## No. I20N03221-HAC RF

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





S

Schweizerischer Kalibrierdienst Service suisse d'étalonnage Servizio svizzero di taratura Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA

Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 0108

#### References

[1] ANSI-C63.19-2011
 American National Standard, Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.

#### Methods Applied and Interpretation of Parameters:

- Coordinate System: y-axis is in the direction of the dipole arms. z-axis is from the basis of the antenna
  (mounted on the table) towards its feed point between the two dipole arms. x-axis is normal to the other axes.
   In coincidence with the standards [1], the measurement planes (probe sensor center) are selected to be at a
  distance of 15 mm above the top metal edge of the dipole arms.
- Measurement Conditions: Further details are available from the hardcopies at the end of the certificate. All
  figures stated in the certificate are valid at the frequency indicated. The forward power to the dipole connector
  is set with a calibrated power meter connected and monitored with an auxiliary power meter connected to a
  directional coupler. While the dipole under test is connected, the forward power is adjusted to the same level.
- Antenna Positioning: The dipole is mounted on a HAC Test Arch phantom using the matching dipole positioner with the arms horizontal and the feeding cable coming from the floor. The measurements are performed in a shielded room with absorbers around the setup to reduce the reflections. It is verified before the mounting of the dipole under the Test Arch phantom, that its arms are perfectly in a line. It is installed on the HAC dipole positioner with its arms parallel below the dielectric reference wire and able to move elastically in vertical direction without changing its relative position to the top center of the Test Arch phantom. The vertical distance to the probe is adjusted after dipole mounting with a DASY5 Surface Check job. Before the measurement, the distance between phantom surface and probe tip is verified. The proper measurement distance is selected by choosing the matching section of the HAC Test Arch phantom with the proper device reference point (upper surface of the dipole) and the matching grid reference point (tip of the probe) considering the probe sensor offset. The vertical distance to the probe is essential for the accuracy.
- Feed Point Impedance and Return Loss: These parameters are measured using a HP 8753E Vector Network Analyzer. The impedance is specified at the SMA connector of the dipole. The influence of reflections was eliminating by applying the averaging function while moving the dipole in the air, at least 70cm away from any sectors.
- E-field distribution: E field is measured in the x-y-plane with an isotropic ER3D-field probe with 100 mW forward power to the antenna feed point. In accordance with [1], the scan area is 20mm wide, its length exceeds the dipole arm length (180 or 90mm). The sensor center is 15 mm (in z) above the metal top of the dipole arms. Two 3D maxima are available near the end of the dipole arms. Assuming the dipole arms are perfectly in one line, the average of these two maxima (in subgrid 2 and subgrid 8) is determined to compensate for any non-parallelity to the measurement plane as well as the sensor displacement. The E-field value stated as calibration value represents the maximum of the interpolated 3D-E-field, in the plane above the dipole surface.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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#### **Measurement Conditions**

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.10.1
Phantom	HAC Test Arch	
Distance Dipole Top - Probe Center	15 mm	
Scan resolution	dx, dy = 5 mm	
Frequency	1880 MHz ± 1 MHz	
Input power drift	< 0.05 dB	

#### Maximum Field values at 1880 MHz

E-field 15 mm above dipole surface	condition	Interpolated maximum
Maximum measured above high end	100 mW input power	89.8 V/m = 39.06 dBV/m
Maximum measured above low end	100 mW input power	89.3 V/m = 39.02 dBV/m
Averaged maximum above arm	100 mW input power	89.5 V/m ± 12.8 % (k=2)

## Appendix (Additional assessments outside the scope of SCS 0108)

#### **Antenna Parameters**

Frequency	Return Loss	Impedance
1730 MHz	23.9 dB	$53.9 \Omega + 5.4 j\Omega$
1880 MHz	22.5 dB	$54.7 \Omega + 6.3 j\Omega$
1900 MHz	23.4 dB	$55.6 \Omega + 4.5 j\Omega$
1950 MHz	30.3 dB	52.9 Ω - 1.3 jΩ
2000 MHz	21.3 dB	44.2 Ω + 5.7 jΩ

## 3.2 Antenna Design and Handling

The calibration dipole has a symmetric geometry with a built-in two stub matching network, which leads to the enhanced bandwidth.

The dipole is built of standard semirigid coaxial cable. The internal matching line is open ended. The antenna is therefore open for DC signals.

Do not apply force to dipole arms, as they are liable to bend. The soldered connections near the feedpoint may be damaged. After excessive mechanical stress or overheating, check the impedance characteristics to ensure that the internal matching network is not affected.

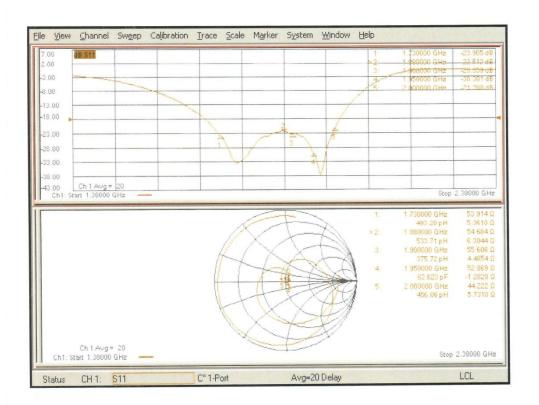
After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

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## **Impedance Measurement Plot**



## No. I20N03221-HAC RF

#### **DASY5 E-field Result**

Date: 19.07.2018

Test Laboratory: SPEAG Lab2

#### DUT: HAC Dipole 1880 MHz; Type: CD1880V3; Serial: CD1880V3 - SN: 1149

Communication System: UID 0 - CW ; Frequency: 1880 MHz Medium parameters used:  $\sigma=0$  S/m,  $\epsilon_r=1$  ;  $\rho=0$  kg/m  $^3$ 

Phantom section: RF Section

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

#### DASY52 Configuration:

- Probe: EF3DV3 SN4013; ConvF(1, 1, 1) @ 1880 MHz; Calibrated: 05.03.2018
- Sensor-Surface: (Fix Surface)
- Electronics: DAE4 Sn781; Calibrated: 17.01.2018
- Phantom: HAC Test Arch with AMCC; Type: SD HAC P01 BA; Serial: 1070
- DASY52 52.10.1(1476); SEMCAD X 14.6.11(7439)

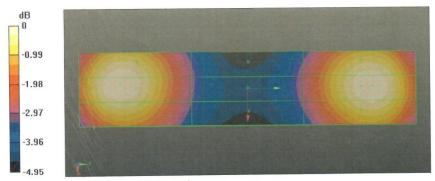
# Dipole~E-Field~measurement~@~1880MHz/E-Scan-1880MHz~d=15mm/Hearing~Aid~Compatibility~Test~(41x181x1):

Interpolated grid: dx=0.5000 mm. dy=0.5000 mm
Device Reference Point: 0, 0, -6.3 mm
Reference Value = 160.1 V/m; Power Drift = -0.04 dB
Applied MIF = 0.00 dB
RF audio interference level = 39.06 dBV/m

Emission category: M2

MIF scaled E-field

Grid 1 M2 38.67 dBV/m	Grid 2 <b>M2</b> <b>39.06 dBV/m</b>	
nescond in the second	Grid 5 M2 36.15 dBV/m	Section Section
Grid 7 M2 38.79 dBV/m		Grid 9 M2 38.91 dBV/m



0 dB = 89.78 V/m = 39.06 dBV/m

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# **ANNEX F: UID Specification**

## **Calibration Laboratory of** Schmid & Partner

**Engineering AG** 

Zeughausstrasse 43, 8004 Zurich, Switzerland

GSM-FDD (TDMA, GMSK)

GSM 10021-DAC

9.39 dB 3.63 dB

ETSI TS 100 909 V8.9.0 (2005-01) FCC OET KDB 941225, D03 and D04 Periodic pulsed modulation GMSK Standard Reference:

Category: Modulation:

GMSK GSM 450 (450.4 - 457.6 MHz) GSM 480 (478.8 - 486.0 MHz) GSM 710 (698.0 - 716.0 MHz) GSM 750 (747.0 - 763.0 MHz) GSM 850 (824.0 - 849.0 MHz) Frequency Band:

GSM 850 (824.0 - 849.0 MHz)
P-GSM 900 (890.0 - 915.0 MHz)
E-GSM 900 (880.0 - 915.0 MHz)
R-GSM 900 (876.0 - 915.0 MHz)
DCS 1800 (1710.0 - 1785.0 MHz)
PCS 1900 (1850.0 - 1910.0 MHz)
ER-GSM 900 (873.0 - 915.0 MHz)
Validation band (0.0 - 6000.0 MHz)

Detailed Specification: Active Slot: TN0

Data: PN9 continuous Frame: composed out of 8 Slots Multiframe: 26th (IDLE) Frame set blank Slottype & -timing: Normal burst for GMSK 0.2 MHz

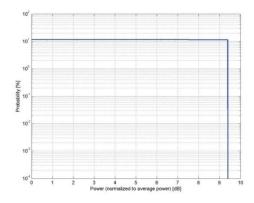
Integration Time: 120.0 ms

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

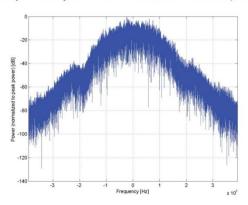
Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



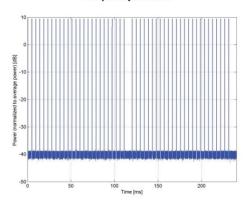
Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



## Complementary Cumulative Distribution Function (CCDF)



## Frequency Domain



Time Domain

UID Specification Sheet

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16.11.2016



# Schmid & Partner

Name:

Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland

EDGE-FDD (TDMA, 8PSK, TN 0)

Group: UID: GSM 10025-DAC

PAR: 1 MIF: 2 12.62 dB 3.75 dB

Standard Reference:

Frequency Band:

Category: Modulation

ETSI TS 100 909 V8.9.0 (2005-01)
FCC OET KDB 941225, D03 and D04
Periodic pulsed modulation
8PSK
GSM 450 (450.4 - 457.6 MHz)
GSM 450 (450.4 - 457.6 MHz)
GSM 470 (698.0 - 716.0 MHz)
GSM 710 (698.0 - 716.0 MHz)
GSM 750 (747.0 - 763.0 MHz)
GSM 750 (824.0 - 849.0 MHz)
P-GSM 900 (890.0 - 915.0 MHz)
P-GSM 900 (890.0 - 915.0 MHz)
R-GSM 900 (876.0 - 915.0 MHz)
DCS 1800 (1710.0 - 1785.0 MHz)
PCS 1900 (1850.0 - 1910.0 MHz)
ER-GSM 900 (873.0 - 915.0 MHz) ER-GSM 900 (873.0 - 915.0 MHz) Validation band (0.0 - 6000.0 MHz)

Detailed Specification:

Data: PN9 continuous
Frame: composed out of 8 Slots
Multiframe: 13th (PTCCH) and 26th (IDLE) Frame set blank
Slottype & -timing: Normal burst for 8PSK
0.2 MHz
60.0 ms

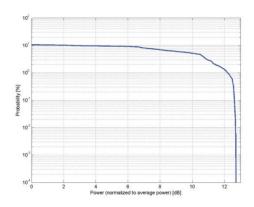
Bandwidth: Integration Time:

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

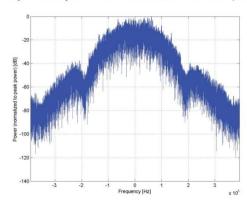
Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



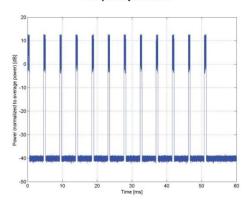
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## Complementary Cumulative Distribution Function (CCDF)



## Frequency Domain



Time Domain

UID Specification Sheet

UID 10025-DAC page 2/2

16.11.2016



Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland

Name: UMTS-FDD (WCDMA)

Group: WCDMA UID: 10011-CAB

PAR: 1 **2.91 dB** MIF: 2 **-27.23 dB** 

Standard Reference: 3GPP TS 25.141 Annex A

FCC OET KDB 941225 D01 SAR test for 3G devices v02

Category: Random amplitude modulation

Modulation: QPSK

Frequency Band: Band 1, UTRA/FDD (1920.0-1980.0 MHz, 20000)

Band 2, UTRA/FDD (1850.0-1910.0 MHz, 20001)
Band 3, UTRA/FDD (1710.0-1785.0 MHz, 20002)
Band 4, UTRA/FDD (1710.0-1755.0 MHz, 20003)
Band 5, UTRA/FDD (824.0-849.0 MHz, 20004)
Band 6, UTRA/FDD (830.0-840.0 MHz, 20005)
Band 7, UTRA/FDD (2500.0-2570.0 MHz, 20006)
Band 8, UTRA/FDD (880.0-915.0 MHz, 20007)
Band 9, UTRA/FDD (1749.9-1784.9 MHz, 20008)
Band 10, UTRA/FDD (1710.0-1770.0 MHz, 20009)
Band 11, UTRA/FDD (1427.9-1452.9 MHz, 20010)
Band 12, UTRA/FDD (698.0-716.0 MHz, 20011)
Band 13, UTRA/FDD (777.0-787.0 MHz, 20012)
Band 14, UTRA/FDD (788.0-798.0 MHz, 20013)
Band 19, UTRA/FDD (830.0-845.0 MHz, 20131)

Band 21, UTRA/FDD (1447.9-1462.9 MHz, 20132) Band 22, UTRA/FDD (3410.0-3490.0 MHz, 20217) Band 25, UTRA/FDD (1850.0-1915.0 MHz, 20218) Band 26, UTRA/FDD (814.0-849.0 MHz, 20219)

Detailed Specification: Dedicated Channel Type: RMC

Bitrate: 12.2 kbps DPDCH: 60 kbps DPCCH: 15 kbps

DPCCH/DPDCH power ratio: -5.46 dB

Bandwidth: 5.0 MHz Integration Time: 100.0 ms

**UID Specification Sheet** 

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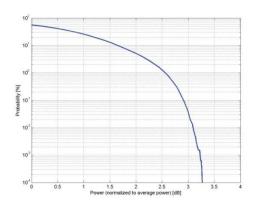
16.01.2014

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

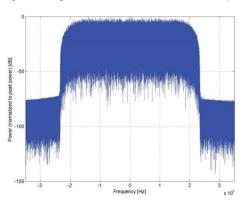
Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



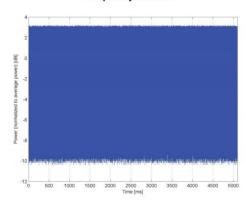
Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



## Complementary Cumulative Distribution Function (CCDF)



## Frequency Domain



Time Domain

UID Specification Sheet

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16.01.2014



Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland

Name: UMTS-FDD (HSDPA)

Group: WCDMA UID: 10097-CAB

PAR: 1 3.98 dB MIF: 2 -20.75 dB

Standard Reference: ETSI-3GPP TS 134.121 Rel. 5

FCC OET KDB 941225 D01 SAR test for 3G devices v02

Category: Random amplitude modulation

Modulation: QPSK

Frequency Band: Band 1, UTRA/FDD (1920.0-1980.0 MHz, 20000)

Band 2, UTRA/FDD (1850.0-1910.0 MHz, 20001)
Band 3, UTRA/FDD (1710.0-1785.0 MHz, 20002)
Band 4, UTRA/FDD (1710.0-1755.0 MHz, 20003)
Band 5, UTRA/FDD (824.0-849.0 MHz, 20004)
Band 6, UTRA/FDD (830.0-840.0 MHz, 20005)
Band 7, UTRA/FDD (2500.0-2570.0 MHz, 20006)
Band 8, UTRA/FDD (880.0-915.0 MHz, 20007)
Band 9, UTRA/FDD (1749.9-1784.9 MHz, 20008)
Band 10, UTRA/FDD (1710.0-1770.0 MHz, 20009)
Band 11, UTRA/FDD (1427.9-1452.9 MHz, 20010)

Band 10, UTRA/FDD (1710.0-1770.0 MHz, 20009)
Band 11, UTRA/FDD (1427.9-1452.9 MHz, 20010)
Band 12, UTRA/FDD (698.0-716.0 MHz, 20011)
Band 13, UTRA/FDD (777.0-787.0 MHz, 20012)
Band 14, UTRA/FDD (788.0-798.0 MHz, 20013)
Band 19, UTRA/FDD (830.0-845.0 MHz, 20130)
Band 20, UTRA/FDD (832.0-862.0 MHz, 20131)
Band 21, UTRA/FDD (1447.9-1462.9 MHz, 20132)
Band 22, UTRA/FDD (3410.0-3490.0 MHz, 20217)
Band 25, UTRA/FDD (1850.0-1915.0 MHz, 20218)

Band 26, UTRA/FDD (814.0-849.0 MHz, 20219)

Detailed Specification: CQI value: 2

Sub-test 2 Conditions:

DPCCH gain factor (Beta\_c) = 12/15

DPDCH gain factor (Beta\_d): 15/15

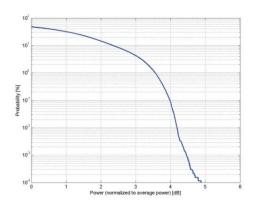
Bandwidth: 5.0 MHz
Integration Time: 100.0 ms

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

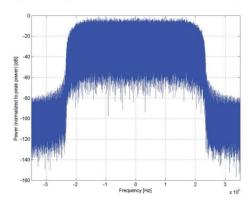
Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



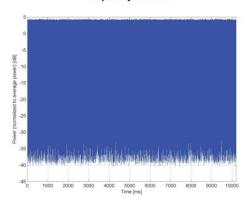
Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



## Complementary Cumulative Distribution Function (CCDF)



Frequency Domain



Time Domain

UID Specification Sheet

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16.01.2014



## Schmid & Partner **Engineering AG**

Name:

Zeughausstrasse 43, 8004 Zurich, Switzerland

LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)

Group: UID: LTE-FDD 10176-CAE 6.52 dB

PAR: 1 MIF: 2 -9.76 dB

Standard Reference: 3GPP / ETSI TS 136.101 V8.4.0

3GPP / ETSI TS 136.213 V8.4.0 FCC OET KDB 941225 D05 SAR for LTE Devices v01 Random amplitude modulation

16-QAM

Category: Modulation: Frequency Band:

16-QAM Band 1, E-UTRA/FDD (1920.0 - 1980.0 MHz) Band 2, E-UTRA/FDD (1850.0 - 1910.0 MHz) Band 3, E-UTRA/FDD (1710.0 - 1755.0 MHz) Band 4, E-UTRA/FDD (1710.0 - 1755.0 MHz) Band 5, E-UTRA/FDD (824.0 - 849.0 MHz)

Band 5, E-UTRA/FDD (824.0 - 849.0 MHz) Band 6, E-UTRA/FDD (830.0 - 840.0 MHz) Band 7, E-UTRA/FDD (2500.0 - 2570.0 MHz) Band 8, E-UTRA/FDD (880.0 - 915.0 MHz) Band 9, E-UTRA/FDD (1749.9 - 1784.9 MHz) Band 10, E-UTRA/FDD (1710.0 - 1770.0 MHz) Band 11, E-UTRA/FDD (1427.9 - 1447.9 MHz) Band 12, E-UTRA/FDD (999.0 - 716.0 MHz) Band 13, E-UTRA/FDD (777.0 - 787.0 MHz) Band 14, E-UTRA/FDD (788.0 - 798.0 MHz) Band 17, E-UTRA/FDD (704.0 - 716.0 MHz) Band 18, E-UTRA/FDD (815.0 - 830.0 MHz) Band 19, E-UTRA/FDD (830.0 - 845.0 MHz) Band 20, E-UTRA/FDD (832.0 - 862.0 MHz) Band 21, E-UTRA/FDD (1447.9 - 1462.9 MHz) Band 22, E-UTRA/FDD (341.0. - 349.0. MHz)
Band 23, E-UTRA/FDD (3410.0 - 349.0. MHz)
Band 23, E-UTRA/FDD (2000.0 - 2020.0 MHz)
Band 24, E-UTRA/FDD (1626.5 - 1660.5 MHz)
Band 25, E-UTRA/FDD (1850.0 - 1915.0 MHz) Band 27 E-UTRA/FDD (807.0 - 824.0 MHz) Band 28 E-UTRA/FDD (703.0 - 748.0 MHz)

Band 30, E-UTRA/FDD (2305.0 - 2315.0 MHz)
Band 65, E-UTRA/FDD (1920.0 - 2010.0 MHz)
Band 66, E-UTRA/FDD (1710.0 - 1780.0 MHz)
Band 68, E-UTRA/FDD (1710.0 - 1780.0 MHz)
Band 68, E-UTRA/FDD (698.0 - 728.0 MHz)
Band 70, E-Band 71, E-UTRA/FDD (663.0 - 698.0 MHz) Validation band (0.0 - 6000.0 MHz)

Modulation Scheme: SC-FDMA Detailed Specification:

Number of PUSCHs: 1 Settings for Subframe #0 to #9: Modulation Scheme: QPSK Data Type: UL-SCH Number RB: 1 Transport Block Size: 256 TBS Index: 14

MCS Index: 15 Data Type: PN9 10.0 MHz Bandwidth: Integration Time: 10.0 ms

**UID Specification Sheet** 

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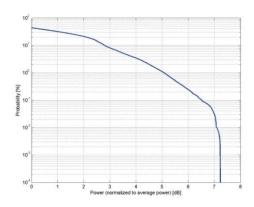
27.07.2017

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

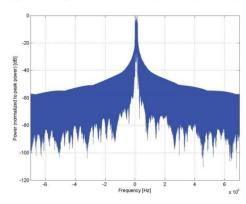
Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



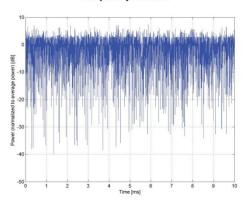
Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



## Complementary Cumulative Distribution Function (CCDF)



## **Frequency Domain**



Time Domain

UID Specification Sheet

UID 10176-CAE page 2/2

27.07.2017



# Schmid & Partner

Name:

Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland

LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)

Group: UID: LTE-FDD 10170-CAD

PAR: 1 MIF: 2 6.52 dB -9.76 dB

Standard Reference: 3GPP / ETSI TS 136.101 V8.4.0

3GPP / ETSI TS 136.213 V8.4.0 FCC OET KDB 941225 D05 SAR for LTE Devices v01 Random amplitude modulation

Category: Modulation: 16-QAM Frequency Band:

Random amplitude modulation
16-QAM
Band 1, E-UTRA/FDD (1920.0 - 1980.0 MHz)
Band 2, E-UTRA/FDD (1950.0 - 1910.0 MHz)
Band 3, E-UTRA/FDD (1950.0 - 1910.0 MHz)
Band 4, E-UTRA/FDD (1710.0 - 1785.0 MHz)
Band 4, E-UTRA/FDD (1710.0 - 1755.0 MHz)
Band 7, E-UTRA/FDD (2500.0 - 2570.0 MHz)
Band 9, E-UTRA/FDD (1740.9 - 1784.9 MHz)
Band 10, E-UTRA/FDD (1740.0 - 1770.0 MHz)
Band 20, E-UTRA/FDD (830.0 - 862.0 MHz)
Band 22, E-UTRA/FDD (3410.0 - 3490.0 MHz)
Band 23, E-UTRA/FDD (2000.0 - 2020.0 MHz)
Band 25, E-UTRA/FDD (1850.0 - 1915.0 MHz)
Band 26, E-UTRA/FDD (1900.0 - 2010.0 MHz)
Band 65, E-UTRA/FDD (1700.0 - 2010.0 MHz)
Band 66, E-UTRA/FDD (1920.0 - 2010.0 MHz)
Band 67, E-UTRA/FDD (683.0 - 698.0 MHz)
Band 70, E-UTRA/FDD (663.0 - 698.0 MHz)
Validation band (0.0 - 6000.0 MHz)

Modulation Scheme: SC-FDMA Number of PUSCHs: 1 Settings for Subframe #0 to #9: Modulation Scheme: 16QAM Data Type: UL-SCH Number RB: 1 Transport Block Size: 256

TBS Index: 14 MCS Index: 15 Data Type: PN9 20.0 MHz 10.0 ms

Integration Time:

Bandwidth:

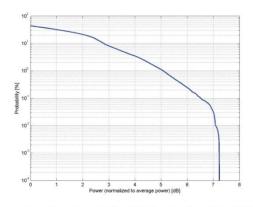
Detailed Specification:

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

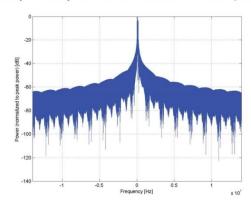
Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



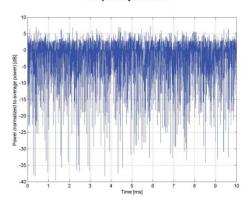
Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



## Complementary Cumulative Distribution Function (CCDF)



## **Frequency Domain**



Time Domain

UID Specification Sheet

UID 10170-CAD page 2/2

27.07.2017



Schmid & Partner Engineering AG

Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland

Name: IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)

Group: WLAN UID: 10061-CAB

PAR: <sup>1</sup> **3.60 dB** MIF: <sup>2</sup> **-2.02 dB** 

Standard Reference: IEEE 802.11b-1999 , Part 11, FCC SAR meas for 802 11 a b g

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

Spreading, Coding: CCK

PPDU format: Long Preamble & Heading

PSDU Length: 1024 PSDU Data: PN9 20.0 MHz

Bandwidth: 20.0 MHz Integration Time: 1.5 ms

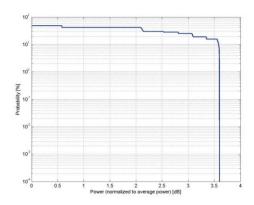
**UID Specification Sheet** 

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

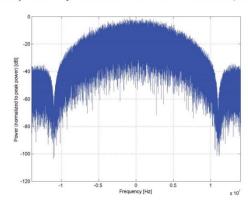
Modulation Interference Factor (MIF) value valid only in conjunction with advanced probe response linearization calibration for the same communication system (same UID and version).



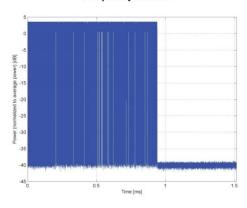
Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



## Complementary Cumulative Distribution Function (CCDF)



## Frequency Domain



Time Domain

UID Specification Sheet

UID 10061-CAB page 2/2

26.11.2014