

TEST REPORT

HAC RF Emission Test for certification of SM-S731U

APPLICANT

Samsung Electronics. Co., Ltd.

REPORT NO.

HCT-SR-2507-FC008

DATE OF ISSUE

Jul.14, 2025

Tested by

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TEST REPORT

HAC RF Emission
Test for
certification

REPORT NO.**HCT-SR-2507-FC008****DATE OF ISSUE****Jul. 14, 2025****FCC ID****A3LSMS731U****Applicant**

SAMSUNG Electronics Co., Ltd
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Product Name**Mobile Phone****Model Name****SM-S731U****Additional Model Name****SM-S731U1****Date of Test****Jul. 04, 2025****Location of Test**

☒ **Permanent Testing Lab** ☐ **On Site Testing Lab**
(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si,
Gyeonggi-do, 17383 KOREA)

FCC Rule Part(s)**FCC47 CFR § 20.19 , ANSI C63.19-2019****C63.19-2019 HAC Result:****PASS**

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	Jul. 14, 2025	Initial Release

Notice

Content

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.

Information provided by the applicant is marked **.

Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

CONTENTS

1. Test Regulations	5
2. Test Location	6
3. DEVICE UNDER TEST DESCRIPTION	7
4. HAC Measurement Set-Up	9
5. System Specifications	10
6. WD emission requirements.....	12
7. System Validation	13
8. Modulation Interference Factor (MIF)	15
9. Analysis of RF Air interface Technologies	17
10. HAC RF Emission Test Procedure (RF Audio Interference Level, RFail)	22
11. Measurement Uncertainties	25
12. HAC Test Data Summary.....	26
13. HAC Test Equipment Chamber List	27
14. HAC Test Equipment List	29
15. CONCLUSION	30
Appendix A. TEST SETUP PHOTO	31
Appendix B. HAC RF Emission Test Plots	32
Appendix C. System Validation Plot.....	57
Appendix D. Probe Calibration Data	61
Appendix E. Dipole Calibration Data.....	84
Appendix F. UID Specifications	111

1. Test Regulations

The tests were performed according to the following regulations:

Test Standard	FCC 47 CFR § 20.19, ANSI C63.19-2019
Test Method	• FCC CFR47 Part 20.19 • ANSI C63.19 2019-version • FCC KDB 285076 D01 HAC Guidance v06r04 • FCC KDB 285076 D03 HAC FAQ v01r07 • TCB workshop updates

2. Test Location

2.1 Test Laboratory

Company Name	HCT Co., Ltd.
Address	74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Telephone	031-645-6300
Fax.	031-645-6401

2.2 Test Facilities

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

Korea	National Radio Research Agency (Designation No. KR0032)
	KOLAS (Testing No. KT197)

2.3 General Information of the EUT

Model Name	SM-S731U
Additional Model Name	SM-S731U1
Equipment Type	Mobile Phone
FCC ID	A3LSMS731U
Application Type	Certification
Applicant	SAMSUNG Electronics Co., Ltd.

2.4 Test Methodology

The Tests document in this report were performed in accordance with ANSI C63.19-2019 method of Measurement of Compatibility between Wireless Communication Devices and Hearing Aids, FCC published KDB 285076 D01 HAC Guidance v06r04, FCC Published KDB285076 D03 HAC FAQ v01r07 and TCB Workshop updates.

3. DEVICE UNDER TEST DESCRIPTION

3.1 DUT specification

Device Wireless specification overview		
Band & Mode	Operating Mode	Tx Frequency
GSM850	Voice / Data	824.2 MHz ~ 848.8 MHz
GSM1900	Voice / Data	1 850.2 MHz ~ 1 909.8 MHz
UMTS Band 2	Voice / Data	1 852.4 MHz ~ 1 907.6 MHz
UMTS Band 4	Voice / Data	1 712.4 MHz ~ 1 752.6 MHz
UMTS Band 5	Voice / Data	826.4 MHz ~ 846.6 MHz
LTE FDD Band 2 (PCS)	Voice / Data	1 850.7 MHz ~ 1 909.3 MHz
LTE FDD Band 4 (AWS)	Voice / Data	1 710.7 MHz ~ 1 754.3 MHz
LTE FDD Band 5 (Cell)	Voice / Data	824.7 MHz ~ 848.3 MHz
LTE FDD Band 7	Voice / Data	2 502.5 MHz ~ 2 567.5 MHz
LTE FDD Band 12	Voice / Data	699.7 MHz ~ 715.3 MHz
LTE FDD Band 13	Voice / Data	779.5 MHz ~ 784.5 MHz
LTE FDD Band 14	Voice / Data	790.5 MHz ~ 795.5 MHz
LTE FDD Band 25	Voice / Data	1 850.7 MHz ~ 1 914.3 MHz
LTE FDD Band 26	Voice / Data	814.7 MHz ~ 848.3 MHz
LTE FDD Band 30	Voice / Data	2 307.5 MHz ~ 2 312.5 MHz
LTE TDD Band 38	Voice / Data	2 572.5 MHz ~ 2 617.5 MHz
LTE TDD Band 41	Voice / Data	2 498.5 MHz ~ 2 687.5 MHz
LTE TDD Band 48	Voice / Data	3 552.5 MHz ~ 3 697.5 MHz
LTE FDD Band 66 (AWS)	Voice / Data	1 710.7 MHz ~ 1 779.3 MHz
LTE FDD Band 71	Voice / Data	665.5 MHz ~ 695.5 MHz
NR FDD Band n2 (PCS)	Voice / Data	1 852.5 MHz ~ 1 907.5 MHz
NR FDD Band n5	Voice / Data	826.5 MHz ~ 846.5 MHz
NR FDD Band n7	Voice / Data	2 502.5 MHz ~ 2 567.5 MHz
NR FDD Band n12	Voice / Data	701.5 MHz ~ 713.5 MHz
NR FDD Band n25 (PCS)	Voice / Data	1 852.5 MHz ~ 1 912.5 MHz
NR FDD Band n26	Voice / Data	816.5 MHz ~ 846.5 MHz
NR FDD Band n30	Voice / Data	2 307.5 MHz ~ 2 312.5 MHz
NR TDD Band n38	Voice / Data	2 575 MHz ~ 2 615 MHz
NR TDD Band n41	Voice / Data	2 501.01 MHz ~ 2 685 MHz
NR TDD Band n48	Voice / Data	3 555 MHz ~ 3 695.01 MHz
NR FDD Band n66	Voice / Data	1 712.5 MHz ~ 1 777.5 MHz
NR FDD Band n70	Voice / Data	1 697.5 MHz ~ 1 707.5 MHz
NR FDD Band n71	Voice / Data	665.5 MHz ~ 695.5 MHz
NR TDD Band n77	Voice / Data	3 705 MHz ~ 3 975 MHz
NR TDD Band n77 DoD	Voice / Data	3 445.01 MHz ~ 3 544.98 MHz
NR TDD Band n78	Voice / Data	3 705 MHz ~ 3 795 MHz
NR TDD Band n78 DoD	Voice / Data	3 455.01 MHz ~ 3 544.98 MHz
U-NII-1	Voice / Data	5 180 MHz ~ 5 240 MHz
U-NII-2A	Voice / Data	5 260 MHz ~ 5 320 MHz
U-NII-2C	Voice / Data	5 500 MHz ~ 5 720 MHz
U-NII-3	Voice / Data	5 745 MHz ~ 5 825 MHz
U-NII-4	Voice / Data	5 845 MHz ~ 5 885 MHz
U-NII-5	Voice / Data	5 925 MHz ~ 6 425 MHz
U-NII-6	Voice / Data	6 425 MHz ~ 6 525 MHz
U-NII-7	Voice / Data	6 525 MHz ~ 6 865 MHz
U-NII-8	Voice / Data	6 865 MHz ~ 7 115 MHz
2.4 GHz WLAN	Voice / Data	2 412 MHz ~ 2 462 MHz
Bluetooth / LE	Data	2 402 MHz ~ 2 480 MHz
NFC	Data	13.56 MHz
WPC	Data	110 kHz ~ 148 kHz

3.2 Device Under Test

Normal operation	Held to head	
Back Cover	The Back Cover is not removable	
Test sample information	S/N	Notes
	YEJ0634M	RF Emission Test

RF Emission Measurements in this report were performed by Maximum Power (Pmax) in static power condition

4. HAC Measurement Set-Up

These measurements are performed using the DASY8 automated dosimetric assessment system. It is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland. It consists of high precision robotics system (Staubli), robot controller, Pentium IV computer, near-field probe, probe alignment sensor. The robot is a six-axis industrial robot performing precise movements.

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The PC consists of the HP Pentium IV 3.0 GHz computer with Windows XP system and HAC Measurement Software DASY8, A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

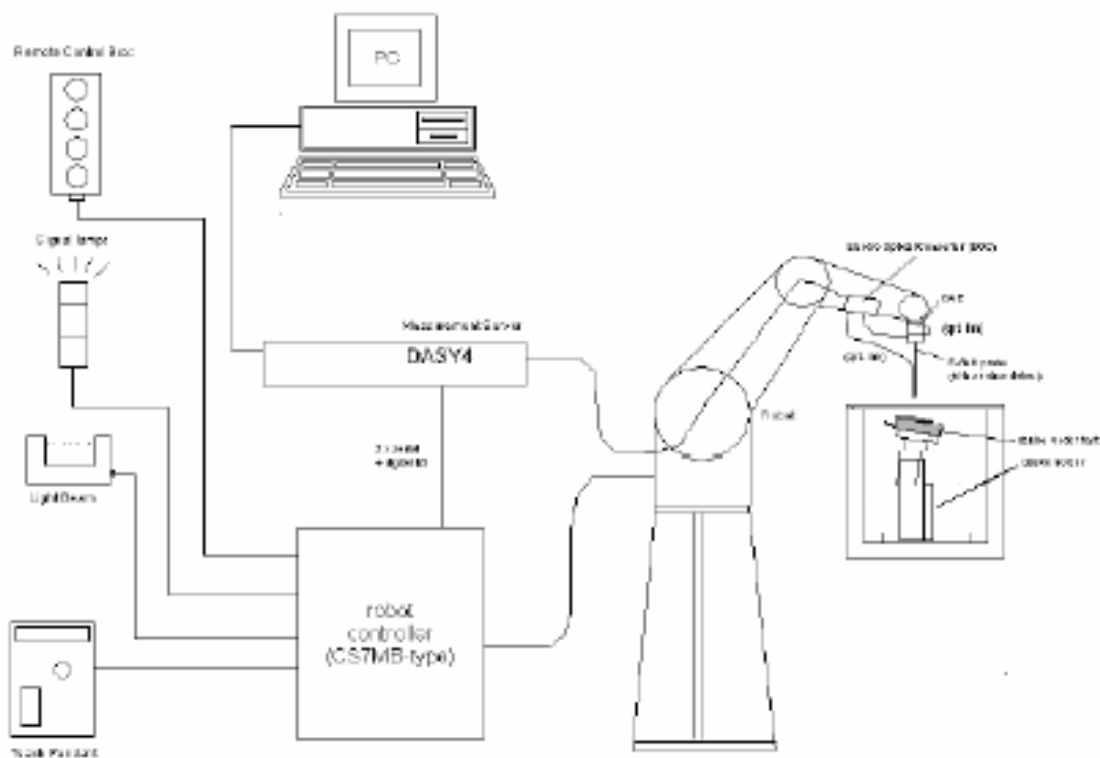


Figure 1. HAC Test Measurement Set-up

The DAE4 consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines.

The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection.

The robot uses its own controller with a built in VME-bus computer.

5. System Specifications

E-field measurements are performed using the DASY8 automated dosimetric assessment system. The DASY8 is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland. The DASY8 HAC Extension consists of the following parts:

5.1 E-Field Probe Description

EF3DV3 Isotropic E-Field Probe

Construction:	One dipole parallel, two dipoles normal to probe axis Interleaved sensors Built-in shielding against static charges PEEK enclosure material
Calibration:	In air from 30 MHz to 5.8 GHz (absolute accuracy $\pm 5.1\%$, $k=2$) ISO/IEC 17025 <u>calibration service</u> available.
Frequency:	30 MHz – >6 GHz; Linearity: ± 0.2 dB (100 MHz – 3 GHz)
Directivity:	± 0.2 dB in air (rotation around probe axis) ± 0.4 dB in air (rotation normal to probe axis)
Dynamic Range:	2 V/m to > 1000 V/m; Linearity: ± 0.2 dB
Dimensions:	Overall length: 337 mm (Tip: 20mm) Tip diameter: 3.9 mm (Body: 12mm) Distance from probe tip to dipole centers: 1.5 mm Sensor displacement to probe's calibration point: <0.7 mm
Application:	General near-field measurements up to 6GHz HAC measurements up to 6 GHz Field component measurements Fast automatic scanning in phantoms

5.2 Phantom & Device Holder



Figure 2. HAC Phantom & Device Holder

The Test Arch phantom should be positioned horizontally on a stable surface. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

The specially designed Test Arch allows high precision positioning of both the device and any of the validation dipoles.

5.3 Robotic System Specifications

System information :

The RF Extension enables measurements of the electric (E-) field generated by wireless communication devices around their audio acoustic output. It is composed of an isotropic E-field probe (i.e., EF3DVx) mounted to the precision TX2 robot allowing to scan the field over a user-defined area. The probes are miniaturized, sensitive, isotopic, linear, and stable. The spatial precision of the probe position during scanning is better than 0.2 mm. A Test Arch enables easy and repeatable positioning of the device to be tested. The E-field averaged over the measurement area is provided as requested by the ANSI-C63.19-2019.

Software information :

The Jupiter Notebook web-based GUIs guide the user through the compliance workflow. The main features are: Optimized scanning according to ANSI-C63.19-2019, Integrated system performance check module, Generation of test reports

6. WD emission requirements

The WD's conducted power must be at or below either the stated RFAIPL (Table 6.1) or the stated peak power level (Table 6.2), or the average near-field emissions over the measurement area must be at or below the stated RFAIL (Table 6.3), or the stated peak field strength (Table 6.4).

The WD may demonstrate compliance by meeting any of these four requirements, but it must do so in each of its operating bands at its established worst-case normal speech-mode operating condition.

Table 6.1 -Wireless device RF audio interference power level

Frequency range (MHz)	RF_{AIPL} (dBm)
<960	29
960–2000	26
>2000	25

Table 6.2 -Wireless device RF Peak power level

Frequency range (MHz)	RF_{Peak Power} (dBm)
< 960	35
960–2000	32
>2000	31

Table 6.3 -Wireless device RF audio interference level

Frequency range (MHz)	RF_{AIL} [dB(V/m)]
≤960	39
960–2000	36
>2000	35

Table 6.4 -Wireless device RF Peak near-field level

Frequency range (MHz)	RF_{peak} [dB(V/m)]
≤960	45
960–2000	42
>2000	41

7. System Validation

The test setup was validated when first configured and verified periodically thereafter to ensure proper function. The procedure provided in this section is a validation procedure using dipole antennas for which the field levels were computed by numeric modeling.

Procedure:

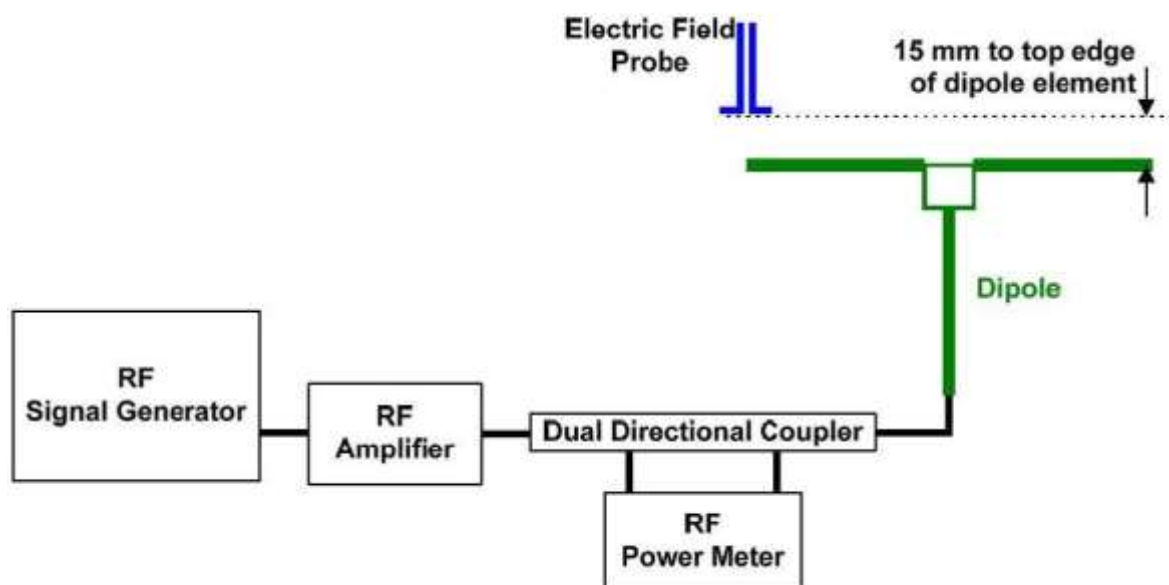
Place a dipole antenna meeting the requirements given in ANSI C63.19 in the normally occupied by the WD.

The dipole antenna serves as a known source for an electrical and magnetic output. Position the E-field probe so that the following occurs:

- The probes and their cables are parallel to the coaxial feed of the dipole antenna
- The probe cables and the coaxial feed of the dipole antenna approach the measurement area from opposite directions

- The center point of the probe element(s) is 15 mm from the closest surface of the dipole elements. Scan the length of the dipole with the E-field probe and record the two maximum values found near the dipole ends. Average the two readings and compare the reading to the expected value in the calibration certificate or the expected value in this standard.

Figure 3. Setup diagram



7.1 System Validation Result

Mode	Date	Dipole	Serial Number	Freq.	Input Power	MAX. Measured from		Average max. above arm	Target Value SPEAG	Dev.	Dipole Calib. Due Date
						Above high end	Above low end				
				[MHz]	[dBm]	[V/m]	[V/m]	[V/m]	[V/m]	[%]	
CW	07/04/2025	CD835V3	1024	835	20	109.49	108.13	108.81	108.8	0.01	02/18/2026
CW	07/04/2025	CD1880V3	1019	1880	20	85.63	85.02	85.33	86.2	-1.02	02/18/2026
CW	07/04/2025	CD2600V3	1019	2600	20	81.5	81.48	81.49	84.5	-3.56	09/22/2025
CW	07/04/2025	CD3500V3	1012	3500	20	80.95	80.92	80.94	82	-1.30	11/17/2025

Notes:

- 1) Delta (%) = $100 \times (\text{Measured value minus Target value}) / \text{Target value}$.
ANSI-C63.19 requires values to be within 18% of their targets. 12% is deviation and 13% is measurement uncertainty.
- 2) The maximum E-field was evaluated and compared to the target values provided by SPEAG in the calibration certificate of specific dipoles.
- 3) Please refer to the attachment for detailed measurement data and plot.

8. Modulation Interference Factor (MIF)

The HAC Standard ANSI C63.19 defines a new scaling using the Modulation Interference Factor (MIF) which replaces the need for the Articulation Weighting Factor (AWF) during the evaluation and is applicable to any modulation scheme.

The Modulation Interference factor (MIF, in dB) is added to the measured average E-field (in dBV/m) and converts it to the RF Audio Interference level (in dBV/m). This level considers the audible amplitude modulation components in the RF E-field. CW fields without amplitude modulation are assumed to not interfere with the hearing aid electronics. Modulations without time slots and low fluctuations at low frequencies have low MIF values, TDMA modulations with narrow transmission and repetition rates of few 100 Hz have high MIF values and give similar classifications as ANSI C63.19.

Definitions

E-field probes have a bandwidth <10 kHz and can therefore not evaluate the RF envelope in the full audio band. DASY8 is therefore using the “indirect” measurement method according to ANSI C63.19 which is the primary method. These near field probes read the averaged E-field measurement. Especially for the new high peak-to-average (PAR) signal types, the probes shall be linearized by probe modulation response (PMR) calibration in order to not overestimate the field reading. The evaluation method or the MIF is defined in ANSI C63.19 section D.7. An RMS demodulated RF signal is fed to a spectral filter (similar to an A weighting filter) and forwarded to a temporal filter acting as a quasi-peak detector. The averaged output of these filtering is called to a 1 kHz 80% AM signal as reference. MIF measurement requires additional instrumentation and is not well suited for evaluation by the end user with reasonable uncertainty. It may alternatively be determined through analysis and simulation, because it is constraint and characteristic for a communication signal. DASY8 uses well defined signals for PMR calibration. The MIF of these signals has been determined by simulation and is automatically applied.

MIF values were not tested by a probe or as specified in the standards but are based on analysis provided by SPEAG for all the air interfaces (CDMA, GSM, WCDMA, LTE, NR, and Wi-Fi). The data included in this report are for the worst case operating modes. The UIDs used are listed below:

SPEAG test files

UID	Communication System Name	MIF (dB)
10021-DAC	GSM-FDD (TDMA, GMSK)	3.63
10460-AAB	UMTS-FDD (WCDMA,AMR)	-25.43
10176-CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16QAM)	-9.76
10182-CAF	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16QAM)	-9.76
10170-CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16QAM)	-9.76
10173-CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16QAM)	-1.44
10030-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	1.02
10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	-2.02
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	0.12
10069-CAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	-3.15
10591-AAC	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	-5.59
10607-AAC	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	-5.60
10616-AAC	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	-5.57
10626-AAC	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	-5.64
10636-AAD	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	-5.56
10671-AAC	IEEE 802.11ax (20MHz, MCS0, 90pc duty cycle)	-5.58
10695-AAC	IEEE 802.11ax (40MHz, MCS0, 90pc duty cycle)	-6.01
10719-AAC	IEEE 802.11ax (80MHz, MCS0, 90pc duty cycle)	-6.04
10743-AAC	IEEE 802.11ax (160MHz, MCS0, 90pc duty cycle)	-6.60
10929-AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	-15.06
10930-AAC	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	-15.06
10931-AAC	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	-15.06
10934-AAC	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	-15.07
10973-AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	-1.64
	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	

A PMR calibrated probe is linearized for the selected waveform over the full dynamic range within the uncertainty specified in its calibration certificate. E-field probes have a bandwidth <10 kHz and can therefore not evaluate the RF envelope in the full audio band. DASY8 is therefore using the "indirect" measurement method according to ANSI C63.19 which is the primary method. These near field probes read the averaged E-field measurement. Especially for the new high peak-to-average (PAR) signal types, the probes shall be linearized by PMR calibration in order to not overestimate the field reading.

The MIF measurement uncertainty is estimated as follows, for modulation frequencies from slotted waveforms with fundamental frequency and at least 2 harmonics within 10 kHz:

- 0.2 dB for MIF -7 to +5dB,
- 0.5 dB for MIF -13 to +11dB
- 1 dB for MIF > -20dB

9. Analysis of RF Air interface Technologies

An analysis was performed, following the guidance of 4.2 and 4.5 of the ANSI standard, of the RF air interface technologies being evaluated. The factors that will affect the RF interference Potential were evaluated, and the worst case operating modes were identified and used in the evaluation. A WD's interference potential is a function both of the WD's average near-field field strength and of the signal's audio-frequency amplitude modulation characteristics. Per 4.2, The WD's conducted power must be at or below either the stated RFAIPL (Table 6.1) or the stated peak power level (Table 6.2), or the average near-field emissions over the measurement area must be at or below the stated RFAIL (Table 5.3), or the stated peak field strength (Table 6.4).

Only transmit modes that occur during conversational speech with the WD held in a talking position at the ear should be considered. The transmit modes to be tested shall be clearly identified in the test report.

a) Measure peak conducted power; compare to the associated qualification level.

b) Measure RF audio interference power level (RFAIPL) (see 4.4); compare to the associated qualification level.

- Indirect measurement, where the waveform-specific modulation interference factor (MIF), as specified in D.7, is measured separately and added to the measured average conducted power, in dBm. The MIF is independent of overall signal level (within the constraints of the transmission protocol) and may be measured using either a conducted input or an air interface.

Table 6.1 -Wireless device RF audio interference power level

Frequency range (MHz)	RFAIPL (dBm)
<960	29
960–2000	26
>2000	25

c) Measure peak E-field strength, averaged over the designated scan area (see 4.5.3.2.4); compare to the associated qualification level.

d) Measure RF audio interference level (RFAIL), averaged over the designated scan area (see 4.5.3); compare to the associated qualification level.

9.1 Air Interfaces and Operating Mode

Air-Interface	Band (MHz)	Type	Evaluation	Simultaneous Transmissions	Name of Voice service
GSM	850	VO	RFAIL	Yes: BT, WLAN	CMRS Voice
	1900				
	GPRS/EDGE	VD	N/A	Yes: BT, WLAN	Google Meet
WCDMA	850	VO	RFAIPL	Yes: BT, WLAN	CMRS Voice
	1700				
	1900				
	HSPA	VD	N/A	Yes: BT, WLAN	Google Meet
LTE (FDD)	680 (B71)	VD	RFAIPL	Yes: NR, BT, WLAN	VoLTE, Google Meet
	700 (B12/13/14)				
	850 (B5/26)				
	1700 (B4/66)				
	1900 (B2/25)				
	2300 (B30)				
	2500 (B7)				
LTE (TDD)	2600 (B38/41)	VD	RFAIL	Yes: NR, BT, WLAN	VoLTE, Google Meet
	3600 (B48)		RFAIPL		
NR(FDD)	680 (B71)	VD	RFAIPL	Yes: LTE, BT, WLAN	VoNR, Google Meet
	700(B12/B14)				
	850 (B5/26)				
	1700 (B66)				
	1900 (B2/25)				
	2300 (B30)				
	2500 (B7)				
NR -TDD	2600 (B38/41)	VD	RFAIL	Yes: LTE, BT, WLAN	VoNR, Google Meet
	3600 (B48)		RFAIPL		
	3800 (B77/78)		RFAIL		
WLAN	2450	VD	RFAIPL	Yes: WWAN and WLAN 5GHz, 6GHz	VoWiFi, Google Meet
	5200 (U-NII-1)		RFAIPL	Yes: WWAN and WLAN 2.4GHz, BT	
	5300 (U-NII-2A)		RFAIPL		
	5500 (U-NII-2C)		RFAIPL		
	5800 (U-NII-3)		RFAIPL		
	5900 (U-NII-4)		RFAIPL		
	6200(UNII 5)		RFAIPL ²		
	6500(UNII 6)		No ¹		
	6700(UNII 7)		No ¹		
	7000(UNII 8)		No ¹		
BT	2450	DT	RFAIPL	Yes: WWAN and Wifi 5GHz,6GHz	N/A
Type Transport VO = CMRS Voice Service DT = Digital Transport VD = CMRS IP Voice Service and Digital Transport				Note: 1. Wifi 6GHz(UNII 6-8) are currently outside the scope of ANSI C63.19 and FCC HAC regulations. 2.UNII band 5 was evaluated for operations which are entirely below 6GHz.	

9.2 Individual Mode Evaluations For RF Audio interference Power Level(RFAIPL)

Max. Average Power + MIF calculations for Low Power Exemptions

Air Interface	Maximum Average Power	Worst case MIF	RFAIPL (Power + MIF)	RFAIPL Limit	RFAIPL
	[dBm]	[dBm]	[dBm]	[dBm]	
GSM850 ANT A	35	3.63	38.63	≥29	Measurement
GSM850 ANT E	34	3.63	37.63	≥29	Measurement
GSM1900 ANT A	31	3.63	34.63	≥26	Measurement
UMTS Band 2 ANT A	24.5	-25.43	-0.93	≥26	Pass
UMTS Band 4 ANT A	24.5	-25.43	-0.93	≥26	Pass
UMTS Band 5 ANT A	25	-25.43	-0.43	≥29	Pass
UMTS Band 5 ANT E	24	-25.43	-1.43	≥29	Pass
LTE Band 2 ANT A	25	-9.76	15.24	≥26	Pass
LTE Band 2 ANT F	25	-9.76	15.24	≥26	Pass
LTE Band 4 ANT A	25	-9.76	15.24	≥26	Pass
LTE Band 4 ANT F	25	-9.76	15.24	≥26	Pass
LTE Band 5 ANT A	25.5	-9.76	15.74	≥29	Pass
LTE Band 5 ANT E	25.5	-9.76	15.74	≥29	Pass
LTE Band 7 ANT B	25	-9.76	15.24	≥25	Pass
LTE Band 7 ANT F	25	-9.76	15.24	≥25	Pass
LTE Band 12 ANT A	25.5	-9.76	15.74	≥29	Pass
LTE Band 12 ANT E	25.5	-9.76	15.74	≥29	Pass
LTE Band 13 ANT A	25.5	-9.76	15.74	≥29	Pass
LTE Band 13 ANT E	25.5	-9.76	15.74	≥29	Pass
LTE Band 14 ANT A	25.5	-9.76	15.74	≥29	Pass
LTE Band 14 ANT E	25.5	-9.76	15.74	≥29	Pass
LTE Band 25 ANT A	25	-9.76	15.24	≥26	Pass
LTE Band 25 ANT F	25	-9.76	15.24	≥26	Pass
LTE Band 26 ANT A	25.5	-9.76	15.74	≥29	Pass
LTE Band 26 ANT E	25.5	-9.76	15.74	≥29	Pass
LTE Band 30 ANT A	24	-9.76	14.24	≥25	Pass
LTE Band 30 ANT F	24	-9.76	14.24	≥25	Pass
LTE Band 38 ANT B	25	-1.44	23.56	≥25	Measurement ²
LTE Band 38 ANT F	25	-1.44	23.56	≥25	Measurement ²
LTE Band 41 ANT B	25	-1.44	23.56	≥25	Measurement ³
LTE Band 41 ANT F	25	-1.44	23.56	≥25	Measurement ³
LTE Band 48 ANT F	24	-1.44	22.56	≥25	Pass
LTE Band 66 ANT A	25	-9.76	15.24	≥26	Pass
LTE Band 66 ANT F	25	-9.76	15.24	≥26	Pass
LTE Band 71 ANT A	25.5	-9.76	15.74	≥29	Pass
LTE Band 71 ANT E	25.5	-9.76	15.74	≥29	Pass
NR Band 2 ANT A	25	-15.06	9.94	≥26	Pass
NR Band 2 ANT F	24	-15.06	8.94	≥26	Pass
NR Band 5 ANT A	25.5	-15.06	10.44	≥29	Pass
NR Band 5 ANT E	25.5	-15.06	10.44	≥29	Pass
NR Band 7 ANT B	25	-15.06	9.94	≥25	Pass
NR Band 7 ANT F	24	-15.06	8.94	≥25	Pass
NR Band 12 ANT A	25.5	-15.06	10.44	≥29	Pass
NR Band 12 ANT E	25.5	-15.06	10.44	≥29	Pass
NR Band 14 ANT A	25.5	-15.06	10.44	≥29	Pass
NR Band 14 ANT E	25.5	-15.06	10.44	≥29	Pass

Air Interface	Maximum Average Power	Worst case MIF	RFAIPL (Power + MIF)	RFAIPL Limit	RFAIPL
	[dBm]	[dBm]	[dBm]	[dBm]	
NR Band 25 ANT A	25	-15.06	9.94	≥26	Pass
NR Band 25 ANT F	24	-15.06	8.94	≥26	Pass
NR Band 26 ANT A	25.5	-15.06	10.44	≥29	Pass
NR Band 26 ANT E	25.5	-15.06	10.44	≥29	Pass
NR Band 30 ANT A	24	-15.06	8.94	≥25	Pass
NR Band 30 ANT F	24	-15.06	8.94	≥25	Pass
NR Band 38 ANT B	25	-1.64	23.36	≥25	Pass
NR Band 38 ANT F	24	-1.64	22.36	≥25	Pass
NR Band 41 (PC3) ANT B	25	-1.64	23.36	≥25	Pass
NR Band 41 (PC3) ANT F	24	-1.64	22.36	≥25	Pass
NR Band 41 (PC2) ANT B	27	-1.64	25.36	≥25	Measurement
NR Band 41 (PC2) ANT F	27	-1.64	25.36	≥25	Measurement
NR Band 48 ANT F	24	-1.64	22.36	≥25	Pass
NR Band 66 ANT A	25	-15.06	9.94	≥26	Pass
NR Band 66 ANT F	25	-15.06	9.94	≥26	Pass
NR Band 70 ANT A	25	-15.06	9.94	≥26	Pass
NR Band 70 ANT F	25	-15.06	9.94	≥26	Pass
NR Band 71 ANT A	25.5	-15.06	10.44	≥29	Pass
NR Band 71 ANT E	25.5	-15.06	10.44	≥29	Pass
NR Band 77(PC3) ANT F	25	-1.64	23.36	≥25	Pass
NR Band 77(PC2) ANT F	27	-1.64	25.36	≥25	Measurement
NR Band 77 DoD(PC3) ANT	25	-1.64	23.36	≥25	Pass
NR Band 77 DoD(PC2) ANT	27	-1.64	25.36	≥25	Measurement
NR Band 78(PC3) ANT F	25	-1.64	23.36	≥25	Pass
NR Band 78(PC2) ANT F	27	-1.64	25.36	≥25	Measurement ⁴
NR Band 78 DoD(PC3) ANT	25	-1.64	23.36	≥25	Pass
NR Band 78 DoD(PC2) ANT	27	-1.64	25.36	≥25	Measurement ⁴
802.11b(2.4GHz) Antenna 1	21	-2.02	18.98	≥25	Pass
802.11g(2.4GHz) Antenna 1	19	0.12	19.12	≥25	Pass
802.11n (2.4GHz) Antenna	19	-5.59	13.41	≥25	Pass
802.11ac (2.4GHz) Antenna	19	-5.6	13.4	≥25	Pass
802.11ax (2.4GHz) Antenna	18	-5.58	12.42	≥25	Pass
802.11b(2.4GHz) Antenna 2	21	-2.02	18.98	≥25	Pass
802.11g(2.4GHz) Antenna 2	19	0.12	19.12	≥25	Pass
802.11n (2.4GHz) Antenna	19	-5.59	13.41	≥25	Pass
802.11ac (2.4GHz) Antenna	19	-5.6	13.4	≥25	Pass
802.11ax (2.4GHz) Antenna	18	-5.58	12.42	≥25	Pass
802.11b(2.4GHz) MIMO	24	-2.02	21.98	≥25	Pass
802.11g(2.4GHz) MIMO	22	0.12	22.12	≥25	Pass
802.11n (2.4GHz) MIMO	22	-5.59	16.41	≥25	Pass
802.11ac (2.4GHz) MIMO	22	-5.6	16.4	≥25	Pass
802.11ax (2.4GHz) MIMO	21	-5.58	15.42	≥25	Pass
802.11a(5GHz) Antenna 1	19	-3.15	15.85	≥25	Pass
802.11n(5GHz) Antenna 1	19	-5.59	13.41	≥25	Pass
802.11ac(5GHz) Antenna 1	19	-5.56	13.44	≥25	Pass
802.11ax(5GHz) Antenna 1	18	-5.58	12.42	≥25	Pass

Air Interface	Maximum Average Power	Worst case MIF	RFAIPL (Power + MIF)	RFAIPL Limit	RFAIPL
	[dBm]	[dBm]	[dBm]	[dBm]	
802.11a(5GHz) Antenna 2	19	-3.15	15.85	≥25	Pass
802.11n(5GHz) Antenna 2	19	-5.59	13.41	≥25	Pass
802.11ac(5GHz) Antenna 2	19	-5.56	13.44	≥25	Pass
802.11ax(5GHz) Antenna 2	18	-5.58	12.42	≥25	Pass
802.11a(5GHz) MIMO	22	-3.15	18.85	≥25	Pass
802.11n(5GHz) MIMO	22	-5.59	16.41	≥25	Pass
802.11ac(5GHz) MIMO	22	-5.56	16.44	≥25	Pass
802.11ax(5GHz) MIMO	21	-5.58	15.42	≥25	Pass
Bluetooth Antenna 1	19	1.02	20.02	≥25	Pass
Bluetooth Antenna 2	20	1.02	21.02	≥25	Pass
Bluetooth MIMO	17	1.02	18.02	≥25	Pass

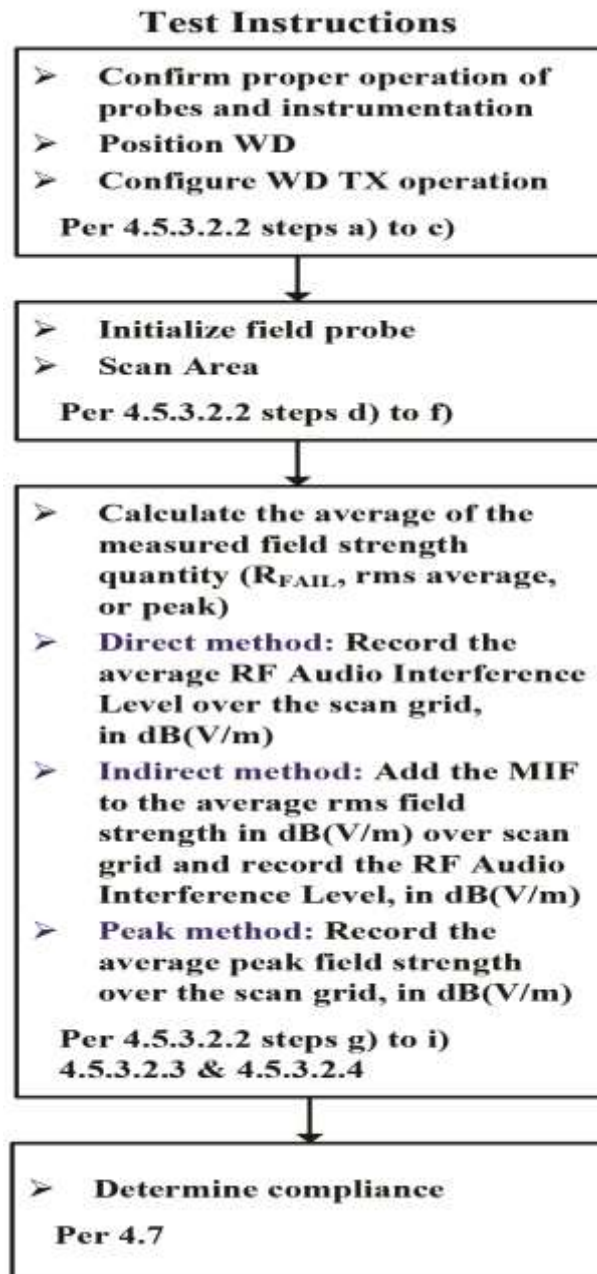
Note(s):

- Maximum Power means the target Power for that mode plus a tune-up tolerance of +1 dB.
- LTE Band 38(2 572.5 MHz~ 2 617.5 MHz) is covered by LTE Band 41(2 498.5 MHz~ 2 687.5 MHz). Due to overlapping frequency range.
- Level is passed, but performed additional test due to manufacturer's request.
- NR n78(3 705 MHz~ 3 795 MHz) / NR n78 DoD(3 455.01 MHz~ 3 544.98 MHz) is covered by NR n77(3 705 MHz~ 3 795 MHz) / NR n77 DoD(3 455.01 MHz~ 3 544.98 MHz). Due to overlapping frequency range.
- Bluetooth was evaluated in maximum power with BDR mode.

9.3 Measure RF audio interference power level Conclusions

Per ANSI C63.19-2019, RF Emissions testing for this device is required only for GSM Voice Mode as well as LTE TDD (B41 PC3) and NR TDD (B41 PC2, B77/ B77 DoD PC2, B78/ B78 DoD PC2) data mode voice. All other applicable RFAIL tests are exempt from testing in accordance with C63.19 Section 4.7 Table 4.1 - Wireless device RF Audio interference power level.

10. HAC RF Emission Test Procedure (RF Audio Interference Level, R_{FAIL})



The evaluation was performed with the following procedure:

- a) Confirm proper operation of the field probe, probe measurement system, spectral and temporal weighting filters, and the positioning system.
- b) Position the WD in its intended test position. A gauge block, depicted in A.1.2, can simplify this positioning.
- c) Set the WD to transmit a fixed and repeatable combination of signal power and modulation characteristic that is representative of the worst case (highest interference potential) encountered in normal use. Transiently occurring start-up, changeover, or termination conditions, or other operation likely to occur less than 1% of the time during normal operation, may be excluded from consideration.
- d) The measurement area shall be centered on the acoustic output or the T-Coil mode measurement reference point, as appropriate. Locate the field probe at the initial test position in the 50 mm by 50 mm measurement area, which is contained in the measurement plane, described in 4.5.2 and illustrated in Figure A.1. If the field alignment method is used, align the probe for maximum field reception.
- e) Record the reading at the output of the measurement system.
- f) Scan the entire 50 mm by 50 mm measurement area in equally spaced step sizes and record the reading at each measurement point. The step size shall meet the specification for step size in 4.5.3.
- g) Calculate the average of the measurements taken in Step f).
- h) Convert the average value found in Step g) to RF audio interference level, in volts per meter, by taking the square root of the reading and then dividing it by the measurement system transfer function, as established in 4.5.3.2.1 pre-test procedure. Convert the result to dB(V/m) by taking the base-10 logarithm and multiplying it by 20. Expressed as a formula:
RF audio interference level in dB(V/M)= 20xlog(Rave 1/2/ TF)
Where, Rave is the average reading
- i) Compare this RF audio interference level to the limits in 4.7 and record the result.

The Picture below illustrates the references and reference plane that shall be used in the WD emissions measurement. The measurement area is 50.0 mm by 50.0 mm. The measurement area is centered on the audio frequency output transducer of the WD (speaker or T-Coil signal). The measurement area is in a reference plane, which is defined as the planar area tangent to the highest point in the area of the phone that normally rests against the user's ear. It is parallel to the centerline of the receiver area of the phone and is defined by the points of the receiver-end of the WD handset, which, in normal handset use, rest against the ear. The measurement plane is parallel to, and 15.0 mm in front of, the reference plane.

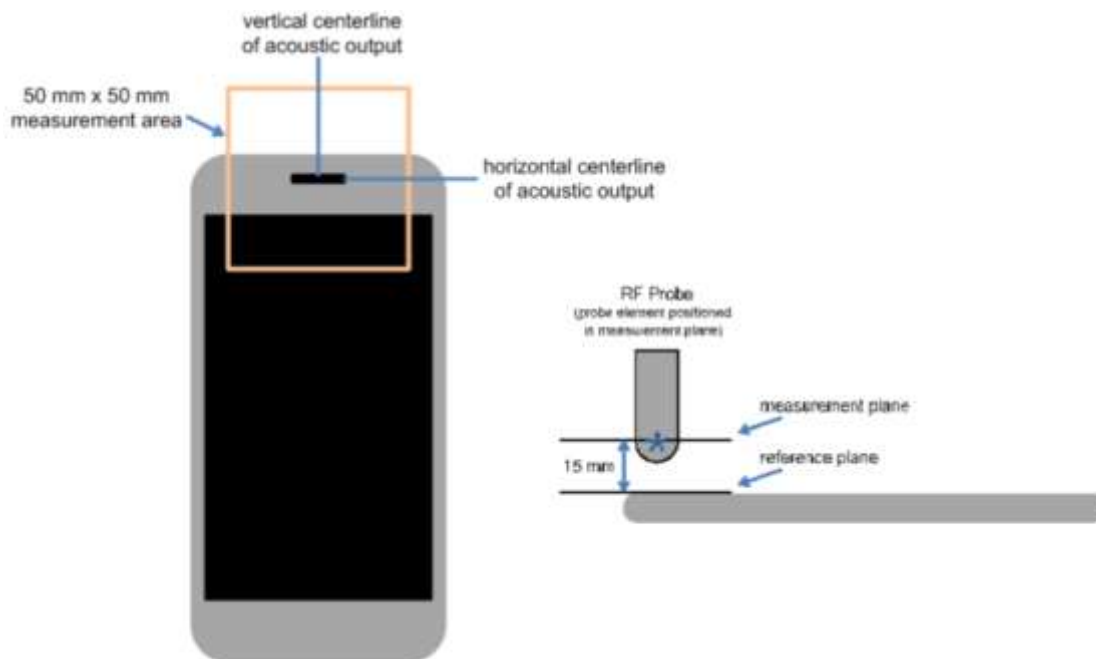


Figure 4. WD reference and plane for RF emission measurements

11. Measurement Uncertainty

Error Description	Uncertainty value [±%]	Probe Dist.	Div.	(Ci) E	Std. Unc. E [±%]
Measurement System					
Probe Calibration	5.10	N	1	1	5.10
Axial Isotropy	4.70	R	$\sqrt{3}$	1	2.70
Sensor Displacement	7.20	R	$\sqrt{3}$	0.5	2.10
Boundary Effects	2.40	R	$\sqrt{3}$	1	1.40
Phantom Boundary Effect	7.20	R	$\sqrt{3}$	1	4.20
Linearity	4.70	R	$\sqrt{3}$	1	2.70
Scaling with PMR calibration	10.00	R	$\sqrt{3}$	1	5.80
System Detection Limit	1.00	R	$\sqrt{3}$	1	0.60
Readout Electronics	0.30	N	1	1	0.30
Response Time	0.80	R	$\sqrt{3}$	0	0
Integration Time	2.60	R	$\sqrt{3}$	0	0
RF Ambient Conditions	3.00	R	$\sqrt{3}$	1	1.70
RF Reflections	12.00	R	$\sqrt{3}$	1	6.90
Probe Positioner	1.20	R	$\sqrt{3}$	1	0.70
Probe Positioning	3.00	R	$\sqrt{3}$	1	1.70
Extrap. and Interpolation	1.00	R	$\sqrt{3}$	1	0.60
Test Sample Related					
Device Positioning Vertical	4.70	R	$\sqrt{3}$	1	2.71
Device Positioning Lateral	1.00	R	$\sqrt{3}$	1	0.58
Device Holder and Phantom	2.40	R	$\sqrt{3}$	1	1.39
Power Drift	5.00	R	$\sqrt{3}$	1	2.89
Phantom and Setup Related					
Phantom Thickness	2.40	R	$\sqrt{3}$	1	1.39
Combined Std. Uncertainty	(k=1)				13.72
Expanded Std. Uncertainty on Power	(Coverage Factor for 95%, k=2)				27.44
Expanded Std. Uncertainty on Field	(Coverage Factor for 95%)				13.72

12.HAC Test Data Summary

12.1 E-Field Measurement Result (GSM)

Mode	Channel	Results*	Results* + 0.2dB uncertainty	RFAIL Limit	FCC Margin	RFAIL Pass/Fail	Plot No.
		[dB(V/m)]	[dB(V/m)]	[dB(V/m)]	[dB]		
GSM 850 Ant.A	128	30.61	30.81	39	8.19	Pass	1
	190	30.63	30.83	39	8.17	Pass	2
	251	30.55	30.75	39	8.25	Pass	3
GSM 850 Ant.E	128	36.75	36.95	39	2.05	Pass	4
	190	36.15	36.35	39	2.65	Pass	5
	251	35.16	35.36	39	3.64	Pass	6
GSM 1900 Ant.A	512	25.66	25.86	36	10.14	Pass	7
	661	25.50	25.70	36	10.30	Pass	8
	810	23.91	24.11	36	11.89	Pass	9

Note(s)*: Measured Audio Interference level in dB (V/m): indirect method (max rms field strength + MIF)

12.2 E-Field Measurement Result (LTE TDD)

Mode	Channel	Mod.	BW	RB Size	RB offset	Results*	Results* + 0.2dB uncertainty	RFAIL Limit	FCC Margin	RFAIL Pass/Fail	Plot No.
						[dB(V/m)]	[dB(V/m)]	[dB(V/m)]	[dB]		
LTE Band 41 ANT B	39750	16QAM	20	1	0	14.52	14.72	35	20.28	Pass	10
	40185	16QAM	20	1	0	15.89	16.09	35	18.91	Pass	11
	40620	16QAM	20	1	0	14.13	14.33	35	20.67	Pass	12
	41055	16QAM	20	1	0	15.56	15.76	35	19.24	Pass	13
	41490	16QAM	20	1	0	14.92	15.12	35	19.88	Pass	14
LTE Band 41 ANT F	39750	16QAM	20	1	0	27.03	27.23	35	7.77	Pass	15
	40185	16QAM	20	1	0	27.47	27.67	35	7.33	Pass	16
	40620	16QAM	20	1	0	27.84	28.04	35	6.96	Pass	17
	41055	16QAM	20	1	0	27.55	27.75	35	7.25	Pass	18
	41490	16QAM	20	1	0	27.68	27.88	35	7.12	Pass	19

Note(s)*: Measured Audio Interference level in dB(V/m): indirect method (max rms field strength + MIF)

12.3 E-Field Measurement Result (NR TDD)

Mode	Ch.	Mod.	BW	RB Size	RB offset	Results*	Results* + 0.2dB uncertainty	RFAIL Limit	FCC Margin	RFAIL Pass/Fail	Plot No.
						[dB(V/m)]	[dB(V/m)]	[dB(V/m)]	[dB]		
NR Band n41 ANT B(PC2)	518598	DFT-s QPSK	100	1	1	16.05	16.25	35	18.75	Pass	20
NR Band n41 ANT F(PC2)	518598	DFT-s QPSK	100	1	1	28.01	28.21	35	6.79	Pass	21
NR Band n77 Ant F(PC2)	650000	DFT-s QPSK	100	1	1	28.99	29.19	35	5.81	Pass	22
	662000	DFT-s QPSK	100	1	1	30.28	30.48	35	4.52	Pass	23
NR Band n77 DoD Ant F(PC2)	633334	DFT-s QPSK	100	1	1	28.57	28.77	35	6.23	Pass	24

Note(s)*: Measured Audio Interference level in dB(V/m): indirect method (max rms field strength + MIF)

13.HAC Test Equipment Chamber List

The test sites and measurement facilities used to collect data are located at

HAC 6 Room

14.HAC Test Equipment List

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	HAC Phantom	-	N/A	N/A	N/A
HP	SAR System Control PC	-	N/A	N/A	N/A
Staubli	CS9spe-TX2-90	F/24/0058554/C/002	N/A	N/A	N/A
Staubli	TX2-90XL spe	F/24/0058554/A/002	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	D21144508	N/A	N/A	N/A
Staubli	Light Alignment Sensor	SE UKS 032 AA	N/A	N/A	N/A
TESTO	Thermometer / 175-H1	40332651310	12/26/2024	Annual	12/26/2025
SPEAG	DAE4ip	1867	05/21/2025	Annual	05/21/2026
SPEAG	E-Field Probe EF3DV3*	4067	01/13/2025	Annual	01/13/2026
SPEAG	Dipole CD835V3	1024	02/18/2025	Annual	02/18/2026
SPEAG	Dipole CD1880V3	1019	02/18/2025	Annual	02/18/2026
SPEAG	Dipole CD2600V3	1019	09/22/2023	Biennial	09/22/2025
SPEAG	Dipole CD3500V3	1012	11/17/2023	Biennial	11/17/2025
HP	Power Meter / E4419B	MY40511243	02/10/2025	Annual	02/10/2026
Agilent	Power Sensor / 8481A	SG1091286	09/12/2024	Annual	09/12/2025
HP	Power Sensor / 8481A	MY41090675	09/12/2024	Annual	09/12/2025
Agilent	Power Meter/ N1911A	MY45101406	05/19/2025	Annual	05/19/2026
Agilent	Power Sensor / N1921A	MY55220026	07/30/2024	Annual	07/30/2025
Agilent	Signal Generator / N5182A	MY47070230	03/18/2025	Annual	03/18/2026
HP	Power Divider /11636B	50659	05/20/2025	Annual	05/20/2026
EMPOWER	RF Power Amplifier / 2135DEFAAXLXX	1084	05/20/2025	Annual	05/20/2026
Agilent	Directional Bridge / 86205A	3140A04581	04/18/2025	Annual	04/18/2026
MICRO LAB	LP Filter / LA-60N	32011	09/21/2024	Annual	09/21/2025
MICRO LAB	LP Filter / LA-30N	-	09/11/2024	Annual	09/11/2025
MICRO LAB	LP Filter / LA-15N	10453	09/21/2024	Annual	09/21/2025
Agilent	Attenuator (3dB) / 8493B	MY39260298	08/21/2024	Annual	08/21/2025
HP	Attenuator (20dB) / 8493C	09271	08/21/2024	Annual	08/21/2025
Agilent	Attenuator (30dB)	52163	05/20/2025	Annual	05/20/2026
R & S	Radio Communication Tester	167916	09/11/2025	Annual	09/11/2026
Agilent	MXA Signal Analyzer N9020A	MY50510407	06/09/2025	Annual	06/09/2026
Anritsu	Radio Communication Tester MT8821C	6201664727	12/10/2024	Annual	12/10/2025
Anritsu	Radio Communication Tester MT8000A	6262148305	12/23/2024	Annual	12/23/2025
Keysight	UXM 5G Wireless Test Set	MY58460166	07/30/2024	Annual	07/30/2025

*: According to SPEAG's Technical Report, "MIF Verification", Doc # TR-FB-12.09.04-1, issued date: 9/4/2012. E-field probes are calibrated with specified uncertainty according to ISO 17025 as described in their calibration certificate. The MIF according to the definition in ANSI C63.19 is specific for a modulation and can therefore be used as a constant value if the probe has been PMR calibrated.

15. CONCLUSION

The HAC measurement indicates that the EUT complies with the HAC limits of the ANSI-C63.19-2019. These measurements are taken to simulate the RF effects exposure under worst-case conditions. Precise Laboratory measures were taken to assure repeatability of the tests.

Appendix A. TEST SETUP PHOTO

Please refer to test Setup Photo file no. as follows;

File No.
HCT-SR-2505-FC008-P

Appendix B. HAC RF Emission Test Plots

Plot No.1 GSM 850 CH.128 Ant.A
RF Interference Potential Test Report
Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

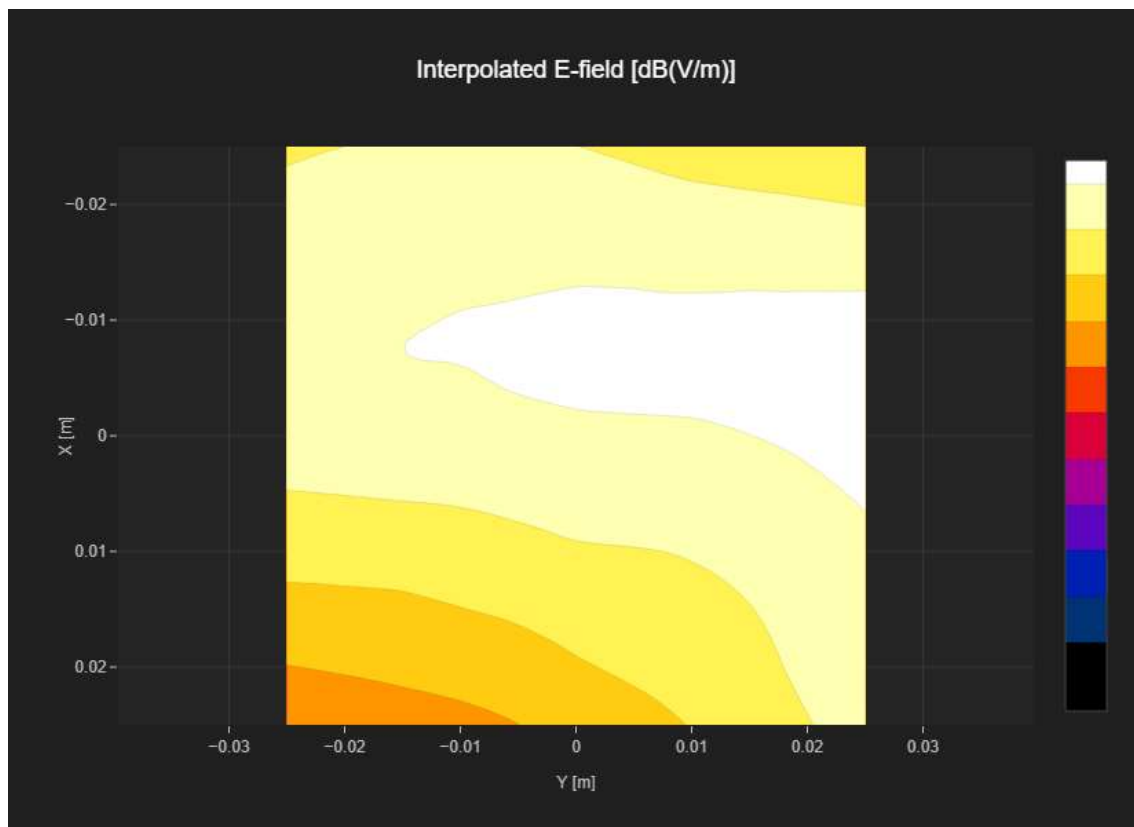
Band Name	Communication Systems Name	Channel	Frequency [MHz]
GSM 850	GSM-FDD (TDMA, GMSK)	128	824.2

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
28.52	26.98	3.63	30.61



Plot No.2 GSM 850 CH.190 Ant.A
RF Interference Potential Test Report
Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

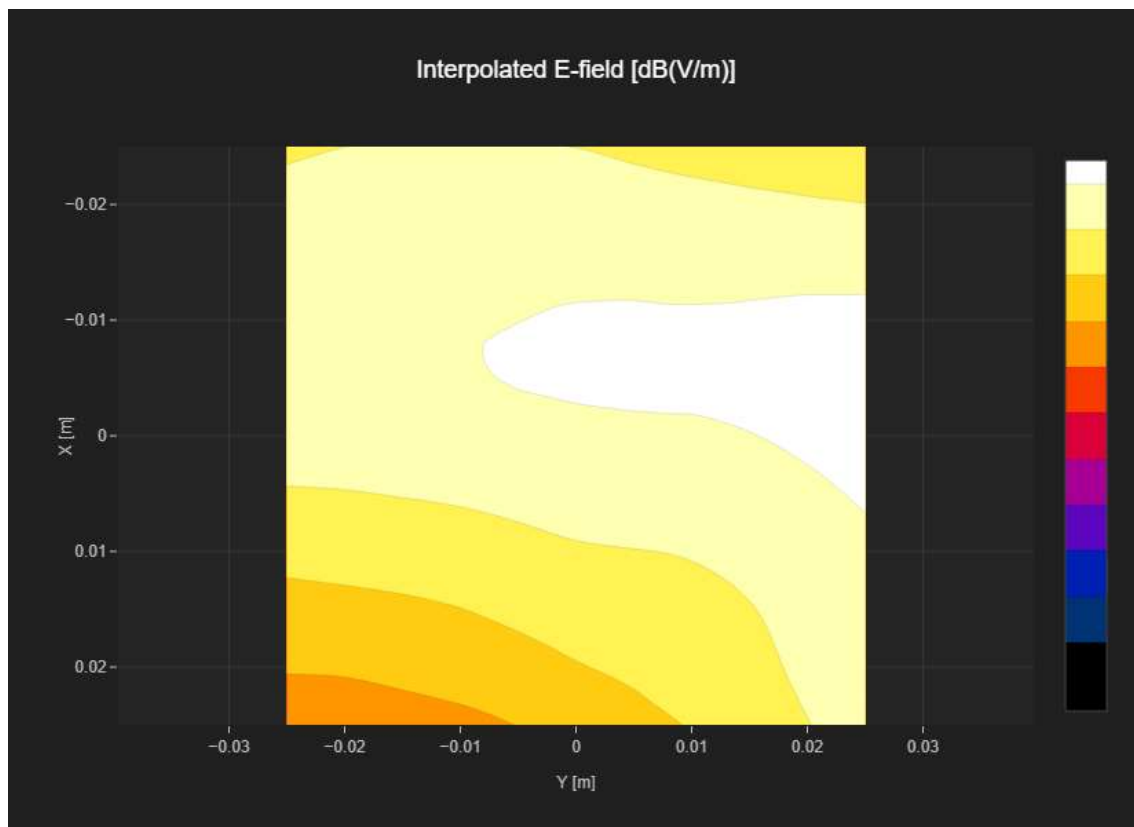
Band Name	Communication Systems Name	Channel	Frequency [MHz]
GSM 850	GSM-FDD (TDMA, GMSK)	190	836.6

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
28.51	27.0	3.63	30.63



Plot No.3 GSM 850 CH.251 Ant.A
RF Interference Potential Test Report
Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

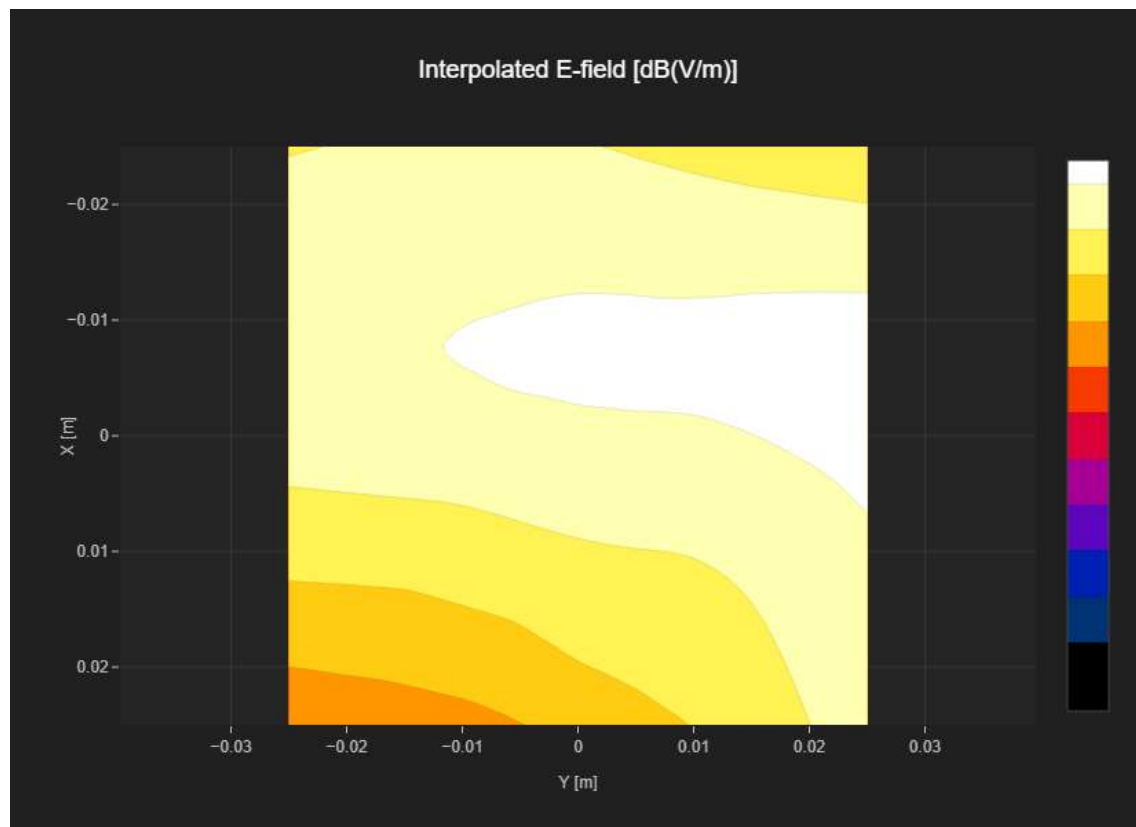
Band Name	Communication Systems Name	Channel	Frequency [MHz]
GSM 850	GSM-FDD (TDMA, GMSK)	251	848.8

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
28.43	26.92	3.63	30.55



Plot No.4 GSM 850 CH.128 Ant.E
RF Interference Potential Test Report
Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

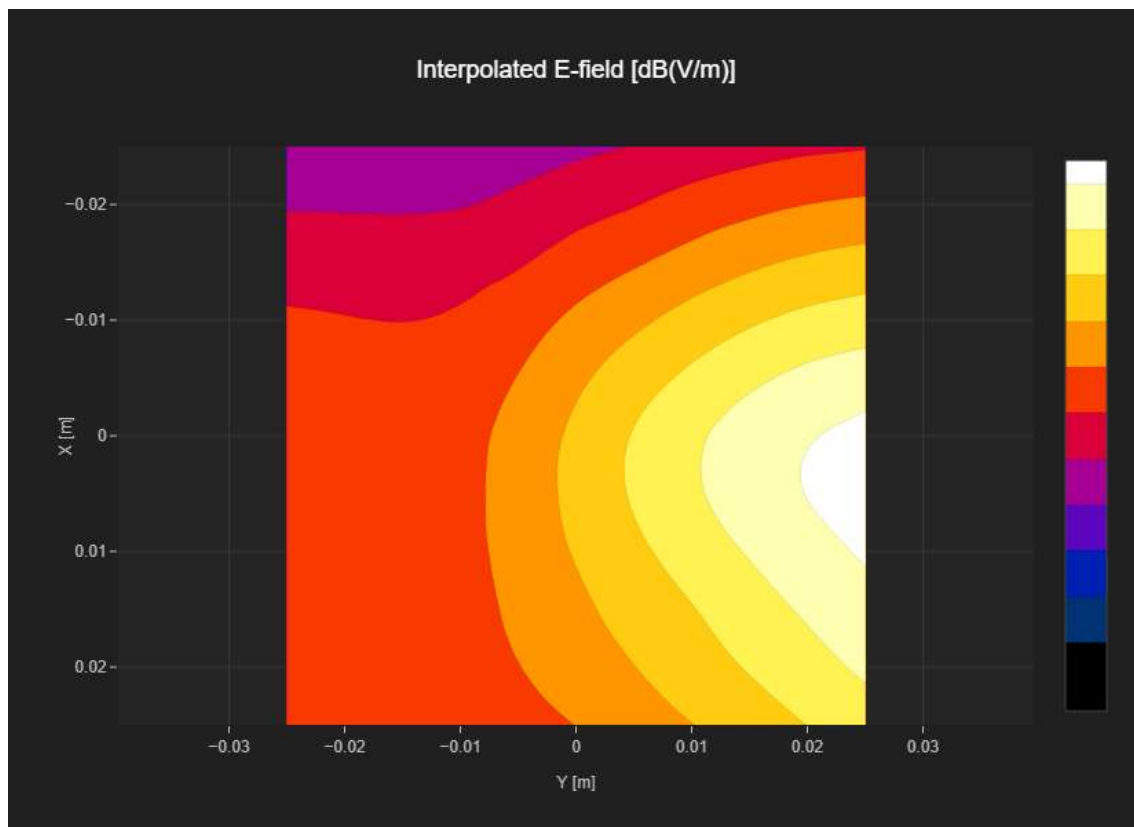
Band Name	Communication Systems Name	Channel	Frequency [MHz]
GSM 850	GSM-FDD (TDMA, GMSK)	128	824.2

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
39.39	33.12	3.63	36.75



Plot No.5 GSM 850 CH.190 Ant.E
RF Interference Potential Test Report
Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

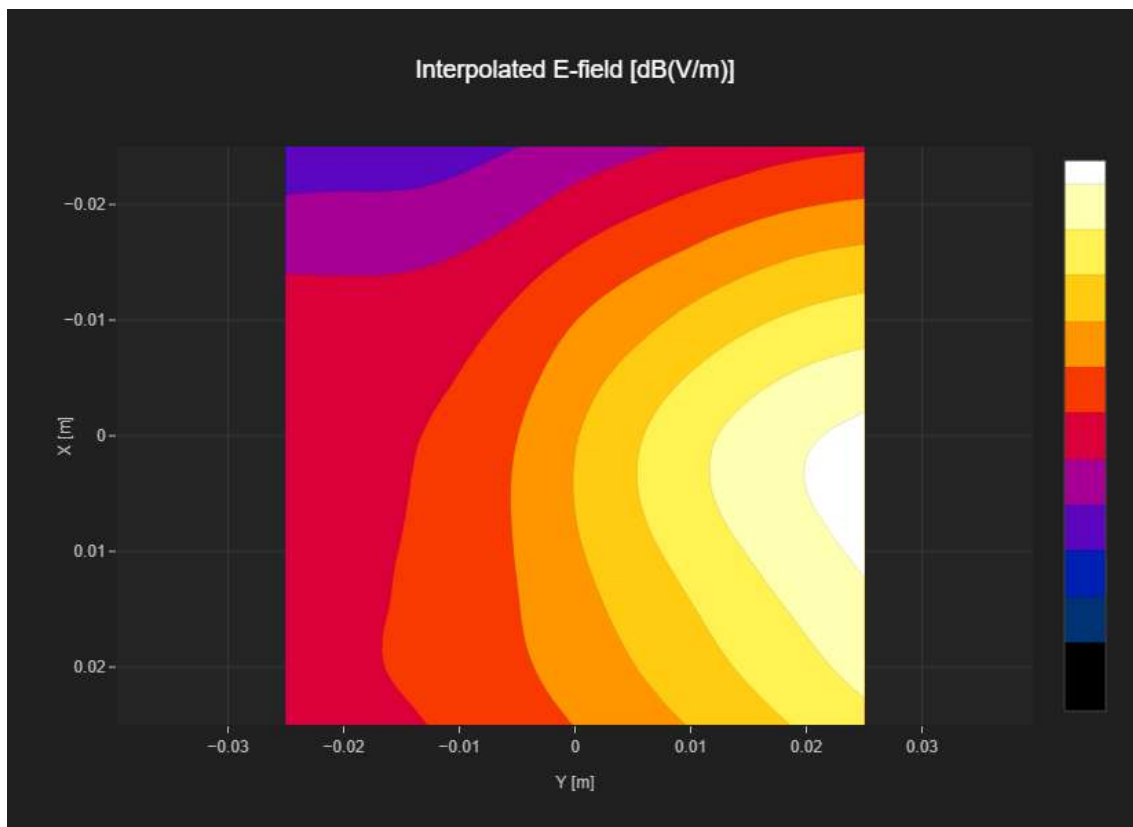
Band Name	Communication Systems Name	Channel	Frequency [MHz]
GSM 850	GSM-FDD (TDMA, GMSK)	190	836.6

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
39.1	32.52	3.63	36.15



Plot No.6 GSM 850 CH.251 Ant.E
RF Interference Potential Test Report
Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

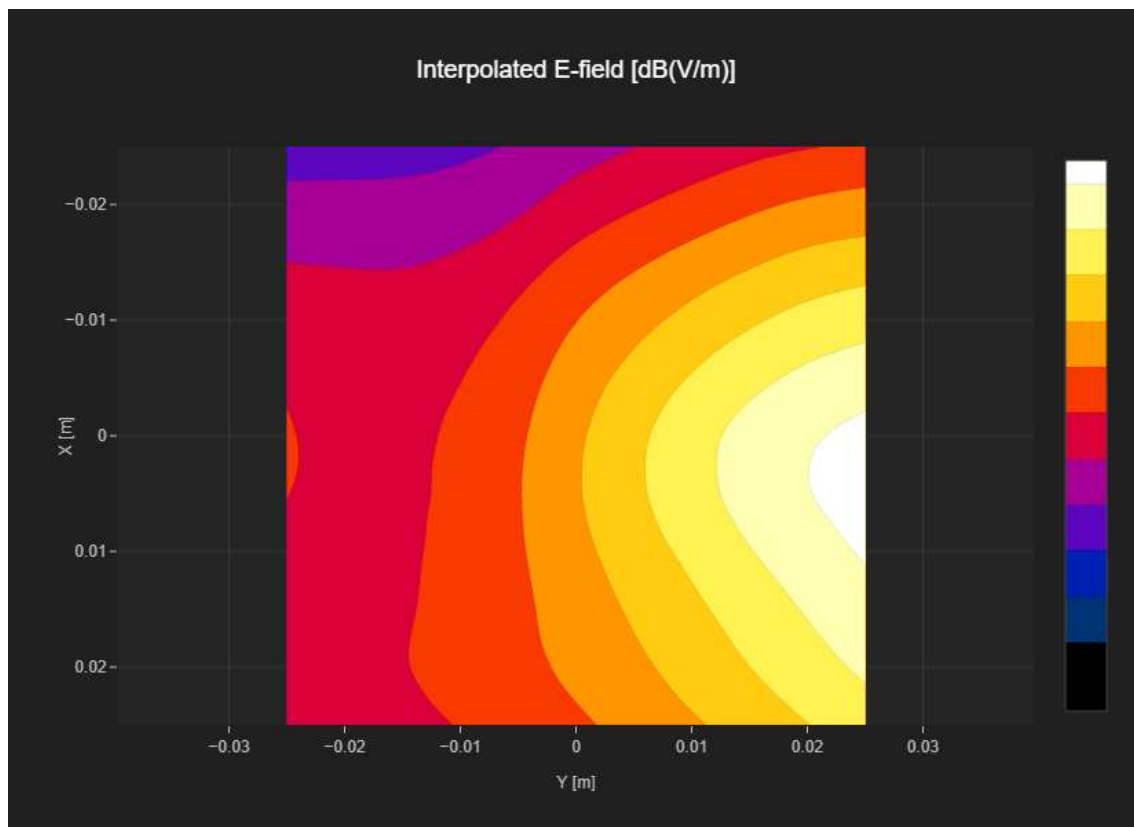
Band Name	Communication Systems Name	Channel	Frequency [MHz]
GSM 850	GSM-FDD (TDMA, GMSK)	251	848.8

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
38.18	31.53	3.63	35.16



Plot No.7 GSM1900 CH.512 Ant.A
RF Interference Potential Test Report
Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

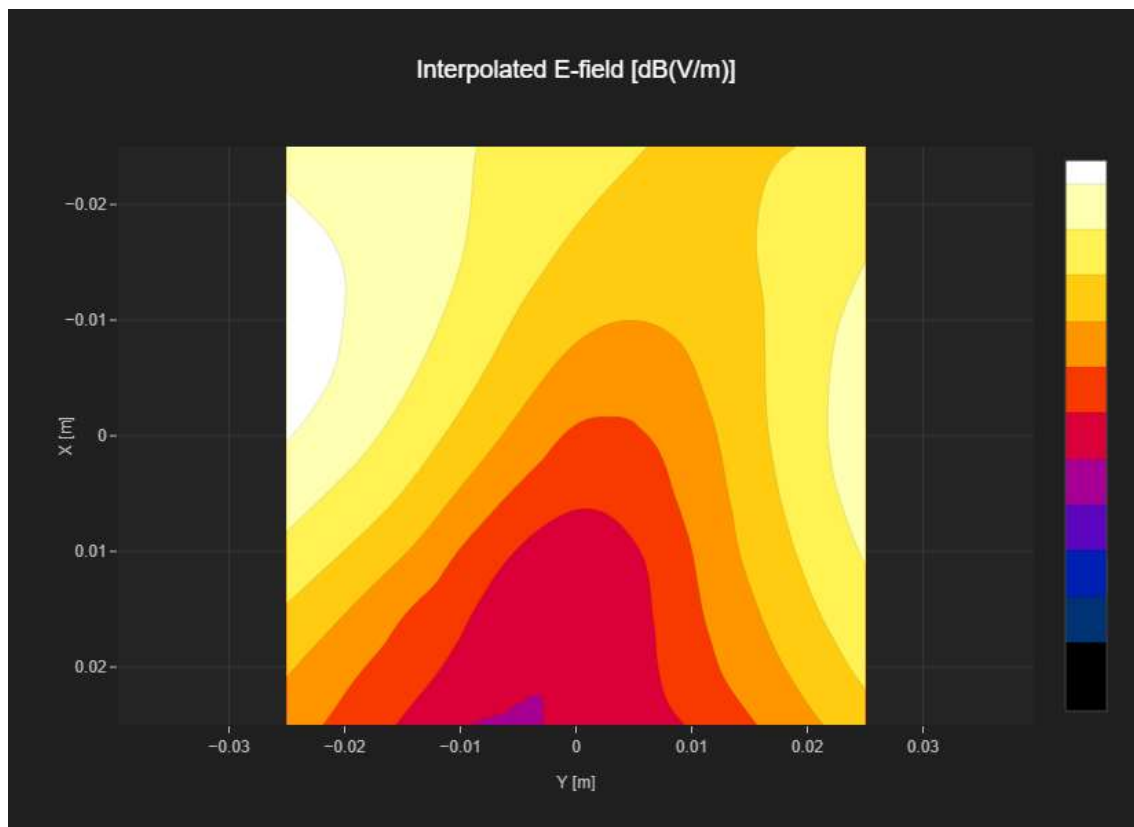
Band Name	Communication Systems Name	Channel	Frequency [MHz]
PCS 1900	GSM-FDD (TDMA, GMSK)	512	1850.2

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
26.87	22.03	3.63	25.66



Plot No.8 GSM1900 CH.661 Ant.A

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

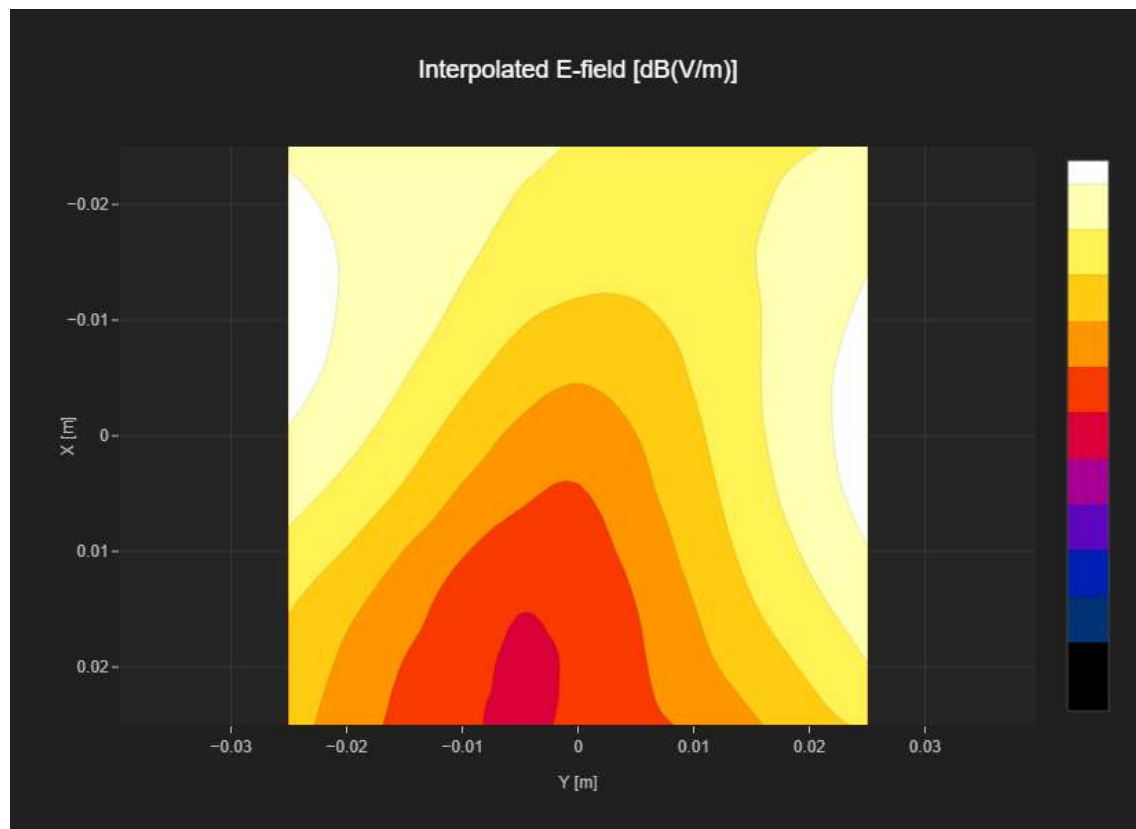
Band Name	Communication Systems Name	Channel	Frequency [MHz]
PCS 1900	GSM-FDD (TDMA, GMSK)	661	1880.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
25.75	21.87	3.63	25.5



Plot No.9 GSM1900 CH.810 Ant.A

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

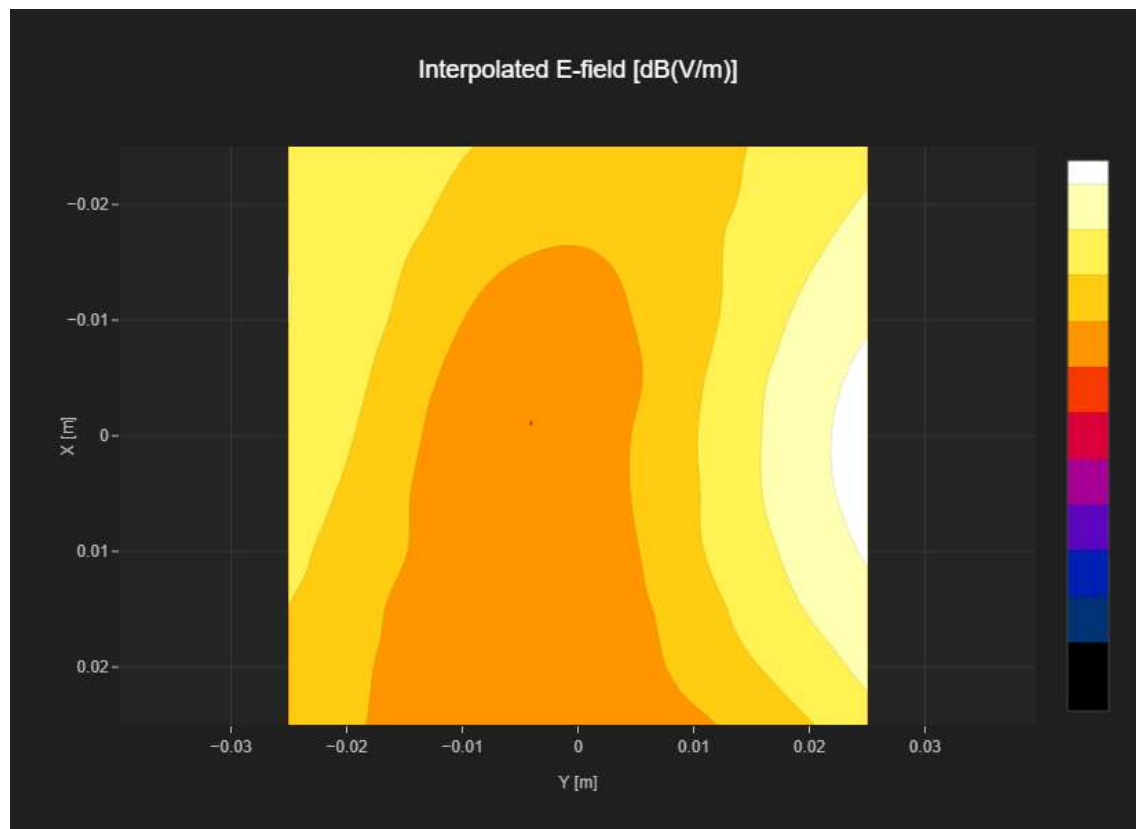
Band Name	Communication Systems Name	Channel	Frequency [MHz]
PCS 1900	GSM-FDD (TDMA, GMSK)	810	1909.8

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
24.9	20.28	3.63	23.91



Plot No.10 LTE Band 41 CH.39750 Ant.B

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

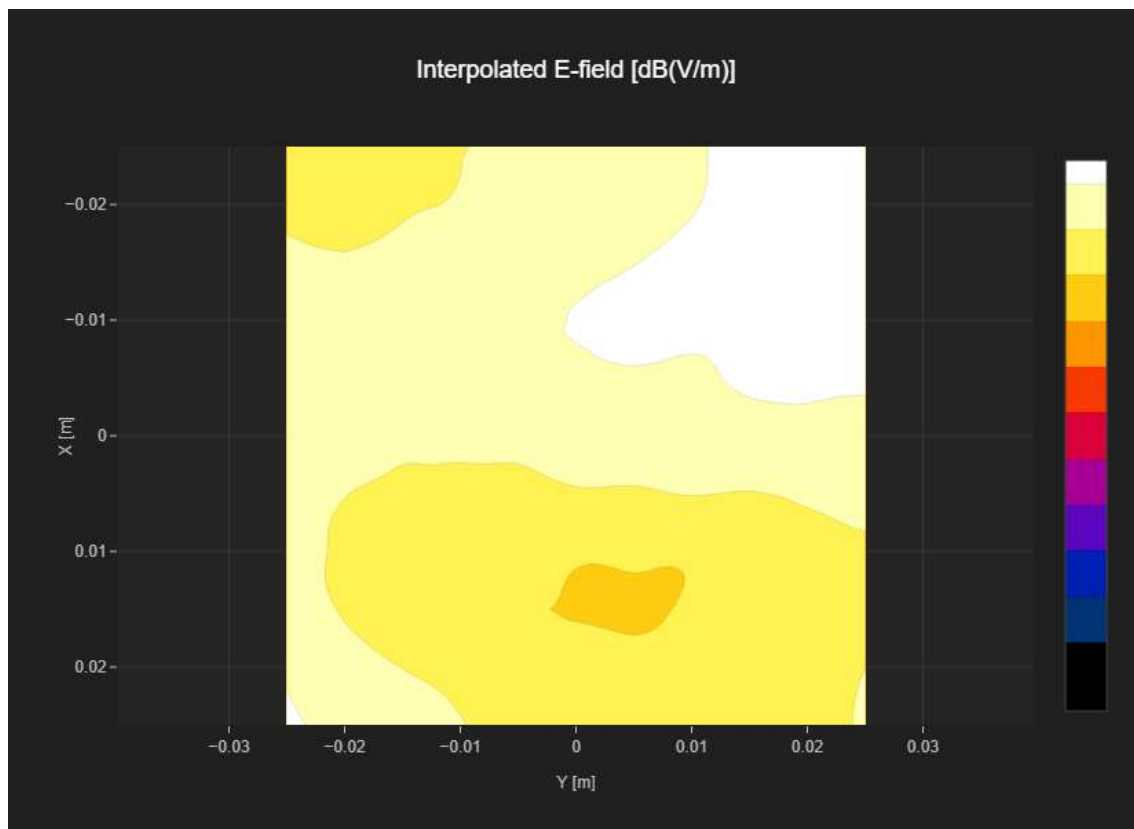
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	39750	2506.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
17.65	15.96	-1.44	14.52



Plot No.11 LTE Band 41 CH.40185 Ant.B

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

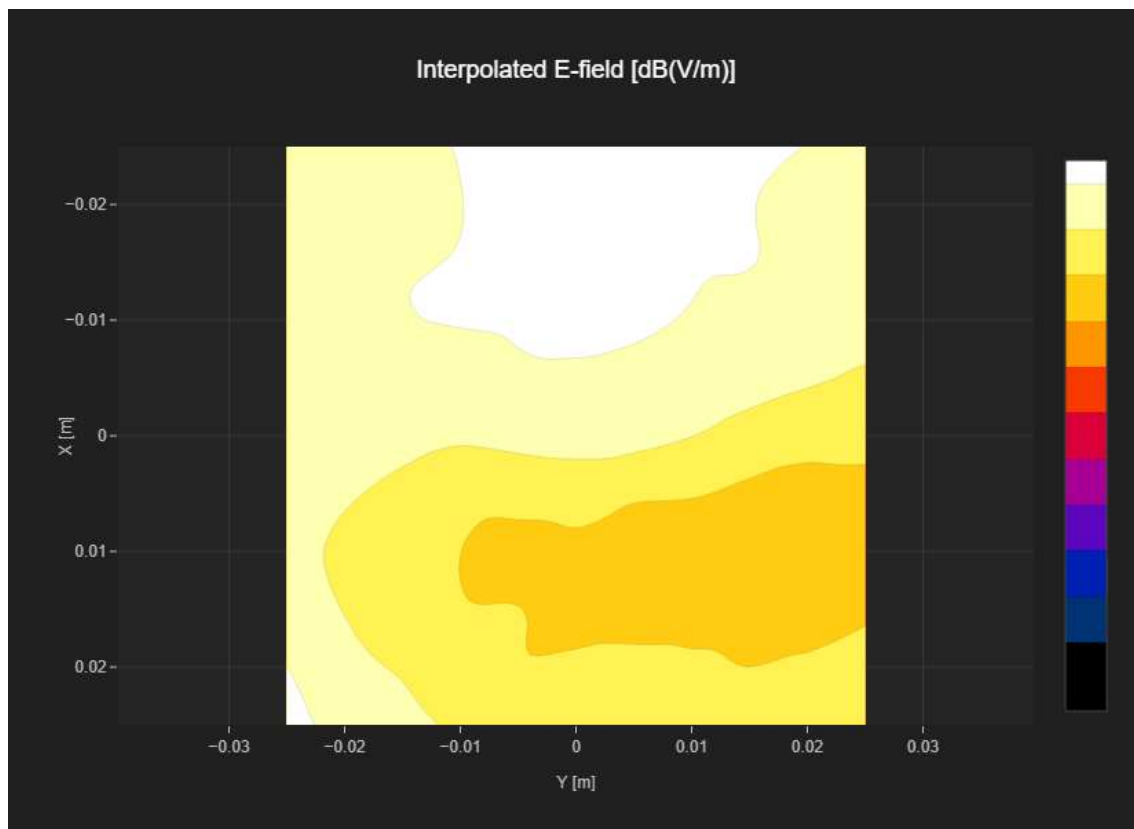
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	40185	2549.5

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
19.28	17.33	-1.44	15.89



Plot No.12 LTE Band 41 CH.40620 Ant.B

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

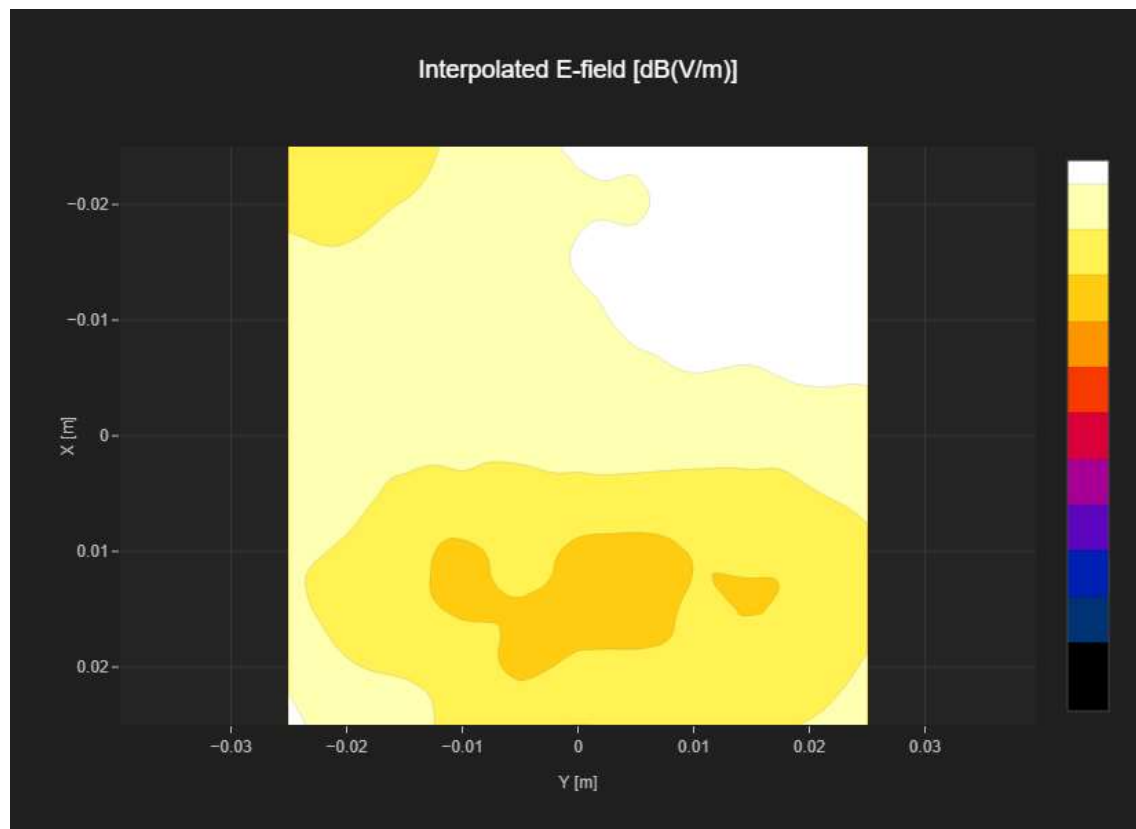
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	40620	2593.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
17.65	15.57	-1.44	14.13



Plot No.13 LTE Band 41 CH.41055 Ant.B

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

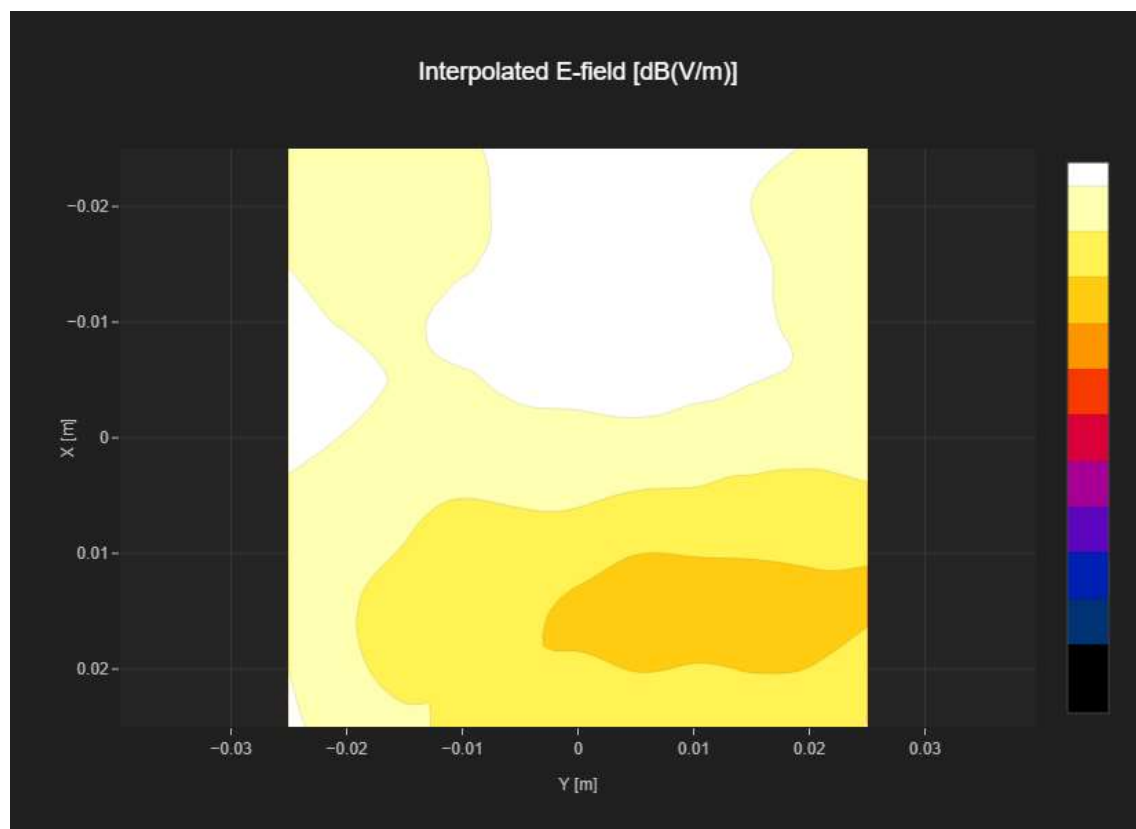
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	41055	2636.5

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
18.71	17.0	-1.44	15.56



Plot No.14 LTE Band 41 CH.41490 Ant.B

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

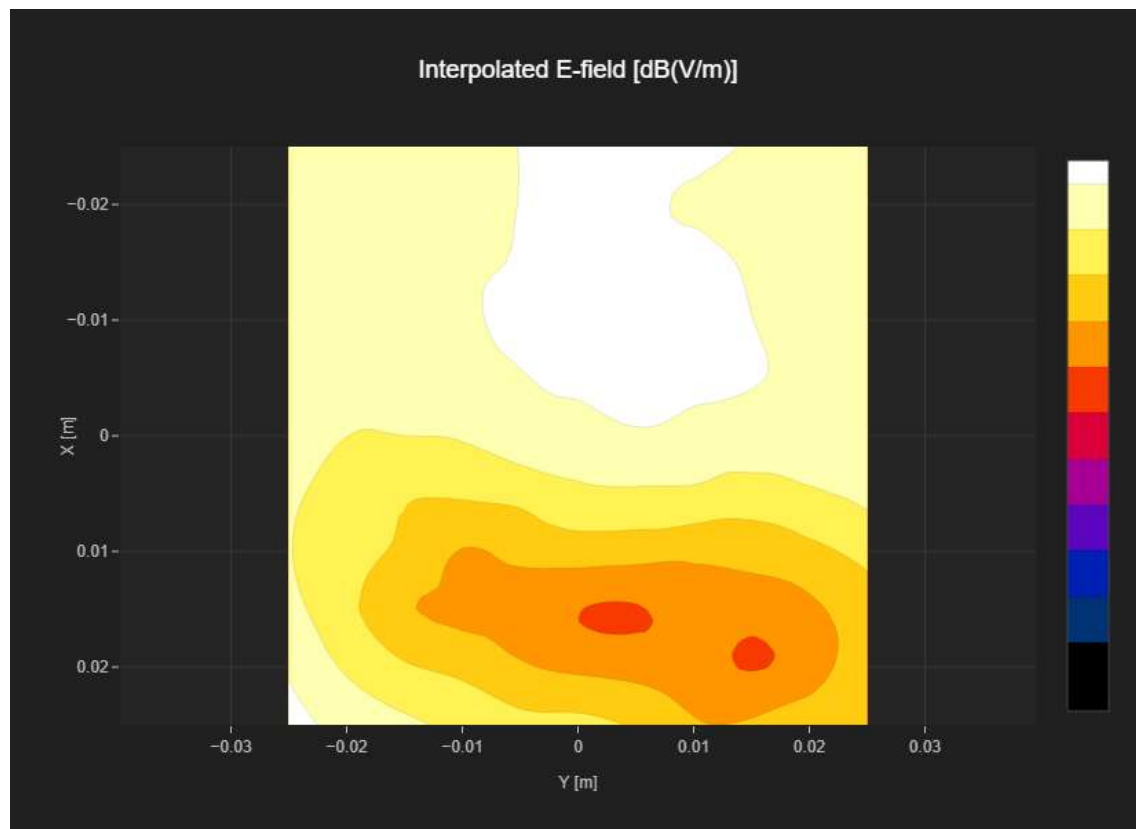
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	41490	2680.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
18.85	16.36	-1.44	14.92



Plot No.15 LTE Band 41 CH.39750 Ant.F

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

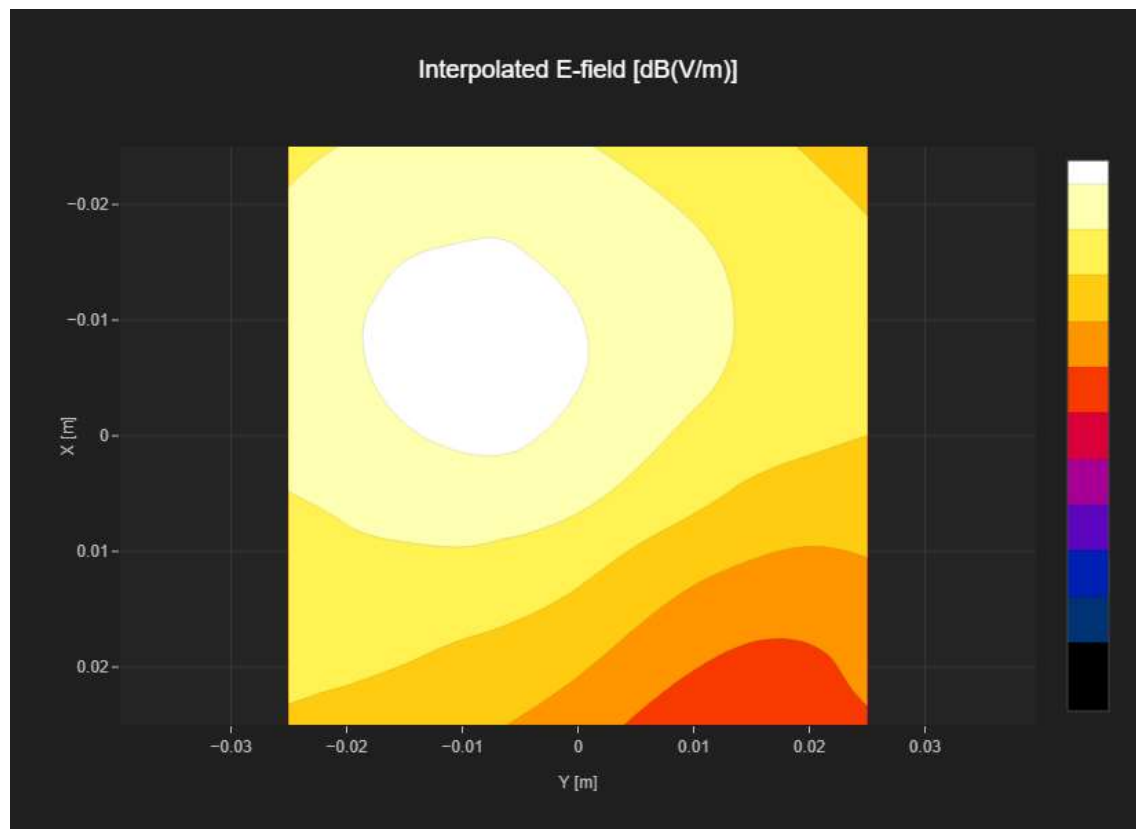
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	39750	2506.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
31.34	28.47	-1.44	27.03



Plot No.16 LTE Band 41 CH.40185 Ant.F

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

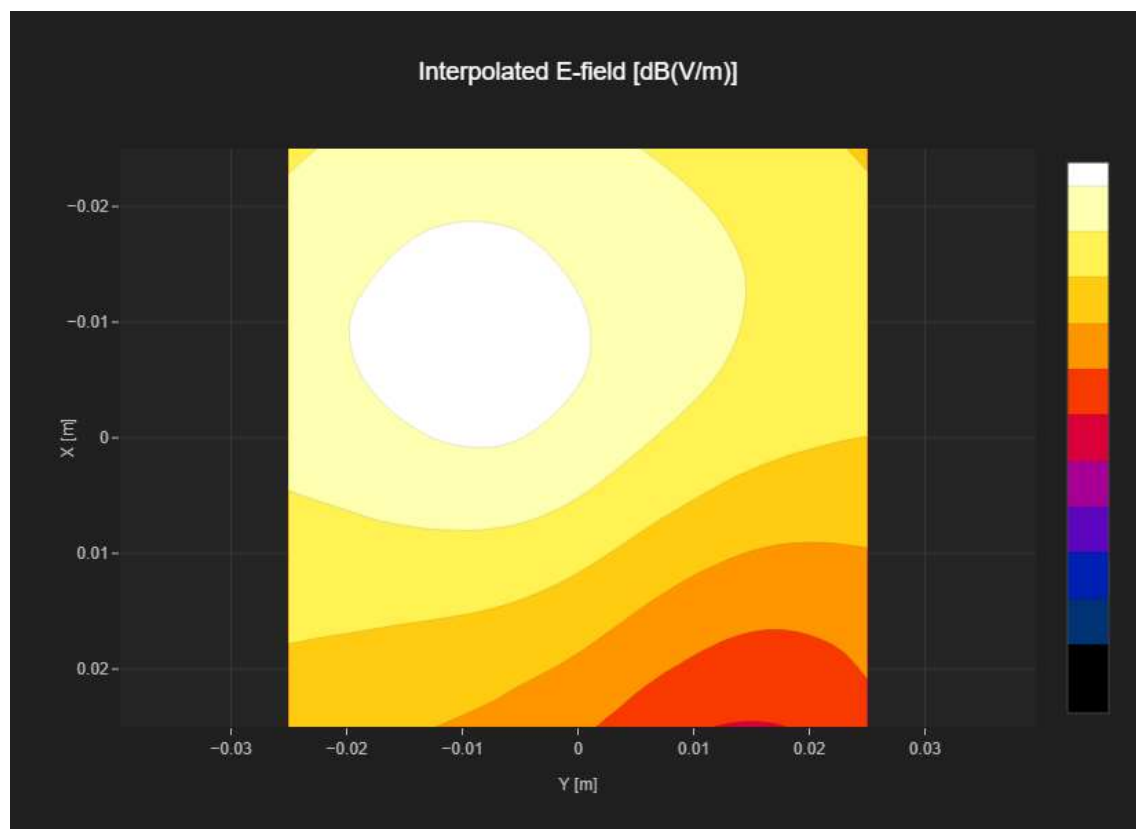
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	40185	2549.5

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
31.84	28.91	-1.44	27.47



Plot No.17 LTE Band 41 CH.40620 Ant.F

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

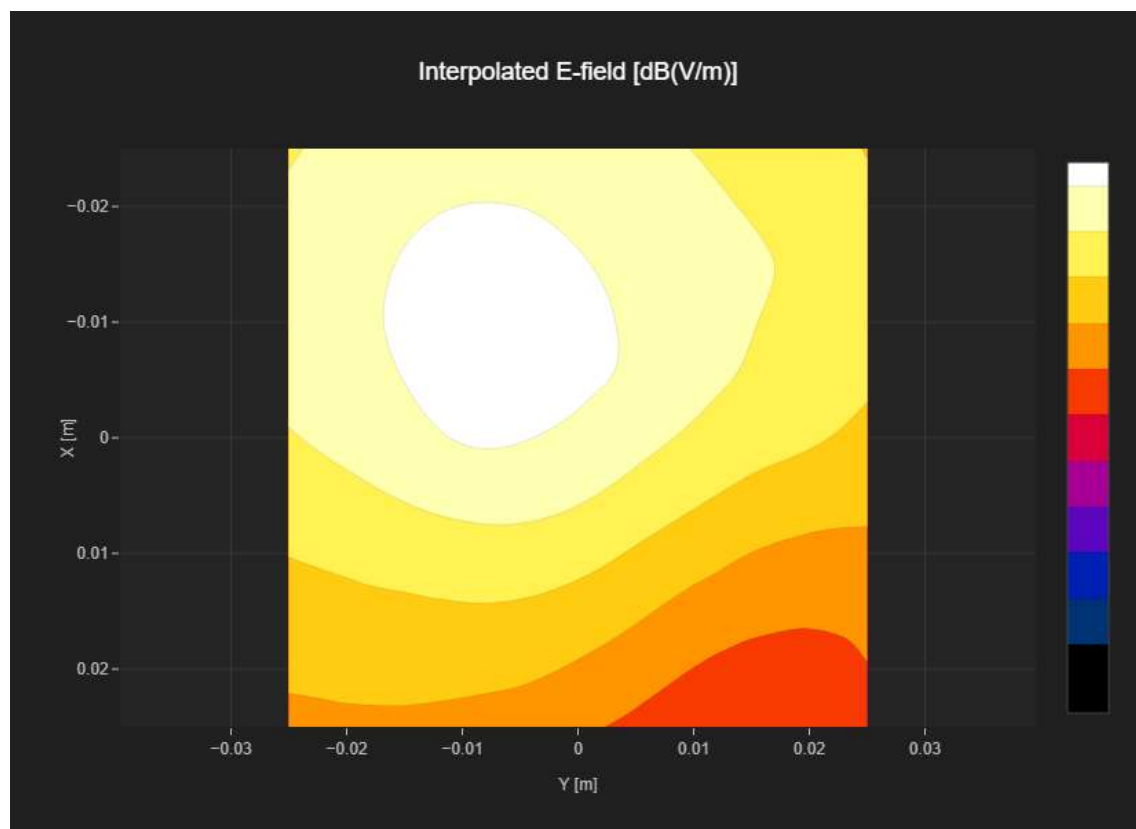
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	40620	2593.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
32.23	29.28	-1.44	27.84



Plot No.18 LTE Band 41 CH.41055 Ant.F

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

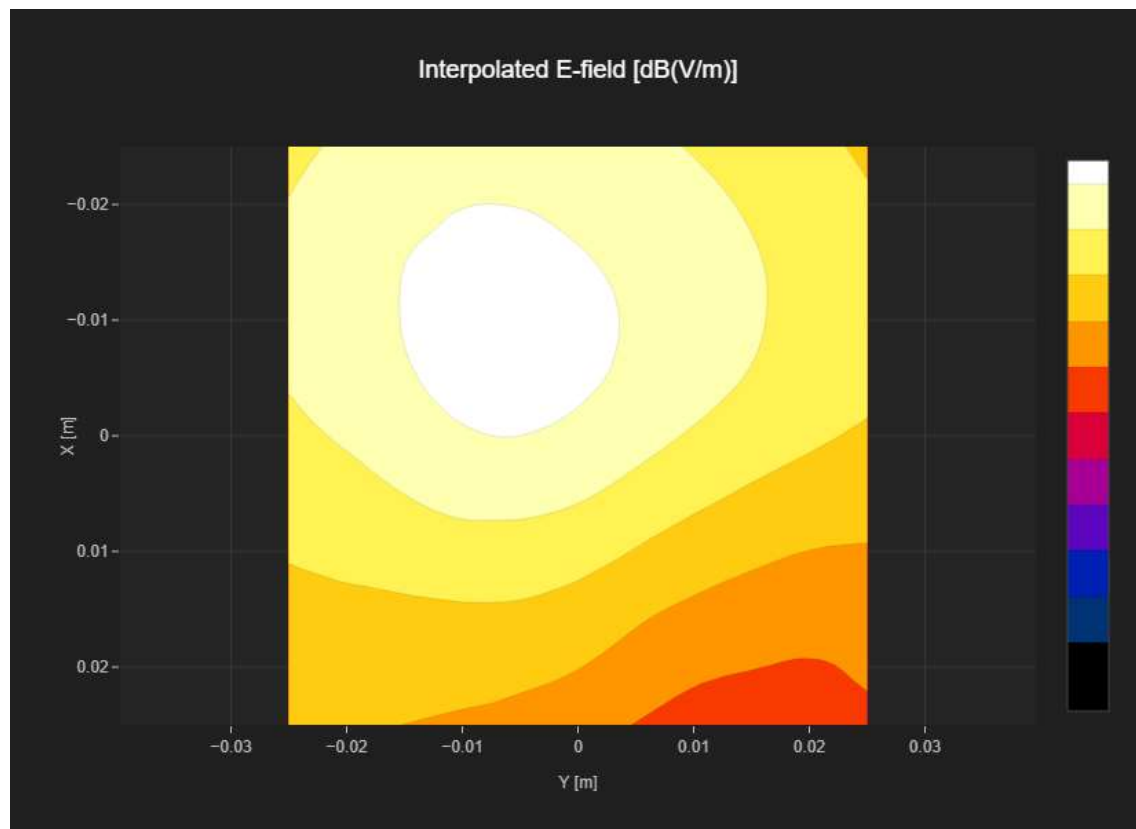
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	41055	2636.5

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
31.91	28.99	-1.44	27.55



Plot No.19 LTE Band 41 CH.41490 Ant.F

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

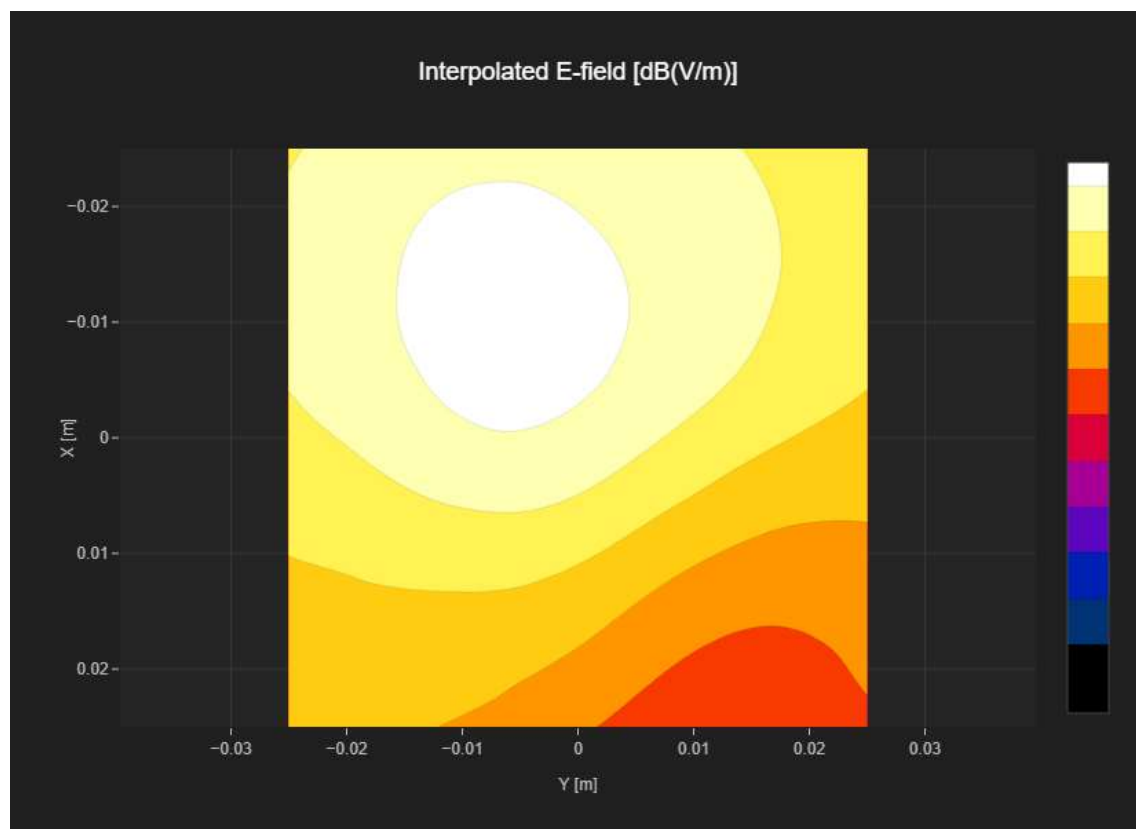
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	41490	2680.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
32.1	29.12	-1.44	27.68



Plot No.20 NR Band n41 CH.518598 Ant.B

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

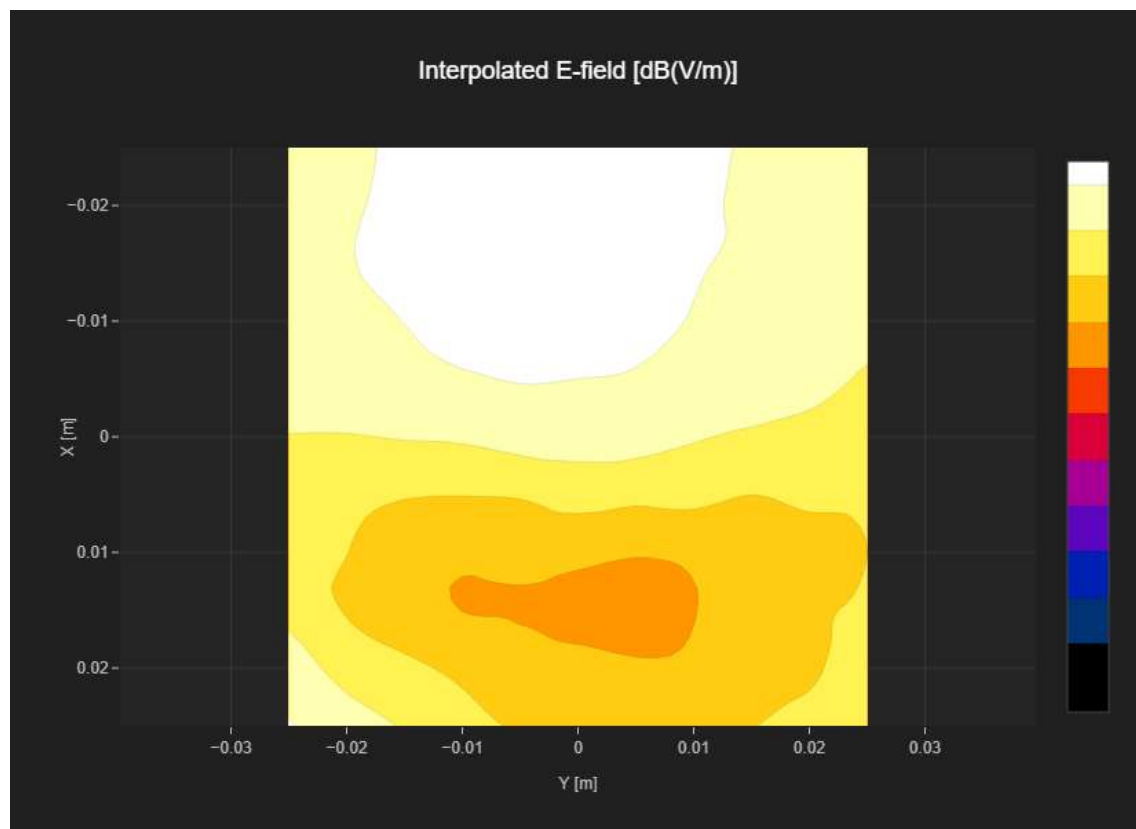
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band n41	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	518598	2592.99

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
20.15	17.69	-1.64	16.05



Plot No.21 NR Band n41 CH.518598 Ant.F

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

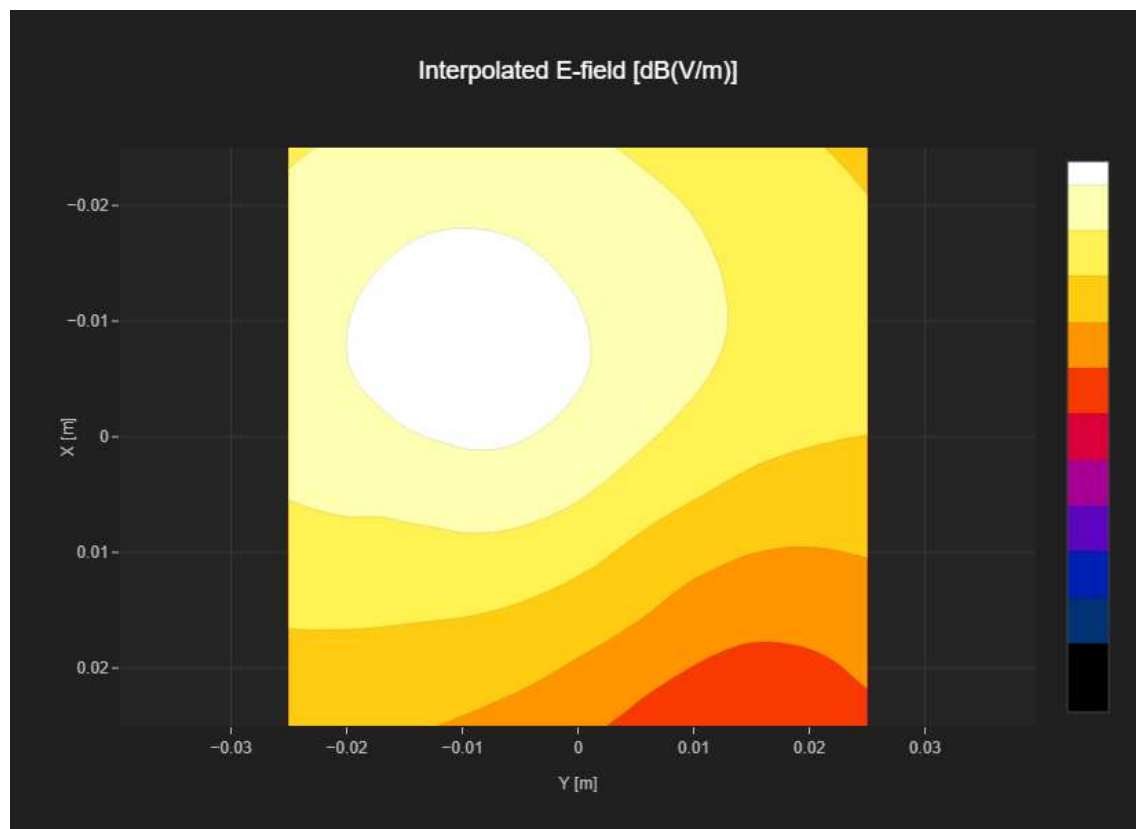
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band n41	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	518598	2592.99

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
32.58	29.65	-1.64	28.01



Plot No.22 NR Band n77 PC2 CH.650000 Ant.F

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

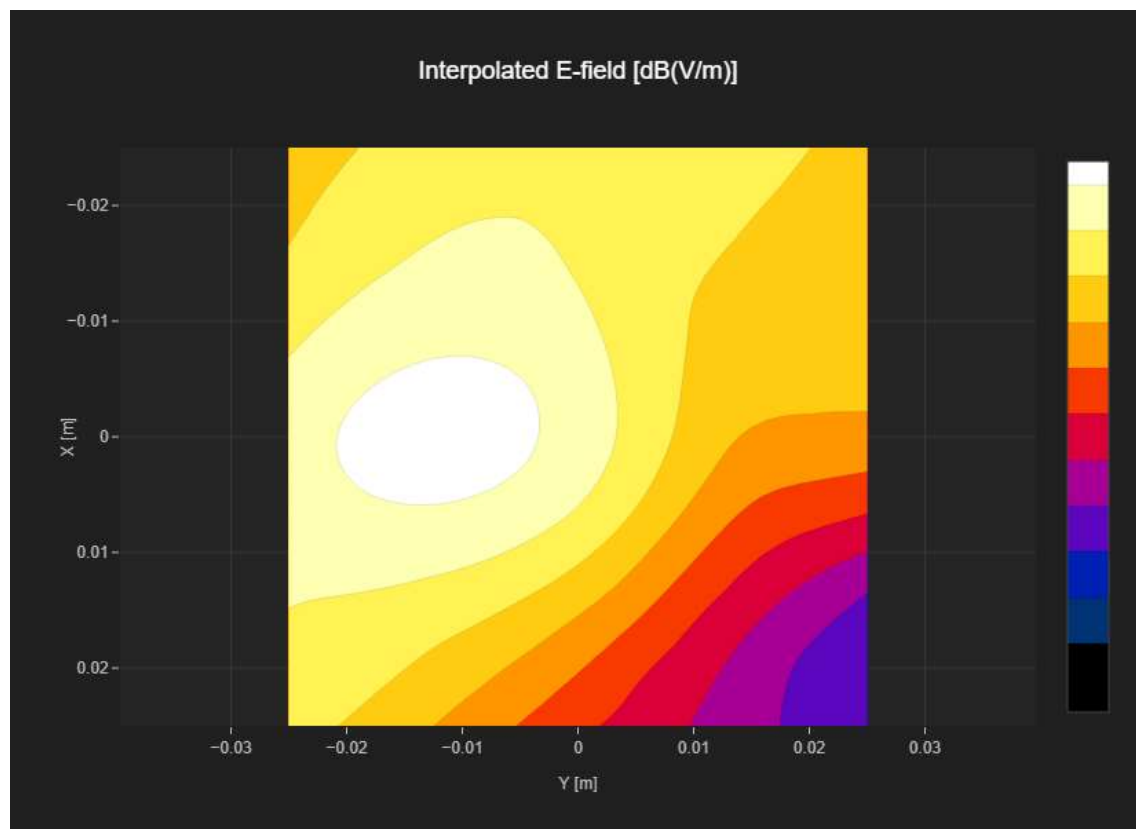
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band n77	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	650000	3750.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
34.54	30.63	-1.64	28.99



Plot No.23 NR Band n77 PC2 CH.662000 Ant.F

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

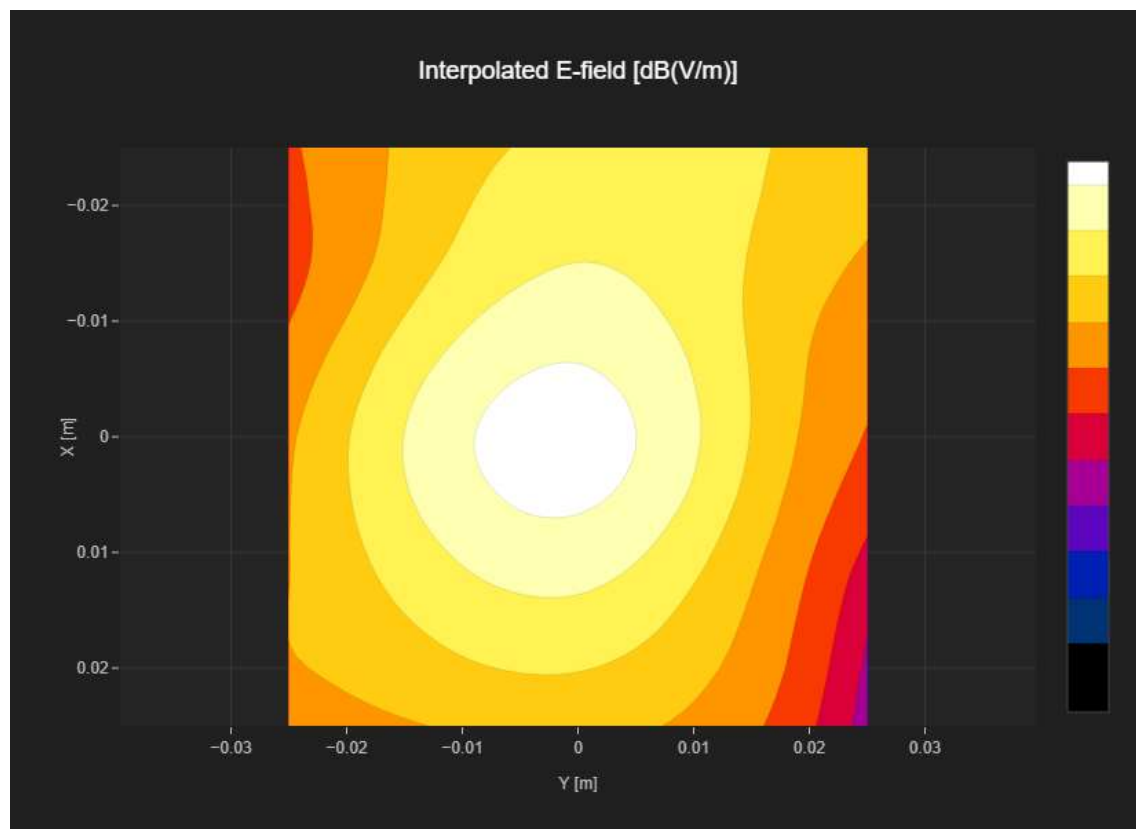
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band n77	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	662000	3930.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
35.87	31.92	-1.64	30.28



Plot No.24 NR Band n77 DOD PC2 CH.633334 Ant.F

RF Interference Potential Test Report

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

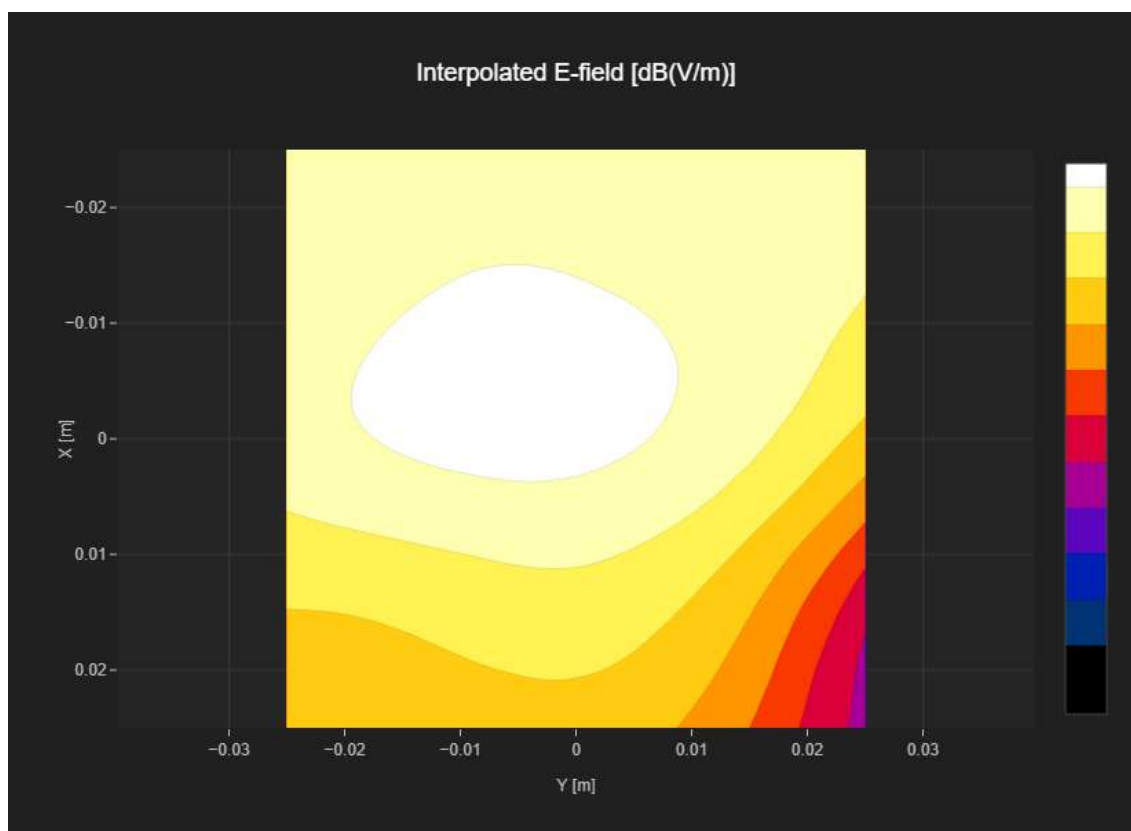
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band n77	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	633334	3500.01

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
50.0	50.0	5.0	5.0	15.0

Results

E _{max} [dB(V/m)]	E _{avg50x50 max} [dB(V/m)]	MIF [dB]	RFail [dB(V/m)]
32.5	30.21	-1.64	28.57



Appendix C. System Validation Plot

835MHz Verification

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

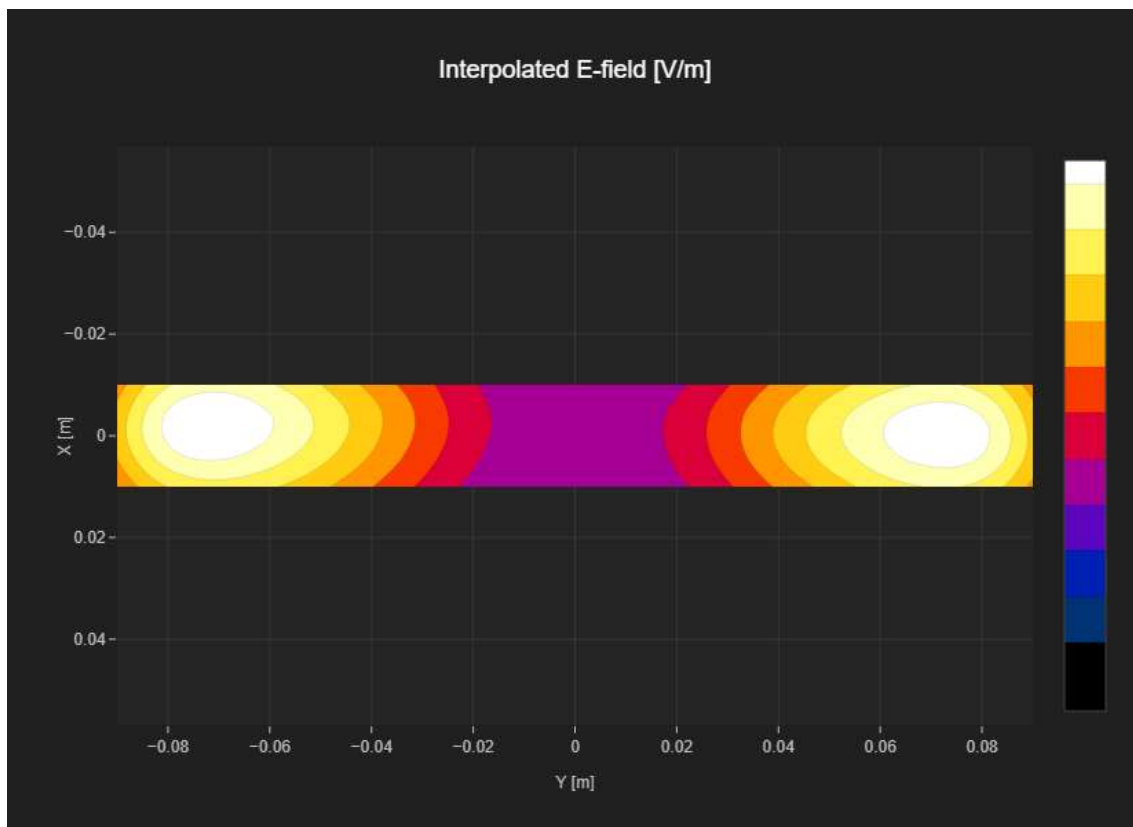
Band Name	Communication Systems Name	Channel	Frequency [MHz]
CD835	CW	50	835.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
20.0	180.0	5.0	5.0	15.0

Results

Dipole Type	Dipole Serial Number	E _{max} [V/m]	Drift [dB]
CD835	1024	109	0.08



1880MHz Verification

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

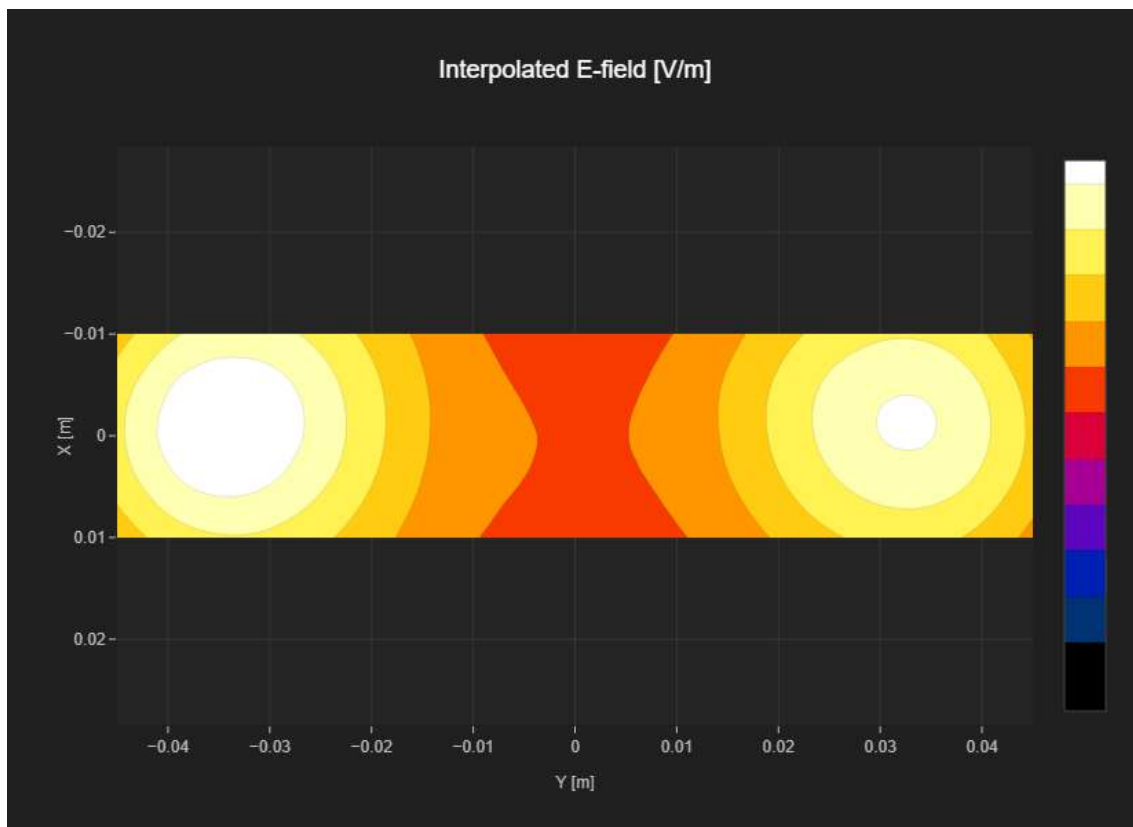
Band Name	Communication Systems Name	Channel	Frequency [MHz]
CD1880	CW	50	1880.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
20.0	90.0	5.0	5.0	15.0

Results

Dipole Type	Dipole Serial Number	E _{max} [V/m]	Drift [dB]
CD1880	1019	82.7	0.0



2600MHz Verification

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

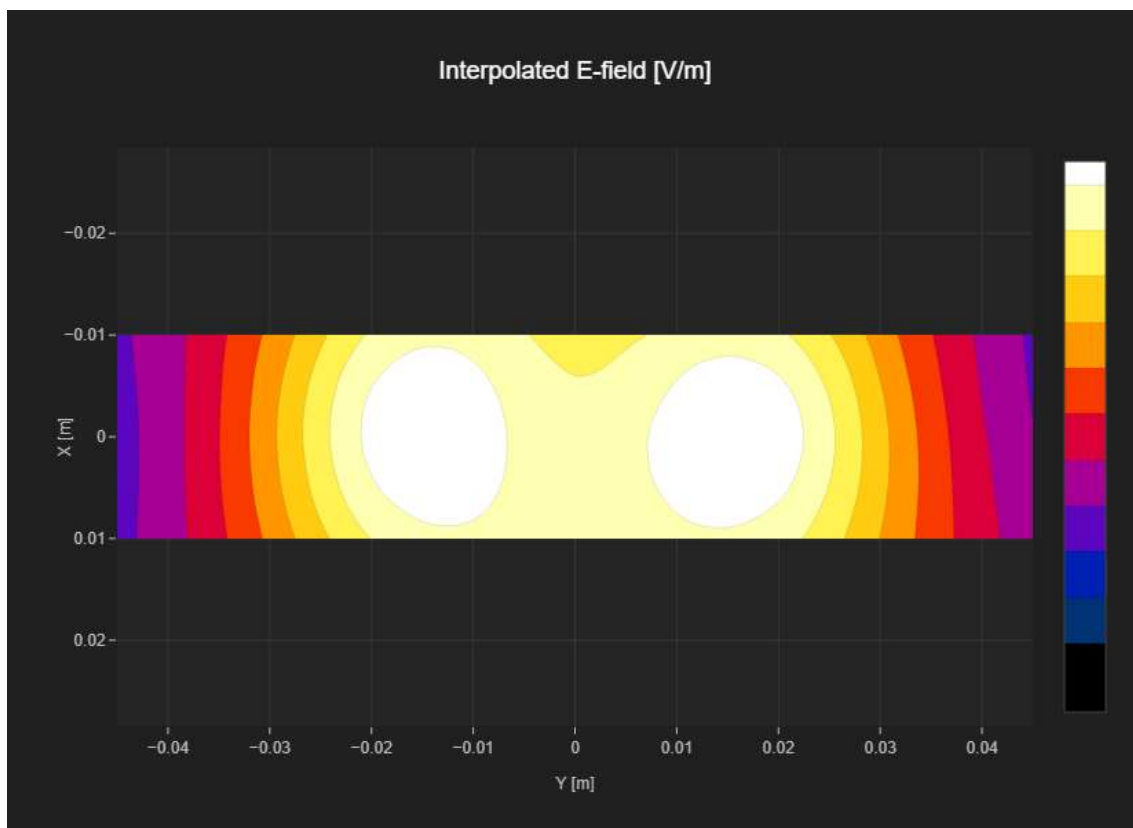
Band Name	Communication Systems Name	Channel	Frequency [MHz]
CD2600V3	CW	50	2600.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
20.0	90.0	5.0	5.0	15.0

Results

Dipole Type	Dipole Serial Number	E _{max} [V/m]	Drift [dB]
CD2600	1019	81.5	-0.01



3500MHz Verification

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
EF3DV3 - SN4067	January 13, 2025	DAE4ip Sn1867	May 21, 2025

Communication Systems

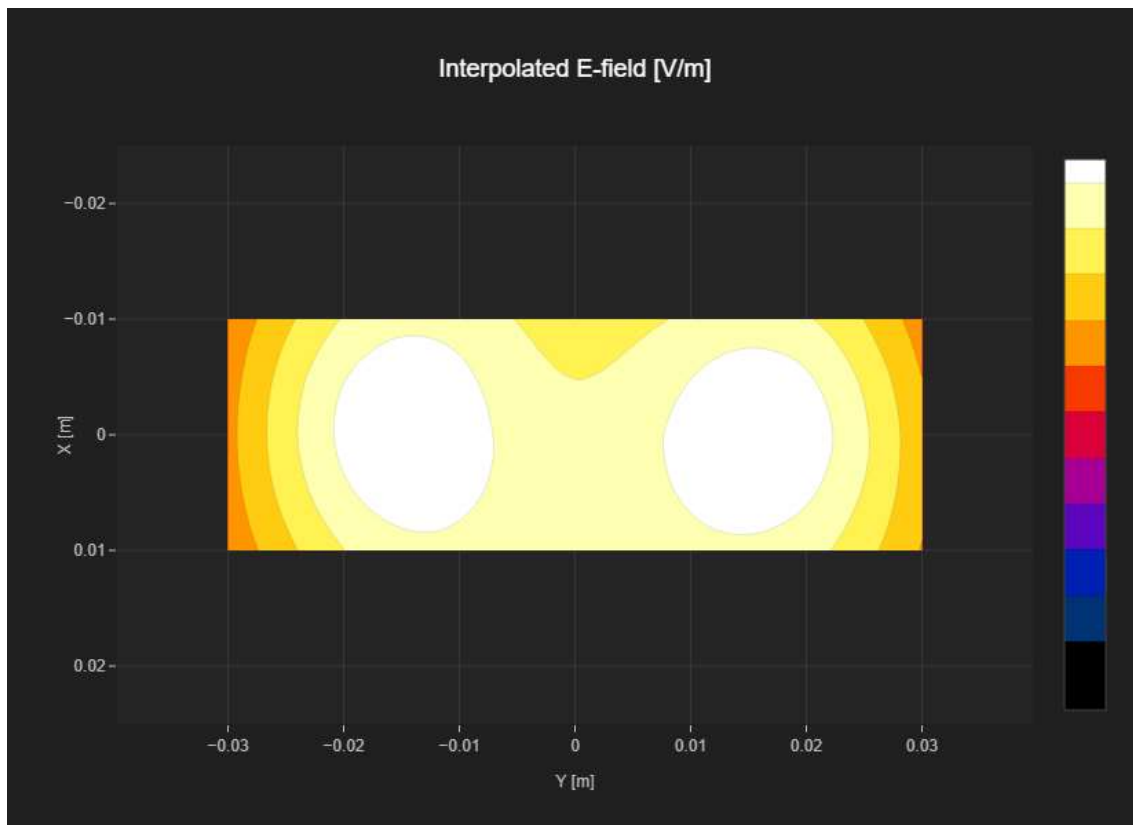
Band Name	Communication Systems Name	Channel	Frequency [MHz]
CD3500V3	CW	50	3500.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
20.0	60.0	5.0	5.0	15.0

Results

Dipole Type	Dipole Serial Number	E _{max} [V/m]	Drift [dB]
CD3500	1012	81.0	0.02



Appendix D. Probe Calibration Data

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



S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S 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**

Client **HCT**
Gyeonggi-do, Republic of Korea

Certificate No. **EF-4067_Jan25**

CALIBRATION CERTIFICATE

Object **EF3DV3 - SN:4067**

Calibration procedure(s) **QA CAL-02.v9, QA CAL-25.v8**
Calibration procedure for E-field probes optimized for close near field
evaluations in air

Calibration date **January 13, 2025**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.
All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.
Calibration Equipment used (M&E critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	26-Mar-24 (No. 217-04038/04037)	Mar-25
Power sensor NRP-Z91	SN: 103244	26-Mar-24 (No. 217-04038)	Mar-25
Power sensor NRP-Z91	SN: 103245	26-Mar-24 (No. 217-04037)	Mar-25
Reference 20 dB Attenuator	SN: CC2552 (20x)	26-Mar-24 (No. 217-04048)	Mar-25
DAE4	SN: 789	03-Oct-24 (No. DAE4-789_Oct24)	Oct-25
Reference Probe ER3DV6	SN: 2328	01-Oct-24 (No. ER3-2328_Oct24)	Oct-25
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: G841283874	06-Apr-16 (in house check Jun-24)	In house check: Jun-25
Power sensor E4412A	SN: MY41486087	06-Apr-16 (in house check Jun-24)	In house check: Jun-25
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-24)	In house check: Jun-25
HP generator HP 8648C	SN: US3643U01700	04-Aug-99 (in house check Jun-24)	In house check: Jun-25
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Sep-24)	In house check: Sep-25

Calibrated by	Name Jeffrey Katzman	Function Laboratory Technician	Signature
Approved by	Name Sven Köhn	Function Technical Manager	Signature

Issued: January 13, 2025

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: EF-4067_Jan25

Page 1 of 21

7/21
OK 2/16
2025 02.02
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2025 02.02

**Calibration Laboratory of
Schmid & Partner
Engineering AG**
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The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 0108**

Glossary

NORM _{x,y,z}	sensitivity in free space
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C, D	modulation dependent linearization parameters
E _n	incident E-field orientation normal to probe axis
E _p	incident E-field orientation parallel to probe axis
Polarization φ	φ rotation around probe axis
Polarization θ	θ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\theta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005
- CTIA Test Plan for Hearing Aid Compatibility, Rev 3.1.1, May 2017

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta = 0$ for XY sensors and $\theta = 90$ for Z sensor ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz in R22 waveguide).
- NORM(f)_{x,y,z}** = NORM_{x,y,z} * frequency_response (see Frequency Response Chart).
- DCP_{x,y,z}**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal. DCP does not depend on frequency nor media.
- PAR**: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- Spherical isotropy (3D deviation from isotropy)**: in a locally homogeneous field realized using an open waveguide setup
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle**: The angle is assessed using the information gained by determining the NORM_x (no uncertainty required).

EF3DV3 - SN:4067

January 13, 2025

Parameters of Probe: EF3DV3 - SN:4067

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k = 2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$)	0.84	1.06	1.14	$\pm 10.1\%$
DCP (mV) ^B	95.8	98.6	100.4	$\pm 4.7\%$

Calibration Results for Frequency Response (30 MHz – 5.8 GHz)

Frequency MHz	Target E-field (En) V/m	Measured E-field (En) V/m	Deviation E-field (En)	Target E-field (Ep) V/m	Measured E-field (Ep) V/m	Deviation E-field (Ep)	Unc (k = 2)
30	77.1	77.3	0.1%	77.1	77.2	0.2%	$\pm 5.1\%$
100	77.2	78.2	1.3%	77.2	78.1	1.2%	$\pm 5.1\%$
450	77.2	78.2	1.3%	77.2	77.9	0.9%	$\pm 5.1\%$
600	77.2	77.7	0.8%	77.1	77.4	0.4%	$\pm 5.1\%$
750	77.1	77.5	0.4%	77.1	77.1	-0.0%	$\pm 5.1\%$
1800	143.3	140.4	-2.0%	143.3	140.5	-1.9%	$\pm 5.1\%$
2000	135.2	129.8	-3.9%	135.1	129.9	-3.9%	$\pm 5.1\%$
2200	127.6	124.7	-2.3%	127.7	126.1	-1.3%	$\pm 5.1\%$
2500	125.5	120.5	-4.0%	125.6	121.5	-3.2%	$\pm 5.1\%$
3000	79.4	76.3	-3.9%	79.4	77.5	-2.5%	$\pm 5.1\%$
3500	256.1	255.0	-0.4%	256.3	251.5	-1.9%	$\pm 5.1\%$
3700	249.5	244.1	-2.2%	249.8	242.0	-3.1%	$\pm 5.1\%$
5200	50.8	50.9	0.2%	50.8	51.1	0.6%	$\pm 5.1\%$
5500	49.6	48.8	-1.6%	49.7	49.1	-1.2%	$\pm 5.1\%$
5800	48.9	47.9	-1.9%	48.9	47.6	-2.7%	$\pm 5.1\%$

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%.

^B Linearization parameter uncertainty for maximum specified field strength.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

EF3DV3 - SN:4067

January 13, 2025

Parameters of Probe: EF3DV3 - SN:4067

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB $\sqrt{\mu V}$	C	D dB	VR mV	Max dev.	Max Unc ^E k = 2
0	CW	X	0.00	0.00	1.00	0.00	130.2	$\pm 3.5\%$	$\pm 4.7\%$
		Y	0.00	0.00	1.00		151.3		
		Z	0.00	0.00	1.00		162.4		
10352	Pulse Waveform (200Hz, 10%)	X	2.55	65.52	9.74	10.00	60.0	$\pm 2.5\%$	$\pm 9.6\%$
		Y	20.00	93.40	22.69		60.0		
		Z	3.18	67.59	10.86		60.0		
10353	Pulse Waveform (200Hz, 20%)	X	1.32	63.35	7.82	6.99	80.0	$\pm 0.9\%$	$\pm 9.6\%$
		Y	20.00	94.26	21.84		80.0		
		Z	1.84	66.10	9.30		80.0		
10354	Pulse Waveform (200Hz, 40%)	X	0.86	64.01	7.18	3.98	95.0	$\pm 0.8\%$	$\pm 9.6\%$
		Y	20.00	96.79	21.58		95.0		
		Z	1.43	68.02	9.24		95.0		
10355	Pulse Waveform (200Hz, 60%)	X	1.46	69.39	8.52	2.22	120.0	$\pm 0.9\%$	$\pm 9.6\%$
		Y	20.00	100.25	21.87		120.0		
		Z	20.00	88.74	14.69		120.0		
10387	QPSK Waveform, 1 MHz	X	1.85	69.83	16.44	1.00	150.0	$\pm 2.2\%$	$\pm 9.6\%$
		Y	1.88	67.71	15.90		150.0		
		Z	1.74	69.15	16.00		150.0		
10388	QPSK Waveform, 10 MHz	X	2.26	69.14	16.56	0.00	150.0	$\pm 1.1\%$	$\pm 9.6\%$
		Y	2.40	68.97	16.27		150.0		
		Z	2.23	68.93	16.38		150.0		
10396	64-QAM Waveform, 100 kHz	X	2.32	69.14	16.64	3.01	150.0	$\pm 1.4\%$	$\pm 9.6\%$
		Y	2.96	70.77	19.23		150.0		
		Z	1.87	65.06	16.43		150.0		
10399	64-QAM Waveform, 40 MHz	X	3.41	67.01	15.92	0.00	150.0	$\pm 1.3\%$	$\pm 9.6\%$
		Y	3.51	66.96	15.81		150.0		
		Z	3.41	67.02	15.86		150.0		
10414	WLAN CCDF, 64-QAM, 40 MHz	X	4.65	65.53	15.62	0.00	150.0	$\pm 2.4\%$	$\pm 9.6\%$
		Y	4.86	65.42	15.52		150.0		
		Z	4.66	65.72	15.65		150.0		

Note: For details on UID parameters see Appendix

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%.

^B Linearization parameter uncertainty for maximum specified field strength.

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

EF3DV3 - SN:4067

January 13, 2025

Parameters of Probe: EF3DV3 - SN:4067

Sensor Frequency Model Parameters

	Sensor X	Sensor Y	Sensor Z
Frequency Corr. (LF)	-0.01	-0.04	5.14
Frequency Corr. (HF)	2.82	2.82	2.82

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $ms V^{-2}$	T2 $ms V^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
x	36.8	241.28	36.38	5.35	0.06	4.96	0.65	0.06	1.00
y	54.0	356.70	36.73	14.92	0.53	5.09	0.19	0.38	1.01
z	34.1	221.15	35.57	4.73	0.07	4.96	0.00	0.12	1.00

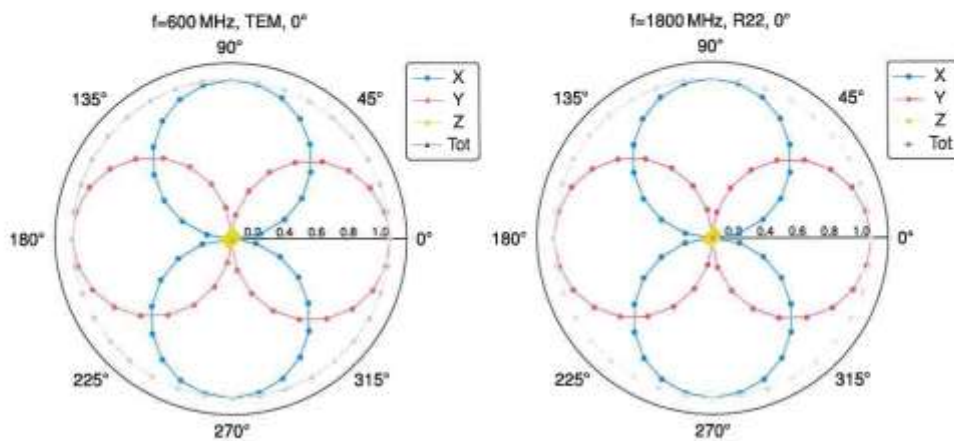
Other Probe Parameters

Sensor Arrangement	Rectangular
Connector Angle	81.4°
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	12 mm
Tip Length	25 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	1.5 mm
Probe Tip to Sensor Y Calibration Point	1.5 mm
Probe Tip to Sensor Z Calibration Point	1.5 mm

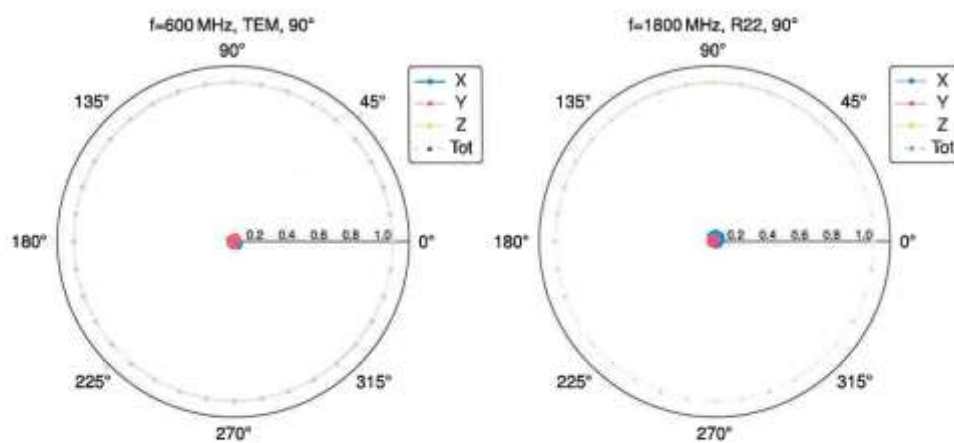
EF3DV3 - SN:4067

January 13, 2025

Receiving Pattern (ϕ), $\theta = 0^\circ$



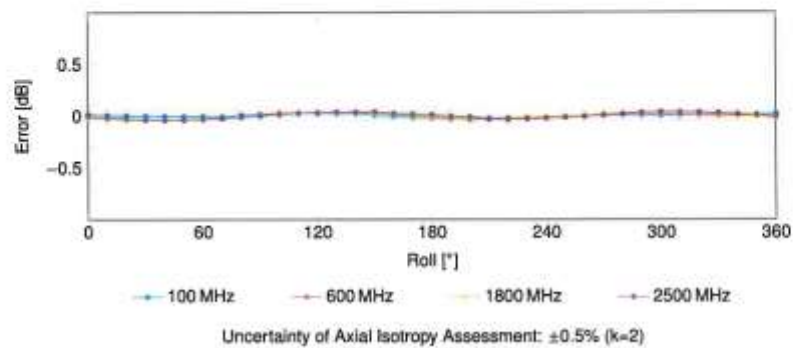
Receiving Pattern (ϕ), $\theta = 90^\circ$



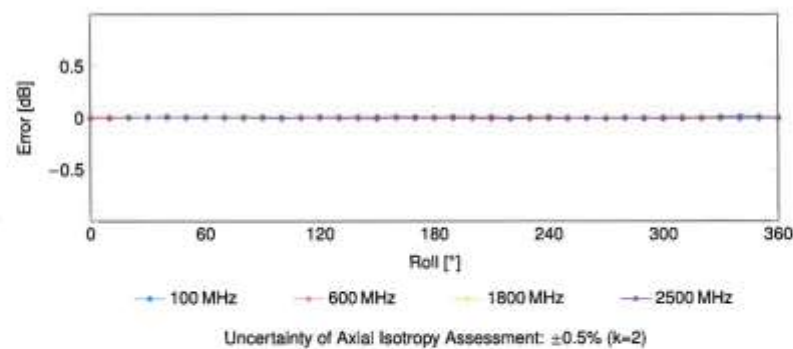
EF3DV3 - SN:4067

January 13, 2025

Receiving Pattern (ϕ), $\theta = 0^\circ$

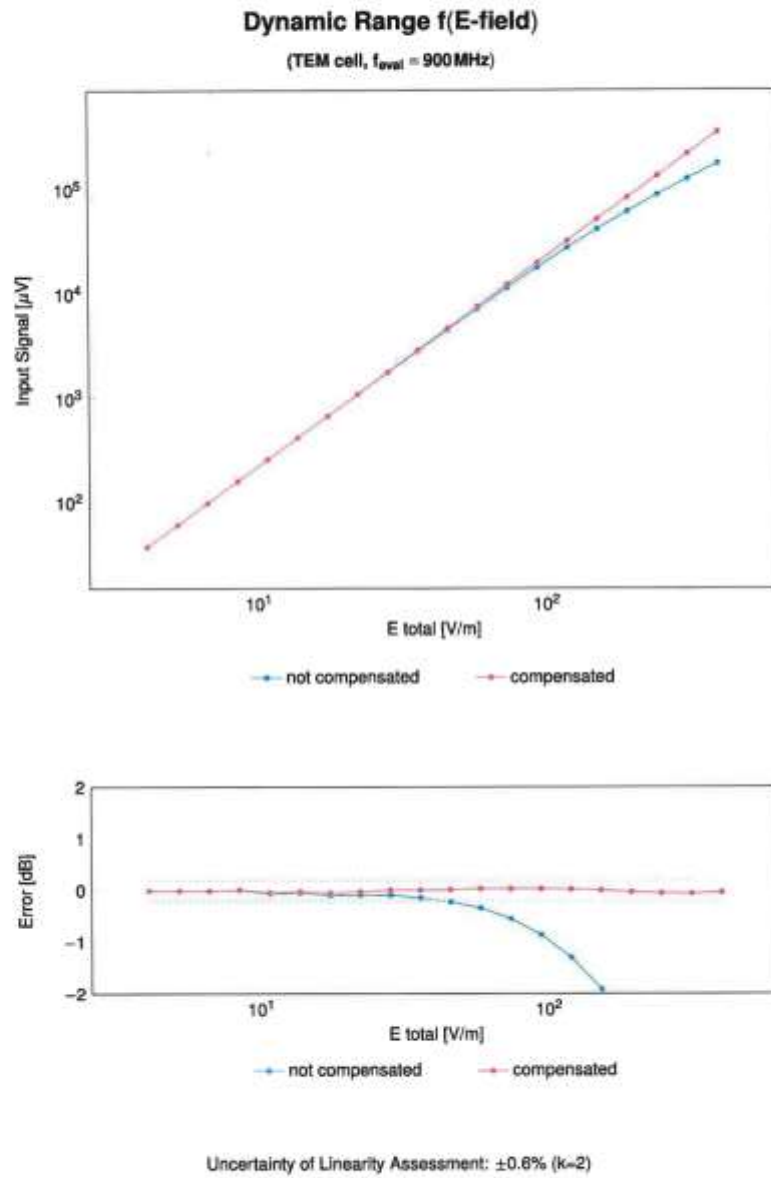


Receiving Pattern (ϕ), $\theta = 90^\circ$



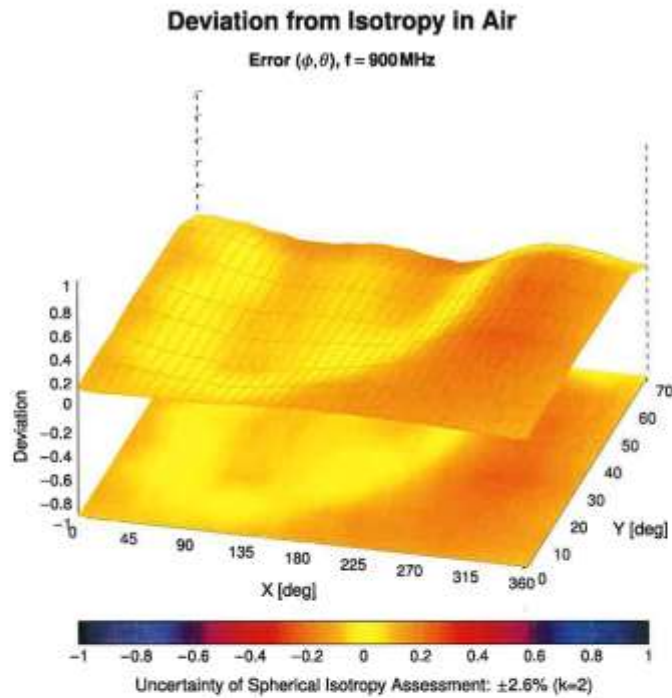
EF3DV3 - SN:4067

January 13, 2025



EF3DV3 - SN:4067

January 13, 2025



EF3DV3 - SN:4067

January 13, 2025

Appendix: Modulation Calibration Parameters

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
0		CW	CW	0.00	±4.7
10010	CAB	SAR Validation (Square, 100 ms, 10 ms)	Test	10.00	±9.6
10011	CAC	UMTS-FDD (WCDMA)	WCDMA	2.91	±9.6
10012	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	WLAN	1.67	±9.6
10013	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	WLAN	9.46	±9.6
10021	DAC	GSM-FDD (TDMA, GMSK)	GSM	9.39	±9.6
10023	DAC	GPRS-FDD (TDMA, GMSK, TN 0)	GSM	9.57	±9.6
10024	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	GSM	6.56	±9.6
10025	DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	GSM	12.62	±9.6
10026	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	GSM	9.55	±9.6
10027	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	GSM	4.80	±9.6
10028	DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	GSM	3.55	±9.6
10029	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	GSM	7.78	±9.6
10030	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	Bluetooth	5.30	±9.6
10031	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	Bluetooth	1.87	±9.6
10032	CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	Bluetooth	1.16	±9.6
10033	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	Bluetooth	7.74	±9.6
10034	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	Bluetooth	4.53	±9.6
10035	CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	Bluetooth	3.83	±9.6
10036	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	Bluetooth	8.01	±9.6
10037	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	Bluetooth	4.77	±9.6
10038	CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	Bluetooth	4.10	±9.6
10039	CAB	CDMA2000 (1xRTT, RC1)	CDMA2000	4.57	±9.6
10042	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Half-rate)	AMPS	7.78	±9.6
10044	CAA	IS-91/EIA/TIA-563 FDD (FDMA, FM)	AMPS	0.00	±9.6
10048	CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	DECT	13.80	±9.6
10049	CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	DECT	10.79	±9.6
10056	CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	TD-SCDMA	11.01	±9.6
10058	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	GSM	6.52	±9.6
10059	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	WLAN	2.12	±9.6
10060	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	WLAN	2.83	±9.6
10061	CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	WLAN	3.60	±9.6
10062	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	WLAN	8.68	±9.6
10063	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	WLAN	8.63	±9.6
10064	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	WLAN	9.09	±9.6
10065	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	WLAN	9.00	±9.6
10066	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	WLAN	9.38	±9.6
10067	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	WLAN	10.12	±9.6
10068	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	WLAN	10.24	±9.6
10069	CAE	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	WLAN	10.56	±9.6
10071	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	WLAN	9.83	±9.6
10072	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	WLAN	9.62	±9.6
10073	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	WLAN	9.94	±9.6
10074	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	WLAN	10.30	±9.6
10075	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	WLAN	10.77	±9.6
10076	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	WLAN	10.94	±9.6
10077	CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	WLAN	11.00	±9.6
10081	CAB	CDMA2000 (1xRTT, RC3)	CDMA2000	3.97	±9.6
10082	CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Full-rate)	AMPS	4.77	±9.6
10090	DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	GSM	6.56	±9.6
10097	CAC	UMTS-FDD (HSDPA)	WCDMA	3.98	±9.6
10098	CAC	UMTS-FDD (HSDPA, Subset 2)	WCDMA	3.98	±9.6
10099	DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	GSM	9.55	±9.6
10100	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-FDD	5.67	±9.6
10101	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	±9.6
10102	CAF	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	±9.6
10103	CAH	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	LTE-TDD	9.29	±9.6
10104	CAH	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	LTE-TDD	9.97	±9.6
10105	CAH	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	LTE-TDD	10.01	±9.6
10106	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-FDD	5.80	±9.6
10109	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	±9.6
10110	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-FDD	5.75	±9.6
10111	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-FDD	6.44	±9.6

Certificate No: EF-4067_Jan25

Page 10 of 21

EF3DV3 - SN:4067

January 13, 2025

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^k k = 2
10112	CAH	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-FDD	6.59	±9.6
10113	CAH	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-FDD	6.62	±9.6
10114	CAE	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	WLAN	8.10	±9.6
10115	CAE	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	WLAN	8.46	±9.6
10116	CAE	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	WLAN	8.15	±9.6
10117	CAE	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	WLAN	8.07	±9.6
10118	CAE	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	WLAN	8.59	±9.6
10119	CAE	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	WLAN	8.13	±9.6
10140	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-FDD	6.49	±9.6
10141	CAF	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-FDD	6.53	±9.6
10142	CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-FDD	5.73	±9.6
10143	CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-FDD	6.35	±9.6
10144	CAF	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-FDD	5.65	±9.6
10145	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-FDD	5.76	±9.6
10146	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.41	±9.6
10147	CAG	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.72	±9.6
10148	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-FDD	6.42	±9.6
10150	CAF	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-FDD	6.60	±9.6
10151	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-TDD	9.28	±9.6
10152	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	LTE-TDD	9.92	±9.6
10153	CAH	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	LTE-TDD	10.05	±9.6
10154	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-FDD	5.75	±9.6
10155	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-FDD	6.43	±9.6
10156	CAH	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-FDD	5.79	±9.6
10157	CAH	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-FDD	6.49	±9.6
10158	CAH	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-FDD	6.62	±9.6
10159	CAH	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-FDD	6.56	±9.6
10160	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-FDD	5.82	±9.6
10161	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-FDD	6.43	±9.6
10162	CAF	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-FDD	6.58	±9.6
10166	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-FDD	5.46	±9.6
10167	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.21	±9.6
10168	CAG	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.79	±9.6
10169	CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-FDD	5.73	±9.6
10170	CAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10171	AAF	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-FDD	6.49	±9.6
10172	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	LTE-TDD	9.21	±9.6
10173	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10174	CAH	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10175	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-FDD	5.72	±9.6
10176	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10177	CAJ	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-FDD	5.73	±9.6
10178	CAH	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10179	CAH	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10180	CAH	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10181	CAF	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-FDD	5.72	±9.6
10182	CAF	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10183	AAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10184	CAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-FDD	5.73	±9.6
10185	CAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-FDD	6.51	±9.6
10186	AAF	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10187	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-FDD	5.79	±9.6
10188	CAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-FDD	6.52	±9.6
10189	AAG	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-FDD	6.50	±9.6
10193	CAE	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	WLAN	8.09	±9.6
10194	CAE	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	WLAN	8.12	±9.6
10195	CAE	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	WLAN	8.21	±9.6
10196	CAE	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	WLAN	8.10	±9.6
10197	CAE	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	WLAN	8.13	±9.6
10198	CAE	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	WLAN	8.27	±9.6
10219	CAE	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	WLAN	8.03	±9.6
10220	CAE	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	WLAN	8.13	±9.6
10221	CAE	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	WLAN	8.27	±9.6
10222	CAE	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	WLAN	8.06	±9.6
10223	CAE	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	WLAN	8.48	±9.6
10224	CAE	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	WLAN	8.05	±9.6

Certificate No: EF-4067_Jan25

Page 11 of 21

EF3DV3 - SN:4067

January 13, 2025

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ¹ k = 2
10225	CAC	UMTS-FDD (HSPA+)	WCDMA	5.97	±9.6
10226	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.49	±9.6
10227	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.26	±9.6
10228	CAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	LTE-TDD	9.22	±9.6
10229	CAE	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10230	CAE	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10231	CAE	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	LTE-TDD	9.19	±9.6
10232	CAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10233	CAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10234	CAH	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	LTE-TDD	9.21	±9.6
10235	CAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10236	CAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10237	CAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	LTE-TDD	9.21	±9.6
10238	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	LTE-TDD	9.48	±9.6
10239	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	LTE-TDD	10.25	±9.6
10240	CAG	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	LTE-TDD	9.21	±9.6
10241	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.82	±9.6
10242	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	LTE-TDD	9.85	±9.6
10243	CAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	LTE-TDD	9.46	±9.6
10244	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-TDD	10.06	±9.6
10245	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-TDD	10.06	±9.6
10246	CAE	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-TDD	9.30	±9.6
10247	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	LTE-TDD	9.91	±9.6
10248	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	LTE-TDD	10.09	±9.6
10249	CAH	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	LTE-TDD	9.29	±9.6
10250	CAH	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	LTE-TDD	9.81	±9.6
10251	CAH	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	LTE-TDD	10.17	±9.6
10252	CAH	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	LTE-TDD	9.24	±9.6
10253	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	LTE-TDD	9.90	±9.6
10254	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	LTE-TDD	10.14	±9.6
10255	CAG	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	LTE-TDD	9.20	±9.6
10256	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	LTE-TDD	9.96	±9.6
10257	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	LTE-TDD	10.08	±9.6
10258	CAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	LTE-TDD	9.34	±9.6
10259	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	LTE-TDD	9.98	±9.6
10260	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	LTE-TDD	9.97	±9.6
10261	CAE	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	LTE-TDD	9.24	±9.6
10262	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	LTE-TDD	9.83	±9.6
10263	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	LTE-TDD	10.15	±9.6
10264	CAH	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	LTE-TDD	9.23	±9.6
10265	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	LTE-TDD	9.92	±9.6
10266	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	LTE-TDD	10.07	±9.6
10267	CAH	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	LTE-TDD	9.30	±9.6
10268	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	LTE-TDD	10.06	±9.6
10269	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	LTE-TDD	10.13	±9.6
10270	CAG	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-TDD	9.58	±9.6
10274	CAC	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	WCDMA	4.87	±9.6
10275	CAC	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	WCDMA	3.96	±9.6
10277	CAA	PHS (QPSK)	PHS	11.81	±9.6
10278	CAA	PHS (QPSK, BW 884 MHz, Roll-off 0.5)	PHS	11.81	±9.6
10279	CAA	PHS (QPSK, BW 884 MHz, Roll-off 0.38)	PHS	12.18	±9.6
10290	AAB	CDMA2000, RC1, SO55, Full Rate	CDMA2000	3.91	±9.6
10291	AAB	CDMA2000, RC3, SO55, Full Rate	CDMA2000	3.46	±9.6
10292	AAB	CDMA2000, RC3, SO32, Full Rate	CDMA2000	3.39	±9.6
10293	AAB	CDMA2000, RC3, SO3, Full Rate	CDMA2000	3.50	±9.6
10295	AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	CDMA2000	12.49	±9.6
10297	AAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	LTE-FDD	5.81	±9.6
10298	AAE	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	LTE-FDD	5.72	±9.6
10299	AAE	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	LTE-FDD	6.39	±9.6
10300	AAE	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	LTE-FDD	6.60	±9.6
10301	AAA	IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, QPSK, PUSC)	WiMAX	12.03	±9.6
10302	AAA	IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, QPSK, PUSC, 3 CTRL symbols)	WiMAX	12.57	±9.6
10303	AAA	IEEE 802.16e WiMAX (31:15, 5 ms, 10 MHz, 64QAM, PUSC)	WiMAX	12.52	±9.6
10304	AAA	IEEE 802.16e WiMAX (29:18, 5 ms, 10 MHz, 64QAM, PUSC)	WiMAX	11.86	±9.6
10305	AAA	IEEE 802.16e WiMAX (31:15, 10 ms, 10 MHz, 64QAM, PUSC, 15 symbols)	WiMAX	15.24	±9.6
10306	AAA	IEEE 802.16e WiMAX (29:18, 10 ms, 10 MHz, 64QAM, PUSC, 18 symbols)	WiMAX	14.67	±9.6

Certificate No: EF-4067_Jan25

Page 12 of 21

EF3DV3 - SN:4067

January 13, 2025

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^k k = 2
10307	AAA	IEEE 802.16e WMAX (29:18, 10 ms, 10 MHz, QPSK, PUSC, 18 symbols)	WIMAX	14.49	±9.6
10308	AAA	IEEE 802.16e WMAX (29:18, 10 ms, 10 MHz, 16QAM, PUSC)	WIMAX	14.46	±9.6
10309	AAA	IEEE 802.16e WMAX (29:18, 10 ms, 10 MHz, 16QAM, AMC 2x3, 18 symbols)	WIMAX	14.56	±9.6
10310	AAA	IEEE 802.16e WMAX (29:18, 10 ms, 10 MHz, QPSK, AMC 2x3, 18 symbols)	WIMAX	14.57	±9.6
10311	AAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	LTE-FDD	6.06	±9.6
10313	AAA	IDEN 1:3	IDEN	10.51	±9.6
10314	AAA	IDEN 1:6	IDEN	13.48	±9.6
10315	AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	WLAN	1.71	±9.6
10316	AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	WLAN	8.36	±9.6
10317	AAE	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	WLAN	8.36	±9.6
10352	AAA	Pulse Waveform (200Hz, 10%)	Generic	10.00	±9.6
10353	AAA	Pulse Waveform (200Hz, 20%)	Generic	6.99	±9.6
10354	AAA	Pulse Waveform (200Hz, 40%)	Generic	3.98	±9.6
10355	AAA	Pulse Waveform (200Hz, 60%)	Generic	2.22	±9.6
10356	AAA	Pulse Waveform (200Hz, 80%)	Generic	0.97	±9.6
10387	AAA	QPSK Waveform, 1 MHz	Generic	5.10	±9.6
10388	AAA	QPSK Waveform, 10 MHz	Generic	5.22	±9.6
10396	AAA	64-QAM Waveform, 100 MHz	Generic	6.27	±9.6
10399	AAA	64-QAM Waveform, 40 MHz	Generic	6.27	±9.6
10400	AAP	IEEE 802.11ac WiFi (20 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.37	±9.6
10401	AAP	IEEE 802.11ac WiFi (40 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.60	±9.6
10402	AAP	IEEE 802.11ac WiFi (80 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.53	±9.6
10403	AAB	CDMA2000 (1xEV-DO, Rev. 0)	CDMA2000	3.76	±9.6
10404	AAB	CDMA2000 (1xEV-DO, Rev. A)	CDMA2000	3.77	±9.6
10406	AAB	CDMA2000, RC3, SC32, SCH3, Full Rate	CDMA2000	5.22	±9.6
10410	AAH	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	LTE-TDD	7.82	±9.6
10414	AAA	WLAN CCDF, 64-QAM, 40 MHz	Generic	8.54	±9.6
10415	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	WLAN	1.54	±9.6
10416	AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	±9.6
10417	AAD	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	WLAN	8.23	±9.6
10418	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)	WLAN	8.14	±9.6
10419	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)	WLAN	8.19	±9.6
10422	AAD	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	WLAN	8.32	±9.6
10423	AAD	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	WLAN	8.47	±9.6
10424	AAD	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	WLAN	8.40	±9.6
10425	AAD	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	WLAN	6.41	±9.6
10426	AAD	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	WLAN	8.45	±9.6
10427	AAD	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	WLAN	8.41	±9.6
10430	AAE	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	LTE-FDD	8.28	±9.6
10431	AAE	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	LTE-FDD	6.38	±9.6
10432	AAD	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	LTE-FDD	8.34	±9.6
10433	AAD	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	LTE-FDD	8.34	±9.6
10434	AAB	W-CDMA (BS Test Model 1, 64 DPCH)	WCDMA	8.60	±9.6
10435	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10447	AAE	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.56	±9.6
10448	AAE	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.53	±9.6
10449	AAD	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.51	±9.6
10450	AAD	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-FDD	7.48	±9.6
10451	AAB	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	WCDMA	7.59	±9.6
10453	AAE	Validation (Square, 10 ms, 1 ms)	Test	10.00	±9.6
10456	AAD	IEEE 802.11ac WiFi (160 MHz, 64-QAM, 99pc duty cycle)	WLAN	8.63	±9.6
10457	AAB	UMTS-FDD (DC-HSDPA)	WCDMA	6.62	±9.6
10458	AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	CDMA2000	6.55	±9.6
10459	AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	CDMA2000	8.25	±9.6
10460	AAB	UMTS-FDD (WCDMA, AMR)	WCDMA	2.39	±9.6
10461	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10462	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.30	±9.6
10463	AAC	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.56	±9.6
10464	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10465	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10466	AAD	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
10467	AAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10468	AAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10469	AAG	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.56	±9.6
10470	AAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10471	AAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6

Certificate No: EF-4067_Jan25

Page 13 of 21

EF3DV3 - SN:4067

January 13, 2025

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ⁶ k = 2
10472	AAG	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
10473	AAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.82	±9.6
10474	AAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10475	AAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
10477	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.32	±9.6
10478	AAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.57	±9.6
10479	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10480	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.18	±9.6
10481	AAC	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.45	±9.6
10482	AAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.71	±9.6
10483	AAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.39	±9.6
10484	AAD	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.47	±9.6
10485	AAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.59	±9.6
10486	AAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.38	±9.6
10487	AAG	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.60	±9.6
10488	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.70	±9.6
10489	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.31	±9.6
10490	AAG	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	±9.6
10491	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10492	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.41	±9.6
10493	AAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.55	±9.6
10494	AAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10495	AAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.37	±9.6
10496	AAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	±9.6
10497	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.67	±9.6
10498	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.40	±9.6
10499	AAC	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.68	±9.6
10500	AAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.57	±9.6
10501	AAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.44	±9.6
10502	AAD	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.52	±9.6
10503	AAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.72	±9.6
10504	AAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.31	±9.6
10505	AAG	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.54	±9.6
10506	AAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10507	AAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.36	±9.6
10508	AAG	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.55	±9.6
10509	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.99	±9.6
10510	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.49	±9.6
10511	AAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.51	±9.6
10512	AAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	LTE-TDD	7.74	±9.6
10513	AAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.42	±9.6
10514	AAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	LTE-TDD	8.45	±9.6
10515	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	WLAN	1.58	±9.6
10516	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	WLAN	1.57	±9.6
10517	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	WLAN	1.58	±9.6
10518	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	WLAN	8.23	±9.6
10519	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.39	±9.6
10520	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	WLAN	8.12	±9.6
10521	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	WLAN	7.97	±9.6
10522	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	WLAN	8.45	±9.6
10523	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	WLAN	8.06	±9.6
10524	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	WLAN	8.27	±9.6
10525	AAD	IEEE 802.11ac WiFi (20 MHz, MCS0, 99pc duty cycle)	WLAN	8.36	±9.6
10526	AAD	IEEE 802.11ac WiFi (20 MHz, MCS1, 99pc duty cycle)	WLAN	8.42	±9.6
10527	AAD	IEEE 802.11ac WiFi (20 MHz, MCS2, 99pc duty cycle)	WLAN	8.21	±9.6
10528	AAD	IEEE 802.11ac WiFi (20 MHz, MCS3, 99pc duty cycle)	WLAN	8.36	±9.6
10529	AAD	IEEE 802.11ac WiFi (20 MHz, MCS4, 99pc duty cycle)	WLAN	8.35	±9.6
10531	AAD	IEEE 802.11ac WiFi (20 MHz, MCS6, 99pc duty cycle)	WLAN	8.43	±9.6
10532	AAD	IEEE 802.11ac WiFi (20 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
10533	AAD	IEEE 802.11ac WiFi (20 MHz, MCS8, 99pc duty cycle)	WLAN	8.38	±9.6
10534	AAD	IEEE 802.11ac WiFi (40 MHz, MCS0, 99pc duty cycle)	WLAN	8.45	±9.6
10535	AAD	IEEE 802.11ac WiFi (40 MHz, MCS1, 99pc duty cycle)	WLAN	8.45	±9.6
10536	AAD	IEEE 802.11ac WiFi (40 MHz, MCS2, 99pc duty cycle)	WLAN	8.32	±9.6
10537	AAD	IEEE 802.11ac WiFi (40 MHz, MCS3, 99pc duty cycle)	WLAN	8.44	±9.6
10538	AAD	IEEE 802.11ac WiFi (40 MHz, MCS4, 99pc duty cycle)	WLAN	8.54	±9.6
10540	AAD	IEEE 802.11ac WiFi (40 MHz, MCS6, 99pc duty cycle)	WLAN	8.39	±9.6

Certificate No: EF-4067_Jan25

Page 14 of 21

EF3DV3 - SN:4067

January 13, 2025

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
10541	AAD	IEEE 802.11ac WiFi (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.46	±9.6
10542	AAD	IEEE 802.11ac WiFi (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.65	±9.6
10543	AAD	IEEE 802.11ac WiFi (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.65	±9.6
10544	AAD	IEEE 802.11ac WiFi (80 MHz, MCS9, 99pc duty cycle)	WLAN	8.47	±9.6
10545	AAD	IEEE 802.11ac WiFi (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.55	±9.6
10546	AAD	IEEE 802.11ac WiFi (80 MHz, MCS2, 99pc duty cycle)	WLAN	8.35	±9.6
10547	AAD	IEEE 802.11ac WiFi (80 MHz, MCS3, 99pc duty cycle)	WLAN	8.49	±9.6
10548	AAD	IEEE 802.11ac WiFi (80 MHz, MCS4, 99pc duty cycle)	WLAN	8.37	±9.6
10550	AAD	IEEE 802.11ac WiFi (80 MHz, MCS6, 99pc duty cycle)	WLAN	8.38	±9.6
10551	AAD	IEEE 802.11ac WiFi (80 MHz, MCS7, 99pc duty cycle)	WLAN	8.50	±9.6
10552	AAD	IEEE 802.11ac WiFi (80 MHz, MCS8, 99pc duty cycle)	WLAN	8.42	±9.6
10553	AAD	IEEE 802.11ac WiFi (80 MHz, MCS9, 99pc duty cycle)	WLAN	8.45	±9.6
10554	AAE	IEEE 802.11ac WiFi (160 MHz, MCS0, 99pc duty cycle)	WLAN	8.48	±9.6
10555	AAE	IEEE 802.11ac WiFi (160 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.6
10556	AAE	IEEE 802.11ac WiFi (160 MHz, MCS2, 99pc duty cycle)	WLAN	8.50	±9.6
10557	AAE	IEEE 802.11ac WiFi (160 MHz, MCS3, 99pc duty cycle)	WLAN	8.52	±9.6
10558	AAE	IEEE 802.11ac WiFi (160 MHz, MCS4, 99pc duty cycle)	WLAN	8.61	±9.6
10560	AAE	IEEE 802.11ac WiFi (160 MHz, MCS6, 99pc duty cycle)	WLAN	8.73	±9.6
10561	AAE	IEEE 802.11ac WiFi (160 MHz, MCS7, 99pc duty cycle)	WLAN	8.56	±9.6
10562	AAE	IEEE 802.11ac WiFi (160 MHz, MCS8, 99pc duty cycle)	WLAN	8.69	±9.6
10563	AAE	IEEE 802.11ac WiFi (160 MHz, MCS9, 99pc duty cycle)	WLAN	8.77	±9.6
10564	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	WLAN	8.25	±9.6
10565	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	WLAN	8.45	±9.6
10566	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	WLAN	8.13	±9.6
10567	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	WLAN	8.00	±9.6
10568	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	WLAN	8.37	±9.6
10569	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	WLAN	8.10	±9.6
10570	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	WLAN	8.30	±9.6
10571	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	WLAN	1.99	±9.6
10572	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	WLAN	1.99	±9.6
10573	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	WLAN	1.98	±9.6
10574	AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	WLAN	1.98	±9.6
10575	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	WLAN	8.59	±9.6
10576	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	WLAN	8.60	±9.6
10577	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.70	±9.6
10578	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	WLAN	8.49	±9.6
10579	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
10580	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.76	±9.6
10581	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
10582	AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.67	±9.6
10583	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	WLAN	8.59	±9.6
10584	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	WLAN	8.60	±9.6
10585	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	WLAN	8.70	±9.6
10586	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	WLAN	8.49	±9.6
10587	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	WLAN	8.38	±9.6
10588	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	WLAN	8.76	±9.6
10589	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	WLAN	8.35	±9.6
10590	AAD	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	WLAN	8.67	±9.6
10591	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS0, 90pc duty cycle)	WLAN	8.63	±9.6
10592	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS1, 90pc duty cycle)	WLAN	8.79	±9.6
10593	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS2, 90pc duty cycle)	WLAN	8.64	±9.6
10594	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS3, 90pc duty cycle)	WLAN	8.74	±9.6
10595	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS4, 90pc duty cycle)	WLAN	8.74	±9.6
10596	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS5, 90pc duty cycle)	WLAN	8.71	±9.6
10597	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS6, 90pc duty cycle)	WLAN	8.72	±9.6
10598	AAD	IEEE 802.11n (HT Mixed, 20 MHz, MCS7, 90pc duty cycle)	WLAN	8.50	±9.6
10599	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS0, 90pc duty cycle)	WLAN	8.79	±9.6
10600	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS1, 90pc duty cycle)	WLAN	8.88	±9.6
10601	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS2, 90pc duty cycle)	WLAN	8.82	±9.6
10602	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS3, 90pc duty cycle)	WLAN	8.94	±9.6
10603	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS4, 90pc duty cycle)	WLAN	9.03	±9.6
10604	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS5, 90pc duty cycle)	WLAN	8.76	±9.6
10605	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS6, 90pc duty cycle)	WLAN	8.97	±9.6
10606	AAD	IEEE 802.11n (HT Mixed, 40 MHz, MCS7, 90pc duty cycle)	WLAN	8.82	±9.6
10607	AAD	IEEE 802.11ac WiFi (20 MHz, MCS0, 90pc duty cycle)	WLAN	8.64	±9.6
10608	AAD	IEEE 802.11ac WiFi (20 MHz, MCS1, 90pc duty cycle)	WLAN	8.77	±9.6

EF3DV3 - SN-4067

January 13, 2025

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ² k = 2
10609	AAD	IEEE 802.11ac WiFi (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.57	±9.6
10610	AAD	IEEE 802.11ac WiFi (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.78	±9.6
10611	AAD	IEEE 802.11ac WiFi (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.70	±9.6
10612	AAD	IEEE 802.11ac WiFi (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10613	AAD	IEEE 802.11ac WiFi (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.94	±9.6
10614	AAD	IEEE 802.11ac WiFi (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.59	±9.6
10615	AAD	IEEE 802.11ac WiFi (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10616	AAD	IEEE 802.11ac WiFi (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.82	±9.6
10617	AAD	IEEE 802.11ac WiFi (40 MHz, MCS10, 90pc duty cycle)	WLAN	8.81	±9.6
10618	AAD	IEEE 802.11ac WiFi (40 MHz, MCS11, 90pc duty cycle)	WLAN	8.58	±9.6
10619	AAD	IEEE 802.11ac WiFi (40 MHz, MCS12, 90pc duty cycle)	WLAN	8.86	±9.6
10620	AAD	IEEE 802.11ac WiFi (40 MHz, MCS13, 90pc duty cycle)	WLAN	8.87	±9.6
10621	AAD	IEEE 802.11ac WiFi (40 MHz, MCS14, 90pc duty cycle)	WLAN	8.77	±9.6
10622	AAD	IEEE 802.11ac WiFi (40 MHz, MCS15, 90pc duty cycle)	WLAN	8.68	±9.6
10623	AAD	IEEE 802.11ac WiFi (40 MHz, MCS16, 90pc duty cycle)	WLAN	8.82	±9.6
10624	AAD	IEEE 802.11ac WiFi (40 MHz, MCS17, 90pc duty cycle)	WLAN	8.96	±9.6
10625	AAD	IEEE 802.11ac WiFi (40 MHz, MCS18, 90pc duty cycle)	WLAN	8.96	±9.6
10626	AAD	IEEE 802.11ac WiFi (80 MHz, MCS19, 90pc duty cycle)	WLAN	8.83	±9.6
10627	AAD	IEEE 802.11ac WiFi (80 MHz, MCS20, 90pc duty cycle)	WLAN	8.88	±9.6
10628	AAD	IEEE 802.11ac WiFi (80 MHz, MCS21, 90pc duty cycle)	WLAN	8.71	±9.6
10629	AAD	IEEE 802.11ac WiFi (80 MHz, MCS22, 90pc duty cycle)	WLAN	8.85	±9.6
10630	AAD	IEEE 802.11ac WiFi (80 MHz, MCS23, 90pc duty cycle)	WLAN	8.72	±9.6
10631	AAD	IEEE 802.11ac WiFi (80 MHz, MCS24, 90pc duty cycle)	WLAN	8.81	±9.6
10632	AAD	IEEE 802.11ac WiFi (80 MHz, MCS25, 90pc duty cycle)	WLAN	8.74	±9.6
10633	AAD	IEEE 802.11ac WiFi (80 MHz, MCS26, 90pc duty cycle)	WLAN	8.83	±9.6
10634	AAD	IEEE 802.11ac WiFi (80 MHz, MCS27, 90pc duty cycle)	WLAN	8.80	±9.6
10635	AAD	IEEE 802.11ac WiFi (80 MHz, MCS28, 90pc duty cycle)	WLAN	8.81	±9.6
10636	AAD	IEEE 802.11ac WiFi (160 MHz, MCS29, 90pc duty cycle)	WLAN	8.83	±9.6
10637	AAD	IEEE 802.11ac WiFi (160 MHz, MCS30, 90pc duty cycle)	WLAN	8.79	±9.6
10638	AAD	IEEE 802.11ac WiFi (160 MHz, MCS31, 90pc duty cycle)	WLAN	8.85	±9.6
10639	AAD	IEEE 802.11ac WiFi (160 MHz, MCS32, 90pc duty cycle)	WLAN	8.85	±9.6
10640	AAD	IEEE 802.11ac WiFi (160 MHz, MCS33, 90pc duty cycle)	WLAN	8.98	±9.6
10641	AAD	IEEE 802.11ac WiFi (160 MHz, MCS34, 90pc duty cycle)	WLAN	9.06	±9.6
10642	AAD	IEEE 802.11ac WiFi (160 MHz, MCS35, 90pc duty cycle)	WLAN	9.06	±9.6
10643	AAD	IEEE 802.11ac WiFi (160 MHz, MCS36, 90pc duty cycle)	WLAN	8.89	±9.6
10644	AAD	IEEE 802.11ac WiFi (160 MHz, MCS37, 90pc duty cycle)	WLAN	9.05	±9.6
10645	AAD	IEEE 802.11ac WiFi (160 MHz, MCS38, 90pc duty cycle)	WLAN	9.11	±9.6
10646	AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.96	±9.6
10647	AAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	LTE-TDD	11.96	±9.6
10648	AAA	CDMA2000 (1x Advanced)	CDMA2000	3.45	±9.6
10652	AAD	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.91	±9.6
10653	AAD	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.42	±9.6
10654	AAD	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	6.96	±9.6
10655	AAD	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	LTE-TDD	7.21	±9.6
10656	AAB	Pulse Waveform (200Hz, 10%)	Test	10.00	±9.6
10659	AAB	Pulse Waveform (200Hz, 20%)	Test	5.99	±9.6
10660	AAB	Pulse Waveform (200Hz, 40%)	Test	3.98	±9.6
10661	AAB	Pulse Waveform (200Hz, 60%)	Test	2.22	±9.6
10662	AAB	Pulse Waveform (200Hz, 80%)	Test	0.97	±9.6
10670	AAA	Bluetooth Low Energy	Bluetooth	2.19	±9.6
10671	AAC	IEEE 802.11ax (20 MHz, MCS0, 90pc duty cycle)	WLAN	9.09	±9.6
10672	AAC	IEEE 802.11ax (20 MHz, MCS1, 90pc duty cycle)	WLAN	8.57	±9.6
10673	AAC	IEEE 802.11ax (20 MHz, MCS2, 90pc duty cycle)	WLAN	8.78	±9.6
10674	AAC	IEEE 802.11ax (20 MHz, MCS3, 90pc duty cycle)	WLAN	8.74	±9.6
10675	AAC	IEEE 802.11ax (20 MHz, MCS4, 90pc duty cycle)	WLAN	8.90	±9.6
10676	AAC	IEEE 802.11ax (20 MHz, MCS5, 90pc duty cycle)	WLAN	8.77	±9.6
10677	AAC	IEEE 802.11ax (20 MHz, MCS6, 90pc duty cycle)	WLAN	8.73	±9.6
10678	AAC	IEEE 802.11ax (20 MHz, MCS7, 90pc duty cycle)	WLAN	8.78	±9.6
10679	AAC	IEEE 802.11ax (20 MHz, MCS8, 90pc duty cycle)	WLAN	8.89	±9.6
10680	AAC	IEEE 802.11ax (20 MHz, MCS9, 90pc duty cycle)	WLAN	8.80	±9.6
10681	AAC	IEEE 802.11ax (20 MHz, MCS10, 90pc duty cycle)	WLAN	8.82	±9.6
10682	AAC	IEEE 802.11ax (20 MHz, MCS11, 90pc duty cycle)	WLAN	8.83	±9.6
10683	AAC	IEEE 802.11ax (20 MHz, MCS12, 90pc duty cycle)	WLAN	8.42	±9.6
10684	AAC	IEEE 802.11ax (20 MHz, MCS13, 90pc duty cycle)	WLAN	8.26	±9.6
10685	AAC	IEEE 802.11ax (20 MHz, MCS14, 90pc duty cycle)	WLAN	8.33	±9.6
10686	AAC	IEEE 802.11ax (20 MHz, MCS15, 90pc duty cycle)	WLAN	8.28	±9.6

Certificate No: EF-4067_Jan25

Page 16 of 21

EF3DV3 - SN:4067

January 13, 2025

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^k k = 2
10687	AAC	IEEE 802.11ax (20 MHz, MCS4, 99pc duty cycle)	WLAN	8.45	±9.6
10688	AAC	IEEE 802.11ax (20 MHz, MCS5, 99pc duty cycle)	WLAN	8.29	±9.6
10689	AAC	IEEE 802.11ax (20 MHz, MCS6, 99pc duty cycle)	WLAN	8.56	±9.6
10690	AAC	IEEE 802.11ax (20 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
10691	AAC	IEEE 802.11ax (20 MHz, MCS8, 99pc duty cycle)	WLAN	8.26	±9.6
10692	AAC	IEEE 802.11ax (20 MHz, MCS9, 99pc duty cycle)	WLAN	8.29	±9.6
10693	AAC	IEEE 802.11ax (20 MHz, MCS10, 99pc duty cycle)	WLAN	8.25	±9.6
10694	AAC	IEEE 802.11ax (20 MHz, MCS11, 99pc duty cycle)	WLAN	8.57	±9.6
10695	AAC	IEEE 802.11ax (40 MHz, MCS0, 90pc duty cycle)	WLAN	8.78	±9.6
10696	AAC	IEEE 802.11ax (40 MHz, MCS1, 90pc duty cycle)	WLAN	8.91	±9.6
10697	AAC	IEEE 802.11ax (40 MHz, MCS2, 90pc duty cycle)	WLAN	8.61	±9.6
10698	AAC	IEEE 802.11ax (40 MHz, MCS3, 90pc duty cycle)	WLAN	8.89	±9.6
10699	AAC	IEEE 802.11ax (40 MHz, MCS4, 90pc duty cycle)	WLAN	8.82	±9.6
10700	AAC	IEEE 802.11ax (40 MHz, MCS5, 90pc duty cycle)	WLAN	8.73	±9.6
10701	AAC	IEEE 802.11ax (40 MHz, MCS6, 90pc duty cycle)	WLAN	8.88	±9.6
10702	AAC	IEEE 802.11ax (40 MHz, MCS7, 90pc duty cycle)	WLAN	8.70	±9.6
10703	AAC	IEEE 802.11ax (40 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10704	AAC	IEEE 802.11ax (40 MHz, MCS9, 90pc duty cycle)	WLAN	8.56	±9.6
10705	AAC	IEEE 802.11ax (40 MHz, MCS10, 90pc duty cycle)	WLAN	8.69	±9.6
10706	AAC	IEEE 802.11ax (40 MHz, MCS11, 90pc duty cycle)	WLAN	8.66	±9.6
10707	AAC	IEEE 802.11ax (40 MHz, MCS0, 99pc duty cycle)	WLAN	8.32	±9.6
10708	AAC	IEEE 802.11ax (40 MHz, MCS1, 99pc duty cycle)	WLAN	8.55	±9.6
10709	AAC	IEEE 802.11ax (40 MHz, MCS2, 99pc duty cycle)	WLAN	8.33	±9.6
10710	AAC	IEEE 802.11ax (40 MHz, MCS3, 99pc duty cycle)	WLAN	8.29	±9.6
10711	AAC	IEEE 802.11ax (40 MHz, MCS4, 99pc duty cycle)	WLAN	8.39	±9.6
10712	AAC	IEEE 802.11ax (40 MHz, MCS5, 99pc duty cycle)	WLAN	8.67	±9.6
10713	AAC	IEEE 802.11ax (40 MHz, MCS6, 99pc duty cycle)	WLAN	8.33	±9.6
10714	AAC	IEEE 802.11ax (40 MHz, MCS7, 99pc duty cycle)	WLAN	8.26	±9.6
10715	AAC	IEEE 802.11ax (40 MHz, MCS8, 99pc duty cycle)	WLAN	8.45	±9.6
10716	AAC	IEEE 802.11ax (40 MHz, MCS9, 99pc duty cycle)	WLAN	8.30	±9.6
10717	AAC	IEEE 802.11ax (40 MHz, MCS10, 99pc duty cycle)	WLAN	8.48	±9.6
10718	AAC	IEEE 802.11ax (40 MHz, MCS11, 99pc duty cycle)	WLAN	8.24	±9.6
10719	AAC	IEEE 802.11ax (80 MHz, MCS0, 90pc duty cycle)	WLAN	8.81	±9.6
10720	AAC	IEEE 802.11ax (80 MHz, MCS1, 90pc duty cycle)	WLAN	8.87	±9.6
10721	AAC	IEEE 802.11ax (80 MHz, MCS2, 90pc duty cycle)	WLAN	8.78	±9.6
10722	AAC	IEEE 802.11ax (80 MHz, MCS3, 90pc duty cycle)	WLAN	8.55	±9.6
10723	AAC	IEEE 802.11ax (80 MHz, MCS4, 90pc duty cycle)	WLAN	8.70	±9.6
10724	AAC	IEEE 802.11ax (80 MHz, MCS5, 90pc duty cycle)	WLAN	8.90	±9.6
10725	AAC	IEEE 802.11ax (80 MHz, MCS6, 90pc duty cycle)	WLAN	8.74	±9.6
10726	AAC	IEEE 802.11ax (80 MHz, MCS7, 90pc duty cycle)	WLAN	8.72	±9.6
10727	AAC	IEEE 802.11ax (80 MHz, MCS8, 90pc duty cycle)	WLAN	8.66	±9.6
10728	AAC	IEEE 802.11ax (80 MHz, MCS9, 90pc duty cycle)	WLAN	8.65	±9.6
10729	AAC	IEEE 802.11ax (80 MHz, MCS10, 90pc duty cycle)	WLAN	8.64	±9.6
10730	AAC	IEEE 802.11ax (80 MHz, MCS11, 90pc duty cycle)	WLAN	8.67	±9.6
10731	AAC	IEEE 802.11ax (80 MHz, MCS0, 99pc duty cycle)	WLAN	8.42	±9.6
10732	AAC	IEEE 802.11ax (80 MHz, MCS1, 99pc duty cycle)	WLAN	8.46	±9.6
10733	AAC	IEEE 802.11ax (80 MHz, MCS2, 99pc duty cycle)	WLAN	8.40	±9.6
10734	AAC	IEEE 802.11ax (80 MHz, MCS3, 99pc duty cycle)	WLAN	8.25	±9.6
10735	AAC	IEEE 802.11ax (80 MHz, MCS4, 99pc duty cycle)	WLAN	8.33	±9.6
10736	AAC	IEEE 802.11ax (80 MHz, MCS5, 99pc duty cycle)	WLAN	8.27	±9.6
10737	AAC	IEEE 802.11ax (80 MHz, MCS6, 99pc duty cycle)	WLAN	8.36	±9.6
10738	AAC	IEEE 802.11ax (80 MHz, MCS7, 99pc duty cycle)	WLAN	8.42	±9.6
10739	AAC	IEEE 802.11ax (80 MHz, MCS8, 99pc duty cycle)	WLAN	8.29	±9.6
10740	AAC	IEEE 802.11ax (80 MHz, MCS9, 99pc duty cycle)	WLAN	8.48	±9.6
10741	AAC	IEEE 802.11ax (80 MHz, MCS10, 99pc duty cycle)	WLAN	8.40	±9.6
10742	AAC	IEEE 802.11ax (80 MHz, MCS11, 99pc duty cycle)	WLAN	8.43	±9.6
10743	AAC	IEEE 802.11ax (160 MHz, MCS0, 90pc duty cycle)	WLAN	8.94	±9.6
10744	AAC	IEEE 802.11ax (160 MHz, MCS1, 90pc duty cycle)	WLAN	9.16	±9.6
10745	AAC	IEEE 802.11ax (160 MHz, MCS2, 90pc duty cycle)	WLAN	8.93	±9.6
10746	AAC	IEEE 802.11ax (160 MHz, MCS3, 90pc duty cycle)	WLAN	9.11	±9.6
10747	AAC	IEEE 802.11ax (160 MHz, MCS4, 90pc duty cycle)	WLAN	9.04	±9.6
10748	AAC	IEEE 802.11ax (160 MHz, MCS5, 90pc duty cycle)	WLAN	8.93	±9.6
10749	AAC	IEEE 802.11ax (160 MHz, MCS6, 90pc duty cycle)	WLAN	8.90	±9.6
10750	AAC	IEEE 802.11ax (160 MHz, MCS7, 90pc duty cycle)	WLAN	8.79	±9.6
10751	AAC	IEEE 802.11ax (160 MHz, MCS8, 90pc duty cycle)	WLAN	8.82	±9.6
10752	AAC	IEEE 802.11ax (160 MHz, MCS9, 90pc duty cycle)	WLAN	8.81	±9.6

Certificate No: EF-4067_Jan25

Page 17 of 21

EF3DV3 - SN:4067

January 13, 2025

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^k k = 2
10753	AAC	IEEE 802.11ax (160 MHz, MCS10, 90pc duty cycle)	WLAN	9.00	±9.6
10754	AAC	IEEE 802.11ax (160 MHz, MCS11, 90pc duty cycle)	WLAN	8.94	±9.6
10755	AAC	IEEE 802.11ax (160 MHz, MCS0, 99pc duty cycle)	WLAN	8.54	±9.6
10756	AAC	IEEE 802.11ax (160 MHz, MCS1, 99pc duty cycle)	WLAN	8.77	±9.6
10757	AAC	IEEE 802.11ax (160 MHz, MCS2, 99pc duty cycle)	WLAN	8.77	±9.6
10758	AAC	IEEE 802.11ax (160 MHz, MCS3, 99pc duty cycle)	WLAN	8.58	±9.6
10759	AAC	IEEE 802.11ax (160 MHz, MCS4, 99pc duty cycle)	WLAN	8.58	±9.6
10760	AAC	IEEE 802.11ax (160 MHz, MCS5, 99pc duty cycle)	WLAN	8.49	±9.6
10761	AAC	IEEE 802.11ax (160 MHz, MCS6, 99pc duty cycle)	WLAN	8.58	±9.6
10762	AAC	IEEE 802.11ax (160 MHz, MCS7, 99pc duty cycle)	WLAN	8.49	±9.6
10763	AAC	IEEE 802.11ax (160 MHz, MCS8, 99pc duty cycle)	WLAN	8.53	±9.6
10764	AAC	IEEE 802.11ax (160 MHz, MCS9, 99pc duty cycle)	WLAN	8.54	±9.6
10765	AAC	IEEE 802.11ax (160 MHz, MCS10, 99pc duty cycle)	WLAN	8.54	±9.6
10766	AAC	IEEE 802.11ax (160 MHz, MCS11, 99pc duty cycle)	WLAN	8.51	±9.6
10767	AAG	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	7.99	±9.6
10768	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	±9.6
10769	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.01	±9.6
10770	AAE	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	±9.6
10771	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	±9.6
10772	AAE	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.23	±9.6
10773	AAF	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.03	±9.6
10774	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.02	±9.6
10775	AAF	5G NR (CP-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	±9.6
10776	AAE	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10777	AAC	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.30	±9.6
10778	AAE	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.34	±9.6
10779	AAC	5G NR (CP-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.42	±9.6
10780	AAE	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.36	±9.6
10781	AAF	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.38	±9.6
10782	AAE	5G NR (CP-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.43	±9.6
10783	AAQ	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.31	±9.6
10784	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.29	±9.6
10785	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.40	±9.6
10786	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.35	±9.6
10787	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.44	±9.6
10788	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	±9.6
10789	AAF	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.37	±9.6
10790	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	8.39	±9.6
10791	AAQ	5G NR (CP-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.83	±9.6
10792	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.92	±9.6
10793	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.95	±9.6
10794	AAE	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	±9.6
10795	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.84	±9.6
10796	AAE	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.82	±9.6
10797	AAF	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.01	±9.6
10798	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	±9.6
10799	AAF	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	±9.6
10801	AAF	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.89	±9.6
10802	AAE	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.87	±9.6
10803	AAF	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	7.93	±9.6
10805	AAE	5G NR (CP-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10806	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.37	±9.6
10809	AAE	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10810	AAF	5G NR (CP-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10812	AAF	5G NR (CP-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	±9.6
10817	AAQ	5G NR (CP-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.35	±9.6
10818	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.34	±9.6
10819	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.33	±9.6
10820	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.30	±9.6
10821	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	±9.6
10822	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	±9.6
10823	AAF	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.36	±9.6
10824	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.39	±9.6
10825	AAF	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.41	±9.6
10827	AAF	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.42	±9.6
10828	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.43	±9.6

Certificate No: EF-4067_Jan25

Page 18 of 21

EF3DV3 - SN:4067

January 13, 2025

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^B k = 2
10829	AAF	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	8.40	±9.6
10830	AAE	5G NR (CP-OFDM, 1 RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.63	±9.6
10831	AAD	5G NR (CP-OFDM, 1 RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.73	±9.6
10832	AAE	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.74	±9.6
10833	AAD	5G NR (CP-OFDM, 1 RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10834	AAE	5G NR (CP-OFDM, 1 RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.75	±9.6
10835	AAF	5G NR (CP-OFDM, 1 RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10836	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.66	±9.6
10837	AAF	5G NR (CP-OFDM, 1 RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.68	±9.6
10839	AAF	5G NR (CP-OFDM, 1 RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.70	±9.6
10840	AAE	5G NR (CP-OFDM, 1 RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.67	±9.6
10841	AAF	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	7.71	±9.6
10843	AAD	5G NR (CP-OFDM, 50% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.49	±9.6
10844	AAE	5G NR (CP-OFDM, 50% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10846	AAE	5G NR (CP-OFDM, 50% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10854	AAE	5G NR (CP-OFDM, 100% RB, 10 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10855	AAD	5G NR (CP-OFDM, 100% RB, 15 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.6
10856	AAE	5G NR (CP-OFDM, 100% RB, 20 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.6
10857	AAD	5G NR (CP-OFDM, 100% RB, 25 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.35	±9.6
10858	AAE	5G NR (CP-OFDM, 100% RB, 30 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.36	±9.6
10859	AAF	5G NR (CP-OFDM, 100% RB, 40 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.34	±9.6
10860	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10861	AAF	5G NR (CP-OFDM, 100% RB, 60 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.40	±9.6
10863	AAF	5G NR (CP-OFDM, 100% RB, 80 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10864	AAE	5G NR (CP-OFDM, 100% RB, 90 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.37	±9.6
10865	AAF	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 60 kHz)	5G NR FR1 TDD	8.41	±9.6
10866	AAF	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10868	AAF	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.89	±9.6
10869	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10870	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.86	±9.6
10871	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10872	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.52	±9.6
10873	AAE	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10874	AAE	5G NR (DFT-s-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.6
10875	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	±9.6
10876	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.39	±9.6
10877	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	7.95	±9.6
10878	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.6
10879	AAE	5G NR (CP-OFDM, 1 RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.12	±9.6
10880	AAE	5G NR (CP-OFDM, 100% RB, 100 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.38	±9.6
10881	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.75	±9.6
10882	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	5.96	±9.6
10883	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.57	±9.6
10884	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	6.53	±9.6
10885	AAE	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.61	±9.6
10886	AAE	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	6.65	±9.6
10887	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	7.78	±9.6
10888	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, QPSK, 120 kHz)	5G NR FR2 TDD	8.35	±9.6
10889	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.02	±9.6
10890	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 16QAM, 120 kHz)	5G NR FR2 TDD	8.40	±9.6
10891	AAE	5G NR (CP-OFDM, 1 RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.13	±9.6
10892	AAE	5G NR (CP-OFDM, 100% RB, 50 MHz, 64QAM, 120 kHz)	5G NR FR2 TDD	8.41	±9.6
10897	AAE	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.66	±9.6
10898	AAC	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.6
10899	AAB	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.67	±9.6
10900	AAC	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10901	AAB	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10902	AAC	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10903	AAD	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10904	AAC	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10905	AAD	5G NR (DFT-s-OFDM, 1 RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10906	AAD	5G NR (DFT-s-OFDM, 1 RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.68	±9.6
10907	AAE	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.78	±9.6
10908	AAC	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	±9.6
10909	AAB	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.96	±9.6
10910	AAC	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	±9.6

Certificate No: EF-4067_Jan25

Page 19 of 21

EF3DV3 - SN:4067

January 13, 2025

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ² k = 2
10911	AAB	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.93	±9.6
10912	AAC	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10913	AAD	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10914	AAC	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.85	±9.6
10915	AAD	5G NR (DFT-s-OFDM, 50% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.83	±9.6
10916	AAD	5G NR (DFT-s-OFDM, 50% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
10917	AAD	5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10918	AAE	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	±9.6
10919	AAC	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.86	±9.6
10920	AAB	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.87	±9.6
10921	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10922	AAB	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.82	±9.6
10923	AAC	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10924	AAD	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10925	AAC	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.95	±9.6
10926	AAD	5G NR (DFT-s-OFDM, 100% RB, 60 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.84	±9.6
10927	AAD	5G NR (DFT-s-OFDM, 100% RB, 80 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	5.94	±9.6
10928	AAD	5G NR (DFT-s-OFDM, 1 RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10929	AAD	5G NR (DFT-s-OFDM, 1 RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10930	AAC	5G NR (DFT-s-OFDM, 1 RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.52	±9.6
10931	AAC	5G NR (DFT-s-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10932	AAC	5G NR (DFT-s-OFDM, 1 RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10933	AAC	5G NR (DFT-s-OFDM, 1 RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10934	AAC	5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10935	AAD	5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.51	±9.6
10936	AAD	5G NR (DFT-s-OFDM, 50% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	±9.6
10937	AAD	5G NR (DFT-s-OFDM, 50% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.77	±9.6
10938	AAC	5G NR (DFT-s-OFDM, 50% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.90	±9.6
10939	AAC	5G NR (DFT-s-OFDM, 50% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.82	±9.6
10940	AAC	5G NR (DFT-s-OFDM, 50% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.89	±9.6
10941	AAC	5G NR (DFT-s-OFDM, 50% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
10942	AAC	5G NR (DFT-s-OFDM, 50% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
10943	AAD	5G NR (DFT-s-OFDM, 50% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.95	±9.6
10944	AAD	5G NR (DFT-s-OFDM, 100% RB, 5 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.81	±9.6
10945	AAD	5G NR (DFT-s-OFDM, 100% RB, 10 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.85	±9.6
10946	AAC	5G NR (DFT-s-OFDM, 100% RB, 15 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.83	±9.6
10947	AAC	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6
10948	AAC	5G NR (DFT-s-OFDM, 100% RB, 25 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
10949	AAC	5G NR (DFT-s-OFDM, 100% RB, 30 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.87	±9.6
10950	AAC	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.94	±9.6
10951	AAD	5G NR (DFT-s-OFDM, 100% RB, 50 MHz, QPSK, 15 kHz)	5G NR FR1 FDD	5.92	±9.6
10952	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.25	±9.6
10953	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.15	±9.6
10954	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.23	±9.6
10955	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.42	±9.6
10956	AAA	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.14	±9.6
10957	AAA	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.31	±9.6
10958	AAA	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.61	±9.6
10959	AAA	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.33	±9.6
10960	AAE	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.32	±9.6
10961	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.36	±9.6
10962	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.40	±9.6
10963	AAC	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.55	±9.6
10964	AAE	5G NR DL (CP-OFDM, TM 3.1, 5 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.29	±9.6
10965	AAC	5G NR DL (CP-OFDM, TM 3.1, 10 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.37	±9.6
10966	AAB	5G NR DL (CP-OFDM, TM 3.1, 15 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.55	±9.6
10967	AAC	5G NR DL (CP-OFDM, TM 3.1, 20 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.42	±9.6
10968	AAD	5G NR DL (CP-OFDM, TM 3.1, 100 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.49	±9.6
10972	AAC	5G NR (CP-OFDM, 1 RB, 20 MHz, QPSK, 15 kHz)	5G NR FR1 TDD	11.59	±9.6
10973	AAD	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	5G NR FR1 TDD	9.06	±9.6
10974	AAD	5G NR (CP-OFDM, 100% RB, 100 MHz, 256-QAM, 30 kHz)	5G NR FR1 TDD	10.28	±9.6
10978	AAA	ULLA BDR	ULLA	1.16	±9.6
10979	AAA	ULLA HDR4	ULLA	8.58	±9.6
10980	AAA	ULLA HDR8	ULLA	10.32	±9.6
10981	AAA	ULLA HDRp4	ULLA	3.19	±9.6
10982	AAA	ULLA HDRp8	ULLA	3.43	±9.6

Certificate No: EF-4067_Jan25

Page 20 of 21

EF3DV3 - SN:4067

January 13, 2025

UID	Rev	Communication System Name	Group	PAR (dB)	Unc ^E k = 2
10983	AAC	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.31	±9.6
10984	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	9.42	±9.6
10985	AAC	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.54	±9.6
10986	AAB	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.50	±9.6
10987	AAC	5G NR DL (CP-OFDM, TM 3.1, 60 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.53	±9.6
10988	AAB	5G NR DL (CP-OFDM, TM 3.1, 70 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.38	±9.6
10989	AAC	5G NR DL (CP-OFDM, TM 3.1, 80 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.33	±9.6
10990	AAB	5G NR DL (CP-OFDM, TM 3.1, 90 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	9.52	±9.6
11003	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 TDD	10.24	±9.6
11004	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 TDD	10.73	±9.6
11005	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.70	±9.6
11006	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.55	±9.6
11007	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.48	±9.6
11008	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 15 kHz)	5G NR FR1 FDD	8.51	±9.6
11009	AAA	5G NR DL (CP-OFDM, TM 3.1, 25 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.76	±9.6
11010	AAA	5G NR DL (CP-OFDM, TM 3.1, 30 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.95	±9.6
11011	AAA	5G NR DL (CP-OFDM, TM 3.1, 40 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.96	±9.6
11012	AAA	5G NR DL (CP-OFDM, TM 3.1, 50 MHz, 64-QAM, 30 kHz)	5G NR FR1 FDD	8.68	±9.6
11013	AAB	IEEE 802.11be (320 MHz, MCS1, 99pc duty cycle)	WLAN	8.47	±9.6
11014	AAB	IEEE 802.11be (320 MHz, MCS2, 99pc duty cycle)	WLAN	8.45	±9.6
11015	AAB	IEEE 802.11be (320 MHz, MCS3, 99pc duty cycle)	WLAN	8.44	±9.6
11016	AAB	IEEE 802.11be (320 MHz, MCS4, 99pc duty cycle)	WLAN	8.44	±9.6
11017	AAB	IEEE 802.11be (320 MHz, MCS5, 99pc duty cycle)	WLAN	8.41	±9.6
11018	AAB	IEEE 802.11be (320 MHz, MCS6, 99pc duty cycle)	WLAN	8.40	±9.6
11019	AAB	IEEE 802.11be (320 MHz, MCS7, 99pc duty cycle)	WLAN	8.29	±9.6
11020	AAB	IEEE 802.11be (320 MHz, MCS8, 99pc duty cycle)	WLAN	8.27	±9.6
11021	AAB	IEEE 802.11be (320 MHz, MCS9, 99pc duty cycle)	WLAN	8.46	±9.6
11022	AAB	IEEE 802.11be (320 MHz, MCS10, 99pc duty cycle)	WLAN	8.36	±9.6
11023	AAB	IEEE 802.11be (320 MHz, MCS11, 99pc duty cycle)	WLAN	8.09	±9.6
11024	AAB	IEEE 802.11be (320 MHz, MCS12, 99pc duty cycle)	WLAN	8.42	±9.6
11025	AAB	IEEE 802.11be (320 MHz, MCS13, 99pc duty cycle)	WLAN	8.37	±9.6
11026	AAB	IEEE 802.11be (320 MHz, MCS10, 99pc duty cycle)	WLAN	8.39	±9.6

^E Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

Appendix E. Dipole Calibration Data

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



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

Accreditation No.: **SCS 0108**

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

Client **HCT**
Gyeonggi-do, Republic of Korea

Certificate No. **CD835V3-1024_Feb25**

CALIBRATION CERTIFICATE

Object **CD835V3 - SN: 1024**

Calibration procedure(s) **QA CAL-20.v7**
Calibration Procedure for Validation Sources in air

Calibration date: **February 18, 2025**

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter NRP2	SN: 104778	26-Mar-24 (No. 217-04036/04037)	Mar-25
Power sensor NRP-Z91	SN: 103244	26-Mar-24 (No. 217-04036)	Mar-25
Power sensor NRP-Z91	SN: 103245	26-Mar-24 (No. 217-04037)	Mar-25
Reference 20 dB Attenuator	SN: BH9394 (20k)	26-Mar-24 (No. 217-04046)	Mar-25
Type-N mismatch combination	SN: 310982 / 06327	26-Mar-24 (No. 217-04047)	Mar-25
Probe EF3DV3	SN: 4013	26-Nov-24 (No. EF3-4013_Nov24)	Nov-25
DAE4	SN: 781	07-Feb-25 (No. DAE4-781_Feb25)	Feb-26

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter Agilent 4419B	SN: GB42420191	09-Oct-09 (in house check Nov-24)	In house check: Nov-25
Power sensor HP E4412A	SN: US38485102	05-Jan-10 (in house check Nov-24)	In house check: Nov-25
Power sensor HP 8482A	SN: US37295597	09-Oct-09 (in house check Nov-24)	In house check: Nov-25
RF generator R&S SMT-06	SN: 837633/005	10-Jan-19 (in house check Nov-24)	In house check: Nov-25
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Sep-24)	In house check: Sep-26

Calibrated by:	Name Leif Klysner	Function Laboratory Technician	Signature
Approved by:	Sven Kühn	Technical Manager	

Issued: February 18, 2025

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: CD835V3-1024_Feb25

Page 1 of 5

결	담당자	확인자
재		
직위/성명	SW / 박현수	BJ / 하영진
일 자	2025 / 2.28	2025 / 2.29