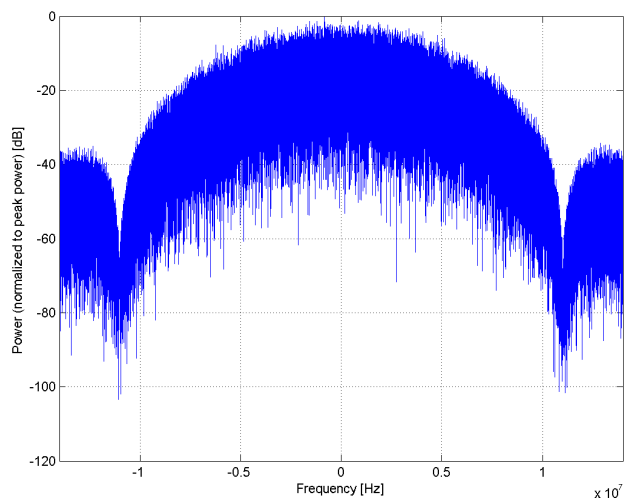
**Time Domain**

|                         |                                                                                                                             |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Name:                   | <b>IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)</b>                                                                            |
| Group:                  | WLAN                                                                                                                        |
| UID:                    | 10061-CAB                                                                                                                   |
| PAR: <sup>1</sup>       | <b>3.60 dB</b>                                                                                                              |
| MIF: <sup>2</sup>       | <b>-2.02 dB</b>                                                                                                             |
| Standard Reference:     | IEEE 802.11b-1999 , Part 11, FCC SAR meas for 802 11 a b g<br>v01r02 (248227 D01)                                           |
| Category:               | Random amplitude modulation                                                                                                 |
| Modulation:             | DQPSK                                                                                                                       |
| Frequency Band:         | WLAN 2.4GHz (2412.0-2484.0 MHz, 20230)                                                                                      |
| Detailed Specification: | Data Rate: 11 Mbps<br>Spreading, Coding: CCK<br>PPDU format: Long Preamble & Heading<br>PSDU Length: 1024<br>PSDU Data: PN9 |
| Bandwidth:              | 20.0 MHz                                                                                                                    |
| Integration Time:       | 1.5 ms                                                                                                                      |

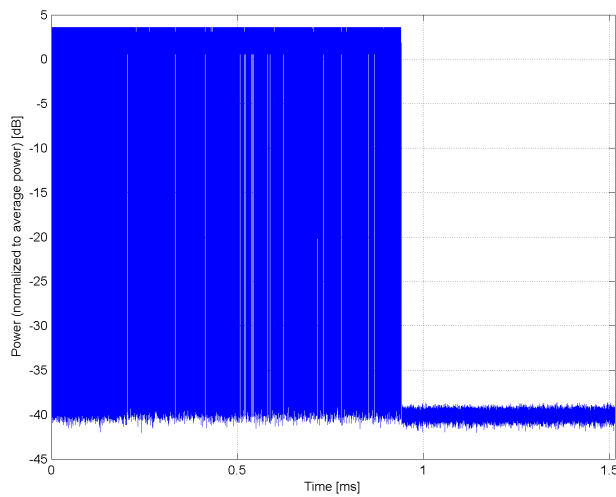
<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"  
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



Complementary Cumulative Distribution Function (CCDF)



Frequency Domain



Time Domain

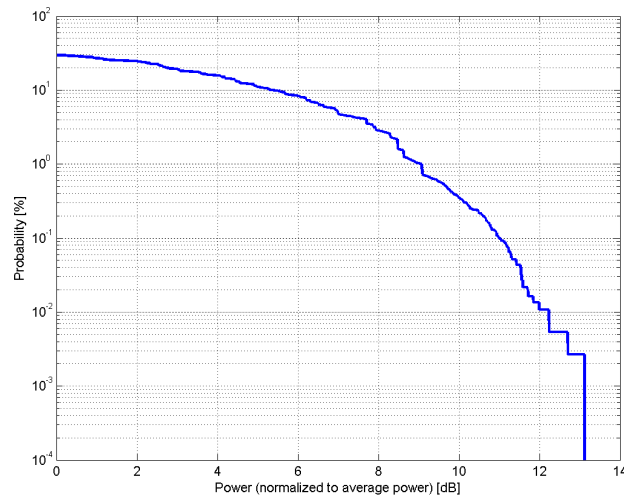
Name: **IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)**

Group: WLAN  
UID: 10077-CAB

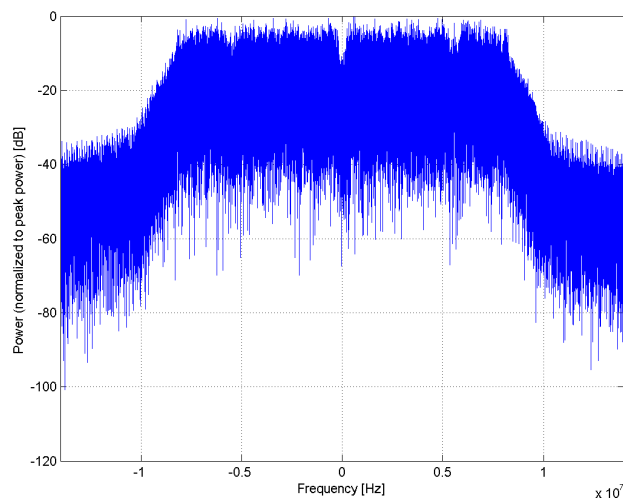
PAR: <sup>1</sup> **11.00 dB**  
MIF: <sup>2</sup> **0.12 dB**

Standard Reference: IEEE 802.11g-2003 , Part 11  
FCC SAR meas for 802 11 a b g v01r02 (248227 D01)  
Category: Random amplitude modulation  
Modulation: 64-QAM  
Frequency Band: WLAN 2.4GHz (2412.0-2484.0 MHz, 20230)  
Detailed Specification: Data Rate: 54 Mbps  
Coding Rate: 3/4  
Coded bits per subcarrier: 6  
Coded bits per OFDM symbol: 288  
Data bits per OFDM symbol: 216  
PSDU Length: 1000 Bytes  
PSDU Data: PN9  
Bandwidth: 20.0 MHz  
Integration Time: 0.9 ms

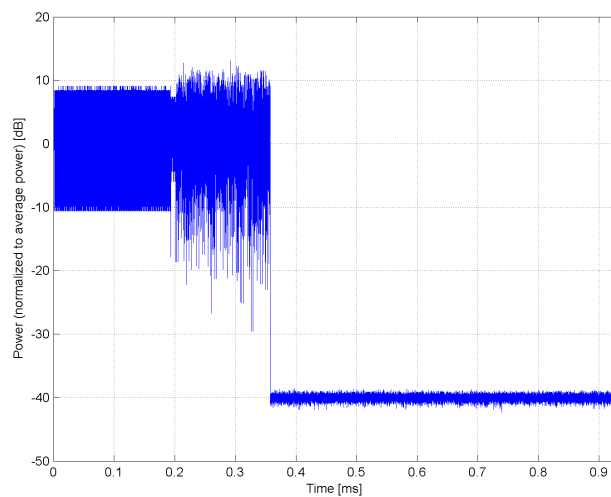
<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"  
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



### Complementary Cumulative Distribution Function (CCDF)



### Frequency Domain



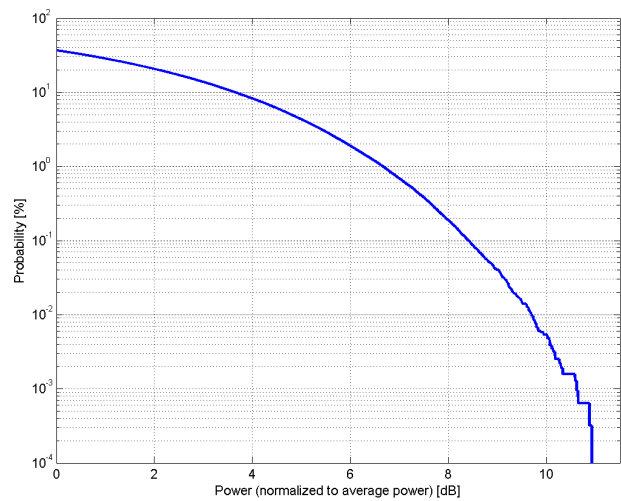
### Time Domain

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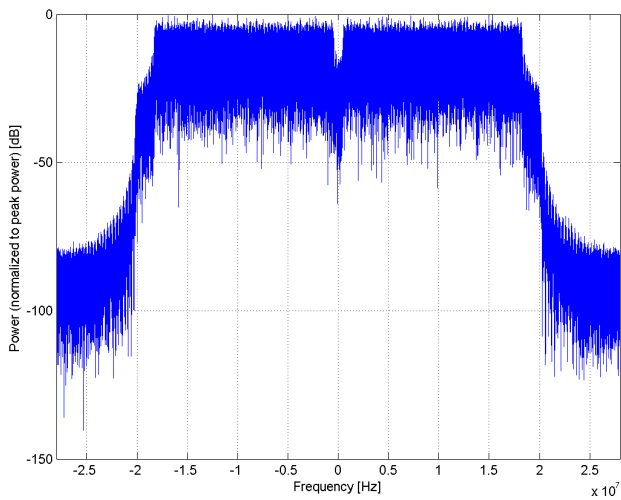
|                         |                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:                   | <b>IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)</b>                                                                                                                                                                                                                                                                                            |
| Group:                  | WLAN                                                                                                                                                                                                                                                                                                                                             |
| UID:                    | 10427-AAC                                                                                                                                                                                                                                                                                                                                        |
| PAR: <sup>1</sup>       | <b>8.41 dB</b>                                                                                                                                                                                                                                                                                                                                   |
| MIF: <sup>2</sup>       | <b>-13.44 dB</b>                                                                                                                                                                                                                                                                                                                                 |
| Standard Reference:     | IEEE 802.11n-2009                                                                                                                                                                                                                                                                                                                                |
| Category:               | Random amplitude modulation                                                                                                                                                                                                                                                                                                                      |
| Modulation:             | BPSK                                                                                                                                                                                                                                                                                                                                             |
| Frequency Band:         | WLAN 2.4GHz (2412.0 - 2484.0 MHz)<br>WLAN 5GHz (4915.0 - 5825.0 MHz)<br>U-NII-1, U-NII-2A (5170 - 5330 MHz)<br>U-NII-2C Standalone (5490 - 5710 MHz)<br>U-NII-2C <5.65 GHz (5490 - 5650 MHz)<br>U-NII-3 Standalone (5735 - 5835 MHz)<br>U-NII-2C, U-NII-3 (5650 - 5835 MHz)<br>U-NII-4 (5.825 - 5.925 MHz)<br>Validation band (0.0 - 6000.0 MHz) |
| Detailed Specification: | Modulation: 64-QAM<br>Data Rate: 150 Mbps<br>PPDU Format: HT Greenfield<br>PPDU Type: 40 MHz<br>MCS Index: 7<br>Guard Interval: Short<br>Duty Cycle: 99%                                                                                                                                                                                         |
| Bandwidth:              | 40.0 MHz                                                                                                                                                                                                                                                                                                                                         |
| Integration Time:       | 2.0 ms                                                                                                                                                                                                                                                                                                                                           |

<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"

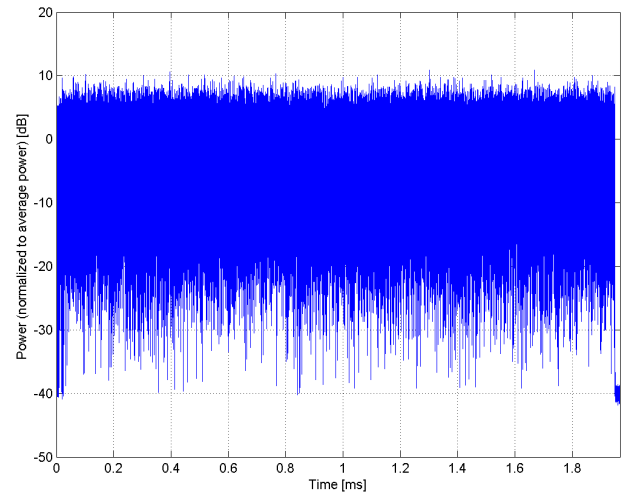
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



Complementary Cumulative Distribution Function (CCDF)



Frequency Domain



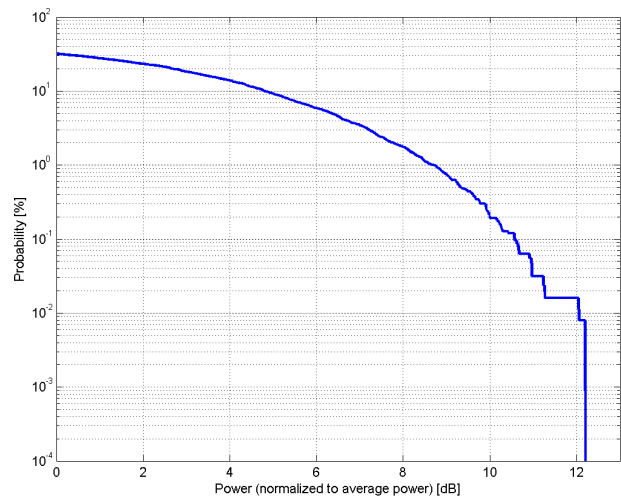
Time Domain

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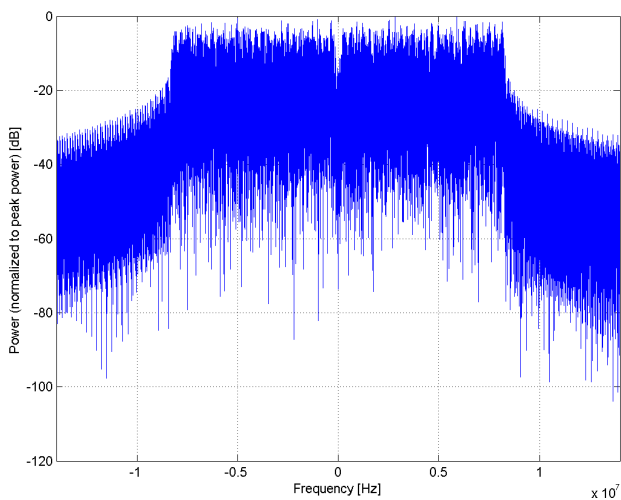
|                         |                                                                                                                                                                                                                                                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:                   | <b>IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)</b>                                                                                                                                                                                                                                                            |
| Group:                  | WLAN                                                                                                                                                                                                                                                                                                        |
| UID:                    | 10069-CAD                                                                                                                                                                                                                                                                                                   |
| PAR: <sup>1</sup>       | <b>10.56 dB</b>                                                                                                                                                                                                                                                                                             |
| MIF: <sup>2</sup>       | <b>-3.15 dB</b>                                                                                                                                                                                                                                                                                             |
| Standard Reference:     | IEEE 802.11a-1999 (R2003) , Part 11<br>IEEE 802.11h-2003 , Part 11<br>FCC SAR meas for 802 11 a b g v01r02 (248227 D01)                                                                                                                                                                                     |
| Category:               | Random amplitude modulation                                                                                                                                                                                                                                                                                 |
| Modulation:             | 64-QAM                                                                                                                                                                                                                                                                                                      |
| Frequency Band:         | WLAN 5GHz (4915.0 - 5825.0 MHz)<br>U-NII-1, U-NII-2A (5170 - 5330 MHz)<br>U-NII-2C Standalone (5490 - 5710 MHz)<br>U-NII-2C <5.65 GHz (5490 - 5650 MHz)<br>U-NII-3 Standalone (5735 - 5835 MHz)<br>U-NII-2C, U-NII-3 (5650 - 5835 MHz)<br>U-NII-4 (5.825 - 5.925 MHz)<br>Validation band (0.0 - 6000.0 MHz) |
| Detailed Specification: | Data Rate: 54 Mbps<br>Coding Rate: 3/4<br>Coded bits per subcarrier: 6<br>Coded bits per OFDM symbol: 288<br>Data bits per OFDM symbol: 216<br>PSDU Length: 1000 Bytes<br>PSDU Data: PN9                                                                                                                    |
| Bandwidth:              | 20.0 MHz                                                                                                                                                                                                                                                                                                    |
| Integration Time:       | 0.3 ms                                                                                                                                                                                                                                                                                                      |

<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"

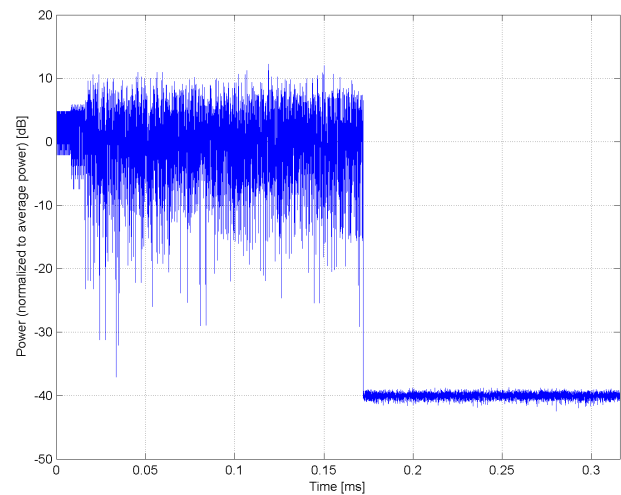
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



Complementary Cumulative Distribution Function (CCDF)



Frequency Domain

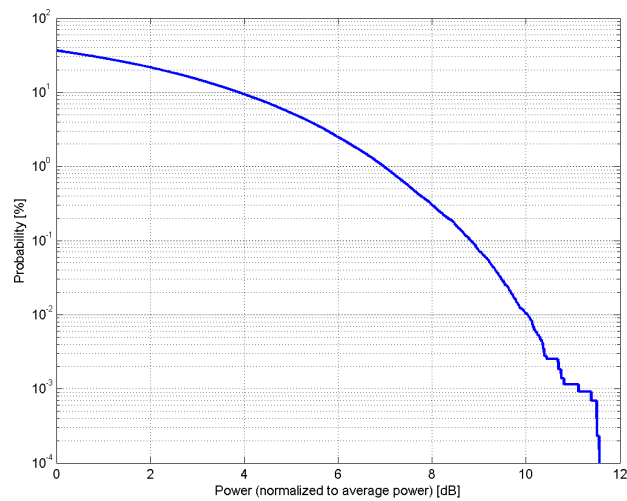


Time Domain

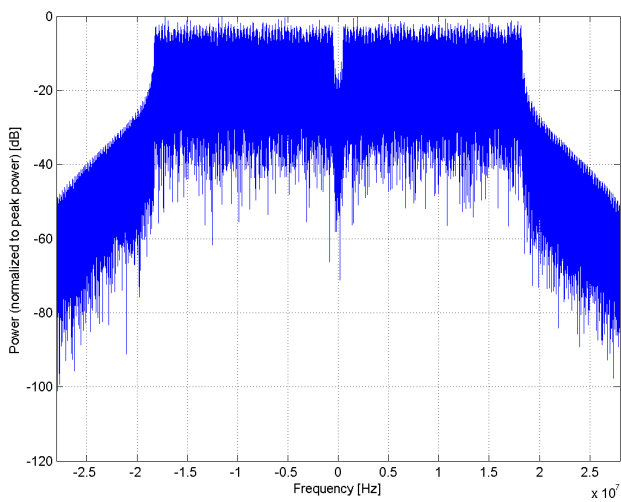
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|                         |                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:                   | <b>IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)</b>                                                                                                                                                                                                                                                                                         |
| Group:                  | WLAN                                                                                                                                                                                                                                                                                                                                             |
| UID:                    | 10616-AAC                                                                                                                                                                                                                                                                                                                                        |
| PAR: <sup>1</sup>       | <b>8.82 dB</b>                                                                                                                                                                                                                                                                                                                                   |
| MIF: <sup>2</sup>       | <b>-5.57 dB</b>                                                                                                                                                                                                                                                                                                                                  |
| Standard Reference:     | IEEE 802.11-2013<br>FCC OET KDB 248227 D01 802.11 Wi-Fi SAR v02r01                                                                                                                                                                                                                                                                               |
| Category:               | Random amplitude modulation                                                                                                                                                                                                                                                                                                                      |
| Modulation:             | BPSK                                                                                                                                                                                                                                                                                                                                             |
| Frequency Band:         | WLAN 2.4GHz (2412.0 - 2484.0 MHz)<br>WLAN 5GHz (4915.0 - 5825.0 MHz)<br>U-NII-1, U-NII-2A (5170 - 5330 MHz)<br>U-NII-2C Standalone (5490 - 5710 MHz)<br>U-NII-2C <5.65 GHz (5490 - 5650 MHz)<br>U-NII-3 Standalone (5735 - 5835 MHz)<br>U-NII-2C, U-NII-3 (5650 - 5835 MHz)<br>U-NII-4 (5.825 - 5.925 MHz)<br>Validation band (0.0 - 6000.0 MHz) |
| Detailed Specification: | Bandwidth: 40MHz<br>Duty cycle: 90%<br>MCS: 0<br>Number of spatial streams: 1<br>MPDU length: 8192                                                                                                                                                                                                                                               |
| Bandwidth:              | 40.0 MHz                                                                                                                                                                                                                                                                                                                                         |
| Integration Time:       | 5.4 ms                                                                                                                                                                                                                                                                                                                                           |

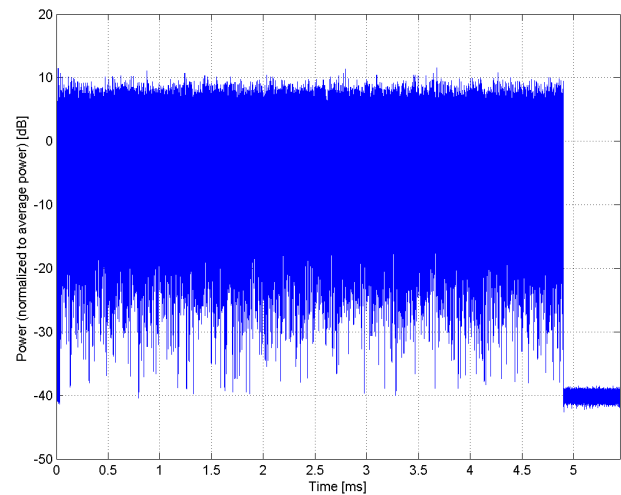
<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"  
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



Complementary Cumulative Distribution Function (CCDF)



Frequency Domain

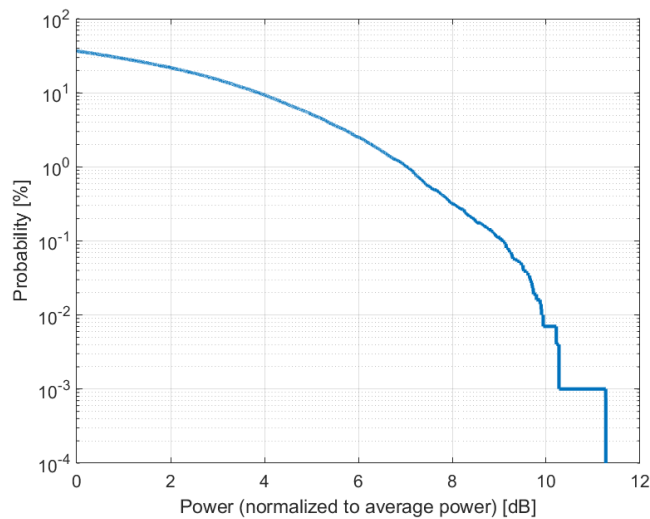


Time Domain

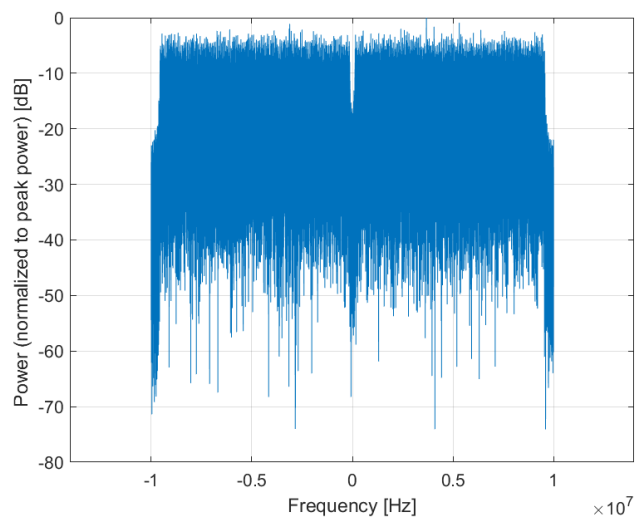
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|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name:                   | IEEE 802.11ax (20MHz, MCS0, 90pc duty cycle)                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Group:                  | WLAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| UID:                    | 10671-AAC                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| PAR: <sup>1</sup>       | 9.09 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| MIF: <sup>2</sup>       | -5.58 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Standard Reference:     | SPEAG                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Category:               | Random amplitude modulation                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Modulation:             | BPSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Frequency Band:         | WLAN 2.4GHz (2412.0 - 2484.0 MHz)<br>WLAN 5GHz (4915.0 - 5825.0 MHz)<br>U-NII-1, U-NII-2A (5170 - 5330 MHz)<br>U-NII-2C Standalone (5490 - 5710 MHz)<br>U-NII-2C <5.65 GHz (5490 - 5650 MHz)<br>U-NII-3 Standalone (5735 - 5835 MHz)<br>U-NII-2C, U-NII-3 (5650 - 5835 MHz)<br>U-NII-5 (5925 - 6425 MHz)<br>U-NII-6 (6425 - 6525 MHz)<br>U-NII-7 (6525 - 6875 MHz)<br>U-NII-8 (6875 - 7125 MHz)<br>U-NII-4 (5.825 - 5.925 MHz)<br>Validation band (0.0 - 6000.0 MHz) |
| Detailed Specification: | Bandwidth: 20MHz<br>Duty Cycle: 90%<br>Number of spatial stream: 1                                                                                                                                                                                                                                                                                                                                                                                                   |
| Bandwidth:              | 20.0 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Integration Time:       | 5.0 ms                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

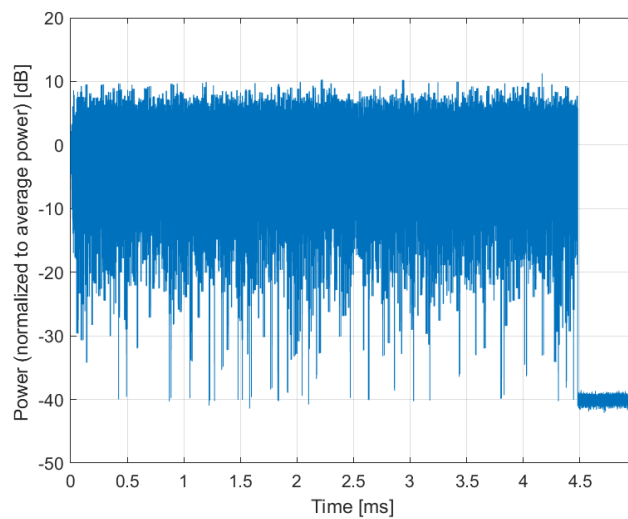
<sup>1</sup> PAR (0.1%) in accordance with FCC KDB 971168, Section 6.0 "Measurement of the Peak-to-Average Power Ratio (PAPR)"  
<sup>2</sup> Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



**Complementary Cumulative Distribution Function (CCDF)**



**Frequency Domain**



**Time Domain**