TEST REPORT

FCC HAC T-COIL Test for SM-A266U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-SR-2501-FC001

DATE OF ISSUE
January 15, 2025

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TEST REPORT

HAC T-COIL Test for certification

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FCC ID
A3LSMA266U

Applicant	**SAMSUNG Electronics Co., Ltd** **129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677, Korea**
Product Name	**Mobile Phone**
Model Name	**SM-A266U**
Additional Model Name	**SM-A266U1, SM-S266V**
Date of Test	**Dev. 02, 2024~Jan. 10, 2025**
Location of Test	**■ Permanent Testing Lab ☐ On Site Testing Lab** **(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)**
FCC Rule Part(s)	**FCC 47 CFR § 20.19 , ANSI C63.19-2019**
C63.19-2019HACResult:	**PASS**

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	Jan. 15, 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

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 D02 T Coil testing v04 ・ 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, Republic of 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)

3. DEVICE UNDER TEST DESCRIPTION

3.1 General Information of the EUT

Model Name	SM-A266U
Additional Model Name	SM-A266U1, SM-S266V
Equipment Type	Mobile Phone
FCC ID	A3LSMA266U
Application Type	Certification
Applicant	SAMSUNG Electronics Co., Ltd.

3.2 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 n25 (PCS)	Voice / Data	1 852.5 MHz~ 1 912.5 MHz
NR FDD Band n30	Voice / Data	2 307.5 MHz~ 2 312.5 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 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
2.4 GHz WLAN	Voice / Data	2 412 MHz ~ 2 462 MHz
Bluetooth / LE 5.3	Data	2 402 MHz ~ 2 480 MHz
NFC	Data	13.56 MHz

4. Measuring Instrument Calibration

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations and is traceable to recognized national standards.

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
ABM Probe	SPEAG	AM1DV3	3049	11/14/2025
ABM Probe	SPEAG	AM1DV3	3153	05/14/2025
Data Acquisition Electronics	SPEAG	DAE4	1225	02/15/2025
Data Acquisition Electronics	SPEAG	DAE4	780	06/19/2025
DAC	Sound Devices	USB Pre2	HB1319212059	N/A
Radio Communication Tester	R & S	CMW 500	167916	09/11/2025
Radio Communication Tester	R & S	CMW 500	127521	04/23/2025
Radio Communication Tester	R & S	CMW 500	167918	03/20/2025
Up/Down-Converter	R & S	CMW Z800A	100218	N/A
USB Audio Module	KEYSIGHT	U8903B-UAM	101006	N/A
UXM 5G Wireless Test Set	KEYSIGHT	E7515B	MY58460166	07/30/2025

5. Measurement Uncertainty

Measurement Uncertainty for Audio Band Magnetic Measurement

Error Description	Uncertainty ± %	Probability distribution	Div.	ci ABMd	ci ABMu	Std. Unc. ABMd	Std. Unc. ABMu
Probe Sensitivity							
Reference Level	3.00	N	1	1	1	3.00	3.00
AMCC Geometry	0.40	R	1.73	1	1	0.23	0.23
AMCC Current	1.00	R	1.73	1	1	0.58	0.58
Probe Positioning during Calibr.	0.10	R	1.73	1	1	0.06	0.06
Noise Contribution	0.70	R	1.73	0.0143	1	0.01	0.40
Frequency Slope	5.90	R	1.73	0.1	1	0.34	3.41
Probe System							
Repeatability / Drift	1.00	R	1.73	1	1	0.58	0.58
Linearity / Dynamic Range	0.60	R	1.73	1	1	0.35	0.35
Acoustic Noise	1.00	R	1.73	0.1	1	0.06	0.58
Probe Angle	1.00	R	1.73	1	1	0.58	0.58
Spectral Processing	0.90	R	1.73	1	1	0.52	0.52
Integration Time	0.60	N	1.00	1	5	0.60	3.00
Field Distribution	0.20	R	1.73	1	1	0.12	0.12
Test Signal							
Ref. Signal Spectral Response	0.60	R	1.73	0	1	0.00	0.35
Positioning							
Probe Positioning	1.90	R	1.73	1	1	1.10	1.10
Phantom Thickness	0.90	R	1.73	1	1	0.52	0.52
DUT Positioning	1.90	R	1.73	1	1	1.10	1.10
External Contributions							
RF Interference	0.00	R	1.73	1	0.3	0.00	0.00
Test Signal Variation	2.00	R	1.73	1	1	1.15	1.15
Combined Uncertainty							
Combined Std. Uncertainty	*(k=1)*					3.87	5.97
Expanded uncertainty	*(Coverage factor for 95%, k=2)*					**7.74**	**11.94**
Notes for table : N –Normal, R –Rectangular, Div. - Divisor used to obtain standard uncertainty							

6. Test Procedures for all Technologies

6.1 General Procedures C63.19-2019, Section 6

ANSI C63.19-2019, Section 6

This document describes the measurement of the baseband (audio frequency) magnetic T-Coil signal from a WD. The goal is to evaluate the size of the area where a user could position their WD relative to their hearing aid's telecoil and receive an acceptable magnetically coupled signal. Three quantities are measured and evaluated. The first is the field strength of the desired signal at the center of the audio band (desired ABM signal).31 The second is the frequency response of the desired signal measured across the audio band.

This subclause describes the procedures used to measure the ABM (T-Coil) performance of the WD. Measurements shall be performed over a measurement area 50 mm square, in the measurement plane, as specified in A.3. The measurement area shall be scanned with a uniform measurement point spacing of 2.0 mm ± 0.5 mm in each X-Y axis of the plane, yielding 676 measurement points with approximately even spacing throughout the area. In addition to measuring the desired ABM signal levels, the weighted magnitude of the unintended signal shall also be determined. Weighting of the unintended and undesired ABM field shall be by the spectral and temporal weighting described in D.4 through D.6. Measurements shall not include undesired properties from the WD's RF field; therefore, use of a coaxial connection to a base station simulator or non-radiating load may be necessary. However, even then with a coaxial connection to a base station simulator or non-radiating load there may still be RF leakage from the WD, which may interfere with the desired measurement.

Measurements shall be performed with the probe coil oriented in the transverse direction, as illustrated in A.3, that is, aligned in the plane of the measurement area and perpendicular to the long dimension of the WD. A multi-stage sequence consists of first measuring the field strength of the desired T-Coil signal (desired ABM signal) that is useful to a hearing aid T-Coil at each specified measurement point. The undesired magnetic component (undesired ABM field) is then measured in the same transverse orientation at each of the same measurement points. At a single location only, taken at or near the highest desired ABM signal reading, the desired ABM signal frequency response shall be determined in a third measurement stage.

Test flow for T-Coil signal test

The following steps summarize the basic test flow for determining desired ABM signal and undesired ABM field. These steps assume that a sine wave or narrowband 1/3 octave signal can be used for the measurement of desired ABM signal level. An alternative procedure, yielding equivalent results, using a broadband excitation is described in 6.5.

a) A validation of the test setup and instrumentation shall be performed. This may be done using a TMFS or Helmholtz Coil. Measure the emissions and confirm that they are within tolerance of the expected values.

b) Confirm that equipment that requires calibration has been calibrated, and that the noise level meets the requirements given in 6.3.2.

c) Position the WD in the test setup and connect the WD RF connector to a base station simulator or a non-radiating load (if necessary to control RF interference in the measurement equipment) as shown in Figure 6.1 or Figure 6.2.

d) The drive level to the WD is set such that the reference input level specified in Table 6.1 is input to the base station simulator (or manufacturer's test mode equivalent) in the 1 kHz, 1/3 octave band. This drive level shall be used for the T-Coil signal test (desired ABM signal) at f= 1 kHz.

Either a sine wave at 1025 Hz, or a voice-like signal, band-limited to the 1 kHz 1/3 octave, as specified in 6.4.3, shall be used for the reference audio signal. If interference is found at 1025 Hz an alternative nearby reference audio signal frequency may be used.35 The same drive

level will be used for the desired ABM signal frequency response measurements at each 1/3 octave band center frequency. The WD volume control may be set at any level up to maximum, provided that a signal at any frequency at maximum modulation would not result in clipping or signal overload.

e) At each measurement location over the measurement area and in the transverse orientation, measure and record the desired 1 kHz T-Coil magnetic signal (desired ABM signal) as described in Step c).

f) At or near a location representing a maximum in the just-measured desired ABM signal, measure and record the desired T-Coil magnetic signals (desired ABM signal at fi) as described in 6.4.5.2 in each individual ISO 266:1975 R10 standard 1/3 octave band. The desired audio band input frequency (fi) shall be centered in each 1/3 octave band maintaining the same drive level as determined in Step c), and the reading taken for that band. Equivalent methods of determining the frequency response may also be employed, such as fast Fourier transform (FFT) analysis using noise excitation or input–output comparison using simulated speech. The full-band integrated or half-band integrated probe output, as described in D.9, may be used, as long as the appropriate calibration curve is applied to the measured result, so as to yield an accurate measurement of the field magnitude. (The resulting measurement shall be an accurate measurement in dB(A/m).) Compare the frequency response found to the requirements of 6.6.3.

g) At the same locations measured in Step d), measure and record the undesired broadband audio magnetic signal (undesired ABM field) with no audio signal applied (or digital zero applied, if appropriate) using the specified spectral weighting, the half-band integrator followed by the temporal weighting.

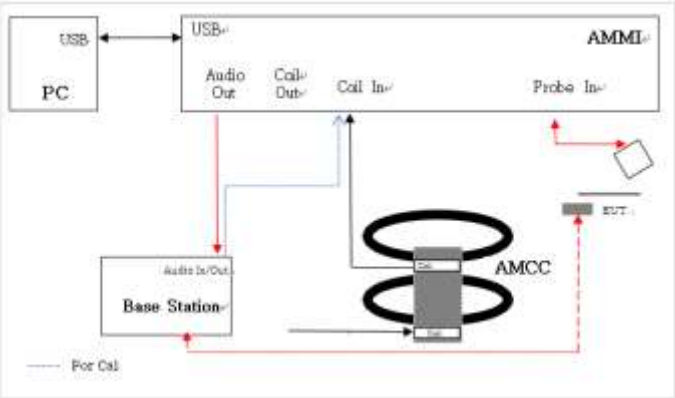
h) Calculate and record the location and number of the measurement points that satisfy both the minimum desired ABM signal level and the maximum undesired ABM field level specified in 6.6.2. Compare this to the requirements in 6.6.4 and record the result.

i) Calculate and record the location and number of the measurement points that satisfy the maximum undesired ABM field level and distribution requirements specified in 6.6.4.

All measurements of the desired signal shall be shown to be of the desired signal and not of an undesired signal. This may be shown by turning the desired signal ON and OFF with the probe measuring the scanned locations.

At the measurement location for each orientation, measure and record the undesired broadband audio magnetic signal (ABM2) as specified in 6.4.2 g) with no audio signal applied (or digital zero applied, if appropriate) using A-weighting and the half-band integrator. Calculate the ratio of the desired to undesired signal strength (i.e., signalquality).
Obtain the data from the postprocessor, SEMCAD, and determine the primary group, secondary group that properly the signal quality based on Table8.

Test Setup Diagram



6.2 VoWiFi

This device supports Wi-Fi calling (aka Voice over Wi-Fi or VoWiFi) which is an extended feature of the carriers CMRS service to offload VoLTE calls onto local area networks over WI-FI via the internet and subject to HAC assessment for phones with a HAC rating.

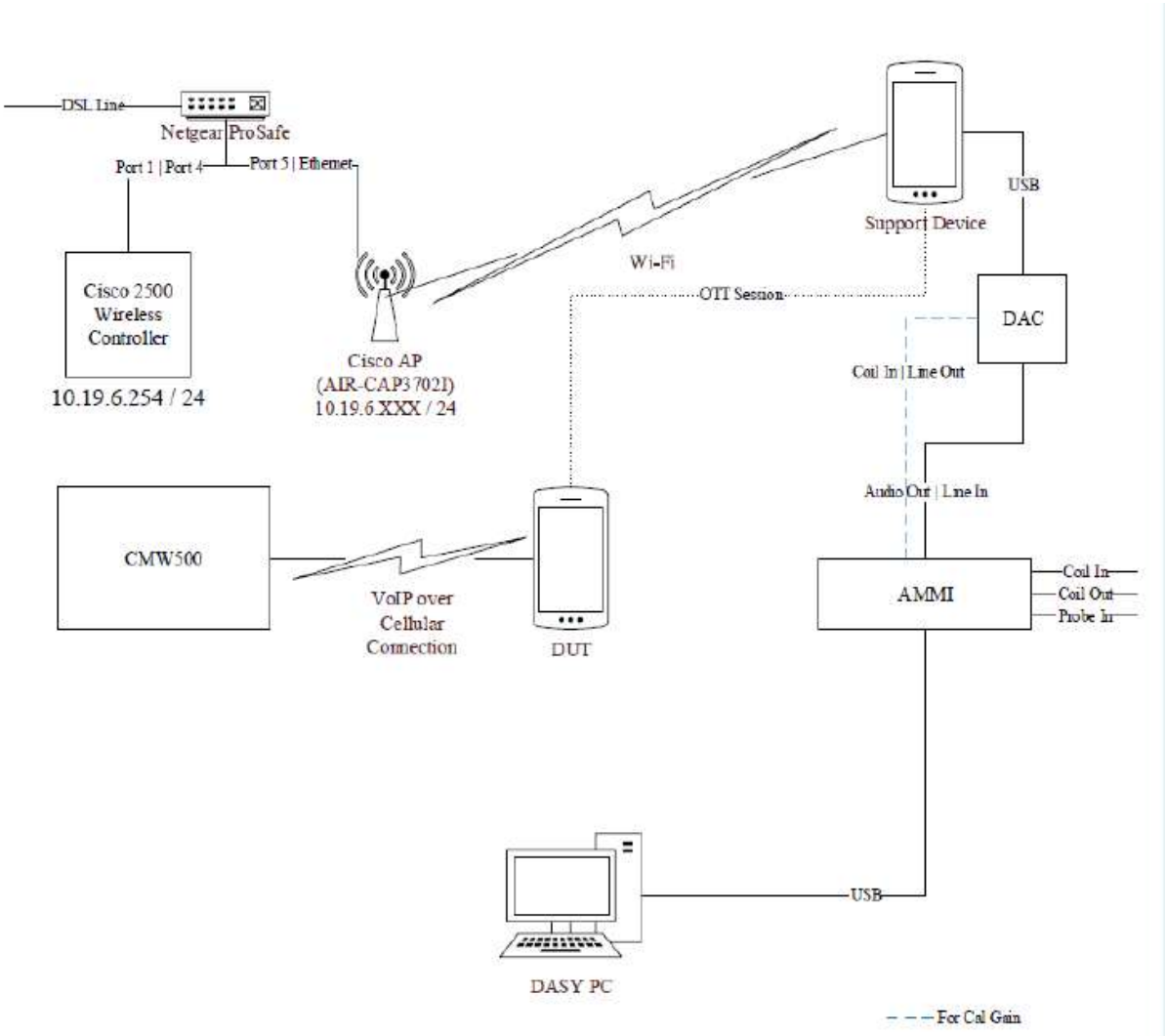
The set up for VoWiFi uses the Base station as described in section 7.1 with the exception that the reference audio level is set at -16dBm0. The reference level is calibrated using the standard call box calibration procedures with the exception of the -16dBm0 reference level being used.

An investigation was performed to determine worst case codec, bit rate and air interface configuration (refer to sections 11.3, 11.4).

6.3 Over the Top(OTT)

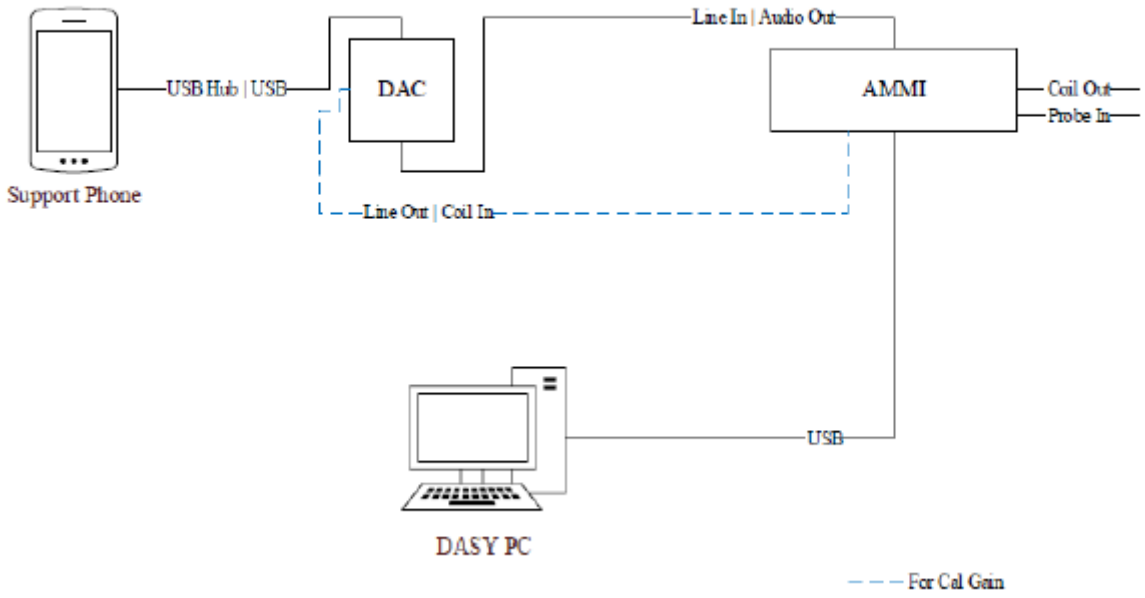
This device supports VoIP via a preinstalled application that uses the Google Meet service, using OPUS as its only codec (refer to § 10 for air interface details and § 11.6 for codec bit rates). VoIP capabilities require HAC assessment when voice calls are supported over the cellular data connection via pre-installed VoIP applications.

The equipment is set up as shown below with a support device used to originate the call using the IP transport. The support device connects to the cloud-based Google Meet service via Wi-Fi access point and router, or RJ45. The DUT connects to the VoIP service via a cellular/unlicensed air interface to the call box and an Ethernet connection from call box to Internet. The various codec bit rate and air interface configurations are evaluated to determine the worst-case configuration (refer to § 11.6).
Test Setup configuration for OTT calls



For the OTT call, the calibrated audio card within the CMW500 cannot be used so the AMMI is connected to an external Digital-Analog Converter (DAC) and the DAC is connected to the Support Device via USB. The test signal is sent from the DASY PC to the AMMI, from the AMMI to the DAC, from the DAC to the Support Device, and, via the VoIP call, to the DUT.

As this test set up uses an external DAC between the AMMI's audio output and support device, the appropriate gain factor for the OTT call needs be determined. This is done by connecting the DAC between the AMMI Audio output and Coil input as shown below.



Using the metering function on the DAC, the DAC gain is adjusted until the volume reaches 0dBFS (3.14 dBm0 based on TIA/EIA 810-A).

7. Audio Level and Gain Measurements

7.1 GSM, UMTS, LTE, NR, Wifi

Refer to the below table for the gains used to measure.

GSM, UMTS

Signal Type	Audio Level [dBm]	Peak to Full Scale [dB]	Peak to RMS Scale [dB]	BWC [dB]	Scaling [Gain]
Voice 1 kHz	-16	-0.37	15.74	0.07	-12.51 to -12.44
Normal Voice	-16	0	21.57	10.81	-6.68 to -6.61

VoLTE

Signal Type	Audio Level [dBm]	Peak to Full Scale [dB]	Peak to RMS Scale [dB]	BWC [dB]	Scaling [Gain]
Voice 1 kHz	-16	-0.37	15.74	0.07	-12.34 to -12.10
Normal Voice	-16	0	21.57	10.81	-6.51 to -6.27

VoNR

Signal Type	Audio Level [dBm]	Peak to Full Scale [dB]	Peak to RMS Scale [dB]	BWC [dB]	Scaling [Gain]
Voice 1 kHz	-16	-0.37	15.74	0.07	-7.34 to -7.25
Normal Voice	-16	0	21.57	10.81	-1.51 to -1.42

VoWifi

Signal Type	Audio Level [dBm]	Peak to Full Scale [dB]	Peak to RMS Scale [dB]	BWC [dB]	Scaling [Gain]
Voice 1 kHz	-16	-0.37	15.74	0.07	-12.48 to -12.39
Normal Voice	-16	0	21.57	10.81	-6.65 to -6.56

Refer to the below table for the gains used to measure VoLTE.

The following software/firmware was used to simulate the VoLTE server for testing:

Firmware	License Keys	Software Name
V4.0.24 for LTE	KS500	LTE FDD R8 SIG BASIC
	KS550	LTE TDD R8 SIG BASIC
V4.0.56 for Audio	KA100	IP APPL ENABLING IPv4
	KA150	IP APPL ENABLING IPv6
	KAA20	IP APPL IMS BASIC
	KM050	DATA APPL MEAS
	KS104	EVS SPEECH CODEC

Refer to the below table for the gains used to measure VoWifi.

Firmware	License Keys	Software Name
V4.0.23 for WLAN	KS650	WLAN A/B/G SIG BASIC
	KS651	WLAN N SIG BASIC
	KS656	WLAN IEEE 802.11ac
V4.0.56 for Audio	KA100	IP APPL ENABLING IPv4
	KA150	IP APPL ENABLING IPv4
	KAA20	IP APPL IMS BASIC
	KM050	DATA APPL MEAS
	KS104	EVS SPEECH CODEC

Firmware	License Keys	Software Name
V8.0.0.164 for WLAN	KM350	WLAN IEEE a/b/g/n/ac SIG BASIC
	KM360	WLAN IEEE 802.11 MIMO
	KS350B	WLANIEEE a/b/g/n/ac APs
V8.0.0.164 for Audio	KA110	IP APPL ENABLING IPv4, DATA APPL MEAS
	KA180	Audio Enabler

Refer to the below table for the gains used to measure VoNR of Call Box(E7515B)

The following software/firmware was used to simulate the VoNR server for testing:

Firmware	License Model	Software Name
5G NR	C8700200A	Test Application Framework
Audio	C8700201A	IMS-SIP Emulation
	C87300P1A	LTE IP data
	C87350P1A	5G NR IP data

7.2 Over the Top(OTT)

For EDGE, HSPA, LTE, NR and Wi-Fi the linear gain levels listed below were used. The results below are based on a reference input level of -16 dBm.

To calibrate the DAC (refer § 6.3), three. Way audio files (sine wave, 1 ㎑ voice, and 300 to 3 ㎑ voice) are sent from the DASY PC to the AMMI, then to the DAC. The Helmholtz resonator measures the field strength, which represents the AMMI to DAC input sensitivity. After determining the input sensitivity, the adjusted linear gain values can then be calculated.

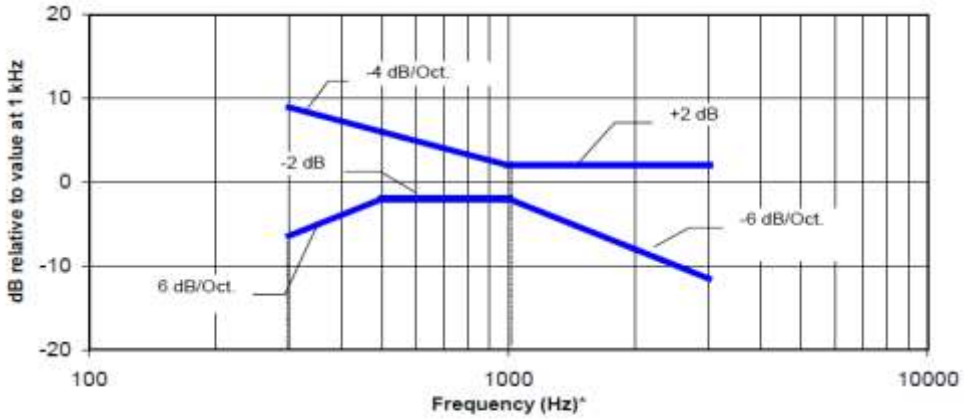
Signal Type	Audio Level [dBm]	Peak to Full Scale [dB]	Peak to RMS Scale [dB]	BWC [dB]	Scaling [Gain]
Voice 1 ㎑	-16	-0.37	15.74	0.07	-8.72 to -8.35
Normal Voice	-16	0	21.57	10.81	-2.89 to -2.52

8 T-coil Measurement Criteria

8.1 Frequency Response

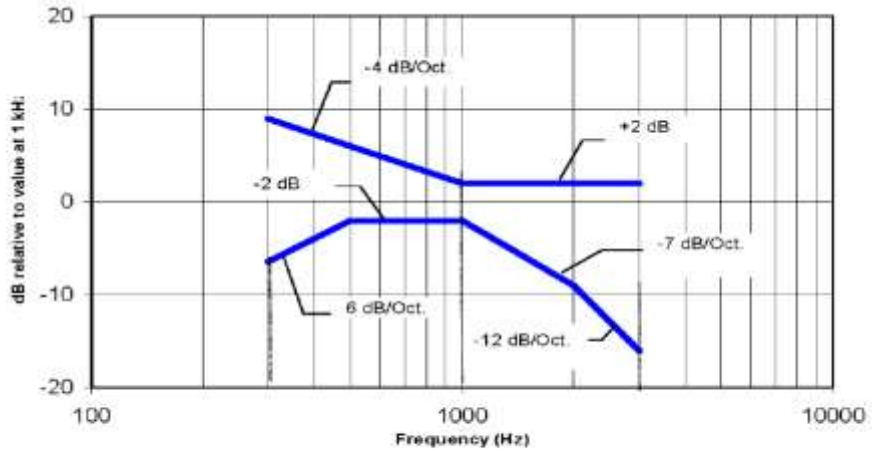
The frequency response of the axial component of the magnetic field, measured in 1/3 octave bands, shall follow the response curve, over the frequency range 300 Hz to 3000Hz.

Figure 6.4 and Figure 6.5 provide the boundaries for the specified frequency. These response curves are for true field strength measurements of the T-Coil signal. Thus the 6 dB/octave probe response has been corrected from the raw readings.



NOTE—Frequency response is between 300 Hz and 3 kHz.

Figure 6.4—Magnetic field frequency response for WDs with a maximum field ≤−15 dB(A/m) at 1 kHz



NOTE—Frequency response is between 300 Hz and 3000 Hz.

Figure 6.5—Magnetic field frequency response for WDs with a maximum field that exceeds −15 dB(A/m) at 1 kHz

8.2 Desired ABM Signal, Undesired ABM Field qualification requirements

ANSI C63.19-2019, Section 6.6.4.1

For a WD that is expected to operate primarily in radio access technologies that include 2G GSM for legacy support, the WD shall be qualified for telecoil compatibility one of two ways:

a) The WD shall be rated for telecoil use for all other voice operating modes, exclusive of 2G GSM, according to the criteria of 6.6.4.2.

b) If the WD is to be rated for telecoil use in its 2G GSM operating modes, these modes shall be qualified according to the criteria of 6.6.4.3.

ANSI C63.19-2019,6.6.4.2 Non-2G GSM operating modes

The goal of this requirement is to ensure an adequate area where desired ABM signal is sufficiently strong to be heard clearly and a larger area where undesired ABM field is sufficiently low as to avoid undue annoyance. Qualifying measurement points shall fulfill the requirements of 6.6.2; both the primary and secondary group requirements shall be met:

- The primary group shall include at least 75 measurement points.
- The secondary group shall include at least 300 contiguous measurement points.

Additionally, to avoid an oddly shaped area of low noise, the secondary group shall include at least one longitudinal column of at least 10 contiguous qualifying points and at least one transverse row containing at least 15 contiguous qualifying points.

ANSI C63.19-2019, 6.6.4.3 2G GSM operating modes

If the 2G GSM operating mode(s) are selected for qualification, the qualifying measurement points shall fulfil the requirements of 6.6.2; both the primary and secondary group requirements shall be met:

- The primary group shall include at least 25 measurement points.
- The secondary group shall include at least 125 contiguous measurement points.

9. Device Under Test

Normal operation	Held to head	
Back Cover	The Back Cover is not removable	
Test sample information	S/N	Notes
	WKH0669R	T-coil Test
	XKP0621M	

Note : T-Coil Measurements in this report were performed by Maximum Power (Pmax) in static power condition.

10. Air Interfaces and Operating Mode

Air Interface	Bands (MHz)	Type	C63.19 Tested	Simultaneous Transmitter	Audio Codecs Evaluated
GSM	850	VO	Yes	Wi-Fi, BT	EFR[1]
	1900				
	GPRS/EDGE	VD	Yes	Wi-Fi, BT	OPUS[1]
WCDMA (UMTS)	850	VO	Yes	Wi-Fi, BT	AMR-NB &AMR-WB[1]
	1700				
	1900				
	HSPA	VD	Yes	Wi-Fi, BT	OPUS[1]
LTE - FDD	680 (B71)	VD	Yes	NR,Wi-Fi, BT	(AMR-NB, AMR- WB, EVS-NB, EVS-WB& OPUS) [1]
	700 (B12/13/14)				
	850 (B5/26)				
	1700 (B4/66)				
	1900 (B2/25)				
	2300 (B30)				
	2500 (B7)				
LTE – TDD	2600 (B38/41)	VD	Yes	NR,Wi-Fi, BT	(AMR-NB, AMR- WB, EVS-NB, EVS-WB& OPUS) [1]
	3600 (B48)				
NR -FDD	680(B71)	VD	Yes	LTE,Wi-Fi, BT	(A MR-NB, AMR- WB, EVS-NB, EVS-WB& OPUS) [1]
	850(B5)				
	1700(B66)				
	1900(B2/25)				
	2300(B30)				
NR -TDD	2600(B38/41/48)	VD	Yes	LTE,Wi-Fi, BT	(AMR-NB, AMR- WB, EVS-NB, EVS-WB& OPUS) [1]
	3800(B77/78)		Yes		
Wi-Fi	2450	VD	Yes	WWAN and BT, Wifi 5GHz	(AMR-NB, AMR- WB, EVS-NB, EVS-WB& OPUS) [1]
	5200 (U-NII-1)			WWAN and Wifi 2.4GHz, BT	
	5300 (U-NII-2A)				
	5500 (U-NII-2C)				
	5800 (U-NII-3)				
	5900 (U-NII-4)				
BT	2450	DT	N/A	WWAN and Wifi 2.4GHz, Wifi 5GHz	N/A

Type:
VO: Legacy Cellular Voice Service
DT: Digital Transport only(no voice)
CMRS: Commercial Mobile Radio Service
VD: IP Voice service over Digital Transport

Note:
1. Ref Lev in accordance with the ANSI 63.19-2019 Table 6.1

11. HAC (T-coil) Test Results

11.1 Codec Investigation

An investigation between the various codec configurations (Low/High bit rates for Narrowband, Wideband) and specific parameters are documented (Primary Group, Secondary Group, longitudinal contiguous points, transverse row contiguous points, frequency response) to determine the worst-case bit rates for each voice service type. The table below compares the varying codec configurations. A codec investigation was performed on one band of each GSM, UMTS, LTE FDD/TDD, NR FDD/TDD.

The highlighted results below were determined to be the worst case codec configuration(s) for GSM, UMTS and LTE, NR.

GSM

Codec Investigation				
Codec State	AMR-NB (kbit/s)		Orientation	Band/ Channel
	FR V1	HR V1		
Freq. Response(dB)	1.71	1.70	y (Transversal)	GSM 850 CH.190 ANT A
Primary	94	103		
Secondary	312	314		
Contiguous Longitudinal	15	14		
Contiguous Transverse	26	26		

UMTS

Codec Investigation								
Codec State	AMR-NB (kbit/s)			AMR-WB (kbit/s)			Orientation	Band/ Channel
	4.75	7.4	12.2	6.6	15.85	23.85		
Freq. Response(dB)	2.00	2.00	2.00	2.00	2.00	2.00	y (Transversal)	UMTS Band 2 Rel.99 CH.9400 ANT B
Primary	376	365	379	324	344	326		
Secondary	660	647	663	650	663	655		
Contiguous Longitudinal	26	26	26	26	26	26		
Contiguous Transverse	26	26	26	26	26	26		

LTE FDD

Codec Investigation								
Codec State	AMR-NB (kbit/s)			AMR-WB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	4.75	7.4	12.2	6.6	15.85	23.85		
Freq. Response(dB)	1.59	1.59	1.92	1.79	1.71	1.60	y (Transversal)	LTE Band25 CH.26365 20 MHz QPSK 1RB 0offset ANT B
Primary	306	304	313	229	241	232		
Secondary	592	591	595	604	606	590		
Contiguous Longitudinal	26	26	26	26	26	26		
Contiguous Transverse	26	26	26	26	26	26		

Codec Investigation											
Codec State	EVS-NB (kbit/s)			EVS-WB (kbit/s)			EVS-SWB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	5.9	13.2	24.4	5.9	13.2	24.4	9.6	16.4	24.4		
Freq. Response(dB)	1.74	2.00	2.00	1.87	1.67	1.57	1.59	1.82	1.95	y (Transversal)	LTE Band25 CH.26365 20 MHz QPSK 1RB 0offset ANT B
Primary	286	312	258	217	224	223	252	246	250		
Secondary	589	592	598	578	570	568	614	605	608		
Contiguous Longitudinal	26	26	26	26	26	26	26	26	26		
Contiguous Transverse	26	26	26	26	26	26	26	26	26		

LTE TDD

Codec Investigation								
Codec State	AMR-NB (kbit/s)			AMR-WB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	4.75	7.4	12.2	6.6	15.85	23.85		
Freq. Response(dB)	2.00	1.93	1.76	2.00	1.89	2.00	y (Transversal)	LTE Band41 CH.40620 20 MHz QPSK 1RB 0offset ANT B
Primary	156	155	159	146	150	171		
Secondary	397	397	397	395	395	441		
Contiguous Longitudinal	19	19	19	20	20	21		
Contiguous Transverse	26	26	26	26	26	26		

Codec Investigation											
Codec State	EVS-NB (kbit/s)			EVS-WB (kbit/s)			EVS-SWB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	5.9	13.2	24.4	5.9	13.2	24.4	9.6	16.4	24.4		
Freq. Response(dB)	2.00	2.00	2.00	2.00	2.00	2.00	1.70	1.67	1.87	y (Transversal)	LTE Band41 CH.40620 20 MHz QPSK 1RB 0offset ANT B
Primary	176	172	173	151	151	153	132	135	143		
Secondary	407	406	407	404	404	404	399	401	408		
Contiguous Longitudinal	20	20	20	20	20	20	19	19	20		
Contiguous Transverse	26	26	26	26	26	26	26	26	26		

NR FDD

Codec Investigation								
Codec State	AMR-NB (kbit/s)			AMR-WB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	4.75	7.4	12.2	6.6	15.85	23.85		
Freq. Response(dB)	2.00	1.91	1.89	2.00	1.83	1.81	y (Transversal)	NR Band n25 CH.376500 DFT-s OFDM QPSK 40 ㎒ 1RB 1offset ANT B
Primary	330	314	327	291	292	297		
Secondary	610	586	600	601	600	607		
Contiguous Longitudinal	26	26	26	26	26	26		
Contiguous Transverse	26	26	26	26	26	26		

Codec Investigation											
Codec State	EVS-NB (kbit/s)			EVS-WB (kbit/s)			EVS-SWB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	5.9	13.2	24.4	5.9	13.2	24.4	9.6	16.4	24.4		
Freq. Response(dB)	2.00	2.00	2.00	1.99	2.00	1.69	2.00	2.00	1.97	y (Transversal)	NR Band n25 CH.376500 DFT-s OFDM QPSK 40 ㎒ 1RB 1offset ANT B
Primary	308	335	330	259	276	282	259	262	262		
Secondary	598	604	600	574	568	575	591	587	587		
Contiguous Longitudinal	26	26	26	26	26	26	26	26	26		
Contiguous Transverse	26	26	26	26	26	26	26	26	26		

NR TDD

Codec Investigation								
Codec State	AMR-NB (kbit/s)			AMR-WB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	4.75	7.4	12.2	6.6	15.85	23.85		
Freq. Response(dB)	1.79	1.80	1.92	2.00	1.85	1.85	y (Transversal)	NR Band n41 CH.518598 DFT-s OFDM QPSK 100 ㎒ 1 RB 1 offset PC2 ANT B
Primary	159	158	159	131	134	134		
Secondary	386	388	387	379	380	380		
Contiguous Longitudinal	19	19	19	18	18	18		
Contiguous Transverse	26	26	26	26	26	26		

Codec Investigation											
Codec State	EVS-NB (kbit/s)			EVS-WB (kbit/s)			EVS-SWB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	5.9	13.2	24.4	5.9	13.2	24.4	9.6	16.4	24.4		
Freq. Response(dB)	1.69	2.00	2.00	1.94	2.00	1.83	2.00	1.87	2.00	y (Transversal)	NR Band n41 CH.518598 DFT-s OFDM QPSK 100 ㎒ 1 RB 1 offset PC2 ANT B
Primary	152	163	165	120	136	135	125	120	126		
Secondary	388	387	388	377	377	377	392	373	387		
Contiguous Longitudinal	19	19	19	18	18	18	20	18	19		
Contiguous Transverse	26	26	26	26	26	26	26	26	26		

11.2 Air Interface Investigation

Use the worst-case codec test and document a limited set of bands/modulations/channels/bandwidth. Observe the effect of changing the band and bandwidth to ensure that there are no unexpected variations.

11.2.1 GSM / UMTS

Mode	Ch. Freq.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response(dB)	Hmax dB(A/m)	Plot No.
GSM 850 Codec: FR V1 ANT A	CH.190 836.6 MHz	-56.73	94	312	15	26	1.71	1.67	**1**
GSM 1900 Codec: FR V1 ANT B	CH.661 1880.0 MHz	-56.73	106	323	17	26	1.97	1.90	
GSM 850 Codec: FR V1 ANT A	CH.128 824.2 MHz	-56.73	78	292	14	26	2.00	2.47	**2**
	CH.251 848.8 MHz	-56.73	99	318	15	26	2.00	2.60	**3**
UMTS Band 2 AMR-WB Codec: 6.6kbit/s ANT B	CH.9400 1880.0 MHz	-56.8	324	650	26	26	2.00	0.17	**4**
UMTS Band 4 AMR-WB Codec: 6.6kbit/s ANT B	CH.1412 1732.4 MHz	-56.8	331	659	26	26	2.00	-0.04	
UMTS Band 5 AMR-WB Codec: 6.6kbit/s ANT A	CH.4183 836.6 MHz	-56.8	346	659	26	26	2.00	0.03	
UMTS Band 2 AMR-WB Codec: 6.6kbit/s ANT B	CH.9262 1852.4 MHz	-56.8	295	594	26	26	2.00	0.08	**5**
	CH.9538 1907.6 MHz	-56.8	298	609	26	26	1.96	-0.27	**6**

11.2.2 LTE-FDD

RB/ Modulation configuration

Mode	Ch. Freq.	BW	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response(dB)	Hmax dB (A/m)	Plot No.
LTE Band 25 ANT B Codec: EVS-WB 5.9kbit/s	CH.26365 1882.5 MHz	20 MHz	QPSK	1/0	-52.41	217	578	26	26	1.87	0.23	
				1/49	-52.41	208	573	26	26	2.00	-2.80	
				1/99	-52.41	218	573	26	26	2.00	-2.85	
				50/0	-52.41	218	605	26	26	2.00	-2.94	
				50/25	-51.97	215	577	26	26	2.00	-2.20	
				50/49	-51.97	216	584	26	26	2.00	-1.22	
				100/0	-51.97	217	580	26	26	1.91	-1.21	
			16QAM	1/49	-51.97	213	558	26	26	2.00	-0.77	
			64QAM	1/49	-51.97	232	576	26	26	2.00	-1.95	
			256QAM	1/49	-51.97	223	567	26	26	1.87	-2.61	
		15 MHz	QPSK	1/36	-51.97	213	569	26	26	2.00	-1.23	
		10 MHz		1/24	-51.97	220	564	26	26	2.00	-1.64	
		5 MHz		1/12	-51.97	216	576	26	26	1.53	-1.76	
		3 MHz		1/7	-51.97	224	585	26	26	2.00	-1.32	
		1.4 MHz		1/3	-51.97	220	579	26	26	1.95	-1.65	

Mode	Ch. Freq.	BW	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response(dB)	Hmax dB (A/m)	Plot No.
LTE Band 2 ANT D Codec: EVS-WB 5.9kbit/s	CH.18900 1880 MHz	20 MHz	QPSK	1/49	-52.04	168	515	26	26	2.00	-2.01	7
LTE Band 7 ANT B Codec: EVS-WB 5.9kbit/s	CH.21100 2535 MHz	20 MHz	QPSK	1/49	-51.97	207	564	26	26	2.00	-1.71	
LTE Band 12 ANT A Codec: EVS-WB 5.9kbit/s	CH.23095 707.5 MHz	10 MHz	QPSK	1/24	-52.04	221	570	26	26	2.00	-2.48	
LTE Band 13 ANT A Codec: EVS-WB 5.9kbit/s	CH.23230 782 MHz	10 MHz	QPSK	1/24	-52.04	215	565	26	26	2.00	-2.36	
LTE Band 14 ANT A Codec: EVS-WB 5.9kbit/s	CH.23330 793 MHz	10 MHz	QPSK	1/24	-52.04	231	579	26	26	2.00	-2.13	
LTE Band 26 ANT A Codec: EVS-WB 5.9kbit/s	CH.26865 831.5 MHz	15 MHz	QPSK	1/36	-52.04	206	580	26	26	2.00	-1.56	
LTE Band 30 ANT B Codec: EVS-WB 5.9kbit/s	CH.27710 2310 MHz	10 MHz	QPSK	1/24	-52.04	207	590	26	26	1.77	-1.79	
LTE Band 66 ANT B Codec: EVS-WB 5.9kbit/s	CH.132322 1745 MHz	20 MHz	QPSK	1/49	-52.04	196	580	26	26	2.00	-3.17	
LTE Band 66 ANT D Codec: EVS-WB 5.9kbit/s	CH.132322 1745 MHz	20 MHz	QPSK	1/49	-52.04	190	548	26	26	1.85	-3.47	
LTE Band 71 ANT A Codec: EVS-WB 5.9kbit/s	CH.133297 680.5 MHz	20 MHz	QPSK	1/49	-52.04	224	584	26	26	1.90	-2.33	
LTE Band 2 ANT D Codec: EVS-WB 5.9kbit/s	CH.18700 1860 MHz	20 MHz	QPSK	1/49	-52.04	183	551	26	26	1.92	-2.99	8
LTE Band 2 ANT D Codec: EVS-WB 5.9kbit/s	CH.19100 1900 MHz	20 MHz	QPSK	1/49	-52.04	158	517	26	26	2.00	-1.78	9

11.2.3 LTE-TDD

RB/ Modulation configuration

Mode	Ch. Freq.	BW	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response(dB)	Hmax dB (A/m)	Plot No.
LTE Band 41 ANT B Codec: EVS-SWB 9.6kbit/s	CH.40620 2593 MHz	20 MHz	QPSK	1/0	-52.19	132	399	19	26	1.70	0.57	10
				1/49	-52.19	137	417	20	26	2.00	-1.24	
				1/99	-52.19	155	439	20	26	2.00	-0.45	
				50/0	-52.19	151	422	20	26	1.59	-0.24	
				50/25	-52.19	160	433	20	26	1.96	-0.25	
				50/49	-52.19	171	440	20	26	2.00	0.03	
				100/0	-52.19	165	432	20	26	1.64	0.13	
			16QAM	1/0	-52.19	154	420	20	26	1.80	0.03	
			64QAM	1/0	-52.19	165	433	20	26	1.82	0.05	
			256QAM	1/0	-52.19	188	462	21	26	1.88	0.05	
		15 MHz	16QAM	1/0	-52.19	166	433	20	26	1.83	-0.02	
		10 MHz		1/0	-52.22	148	412	20	26	1.93	-0.48	
		5 MHz		1/0	-52.22	153	412	20	26	1.69	-0.08	

Mode	Ch. Freq.	BW	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response(dB)	Hmax dB (A/m)	Plot No.
LTE Band 48 ANT E Codec: EVS-SWB 9.6kbit/s	CH.55990 3625 MHz	20 MHz	QPSK	1/0	-52.22	204	507	26	26	1.95	-0.76	
LTE Band 41 ANT B Codec: EVS-SWB 9.6kbit/s	CH.39750 2506 MHz	20 MHz	QPSK	1/0	-52.22	135	400	20	26	1.66	-0.61	11
LTE Band 41 ANT B Codec: EVS-SWB 9.6kbit/s	CH.40185 2549.5 MHz	20 MHz	QPSK	1/0	-52.22	137	400	20	26	1.82	-0.71	12
LTE Band 41 ANT B Codec: EVS-SWB 9.6kbit/s	CH.41055 2636.5 MHz	20 MHz	QPSK	1/0	-52.22	154	422	20	26	2.00	-0.87	13
LTE Band 41 ANT B Codec: EVS-SWB 9.6kbit/s	CH.41490 2680 MHz	20 MHz	QPSK	1/0	-52.22	160	423	20	26	1.88	-0.50	14

11.2.4 NR-FDD

RB/ Modulation configuration

Mode	Ch. Freq.	BW	Waveform	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response (dB)	Hmax dB (A/m)	Plot No.
NR Band n25 ANT B Codec: EVS-WB 5.9kbit/s	CH.376500 1882.5 ㎒	40 ㎒	CP-OFDM	QPSK	1/1	-52.11	255	578	26	26	1.35	0.15	
					1/108	-52.11	246	562	26	26	1.96	0.60	
					1/214	-52.11	241	552	26	26	1.72	0.53	
					108/0	-52.11	246	566	26	26	2.00	0.01	
					108/54	-52.11	241	554	26	26	1.78	0.11	
					108/108	-52.11	245	559	26	26	1.33	0.28	
					216/0	-51.89	241	551	26	26	1.63	0.04	
				16QAM	216/0	-51.89	238	549	26	26	2.00	0.49	**15**
				64QAM	216/0	-51.89	240	547	26	26	2.00	0.35	
				256QAM	216/0	-51.89	247	569	26	26	1.96	0.11	
			DFT-s-OFDM	QPSK	1/1	-52.06	259	591	26	26	1.99	-0.02	
					1/108	-52.06	254	567	26	26	1.68	0.04	
					1/214	-52.06	253	566	26	26	1.93	0.18	
					108/0	-52.06	255	568	26	26	1.69	0.20	
					108/54	-52.06	257	569	26	26	2.00	0.37	
					108/108	-52.11	256	586	26	26	2.00	-0.01	
					216/0	-52.11	251	577	26	26	2.00	0.25	
				BPSK	1/1	-52.11	258	582	26	26	1.84	0.34	
				16QAM	1/1	-52.11	252	578	26	26	1.88	0.30	
				64QAM	1/1	-52.11	255	581	26	26	1.53	0.10	
				256QAM	1/1	-52.11	248	576	26	26	1.38	0.05	

Mode	Ch. Freq.	BW	Waveform	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response (dB)	Hmax dB (A/m)	Plot No.
NR Band 25 ANT B Codec: EVS-WB 5.9kbit/s	CH.376500 1882.5 ㎒	35 ㎒	CP-OFDM	16QAM	188/0	-51.82	259	588	26	26	1.77	-0.12	
		30 ㎒			160/0	-51.82	259	579	26	26	2.00	-0.45	
		25 ㎒			133/0	-51.82	250	572	26	26	2.00	-0.31	
		20 ㎒			106/0	-51.82	247	566	26	26	1.96	0.00	
		15 ㎒			79/0	-51.82	250	571	26	26	1.83	-0.31	
		10 ㎒			52/0	-51.82	250	569	26	26	1.58	-0.18	
		5 ㎒			25/0	-51.82	253	571	26	26	2.00	-0.37	

Mode	Ch. Freq.	BW	Waveform	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response (dB)	Hmax dB (A/m)	Plot No.
NR Band n2 ANT D Codec: EVS WB 5.9	CH.376000 1880 ㎒	40 ㎒	CP-OFDM	16QAM	216/0	-51.82	247	574	26	26	1.76	-0.37	
NR Band n5 ANT A Codec: EVS WB 5.9	CH.167300 836.5 ㎒	20 ㎒	CP-OFDM	16QAM	106/0	-51.82	250	576	26	26	1.36	-0.58	
NR Band n30 ANT B Codec: EVS WB 5.9	CH.462000 2310 ㎒	10 ㎒	CP-OFDM	16QAM	52/0	-51.82	246	562	26	26	1.87	-0.25	
NR Band n66 ANT B Codec: EVS WB 5.9	CH.349000 1745 ㎒	40 ㎒	CP-OFDM	16QAM	216/0	-51.82	255	578	26	26	1.30	-0.21	
NR Band n66 ANT D Codec: EVS WB 5.9	CH.349000 1745 ㎒	40 ㎒	CP-OFDM	16QAM	216/0	-51.82	244	573	26	26	1.49	-0.11	
NR Band n71 ANT A Codec: EVS WB 5.9	CH.136100 680.5 ㎒	20 ㎒	CP-OFDM	16QAM	106/0	-51.82	247	571	26	26	2.00	-0.47	

11.2.5 NR-TDD

RB/ Modulation configuration

Mode	Ch. Freq.	BW	Waveform	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response (dB)	Hmax dB (A/m)	Plot No.
NR Band n41 PC2 ANT B Codec: EVS-SWB 16.4kbit/s	CH.518598 2592.99 ㎒	100 ㎒	CP-OFDM	QPSK	1/1	-52.19	150	409	20	26	1.89	0.09	
					1/137	-52.19	125	383	19	26	1.65	0.47	
					1/271	-52.19	144	411	20	26	1.63	-0.08	
					137/0	-52.19	134	397	20	26	1.59	-0.45	
					137/68	-52.19	125	385	19	26	1.70	-0.48	
					137/136	-52.19	137	402	20	26	1.66	-0.49	
					273/0	-52.19	141	407	20	26	1.64	-0.46	
				16QAM	1/137	-52.19	126	387	19	26	1.69	-0.43	
				64QAM	1/137	-52.19	133	397	19	26	1.62	0.06	
				256QAM	1/137	-52.19	155	424	20	26	1.80	0.56	
			DFT-s-OFDM	QPSK	1/1	-52.34	120	373	18	26	1.87	0.93	
					1/137	-52.34	110	366	18	26	1.81	-0.58	
					1/271	-52.34	139	405	20	26	1.65	-0.17	
					135/0	-52.34	130	380	18	26	1.68	0.02	
					135/67	-52.34	123	372	18	26	1.87	0.10	
					135/138	-52.34	139	392	20	26	1.86	0.12	
					270/0	-52.34	126	386	19	26	1.94	-0.54	
				BPSK	1/137	-52.34	111	370	18	26	1.68	-0.18	
				16QAM	1/137	-52.34	121	379	19	26	1.72	-0.48	
				64QAM	1/137	-52.34	120	377	18	26	1.68	-0.10	
				256QAM	1/137	-52.34	147	413	20	26	1.73	-0.52	

Mode	Ch. Freq.	BW	Waveform	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response (dB)	Hmax dB (A/m)	Plot No.
NR Band 41 PC2 ANT B Codec: EVS-SWB 16.4 kbit/s	CH.518598 2592.99 MHz	90 MHz	DFT-s-OFDM	QPSK	1/123	-51.95	130	392	19	26	1.64	-0.10	
		80 MHz			1/109	-51.95	147	414	20	26	1.71	-0.11	
		70 MHz			1/95	-51.95	130	392	19	26	1.81	-0.12	
		60 MHz			1/81	-51.95	112	371	18	26	1.62	-0.17	
		50 MHz			1/67	-51.84	129	376	18	26	1.57	0.52	
		40 MHz			1/53	-51.84	127	375	18	26	1.66	0.44	
		30 MHz			1/39	-51.84	131	375	18	26	1.54	0.44	
		25 MHz			1/32	-51.84	129	376	18	26	1.53	0.43	
		20 MHz			1/26	-51.84	129	376	18	26	1.43	0.34	
		15 MHz			1/18	-51.84	127	378	18	26	1.38	0.36	
		10 MHz			1/12	-51.84	121	368	18	26	1.53	0.33	
NR Band n41 PC3 ANT B Codec: EVS-SWB 16.4kbit/s	CH.518598 2592.99 MHz	100 MHz	DFT-s-OFDM	QPSK	1/137	-51.84	135	402	19	26	1.80	0.83	
NR Band n48 ANT E Codec: EVS-SWB 16.4 kbit/s	CH.641666 3624.99 MHz	40 MHz	DFT-s-OFDM	QPSK	1/53	-51.84	145	421	22	26	1.35	0.44	
NR Band n77 PC2 ANT E Codec: EVS-SWB 16.4 kbit/s	CH.650000 3750 MHz	100 MHz	DFT-s-OFDM	QPSK	1/137	-51.84	109	373	19	26	1.73	-0.01	**16**
NR Band 77 PC3 ANT E Codec: EVS-SWB 16.4kbit/s	CH.650000 3750 MHz	100 MHz	DFT-s-OFDM	QPSK	1/137	-51.84	133	410	21	26	1.68	0.86	
NR Band n77 DoD PC2 ANT E Codec: EVS-SWB 16.4 kbit/s	CH.633334 3500.01 MHz	100 MHz	DFT-s-OFDM	QPSK	1/137	-51.84	132	407	20	26	1.60	-0.17	**17**
NR Band n77 PC2 ANT E Codec: EVS-SWB 16.4 kbit/s	CH.662000 3930 MHz	100 MHz	DFT-s-OFDM	QPSK	1/137	-51.84	108	375	19	26	1.64	0.24	**18**

11.3 VoWi-Fi Codec Investigation

An investigation between the various codec configurations (Low/High bit rates for Narrowband, Wideband) and specific parameters are documented (Primary Group, Secondary Group, longitudinal contiguous points, transverse row contiguous points, frequency response) to determine the worst-case bit rates for each voice service type. The table below compares the varying codec configurations. A codec investigation was performed for each Wi-Fi 2.4 GHz and 5 GHz.

The highlighted results below were determined to be the worst case codec configuration(s) for Wi-Fi 2.4 GHz and 5 GHz.

Wi-Fi 2.4 GHz

Codec Investigation								
Codec State	AMR-NB (kbit/s)			AMR-WB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	4.75	7.4	12.2	6.6	15.85	23.85		
Freq. Response(dB)	1.65	2.00	1.98	1.68	2.00	1.99	y (Transversal)	802.11b CH.6 2437 MHz DSSS 1Mbps
Primary	244	185	191	162	168	167		
Secondary	510	436	440	437	440	437		
Contiguous Longitudinal	26	23	23	23	23	23		
Contiguous Transverse	26	26	26	26	26	26		

Codec Investigation											
Codec State	EVS-NB (kbit/s)			EVS-WB (kbit/s)			EVS-SWB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	5.9	13.2	24.4	5.9	24.4	128	9.6	24.4	128		
Freq. Response(dB)	2.00	2.00	2.00	1.66	2.00	2.00	2.00	1.97	2.00	y (Transversal)	802.11b CH.6 2437 MHz DSSS 1Mbps
Primary	218	251	247	209	219	178	183	163	194		
Secondary	502	510	507	555	514	480	508	486	500		
Contiguous Longitudinal	26	26	26	26	26	25	26	26	26		
Contiguous Transverse	26	26	26	26	26	26	26	26	26		

Wi-Fi 5 GHz

Codec Investigation								
Codec State	AMR-NB (kbit/s)			AMR-WB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	4.75	7.4	12.2	6.6	15.85	23.85		
Freq. Response(dB)	1.70	2.00	2.00	2.00	2.00	2.00	y (Transversal)	802.11a CH.40 5200 MHz BPSK 6Mbps
Primary	279	273	286	239	249	257		
Secondary	561	553	563	552	555	565		
Contiguous Longitudinal	26	26	26	26	26	26		
Contiguous Transverse	26	26	26	26	26	26		

Codec Investigation											
Codec State	EVS-NB (kbit/s)			EVS-WB (kbit/s)			EVS-SWB (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	5.9	13.2	24.4	5.9	24.4	128	9.6	24.4	128		
Freq. Response(dB)	2.00	2.00	2.00	1.59	2.00	1.97	1.45	1.73	2.00	y (Transversal)	802.11a CH.40 5200 MHz BPSK 6Mbps
Primary	260	298	294	214	261	260	226	227	222		
Secondary	564	570	565	552	562	562	557	560	555		
Contiguous Longitudinal	26	26	26	26	26	26	26	26	26		
Contiguous Transverse	26	26	26	26	26	26	26	26	26		

11.4 VoWi-Fi Air Interface Investigation

Using the data from § 11.4, further testing was performed on the remaining 802.11 modes. The objective of these measurements is to ensure that changing the modulation, bandwidth, and data rate, whilst using the worst case codec configuration measured in § 11.3, yields no unexpected variations.

VoWi-Fi Air Interface Investigation (Continued)

Mode	Ch. Freq.	BW	Mod.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response (dB)	Hmax dB (A/m)	Plot No.
802.11b Codec: AMR-WB 6.6kbit/s	CH.6 2437 MHz	20 MHz	1 Mbps	-56.77	162	437	23	26	1.68	0.22	
			5.5 Mbps	-56.77	181	461	24	26	2.00	0.16	
			11 Mbps	-56.77	159	436	23	26	2.00	0.34	19
802.11g Codec: AMR-WB 6.6kbit/s	CH.6 2437 MHz	20 MHz	54 Mbps	-56.77	198	483	26	26	2.00	0.49	
802.11n HT20 Codec: AMR-WB 6.6kbit/s	CH.6 2437 MHz	20 MHz	MCS 7	-56.77	264	580	26	26	1.34	-0.13	
802.11b Codec: AMR-WB 6.6kbit/s	CH.1 2412 MHz	20 MHz	11Mbps	-56.77	196	485	26	26	2.00	0.36	20
	CH.11 2462 MHz			-56.77	176	450	24	26	2.00	0.29	21

Mode	Ch. Freq.	BW	Mod.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response (dB)	Hmax dB (A/m)	Plot No.
802.11a Codec: EVS-WB 5.9kbit/s	CH.40 5200 MHz	20 MHz	6 Mbps	-56.76	214	552	26	26	1.59	-1.51	
			18 Mbps	-56.76	203	542	26	26	1.84	-1.25	**22**
			54 Mbps	-56.76	301	651	26	26	1.21	-1.14	
802.11n HT20 Codec: EVS-WB 5.9kbit/s	CH.40 5200 MHz	20 MHz	MCS 0	-56.76	228	560	26	26	1.70	-1.34	
			MCS 3	-56.76	257	601	26	26	1.30	-1.15	
			MCS 7	-56.76	254	601	26	26	1.88	-0.95	
802.11n HT40 Codec: EVS-WB 5.9kbit/s	CH.38 5190 MHz	40 MHz	MCS 0	-56.76	229	574	26	26	1.50	-0.67	
			MCS 3	-56.76	244	595	26	26	2.00	-0.61	
			MCS 7	-56.76	249	595	26	26	1.56	-1.58	
802.11ac VHT20 Codec: EVS-WB 5.9kbit/s	CH.40 5200 MHz	20 MHz	MCS 0	-56.76	215	554	26	26	1.92	-0.48	
			MCS 4	-56.76	236	583	26	26	1.72	-1.26	
			MCS 8	-56.76	236	582	26	26	1.27	-2.46	
802.11ac VHT40 Codec: EVS-WB 5.9kbit/s	CH.38 5190 MHz	40 MHz	MCS 0	-56.63	235	572	26	26	1.74	-0.48	
			MCS 4	-56.63	255	590	26	26	1.83	-1.10	
			MCS 9	-56.63	249	587	26	26	1.69	-1.18	
802.11ac VHT80 Codec: EVS-WB 5.9kbit/s	CH.42 5210 MHz	80 MHz	MCS 0	-56.63	229	550	26	26	2.00	-1.32	
			MCS 4	-56.63	218	549	26	26	2.00	-0.94	
			MCS 9	-56.63	232	574	26	26	2.00	-1.29	
802.11a Codec: EVS-WB 5.9kbit/s	CH.60 5300 MHz	20 MHz	18 Mbps	-56.63	264	615	26	26	1.23	-1.84	**23**
	CH.120 5600 MHz	20 MHz	18 Mbps	-56.63	264	615	26	26	1.75	-0.92	**24**
	CH.157 5785 MHz	20 MHz	18 Mbps	-56.63	251	595	26	26	1.51	-1.03	**25**
	CH.173 5865 MHz	20 MHz	18 Mbps	-56.63	251	578	26	26	1.47	-1.03	**26**

11.5 OTT Codec Investigation

The DUT's nested OTT application supports range of codec bit rate 6 – 75 kbit/s, thus an investigation between the various codec configurations (6/75 as Low/High bit rates) and specific parameters are documented (Primary Group, Secondary Group, longitudinal contiguous points, transverse row contiguous points, Frequency Response) to determine the worst-case bit rates for each service type.

The table below compares the varying codec configurations.

Codec Investigation					
Codec State	codec bit rate (kbit/s)			Orientation	Band/ BandWidth/ Channel
	6	40	75		
Freq. Response (dB)	1.91	2.00	2.00	y(Transversal)	GSM 850 EDGE 2 slot CH.128 824.2 ㎒ ANT A
Primary	114	135	134		
Secondary	391	413	431		
Contiguous Longitudinal	17	18	21		
Contiguous Transverse	26	26	26		
Freq. Response (dB)	1.53	1.62	2.00	y(Transversal)	UMTS Band 2 HSUPA subtest 1 CH.9262 1852.4 ㎒ ANT B
Primary	216	227	230		
Secondary	533	530	543		
Contiguous Longitudinal	24	24	25		
Contiguous Transverse	26	26	26		
Freq. Response (dB)	1.70	2.00	1.95	y(Transversal)	LTE Band 2 20 ㎒ QPSK 1RB 49offset CH.19100 1900 ㎒ ANT D
Primary	181	187	186		
Secondary	489	485	481		
Contiguous Longitudinal	26	26	24		
Contiguous Transverse	26	26	26		
Freq. Response (dB)	1.25	2.00	2.00	y(Transversal)	LTE Band 41 20 ㎒ QPSK 1RB 0offset CH.40620 2593 ㎒ ANT B
Primary	124	131	130		
Secondary	391	392	392		
Contiguous Longitudinal	19	19	19		
Contiguous Transverse	26	26	26		

Codec Investigation					
Codec State	codec bit rate (kbit/s)			Orientation	Band/ Bandwidth/ Channel
	6	40	75		
Freq. Response (dB)	2.00	1.99	1.94	y(Transversal)	2.4 GHz 802.11b 11Mbps CH.6 2437 MHz
Primary	158	162	164		
Secondary	446	446	448		
Contiguous Longitudinal	23	23	23		
Contiguous Transverse	26	26	26		
Freq. Response (dB)	2.00	1.99	1.94	y(Transversal)	5 GHz 802.11a 18Mbps CH.40 5200 MHz
Primary	225	168	179		
Secondary	526	466	477		
Contiguous Longitudinal	26	26	26		
Contiguous Transverse	26	26	26		
Freq. Response (dB)	2.00	2.00	1.91	y(Transversal)	NR Band n25 40 MHz CP-OFDM 16QAM 216RB 0offset CH.376500 1882.5 MHz ANT B
Primary	215	218	214		
Secondary	500	499	493		
Contiguous Longitudinal	24	24	24		
Contiguous Transverse	26	26	26		
Freq. Response (dB)	1.84	2.00	2.00	y(Transversal)	NR Band n77 100 MHz DFT-s-OFDM QPSK 1RB 137offset PC2 CH.662000 3930 MHz ANT E
Primary	117	122	121		
Secondary	378	380	381		
Contiguous Longitudinal	19	19	19		
Contiguous Transverse	26	26	26		

11.6 OTT Air Interface Investigation

Mode	Ch. Freq.	BW	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response (dB)	Hmax dB (A/m)	Plot No.
GSM850 EDGE 2 slots Google Meet Codec: 6kbit/s ANT M1	CH.190 836.6 MHz				-56.78	114	391	17	26	1.91	-2.60	
GSM1900 EDGE 2 slots Google Meet Codec: 6kbit/s ANT B	CH.661 1880 MHz				-56.78	111	382	18	26	1.25	-3.89	27
GSM1900 EDGE 2 slots Google Meet Codec: 6kbit/s ANT B	CH.512 1850.2 MHz				-56.78	125	422	19	26	1.42	-1.43	28
GSM1900 EDGE 2 slots Google Meet Codec: 6kbit/s ANT B	CH.810 1909.8 MHz				-56.78	127	428	19	26	1.83	-1.38	29
UMTS Band 2 HSUPA subtest1 Google Meet Codec: 6kbit/s ANT B	CH.9400 1880 MHz				-56.78	216	533	24	26	1.53	-0.84	
UMTS Band 4 HSUPA subtest1 Google Meet Codec: 6kbit/s ANT B	CH.1412 1732.4 MHz				-56.78	208	520	24	26	1.25	-4.07	30
UMTS Band 5 HSUPA subtest1 Google Meet Codec: 6kbit/s ANT A	CH.4183 836.6 MHz				-56.78	217	519	24	26	1.41	-1.95	
LTE Band 2 Google Meet Codec: 6kbit/s ANT D	CH.19100 1900 MHz	20 MHz	QPSK	1/49	-56.75	181	489	26	26	1.70	-1.49	31
LTE Band 7 Google Meet Codec: 6kbit/s ANT B	CH.21100 2535 MHz	20 MHz	QPSK	1/49	-56.75	215	517	26	26	1.72	-1.43	
LTE Band 12 Google Meet Codec: 6kbit/s ANT A	CH.23095 707.5 MHz	10 MHz	QPSK	1/24	-56.75	219	523	26	26	2.00	-1.08	
LTE Band 13 Google Meet Codec: 6kbit/s ANT A	CH.23230 782.0 MHz	10 MHz	QPSK	1/24	-56.75	225	534	26	26	1.55	-1.50	
LTE Band 14 Google Meet Codec: 6kbit/s ANT A	CH.23330 793 MHz	10 MHz	QPSK	1/24	-56.75	224	528	26	26	2.00	-1.27	
LTE Band 25 Google Meet Codec: 6kbit/s ANT A	CH.26365 1882.5 MHz	20 MHz	QPSK	1/49	-56.75	223	527	26	26	2.00	-1.33	
LTE Band 26 Google Meet Codec: 6kbit/s ANT A	CH.26865 831.5 MHz	15 MHz	QPSK	1/36	-56.75	220	511	25	26	2.00	-1.41	
LTE Band 30 Google Meet Codec: 6kbit/s ANT B	CH.27710 2310 MHz	10 MHz	QPSK	1/24	-56.75	219	512	25	26	1.48	-1.64	
LTE Band 66 Google Meet Codec: 6kbit/s ANT B	CH.132322 1745 MHz	20 MHz	QPSK	1/49	-56.75	209	513	25	26	2.00	-1.36	
LTE Band 66 Google Meet Codec: 6kbit/s ANT D	CH.132322 1745 MHz	20 MHz	QPSK	1/49	-56.75	196	495	24	26	2.00	-1.81	
LTE Band 71 Google Meet Codec: 6kbit/s ANT A	CH.133297 680.5 MHz	20 MHz	QPSK	1/49	-56.75	195	505	24	26	2.00	-2.91	
LTE Band 41 Google Meet Codec: 6kbit/s ANT B	CH.40620 2593 MHz	20 MHz	QPSK	1/0	-56.75	124	391	19	26	1.25	-1.48	32
LTE Band 48 Google Meet Codec: 6kbit/s ANT E	CH.55990 3625 MHz	20 MHz	QPSK	1/0	-56.75	159	440	22	26	1.98	-0.94	

Mode	Ch. Freq.	BW	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response (dB)	Hmax dB (A/m)	Plot No.
Wi-Fi 2.4 GHz 802.11b Google Meet Codec: 6 kbit/s	CH.6 2437 MHz	20 MHz	11 Mbps		-56.75	158	446	23	26	2.00	-1.39	**33**
U-NII 5.2 GHz 802.11a Google Meet Codec: 40 kbit/s	CH.40 5200 MHz	20 MHz	18 Mbps		-56.75	168	466	26	26	1.99	-0.69	**34**
U-NII 5.3 GHz 802.11a Google Meet Codec: 40 kbit/s	CH.60 5300 MHz	20 MHz	18 Mbps		-56.75	223	526	26	26	1.49	-0.91	
U-NII 5.6 GHz 802.11a Google Meet Codec: 40 kbit/s	CH.120 5600 MHz	20 MHz	18 Mbps		-56.75	227	530	26	26	1.84	-0.82	
U-NII 5.8 GHz 802.11a Google Meet Codec: 40 kbit/s	CH.157 5785 MHz	20 MHz	18 Mbps		-56.75	214	510	25	26	2.00	-0.84	
U-NII 5.8 GHz 802.11a Google Meet Codec: 40 kbit/s	CH.173 5865 MHz	20 MHz	18 Mbps		-56.75	181	475	24	26	2.00	-1.03	

Mode	Ch. Freq.	BW	Wave form	Mod.	RB Config.	Ambient Noise dB (A/m)	Primary	Secondary	Contiguous longitudinal	Contiguous Transverse	Freq. Response (dB)	Hmax dB (A/m)	Plot No.
NR Band n25 Google Meet Codec: 75kbit/s ANT B	CH.376500 1882.5 MHz	40 MHz	CP-OFDM	16QAM	216/0	-56.72	214	493	24	26	1.91	-1.50	
NR Band n2 Google Meet Codec: 75kbit/s ANT D	CH.376000 1880 MHz	40 MHz	CP-OFDM	16QAM	216/0	-56.72	202	489	25	26	1.29	-2.00	**35**
NR Band n5 Google Meet Codec: 75kbit/s ANT A	CH.167300 836.5 MHz	20 MHz	CP-OFDM	16QAM	106/0	-56.72	222	509	25	26	1.91	-1.70	
NR Band n30 Google Meet Codec: 75kbit/s ANT B	CH.462000 2310 MHz	10 MHz	CP-OFDM	16QAM	52/0	-56.72	217	504	24	26	1.56	-1.60	
NR Band n66 Google Meet Codec: 75kbit/s ANT B	CH.349000 1745 MHz	40 MHz	CP-OFDM	16QAM	216/0	-56.72	211	497	24	26	1.72	-1.75	
NR Band n66 Google Meet Codec: 75kbit/s ANT D	CH.349000 1745 MHz	40 MHz	CP-OFDM	16QAM	216/0	-56.72	219	510	25	26	1.16	-1.73	
NR Band n71 Google Meet Codec: 75kbit/s ANT A	CH.136100 680.5 MHz	20 MHz	CP-OFDM	16QAM	106/0	-56.72	216	506	25	226	1.19	-1.70	
NR Band n77 PC2 Google Meet Codec: 6kbit/s ANT E	CH.662000 3930 MHz	100 MHz	DFT-s-OFDM	QPSK	1/137	-56.72	117	378	19	26	1.84	-1.57	
NR Band n41 PC2 Google Meet Codec: 6kbit/s ANT B	CH.518598 2592.99 MHz	100 MHz	DFT-s-OFDM	QPSK	1/137	-56.72	117	355	18	26	1.82	-1.39	
NR Band n48 Google Meet Codec: 6kbit/s ANT E	CH.641666 3624.99 MHz	40 MHz	DFT-s-OFDM	QPSK	1/53	-56.72	151	410	20	26	2.00	-1.44	
NR Band n77 DoD PC2 Google Meet Codec: 6kbit/s ANT E	CH.633334 3500.01 MHz	100 MHz	DFT-s-OFDM	QPSK	1/137	-56.72	116	374	18	26	2.00	-1.75	**36**

Appendix 1. TEST SETUP PHOTO

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

Rev. No.	File No.
0	HCT-SR-2501-FC001-P

Appendix 2. HAC T-COIL Test Plots

Plot 1 GSM 850 CH.190 Voice Codec Speech Codec: FR V1

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

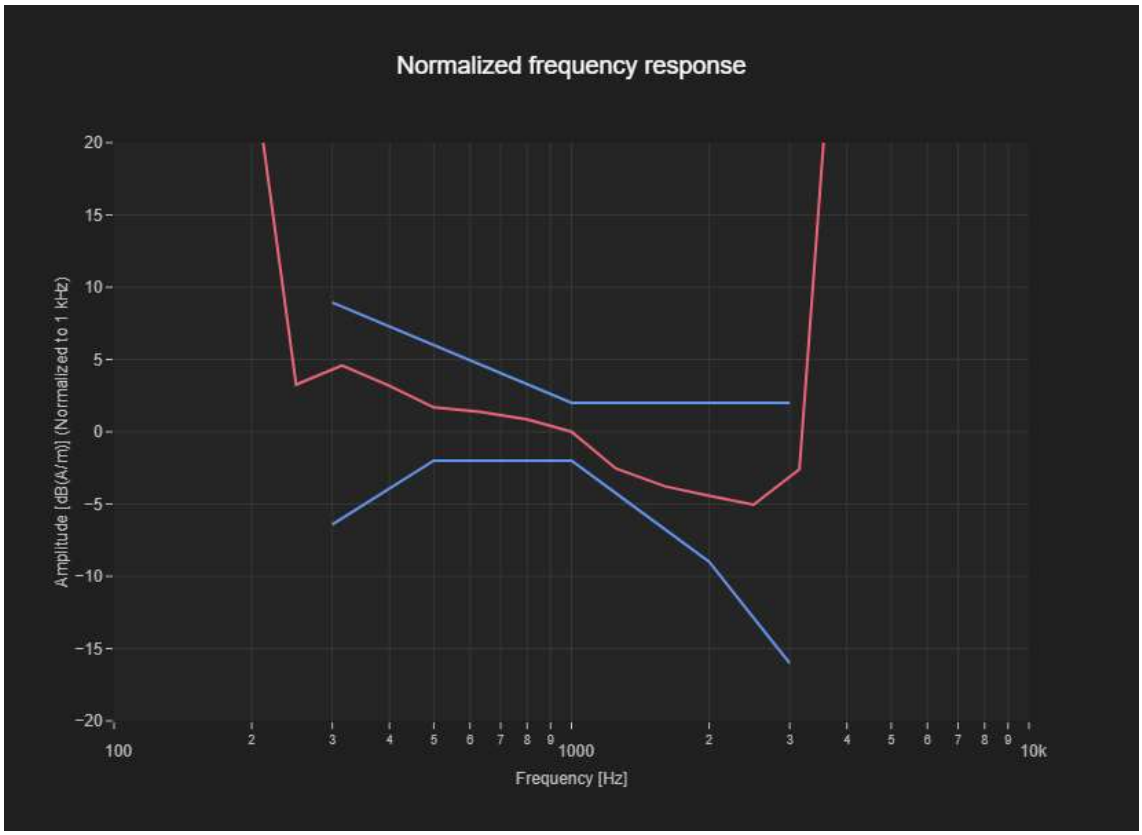
Band Name	Communication Systems Name	Channel	Frequency [MHz]
GSM 850	GSM-FDD (TDMA, GMSK)	190	836.6

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

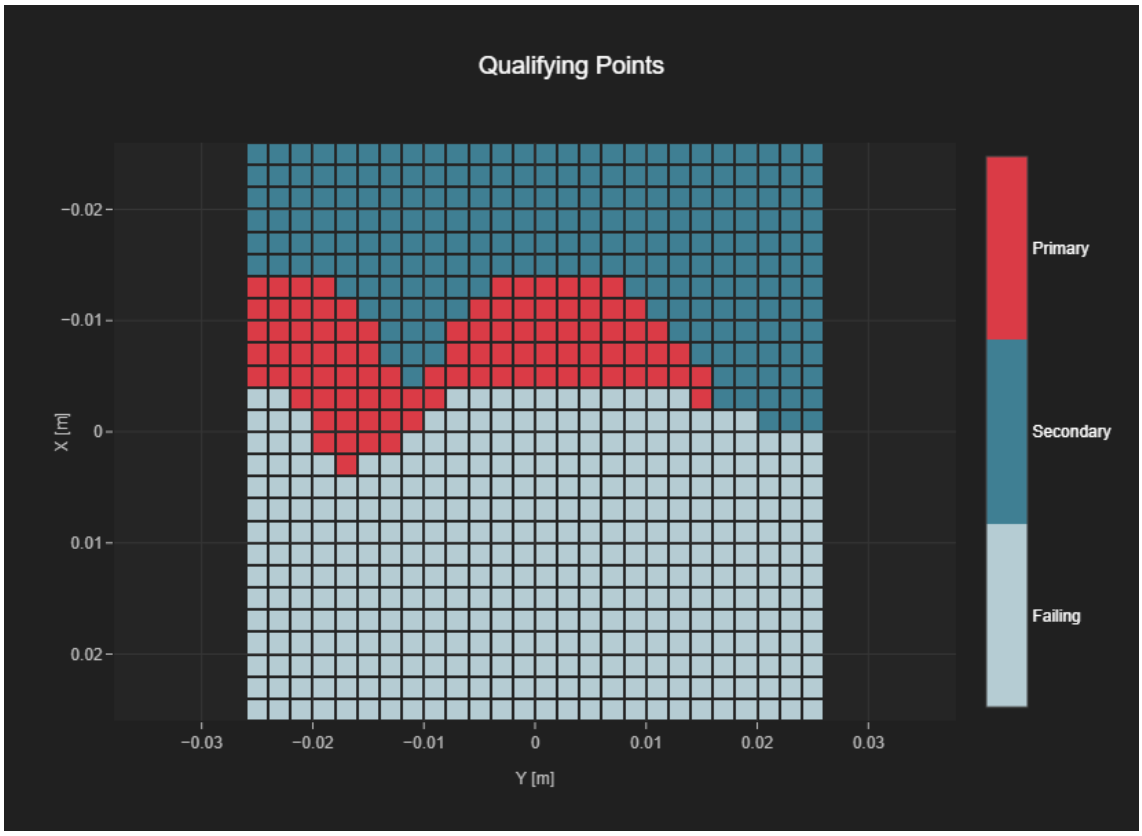
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	1.71



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
94	312	15	26



Plot 2 GSM 850 CH.128 Voice Codec Speech Codec: FR V1

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

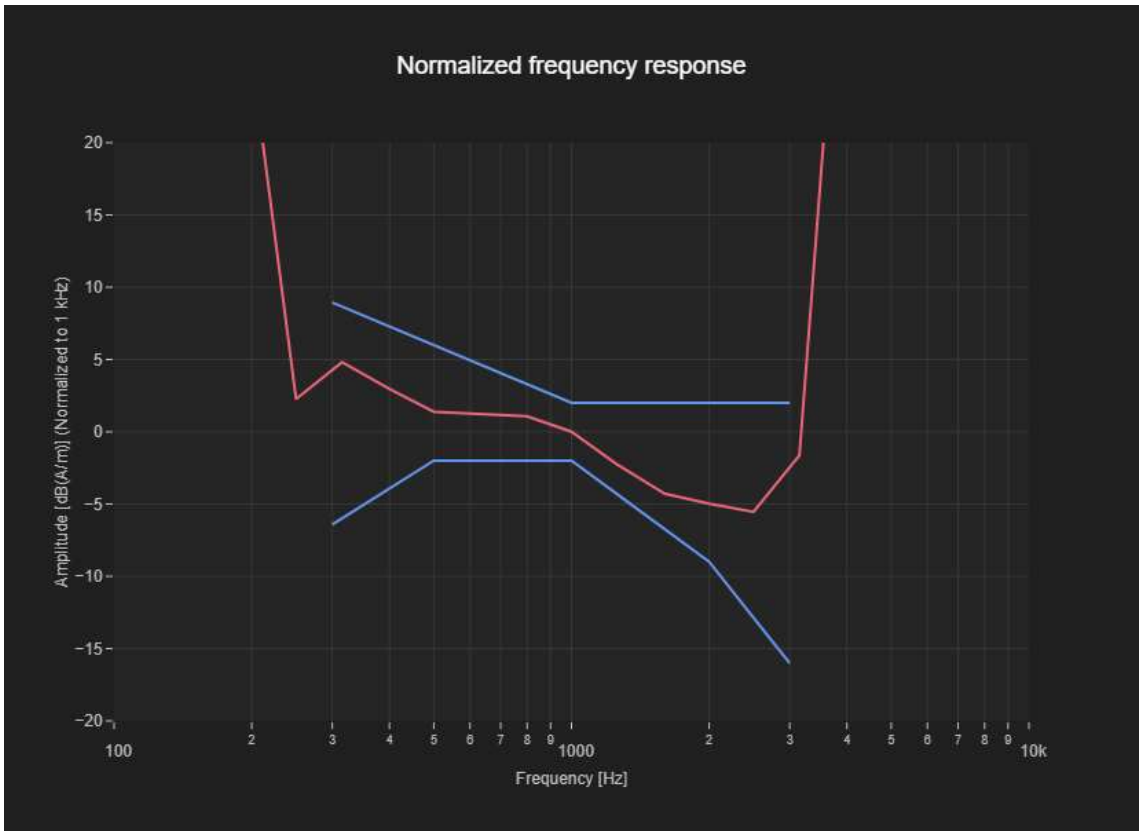
Band Name	Communication Systems Name	Channel	Frequency [MHz]
GSM 850	GSM-FDD (TDMA, GMSK)	128	824.2

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

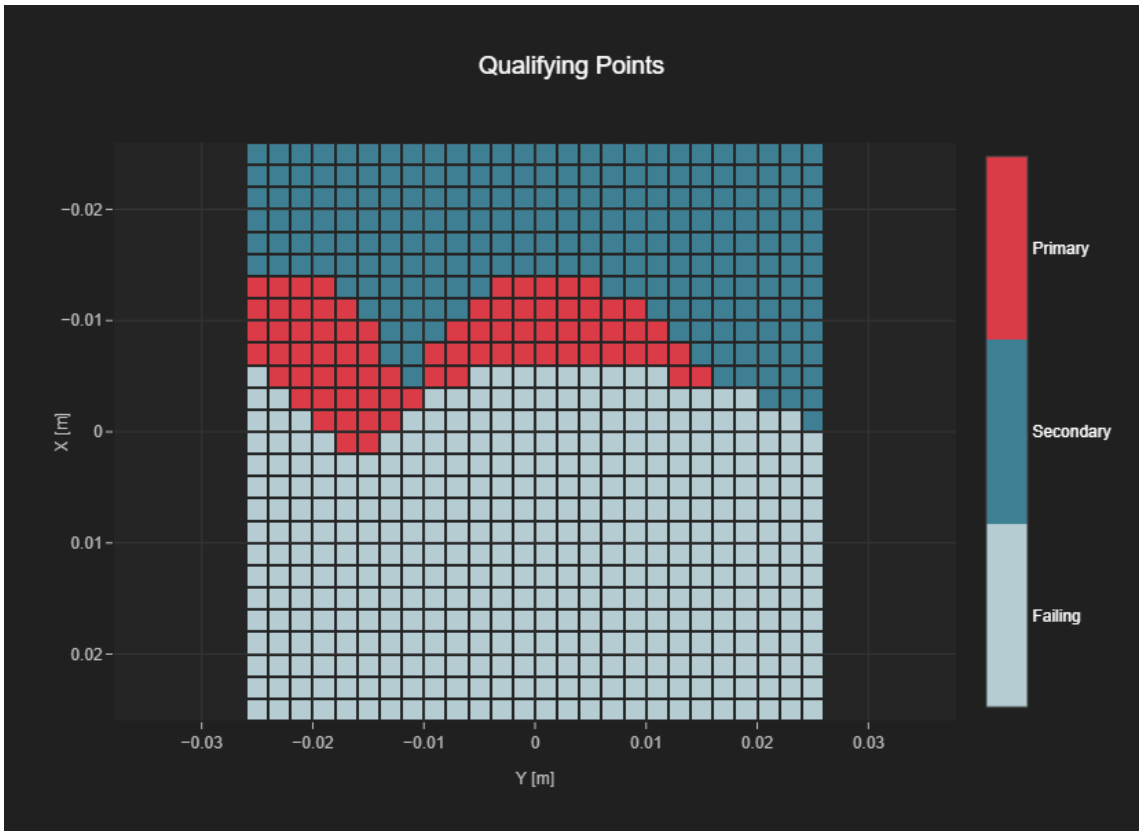
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
78	292	14	26



Plot 3 GSM 850 CH.251 Voice Codec Speech Codec: FR V1

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

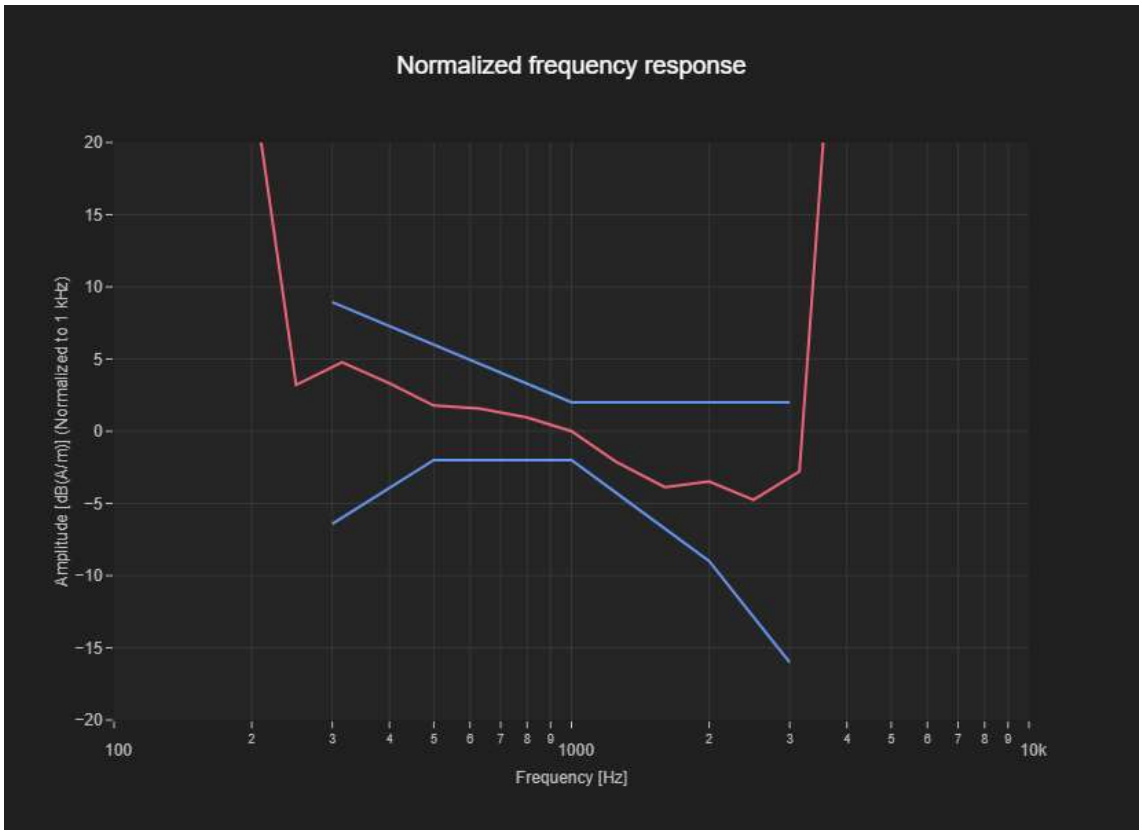
Band Name	Communication Systems Name	Channel	Frequency [MHz]
GSM 850	GSM-FDD (TDMA, GMSK)	251	848.8

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

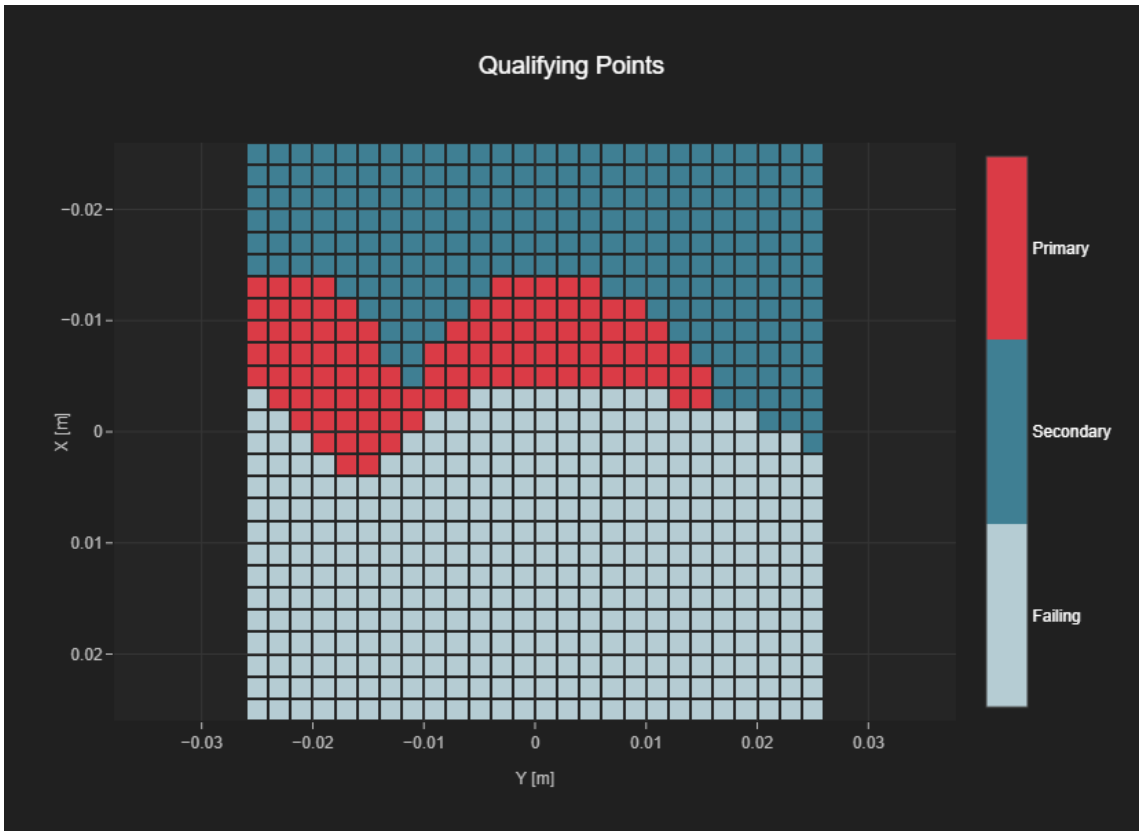
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
99	318	15	26



Plot 4 UMTS Band 2 CH.9400 Voice AMR-WB Codec: 6.6kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

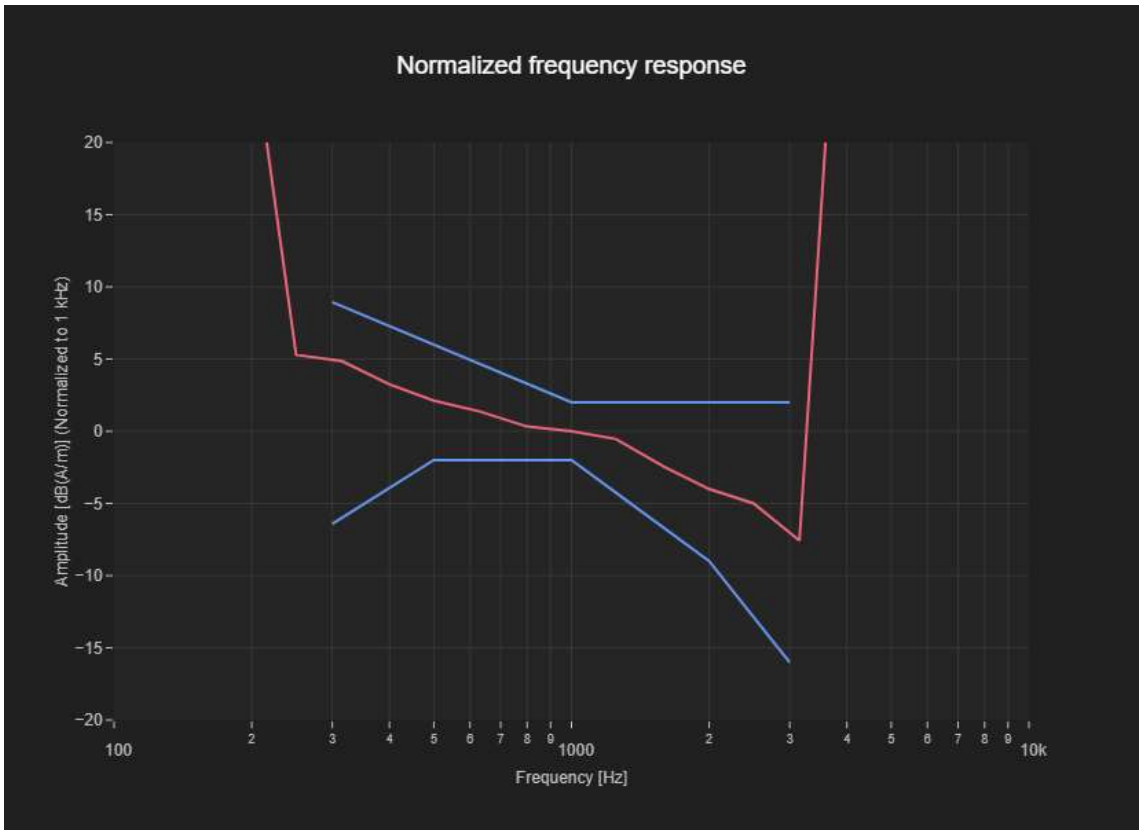
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 2	UMTS-FDD (WCDMA)	9400	1880.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
324	650	26	26

Plot 5 UMTS Band 2 CH.9262 Voice AMR-WB Codec: 6.6kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

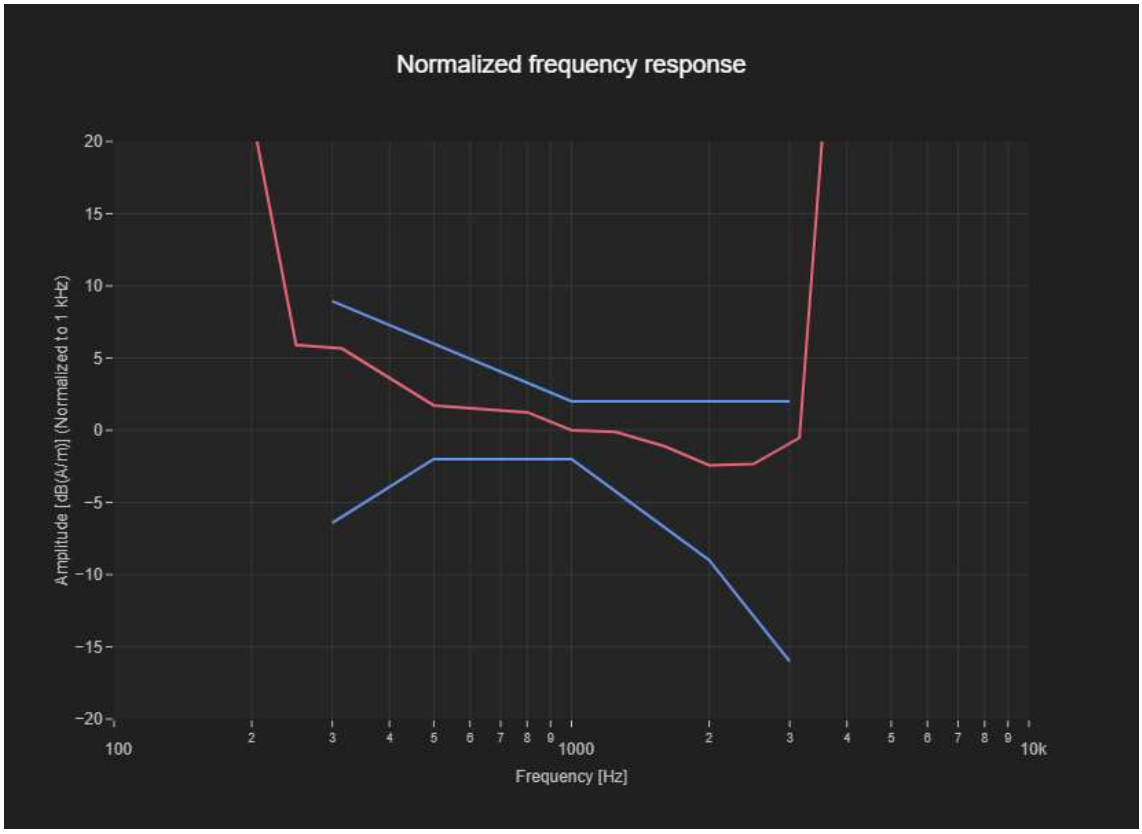
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 2	UMTS-FDD (WCDMA, AMR)	9262	1852.4

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

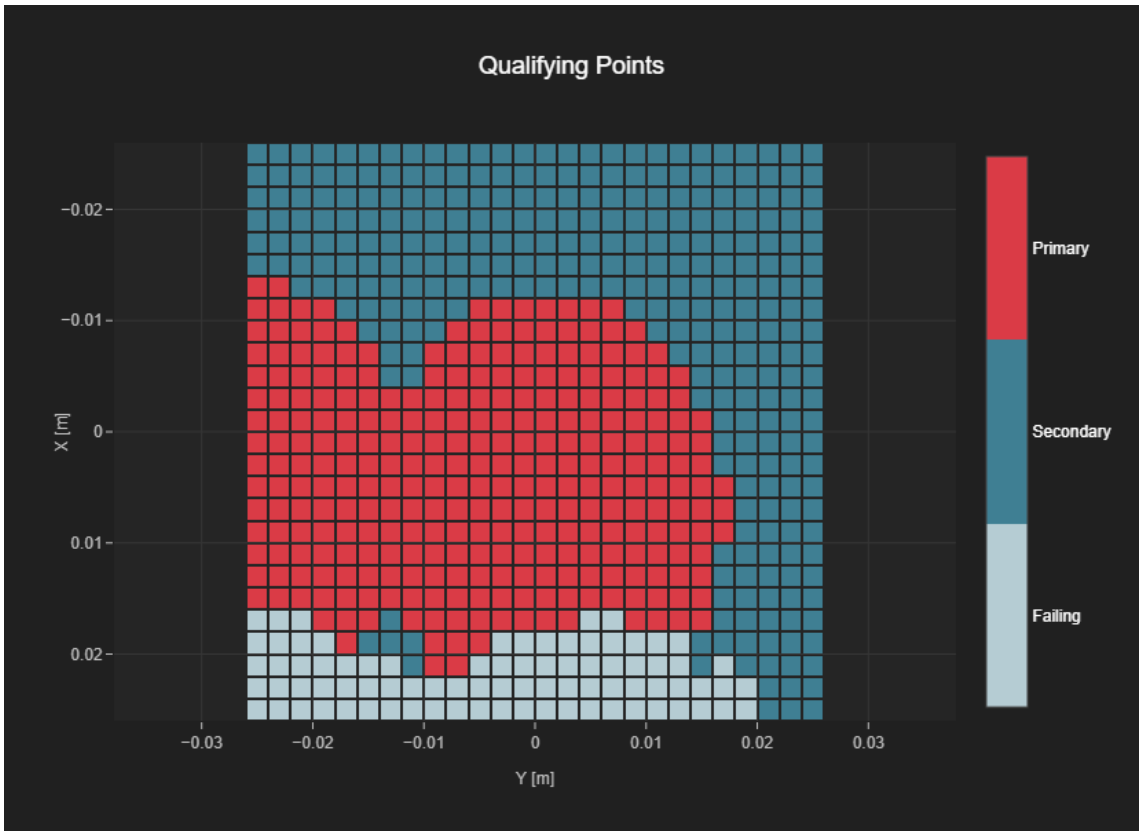
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
295	594	26	26



Plot 6 UMTS Band 2 CH.9538 Voice AMR-WB Codec: 6.6kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

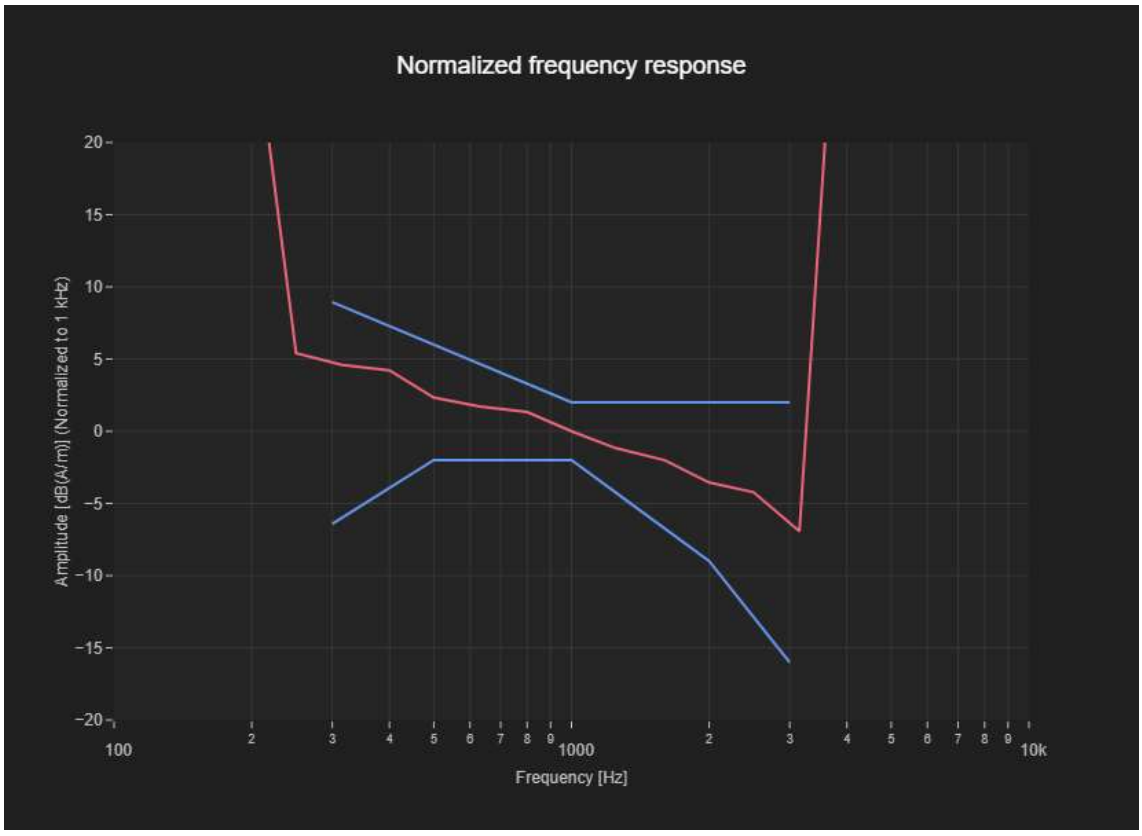
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 2	UMTS-FDD (WCDMA, AMR)	9538	1907.6

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

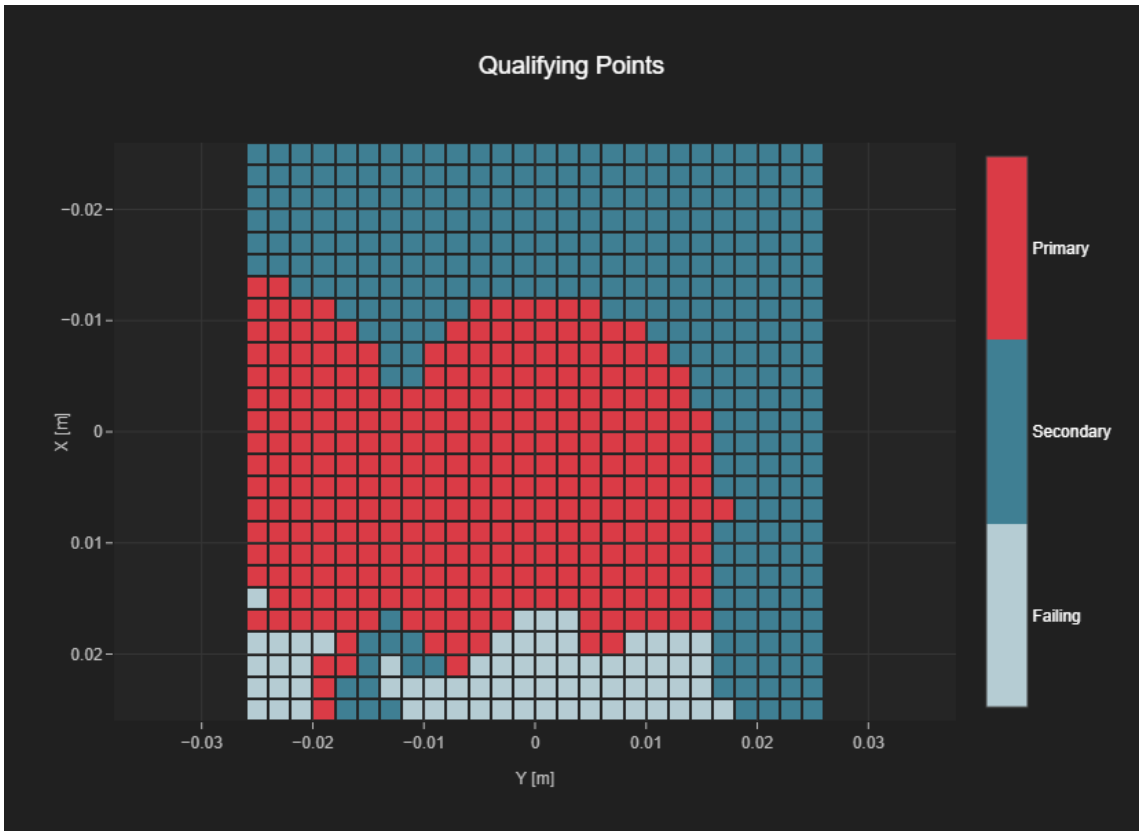
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.96	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
298	609	26	26



Plot 7 LTE Band 2 20MHz QPSK 1RB 49offset CH.18900 Voice EVS-WB Codec 5.9kbit/s ANT D

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

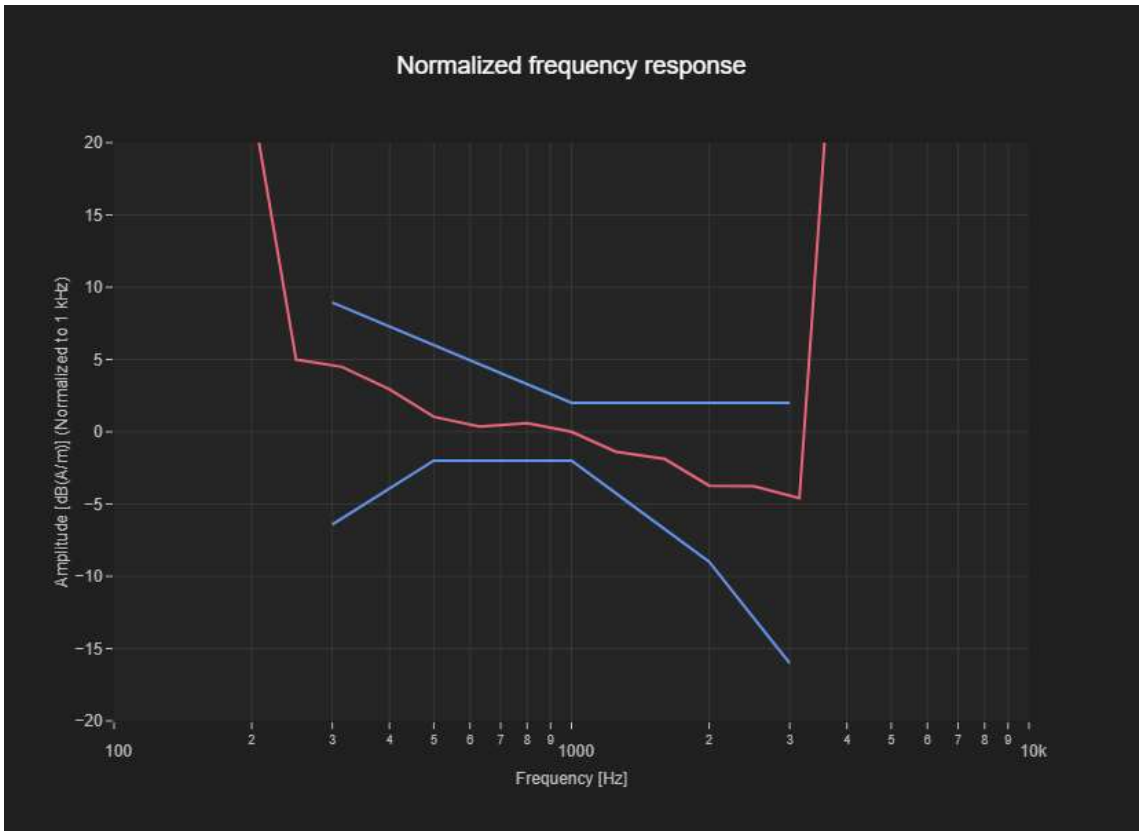
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 2	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	18900	1880.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

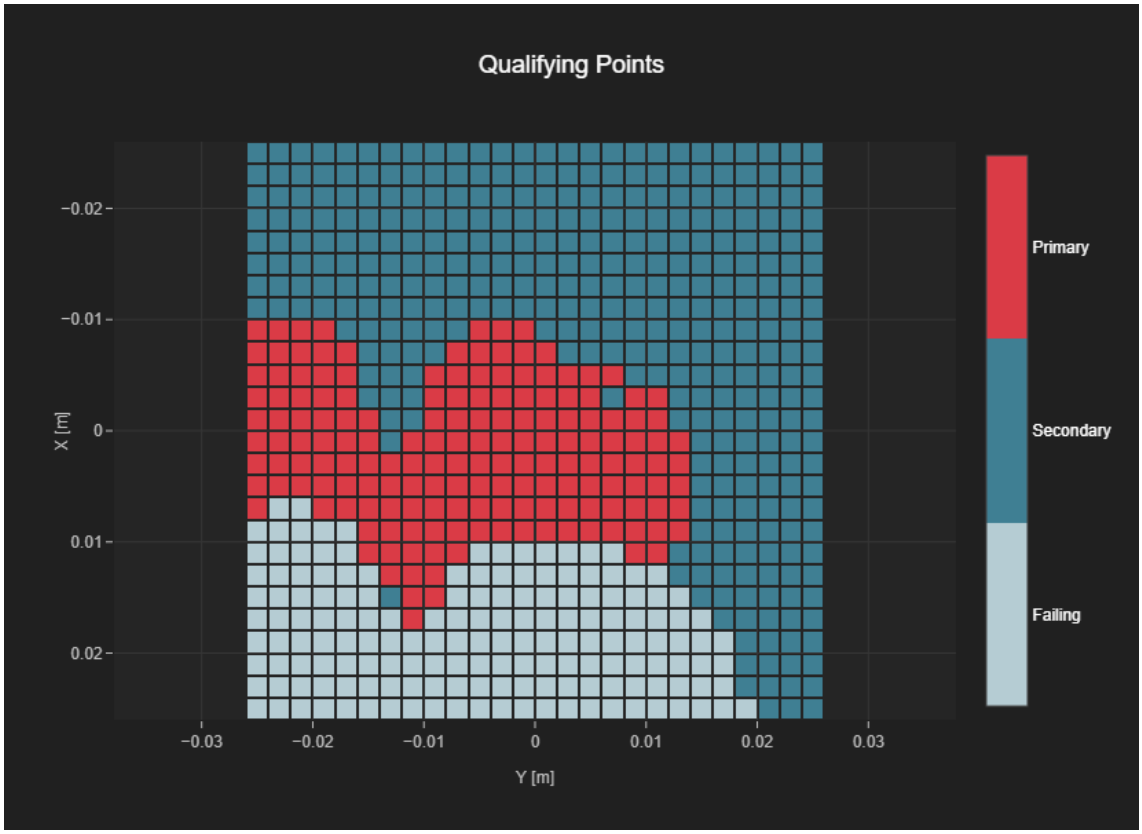
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
168	515	26	26



Plot 8 LTE Band 2 20MHz QPSK 1RB 49offset CH.18700 Voice EVS-WB Codec 5.9kbit/s ANT D

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

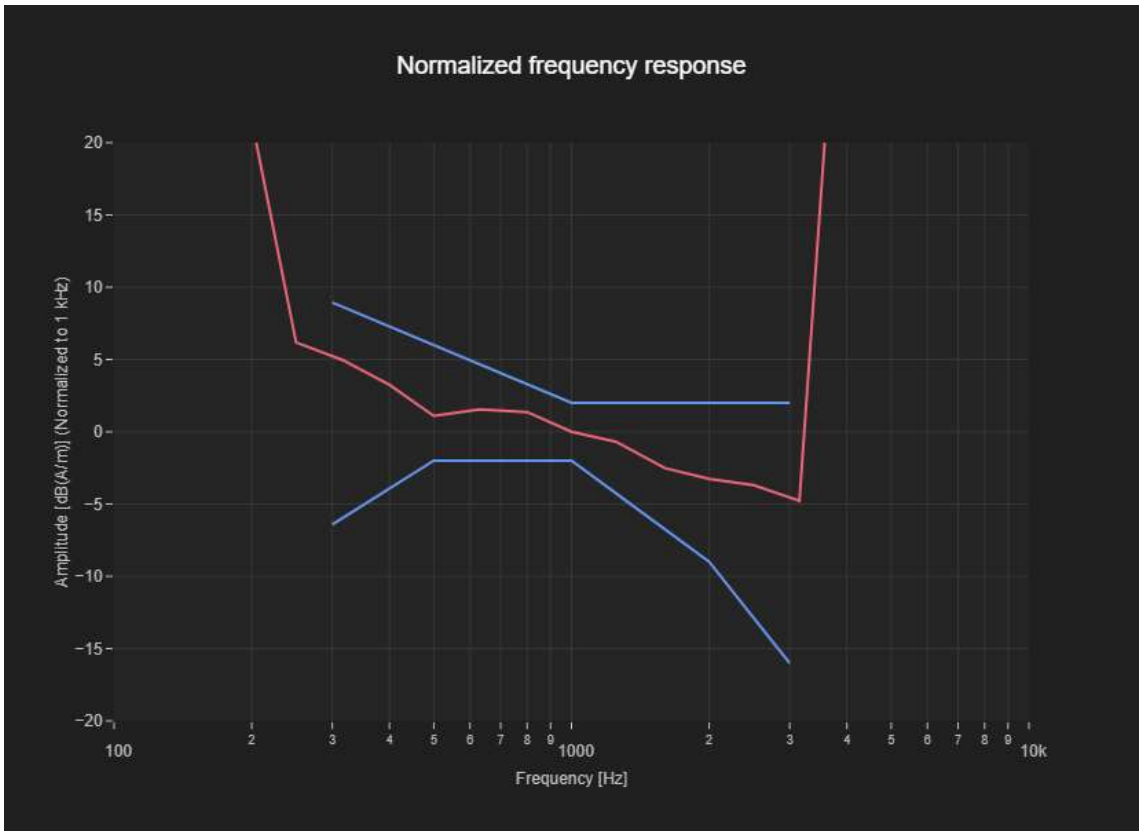
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 2	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	18700	1860.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

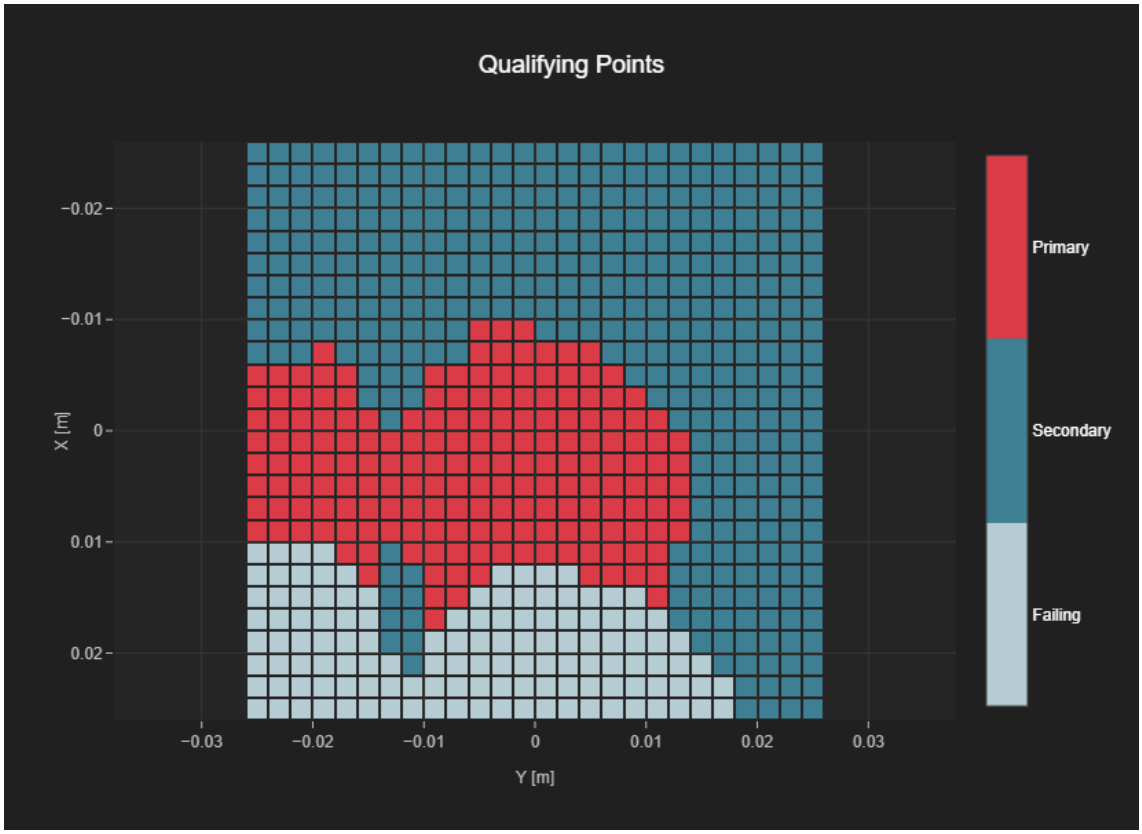
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.92	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
183	551	26	26



Plot 9 LTE Band 2 20MHz QPSK 1RB 49offset CH.19100 Voice EVS-WB Codec 5.9kbit/s ANT D

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

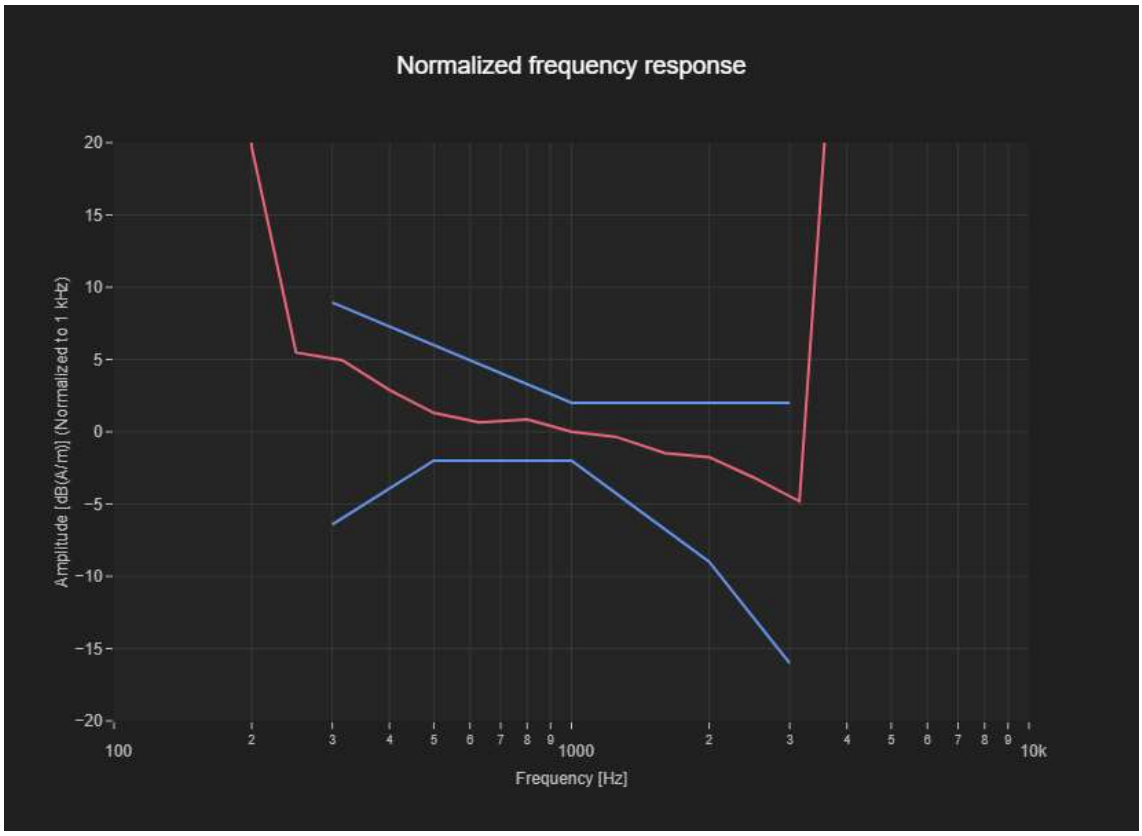
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 2	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	19100	1900.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

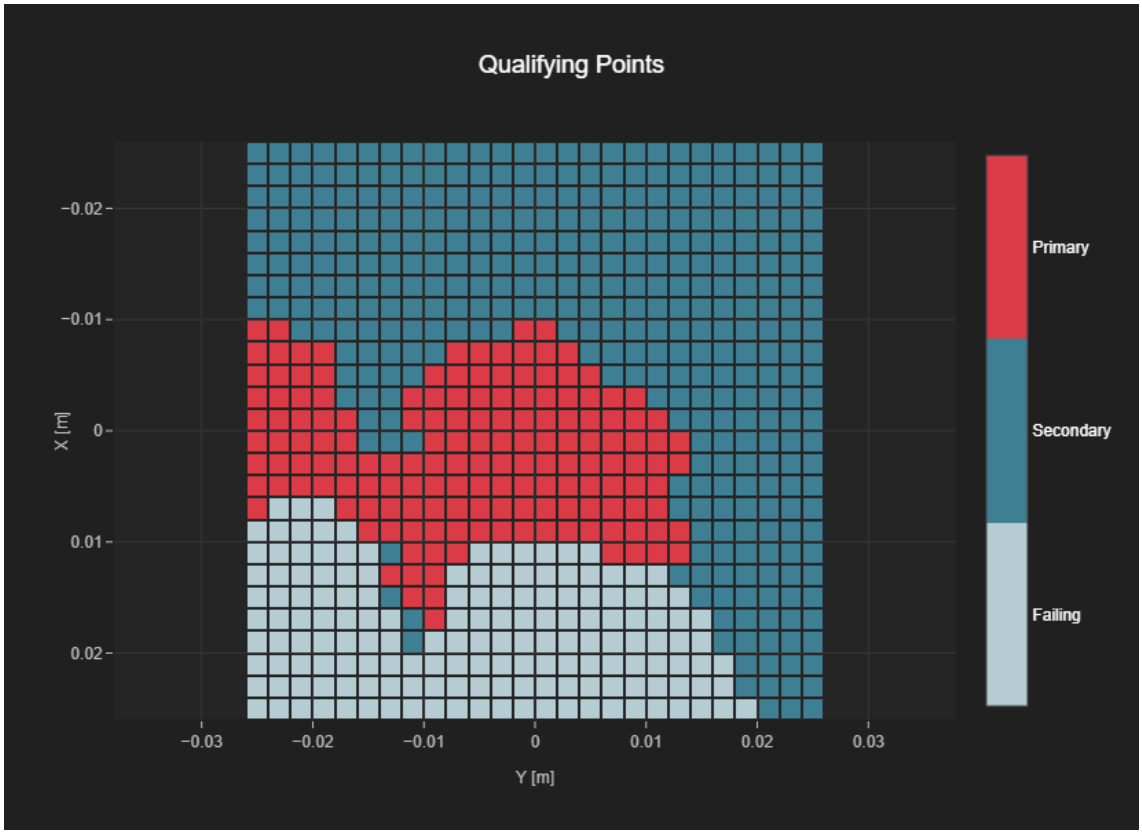
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
158	517	26	26



Plot 10 LTE Band 41 20MHz QPSK 1RB 0offset CH.40620 Voice EVS-SWB Codec: 9.6kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

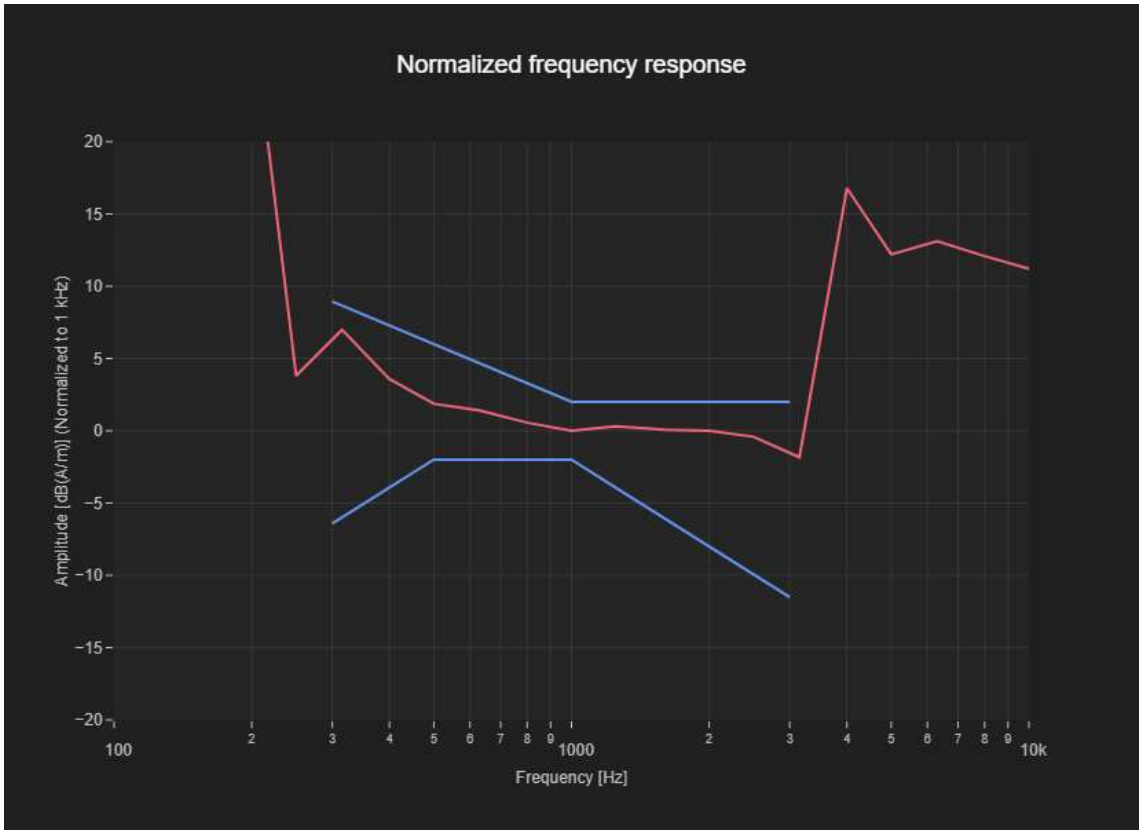
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	40620	2593.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

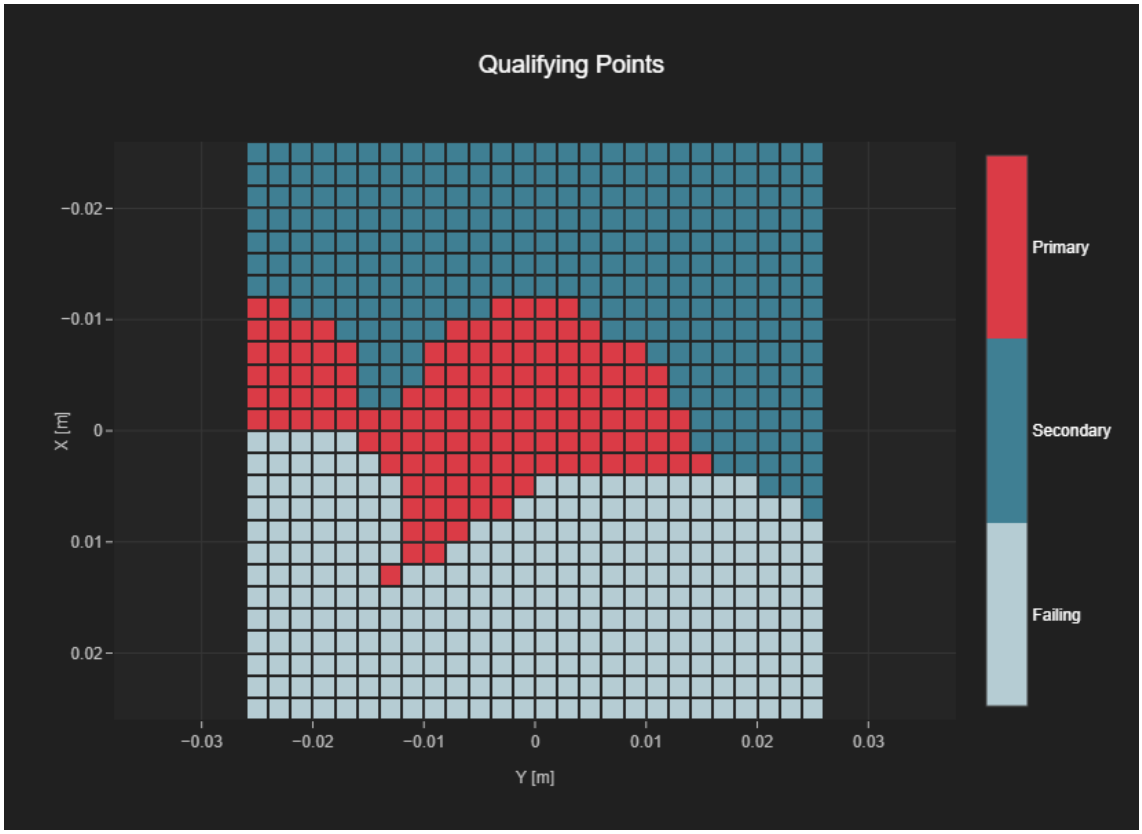
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.7	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
132	399	19	26



Plot 11 LTE Band 41 20MHz QPSK 1RB 0offset CH.39750 Voice EVS-SWB Codec: 9.6kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

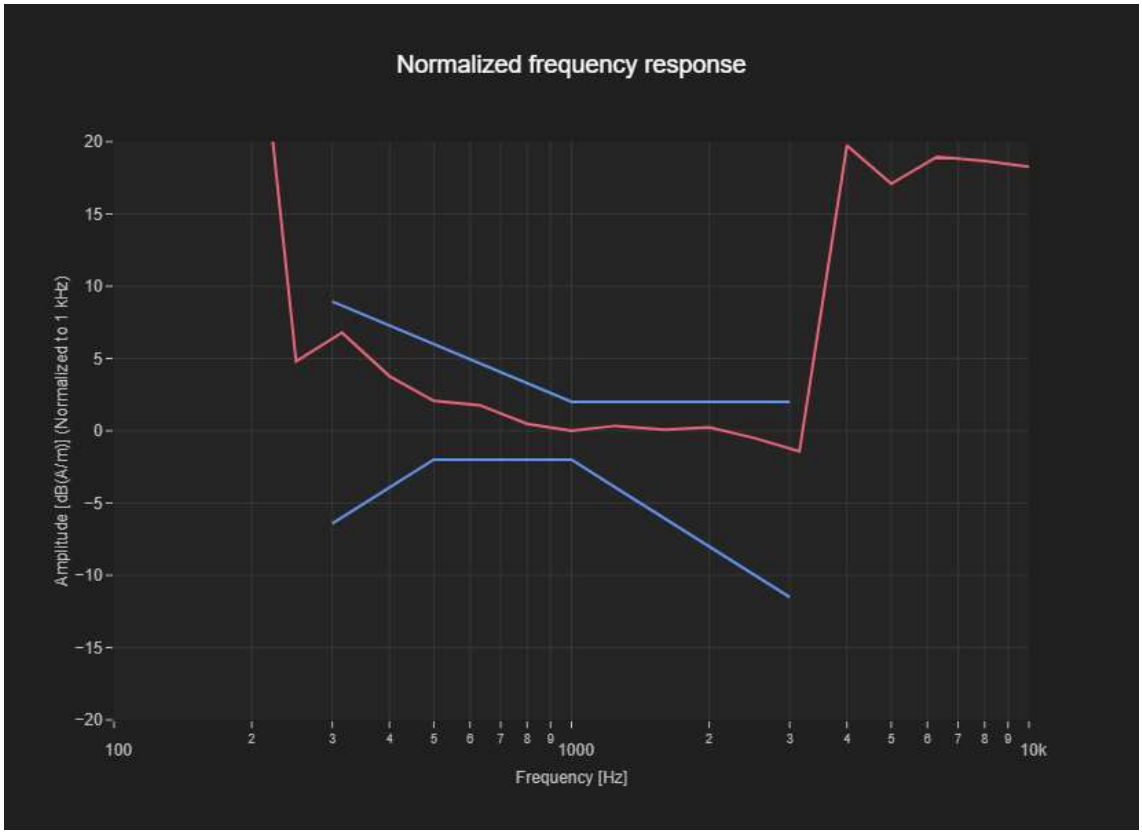
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	39750	2506.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

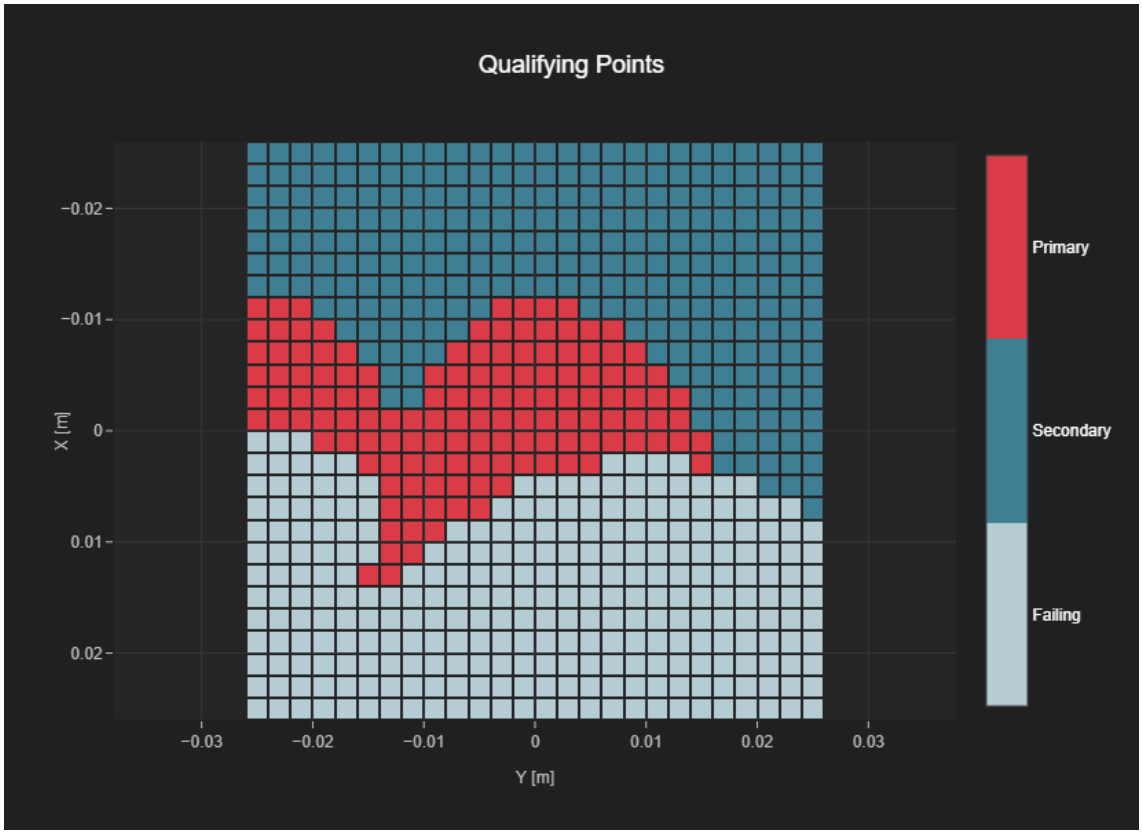
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.66	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
135	400	20	26



Plot 12 LTE Band 41 20MHz QPSK 1RB 0offset CH.40185 Voice EVS-SWB Codec: 9.6kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

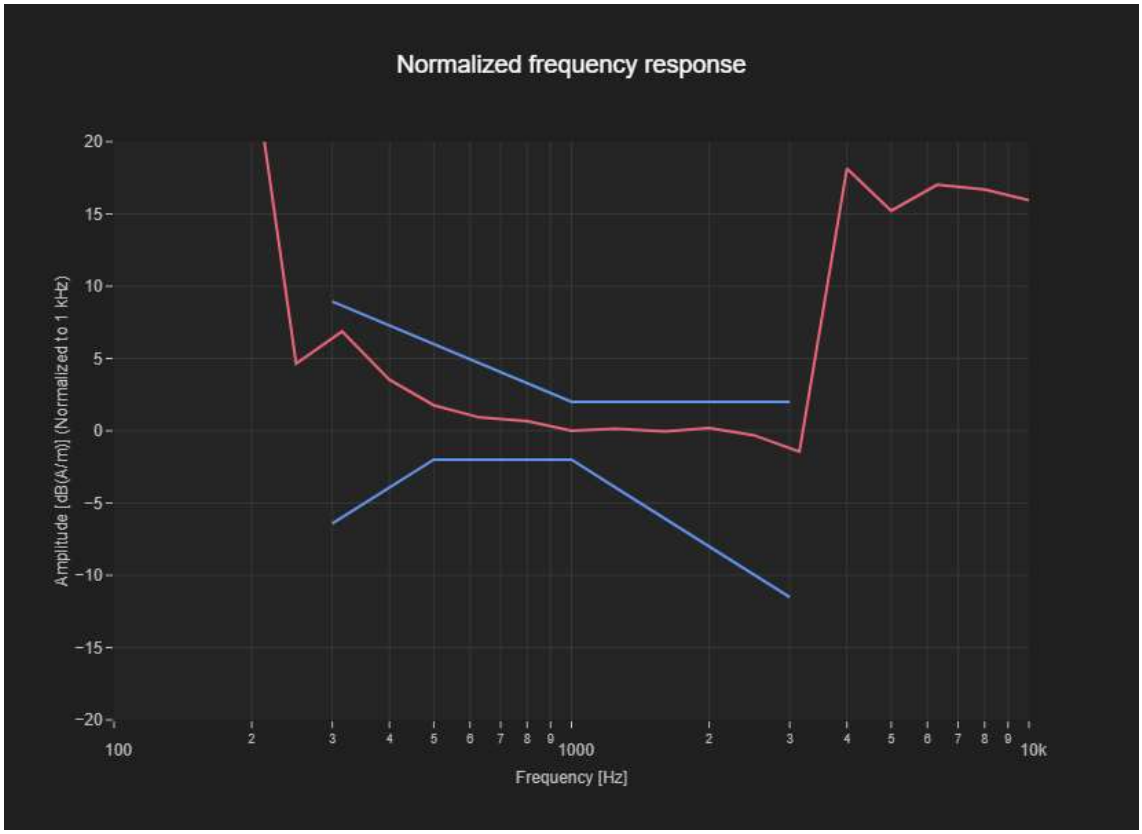
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	40185	2549.5

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

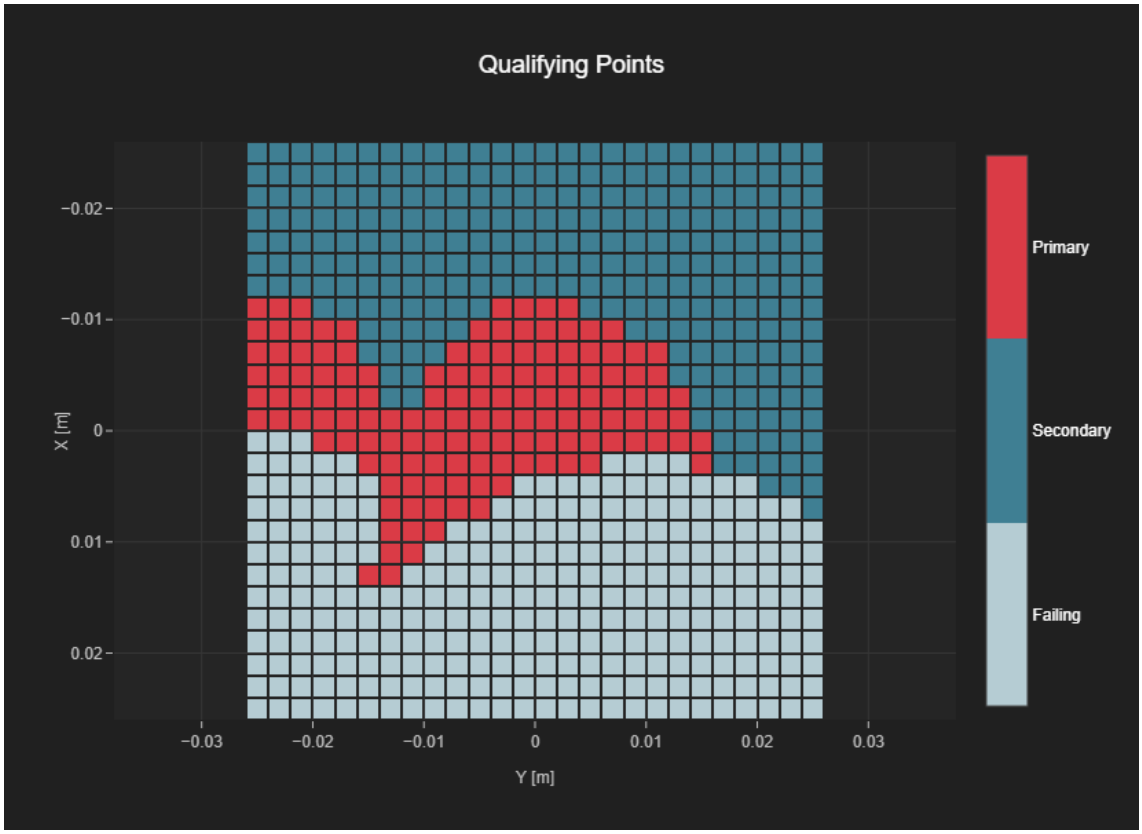
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.82	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
137	400	20	26



Plot 13 LTE Band 41 20MHz QPSK 1RB 0offset CH.41055 Voice EVS-SWB Codec: 9.6kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

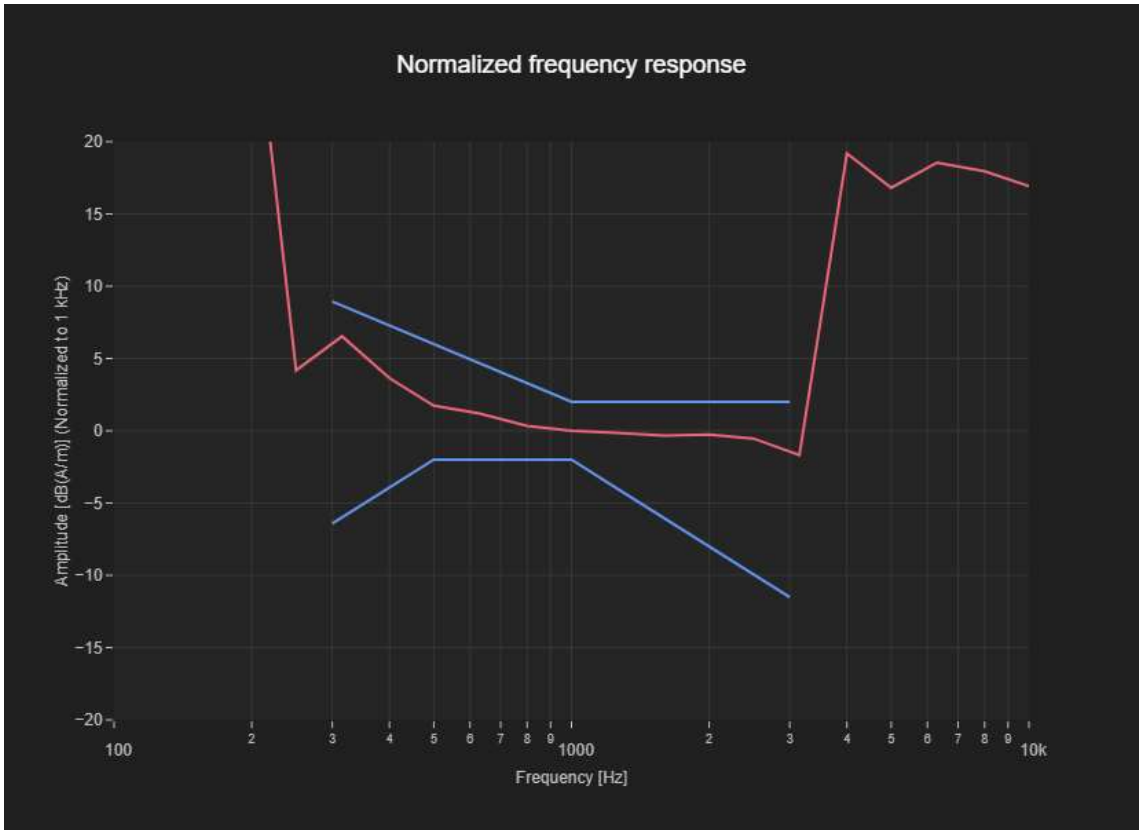
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	41055	2636.5

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

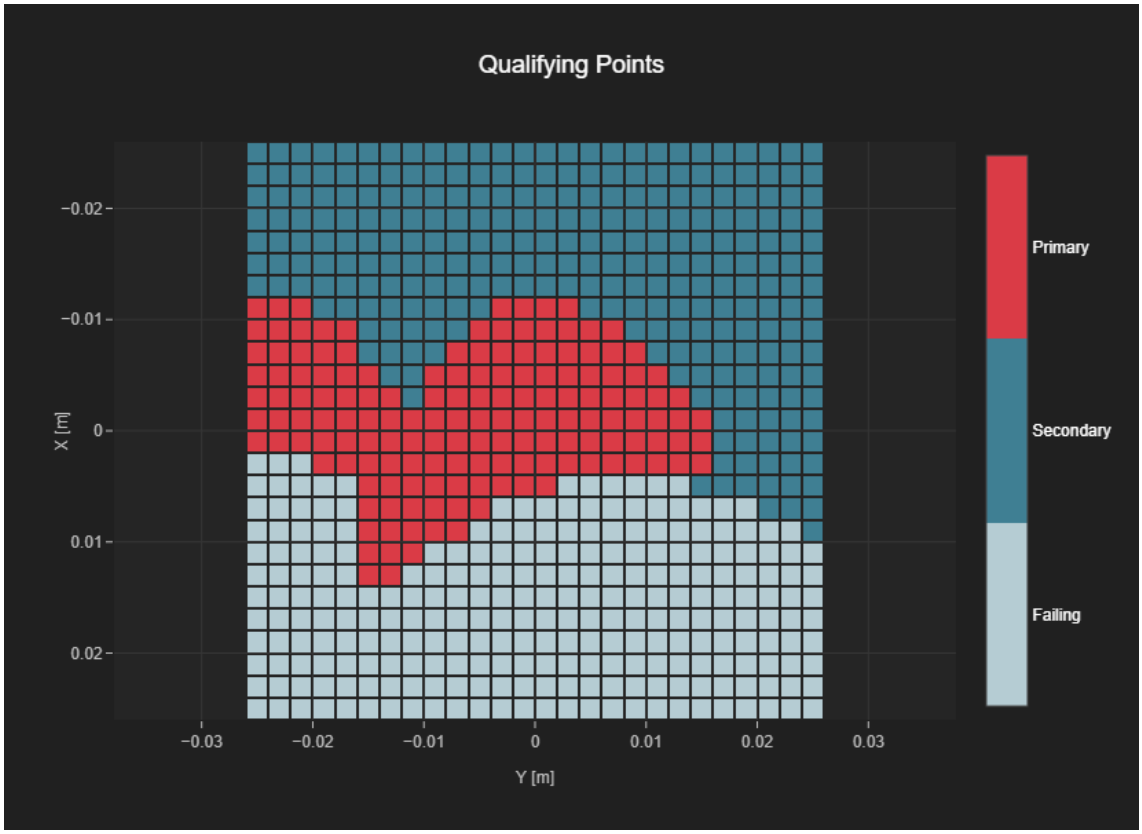
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
154	422	20	26



Plot 14 LTE Band 41 20MHz QPSK 1RB 0offset CH.41490 Voice EVS-SWB Codec: 9.6kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

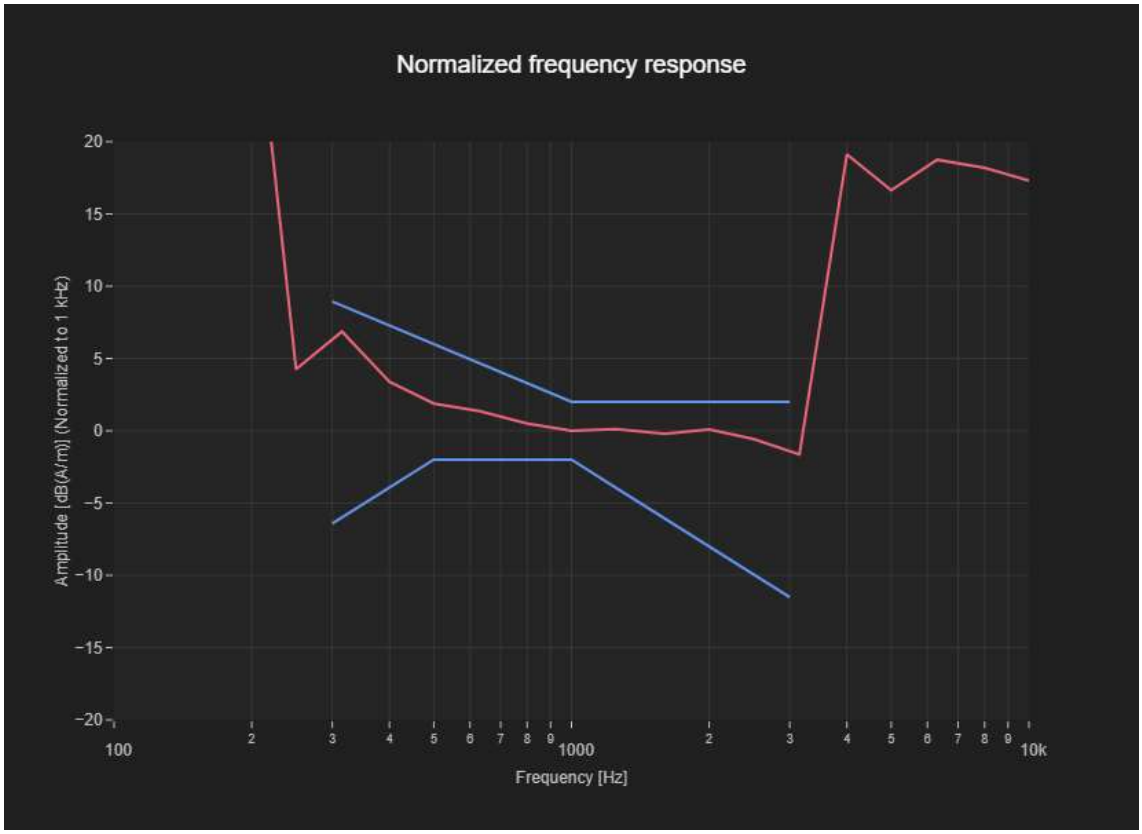
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	41490	2680.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

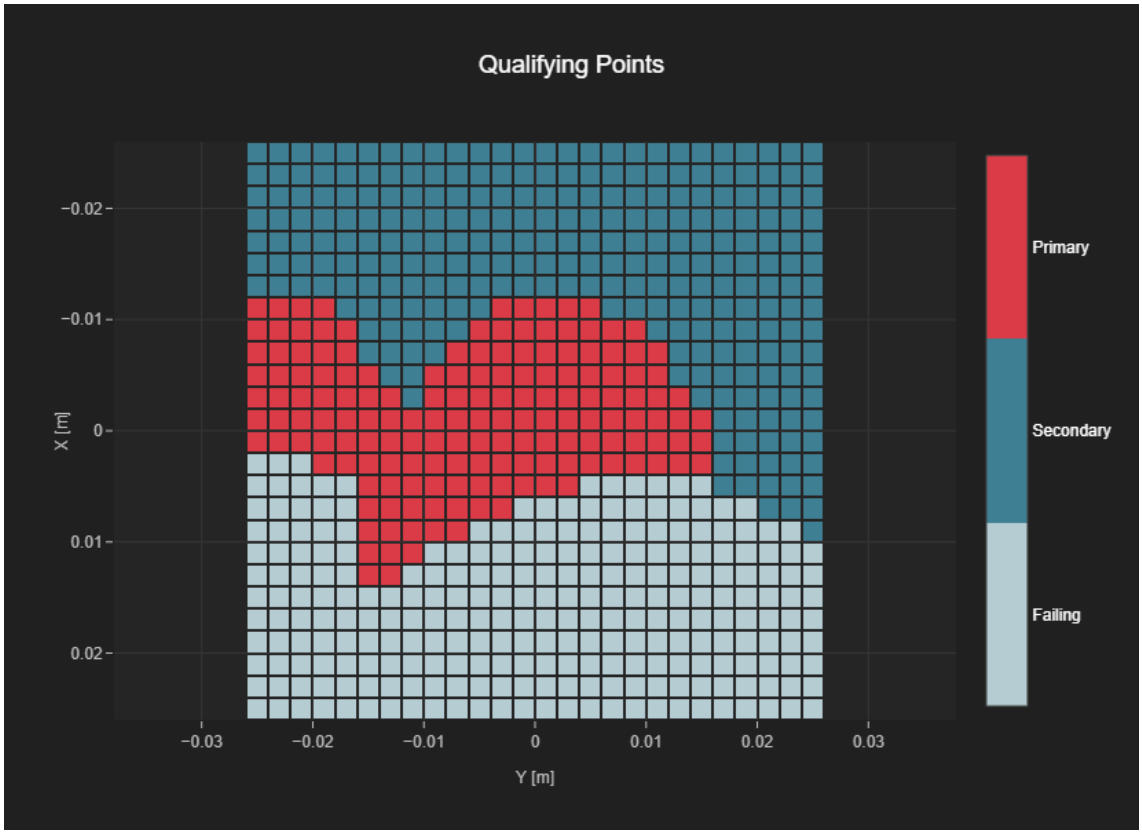
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.88	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
160	423	20	26



Plot 15 NR Band n25 40MHz CP OFDM 16QAM 216RB 0offset CH.376500
EVS-WB Codec: 5.9kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

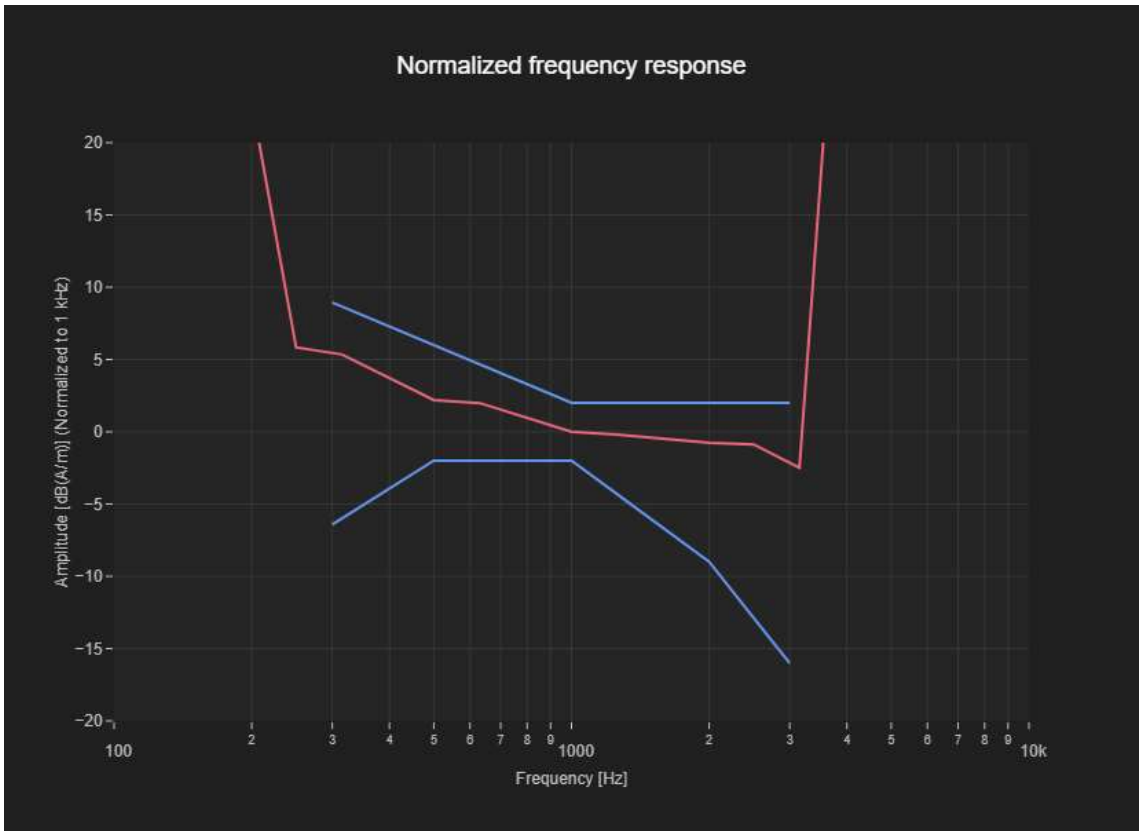
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band n25	5G NR (DFT-s-OFDM, 100% RB, 40 MHz, QPSK, 15 kHz)	376500	1882.5

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

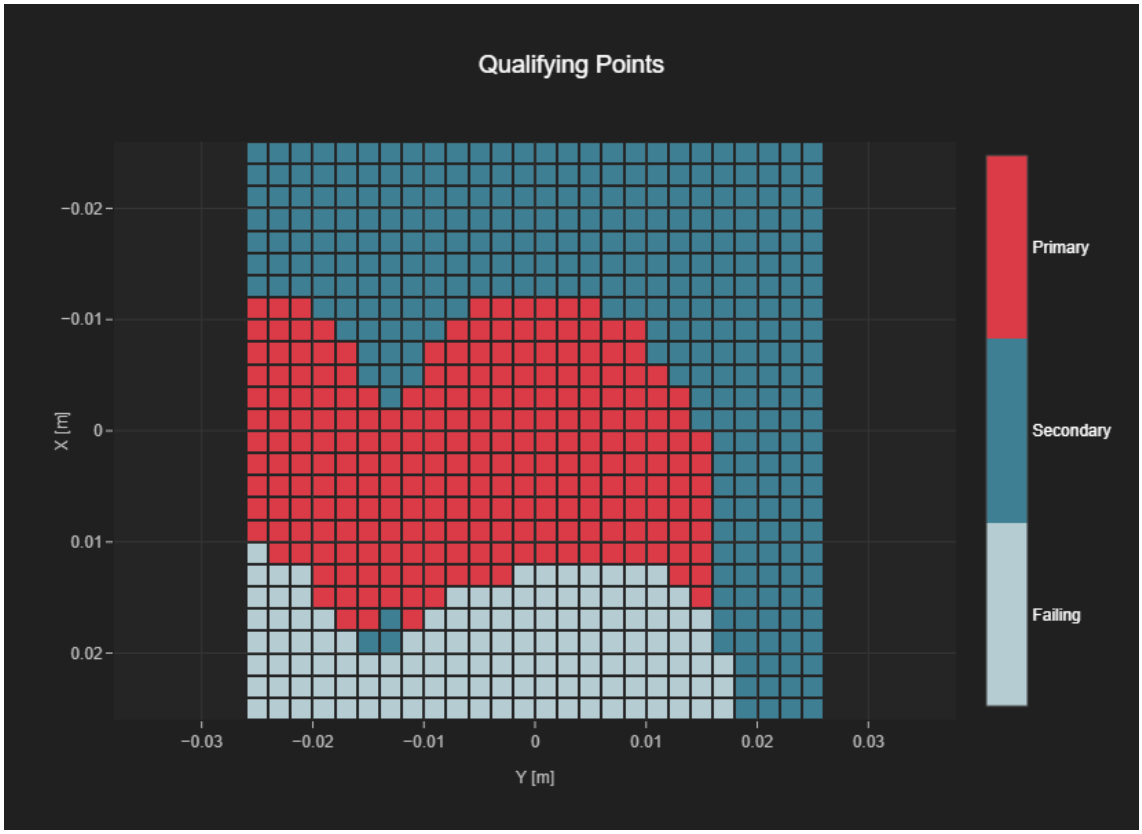
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
238	549	26	26



Plot 16 NR Band n77 100MHz DFTs OFDM QPSK 1RB 137offset PC2 CH.650000 EVS-SWB Codec: 16.4kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

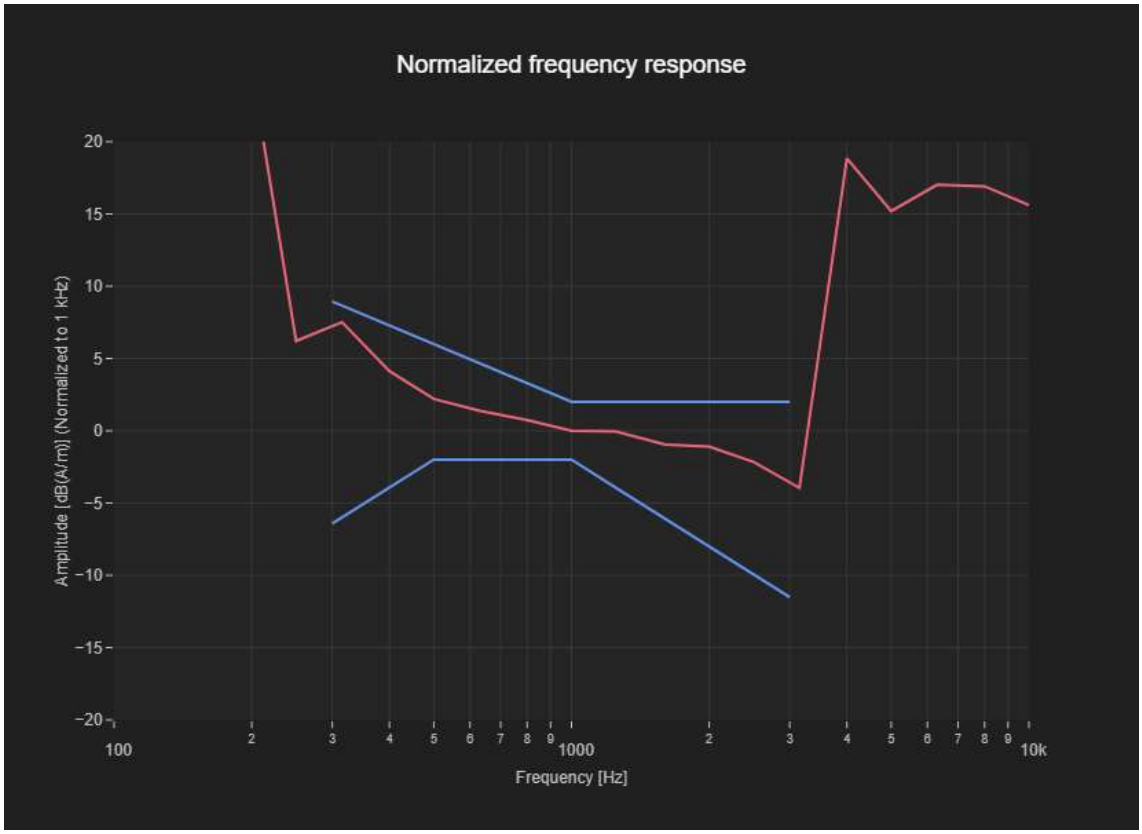
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band n77	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	650000	3750.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

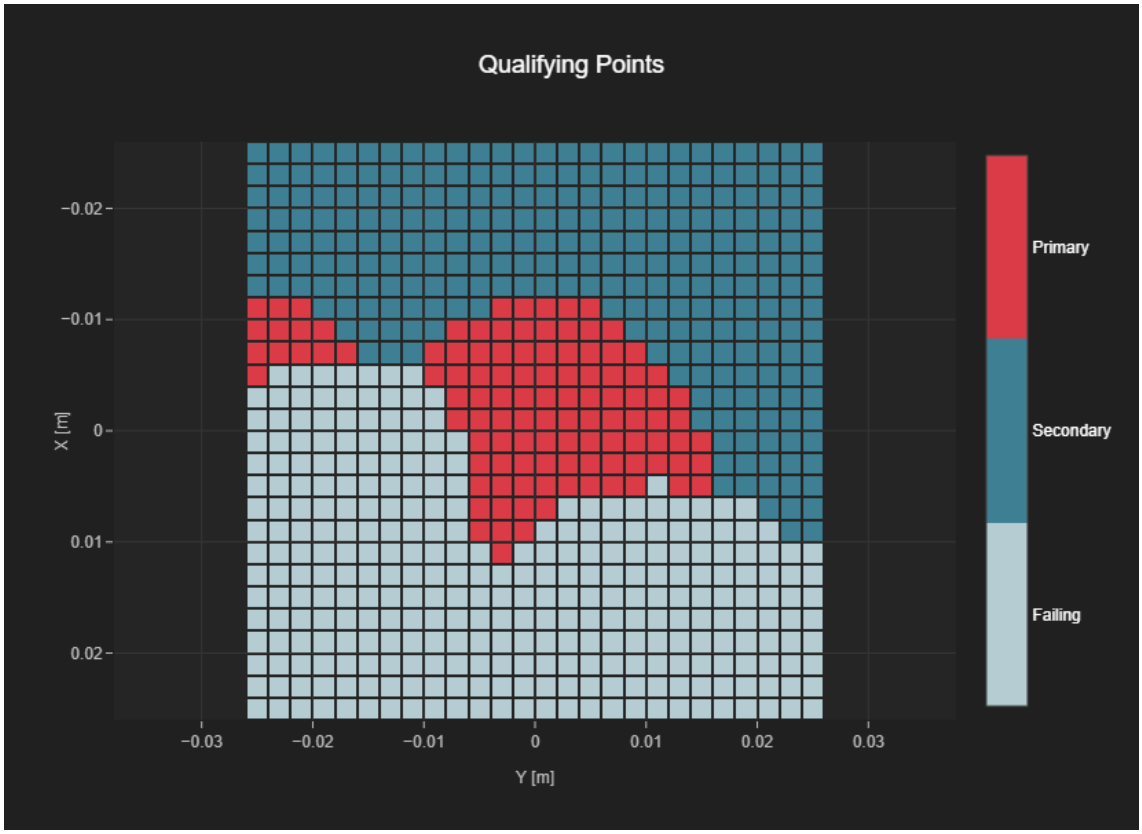
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.73	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
109	373	19	26



Plot 17 NR Band n77 100MHz DFTs OFDM QPSK 1RB 137offset PC2 CH.633334 EVS-SWB Codec: 16.4kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

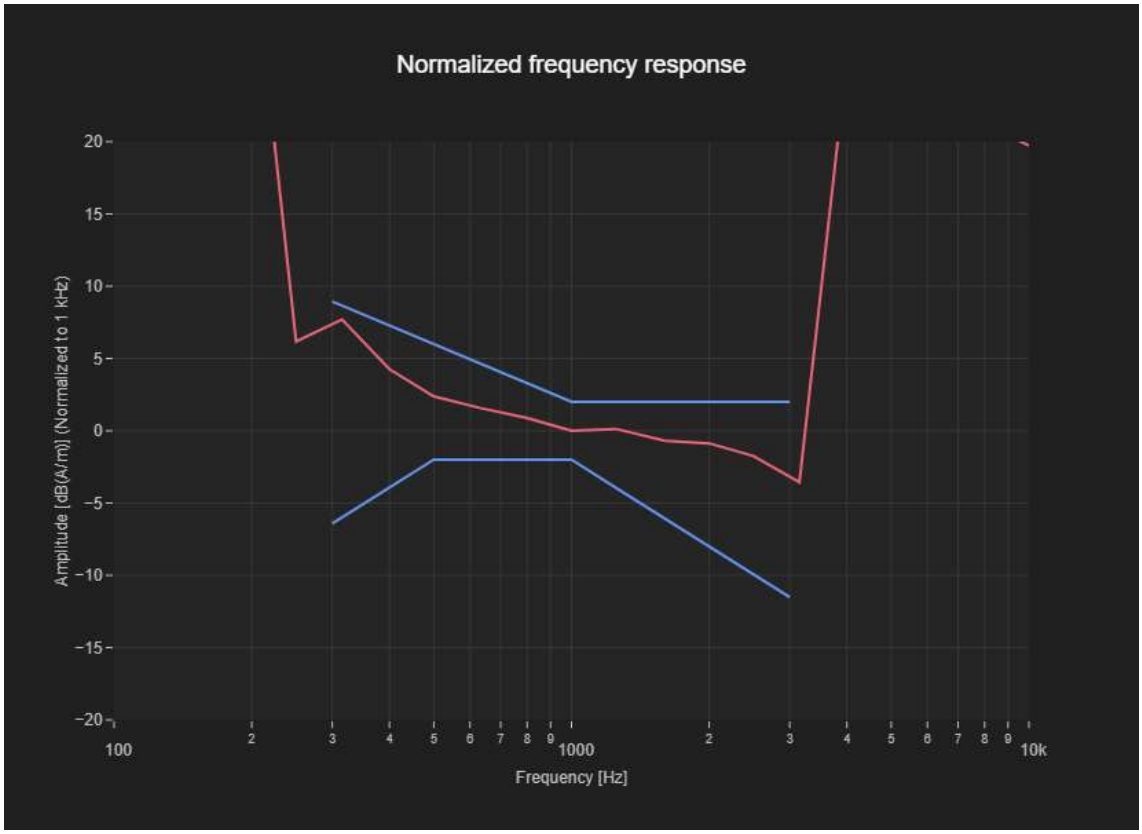
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band n77	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	633334	3500.01

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

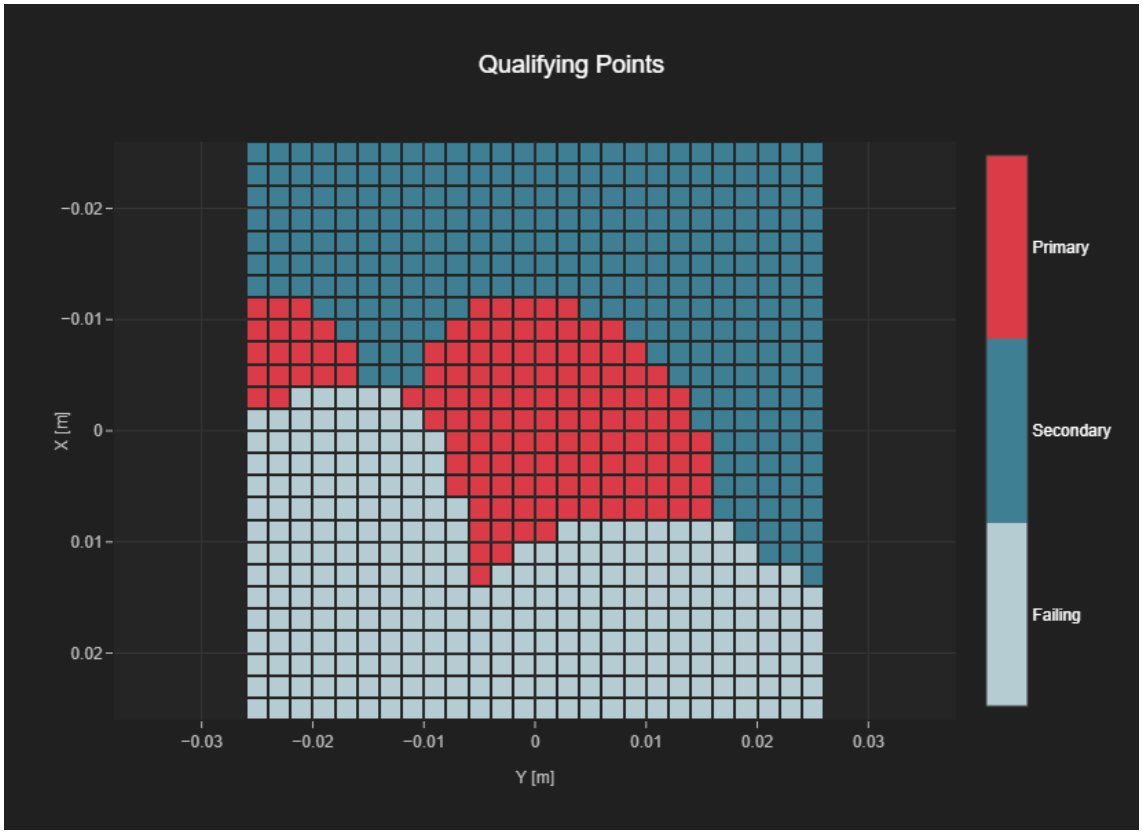
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.6	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
132	407	20	26



Plot 18 NR Band n77 100MHz DFTs OFDM QPSK 1RB 137offset PC2 CH.662000 EVS-SWB Codec: 16.4kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3153	May 14, 2024	DAE4 Sn1225	February 15, 2024

Communication Systems

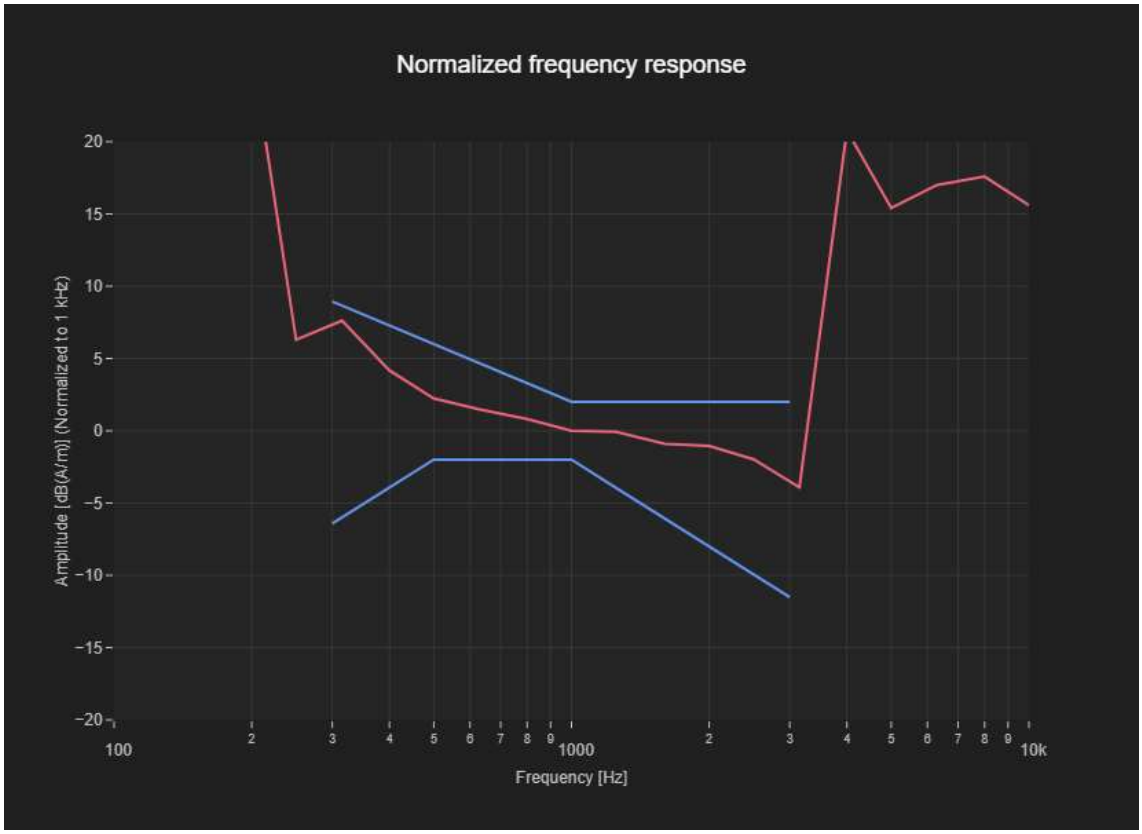
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band n77	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	662000	3930.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

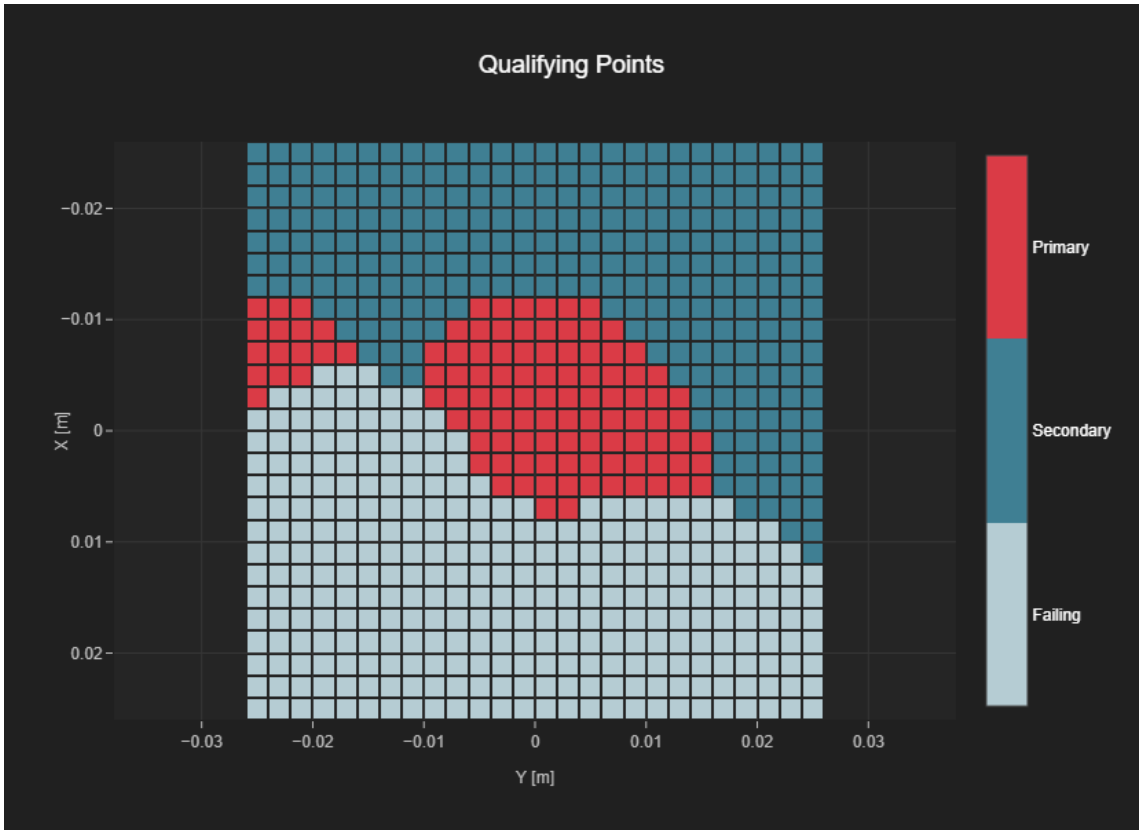
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.64	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
108	375	19	26



Plot 19 802.11b CH.6 11Mbps Voice AMR-WB Codec: 6.6 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

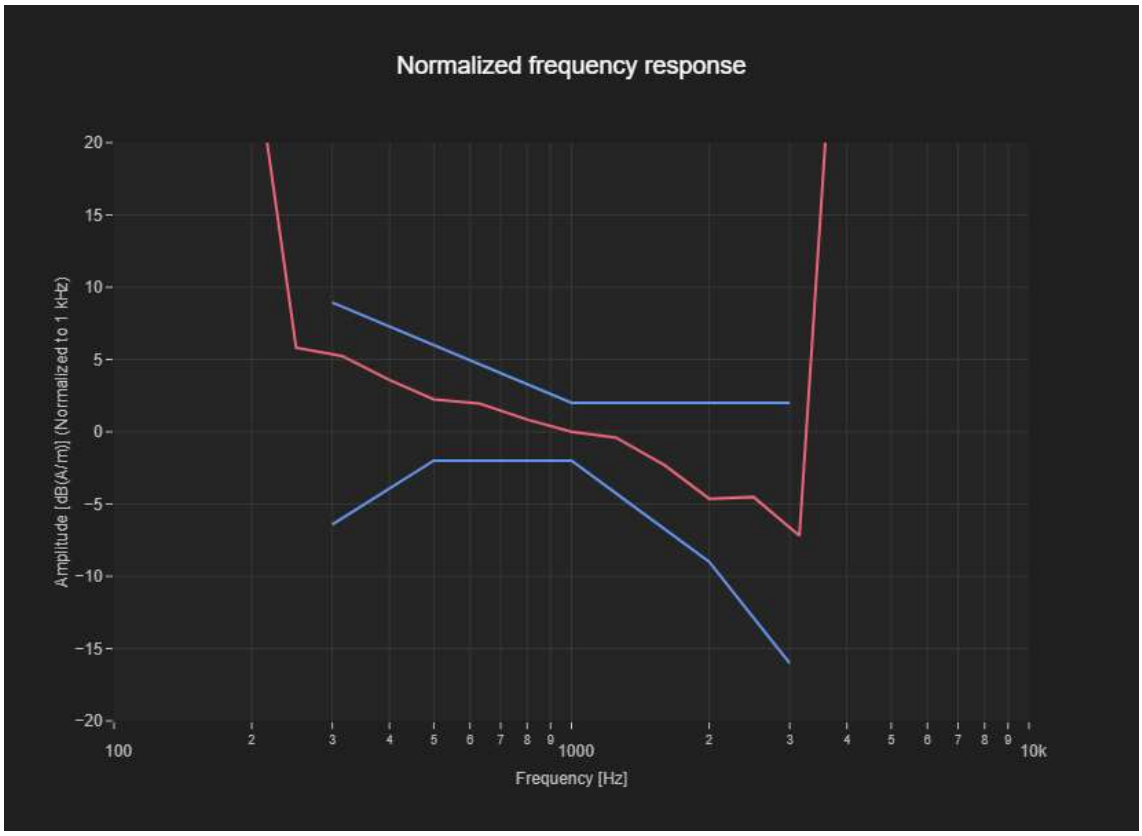
Band Name	Communication Systems Name	Channel	Frequency [MHz]
WLAN 2.4GHz	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	6	2437.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

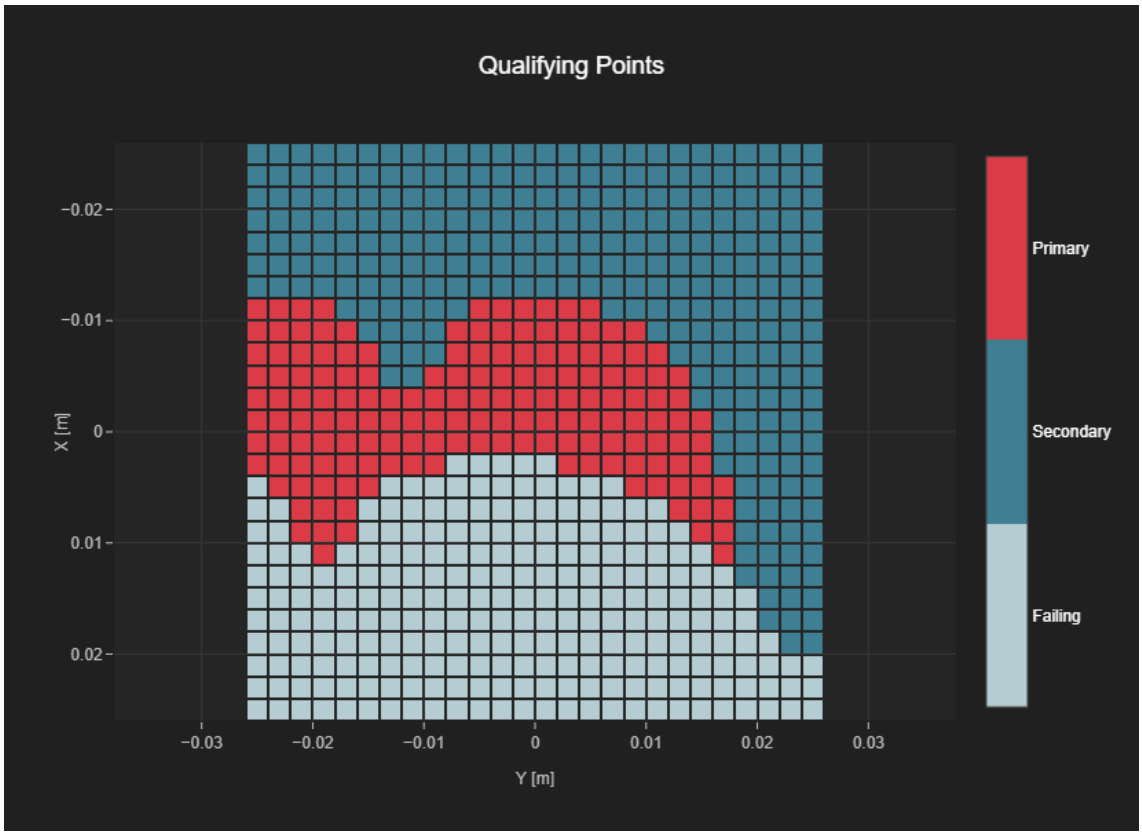
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
159	436	23	26



Plot 20 802.11b CH.1 11Mbps Voice AMR-WB Codec: 6.6 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

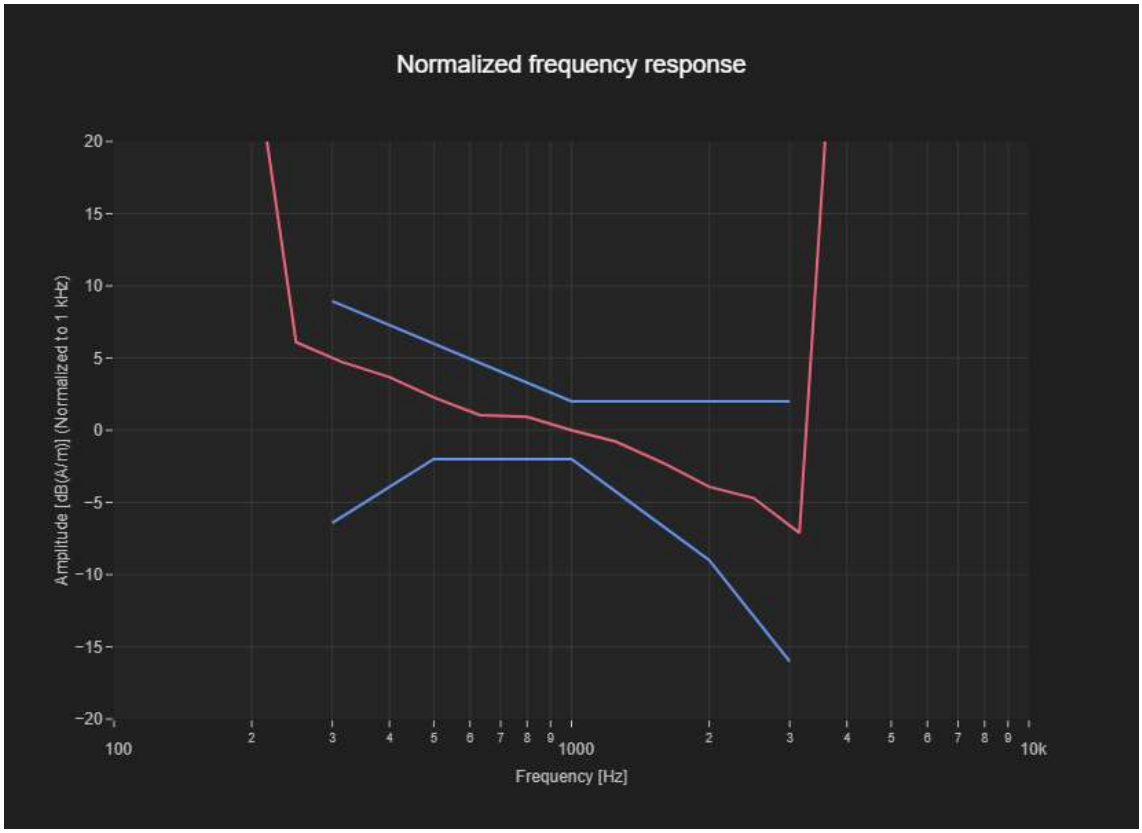
Band Name	Communication Systems Name	Channel	Frequency [MHz]
WLAN 2.4GHz	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	1	2412.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

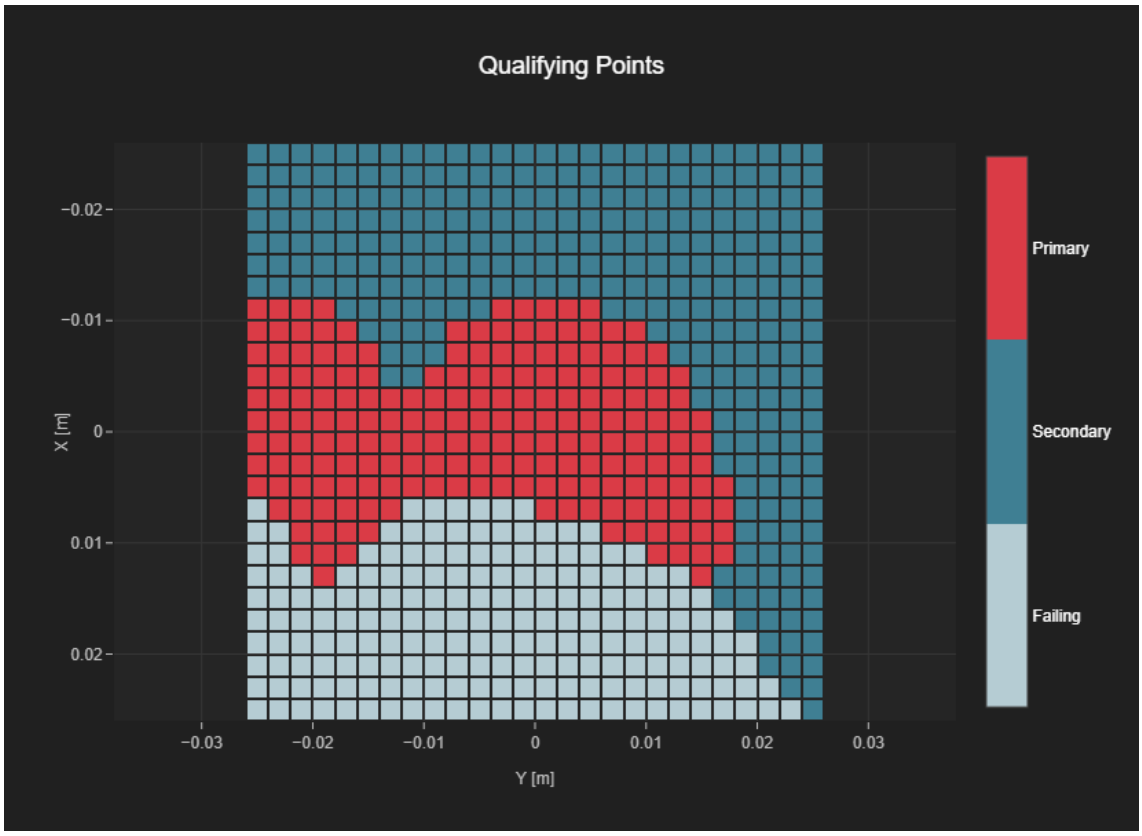
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
196	485	26	26



Plot 21 802.11b CH.11 11Mbps Voice AMR-WB Codec: 6.6 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

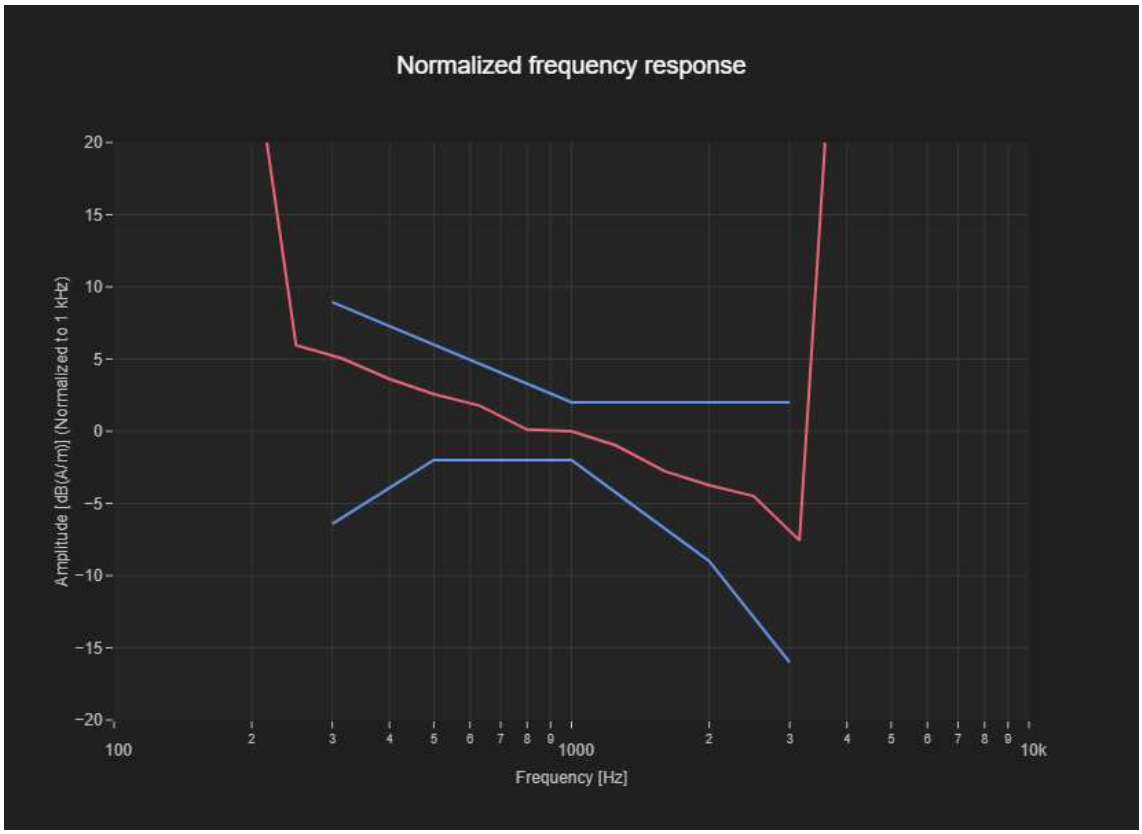
Band Name	Communication Systems Name	Channel	Frequency [MHz]
WLAN 2.4GHz	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	11	2462.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

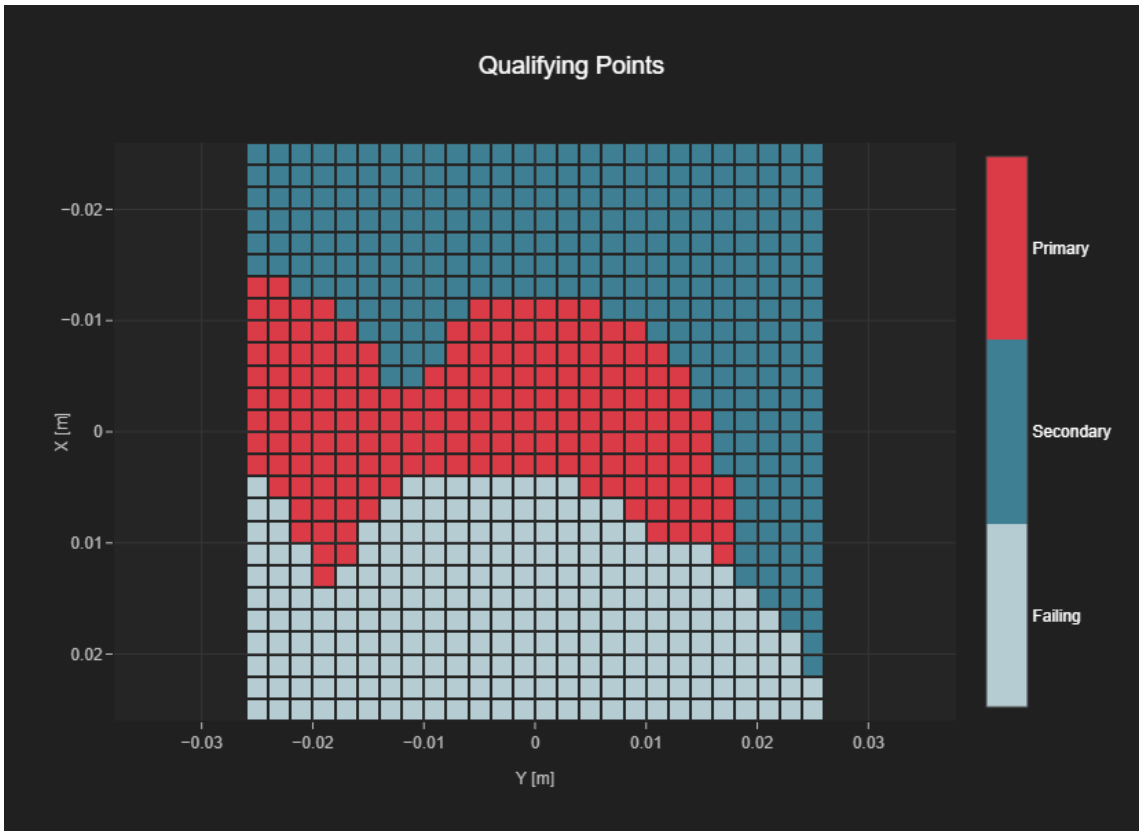
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
176	450	24	26



Plot 22 802.11a CH.40 18Mbps Voice EVS-WB Codec: 5.9 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

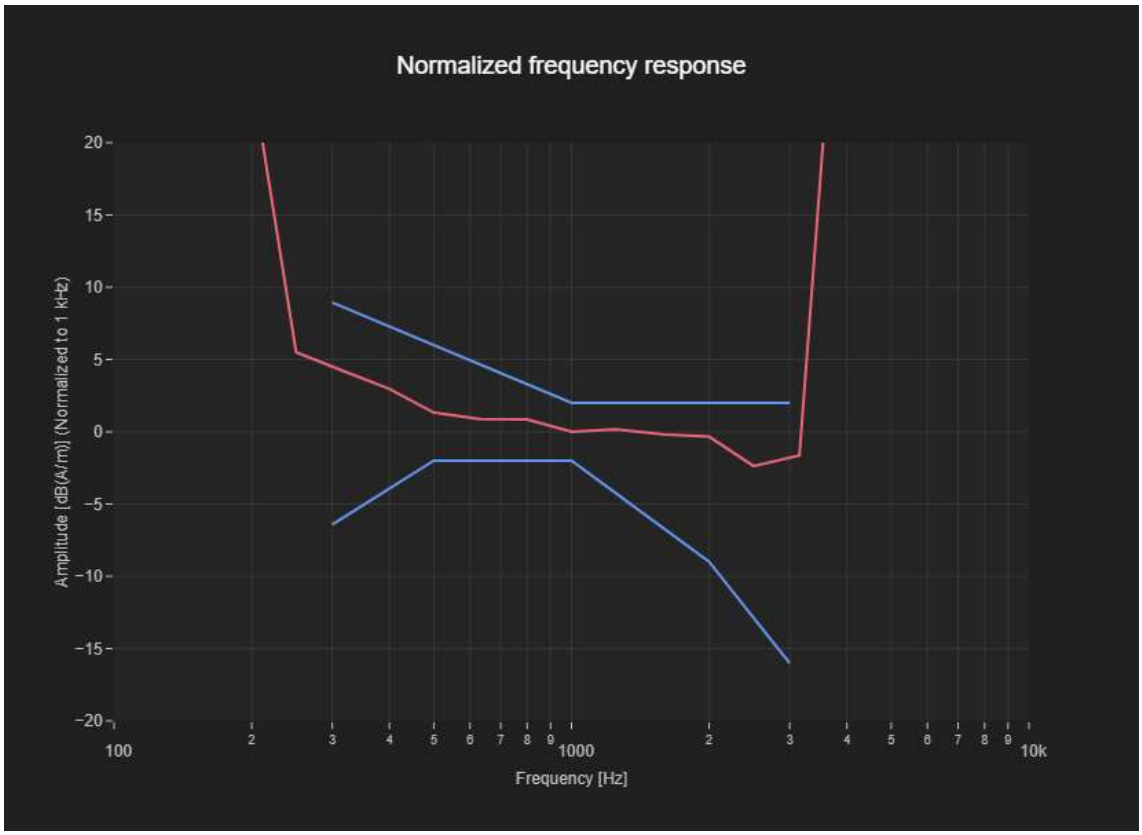
Band Name	Communication Systems Name	Channel	Frequency [MHz]
WLAN 5GHz	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	40	5200.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

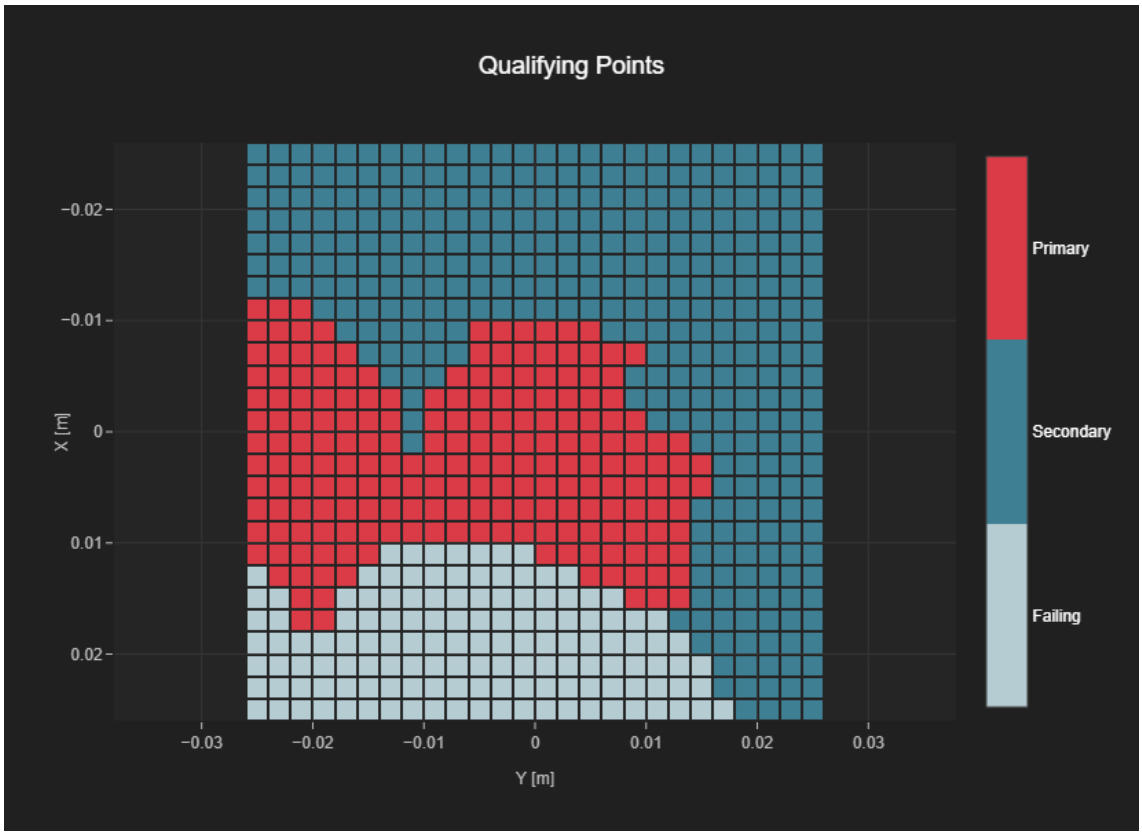
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.84	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
203	542	26	26



Plot 23 802.11a CH.60 18Mbps Voice EVS-WB Codec: 5.9 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

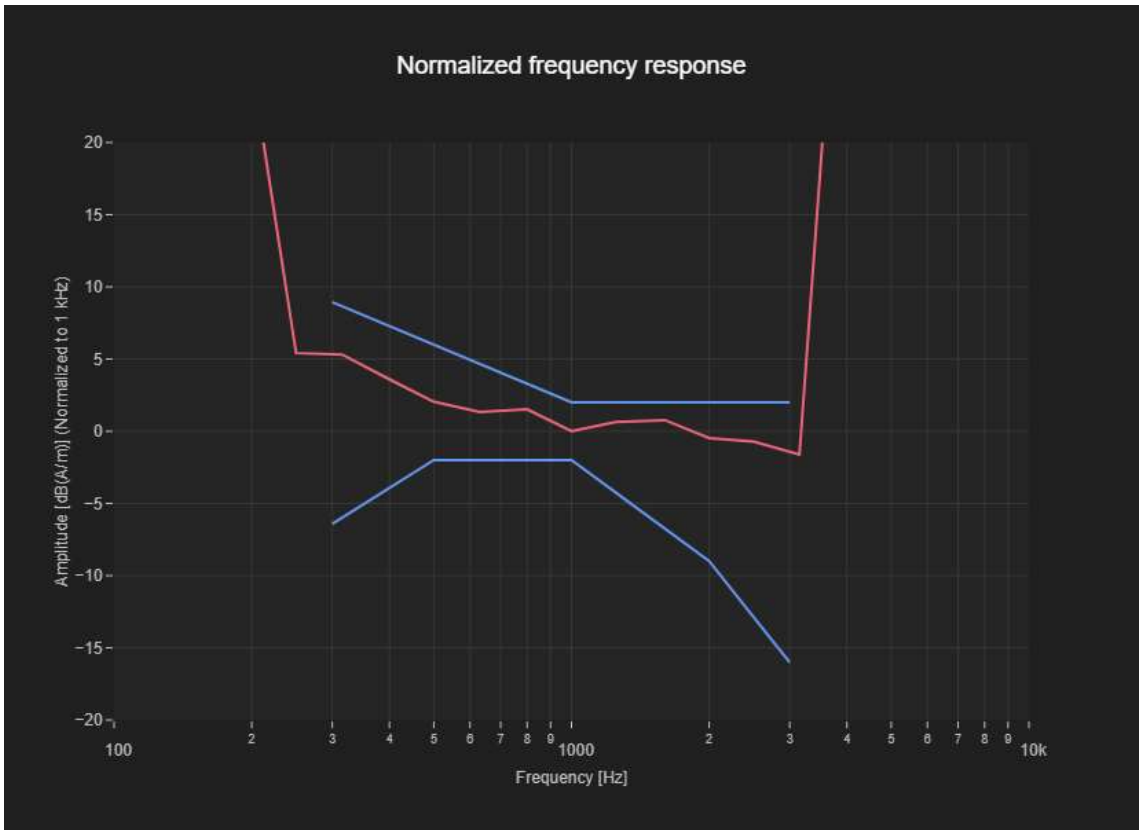
Band Name	Communication Systems Name	Channel	Frequency [MHz]
WLAN 5GHz	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	60	5300.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.23	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
264	615	26	26

Plot 24 802.11a CH.120 18Mbps Voice EVS-WB Codec: 5.9 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

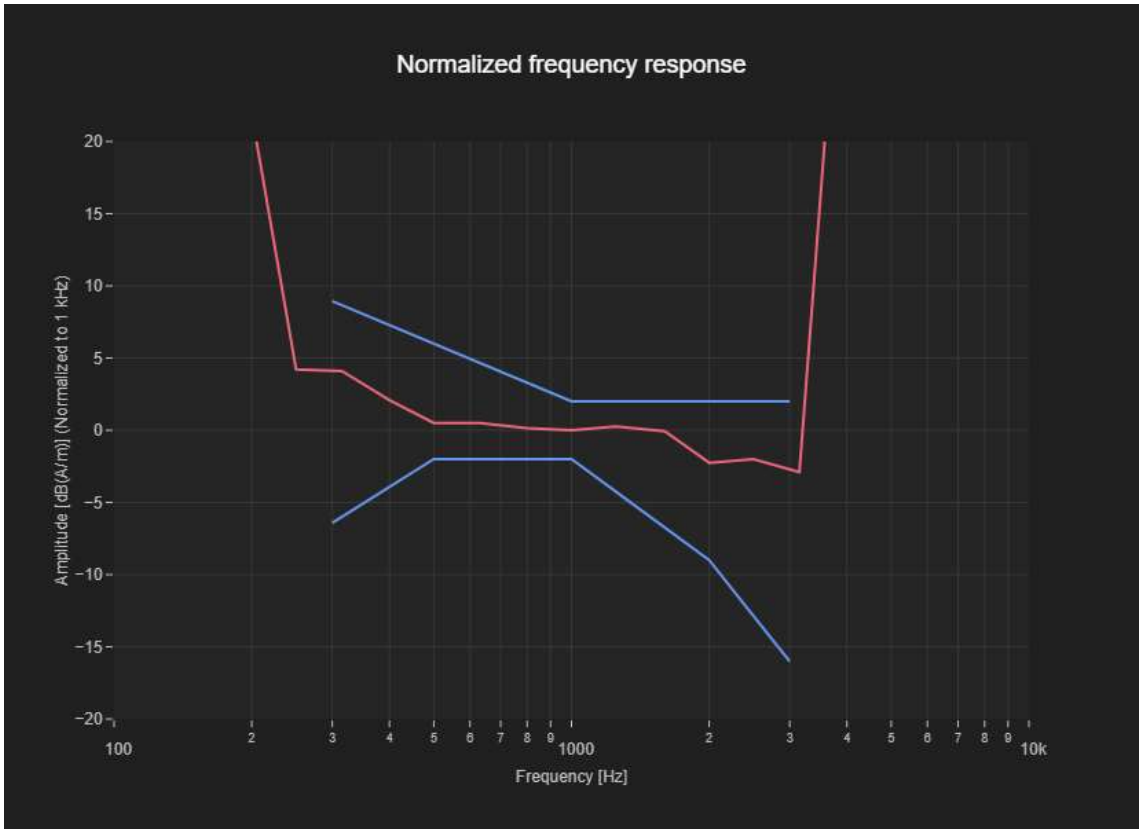
Band Name	Communication Systems Name	Channel	Frequency [MHz]
WLAN 5GHz	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	120	5600.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

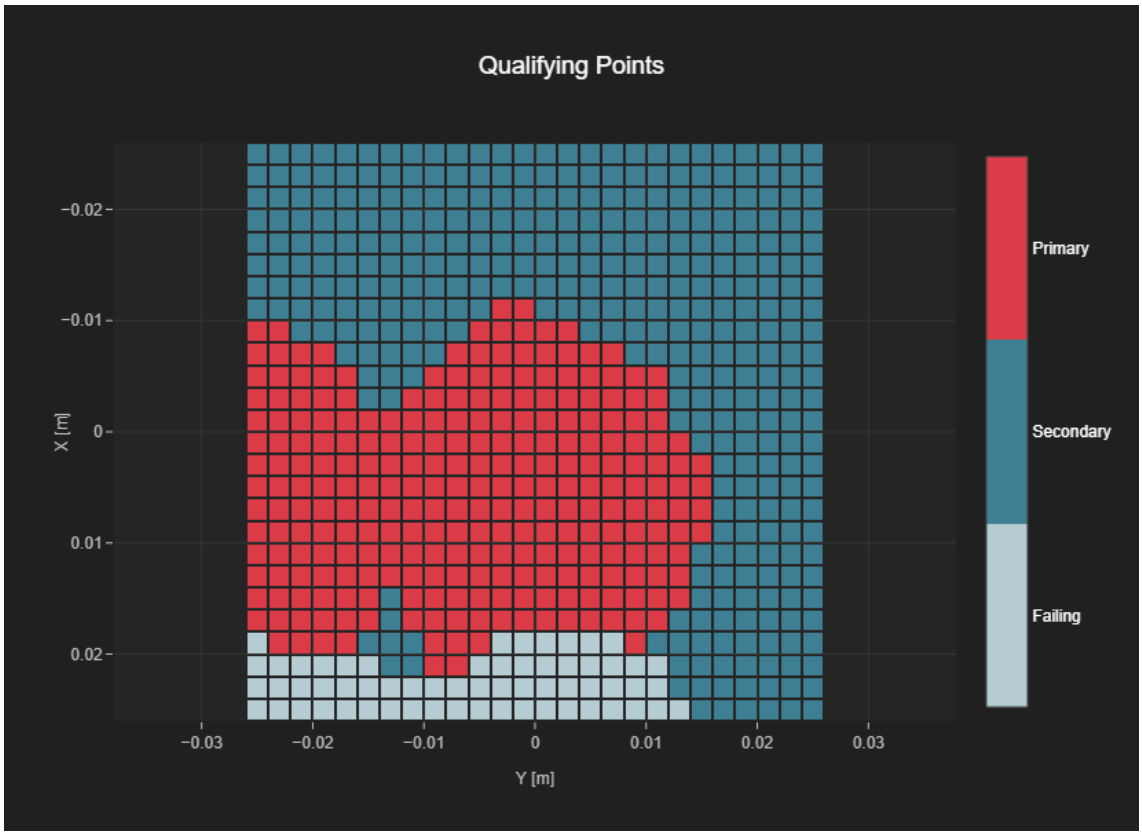
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.75	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
264	615	26	26



Plot 25 802.11a CH.157 18Mbps Voice EVS-WB Codec: 5.9 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

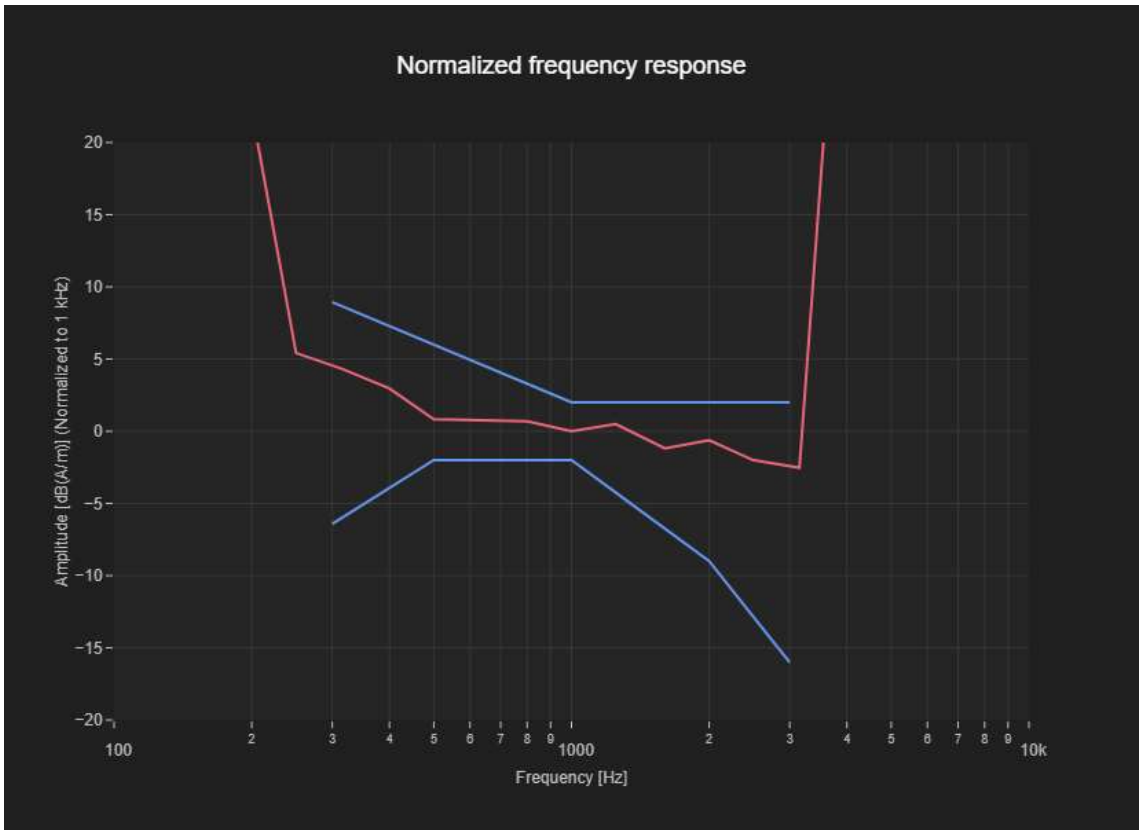
Band Name	Communication Systems Name	Channel	Frequency [MHz]
WLAN 5GHz	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	157	5785.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

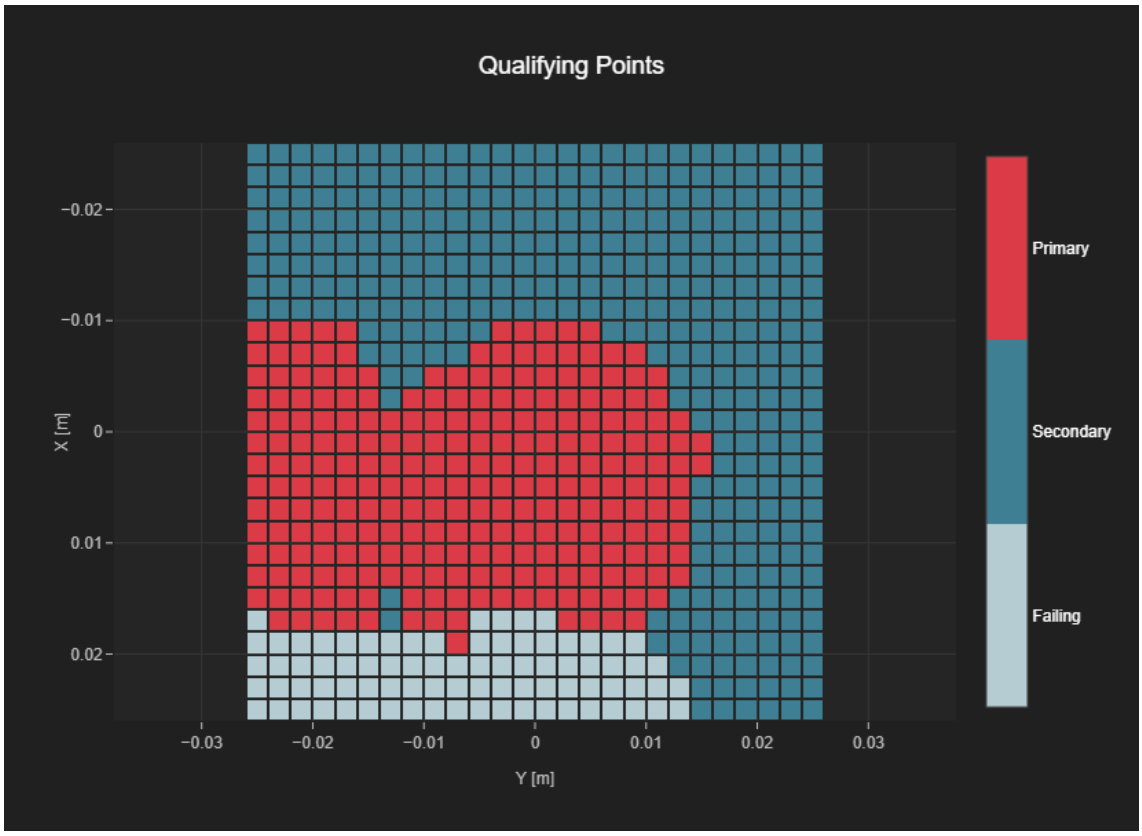
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.51	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
251	595	26	26



Plot 26 802.11a CH.173 18Mbps Voice EVS-WB Codec: 5.9 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

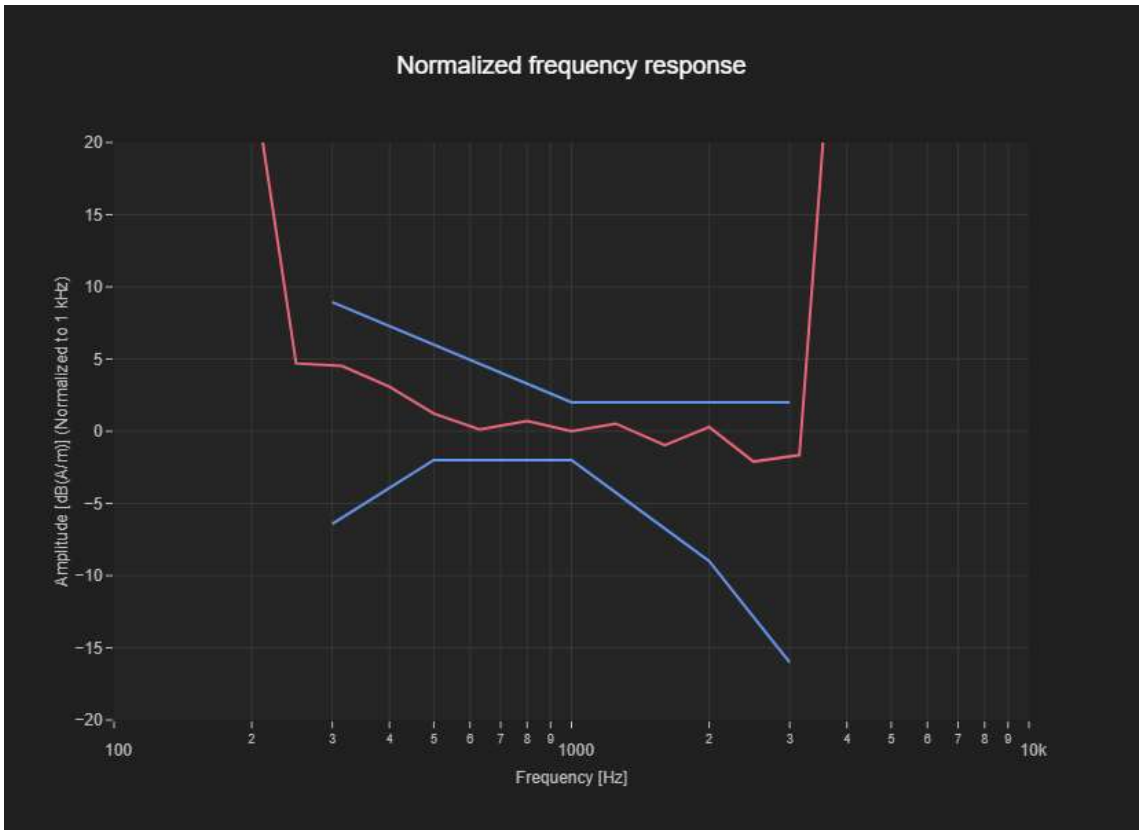
Band Name	Communication Systems Name	Channel	Frequency [MHz]
U-NII-4	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	173	5865.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

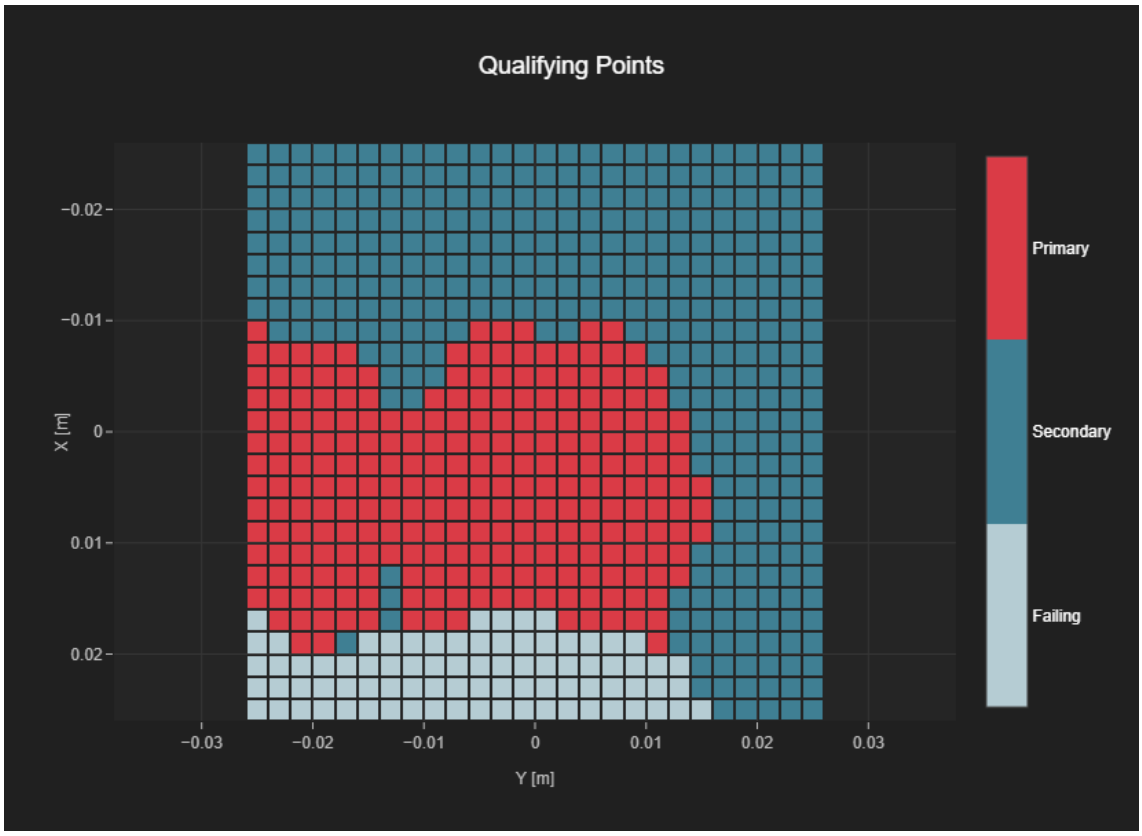
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.47	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
251	578	26	26



Plot 27 GSM1900 CH.661 EDGE 2 slots Google Meet Codec: 6 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

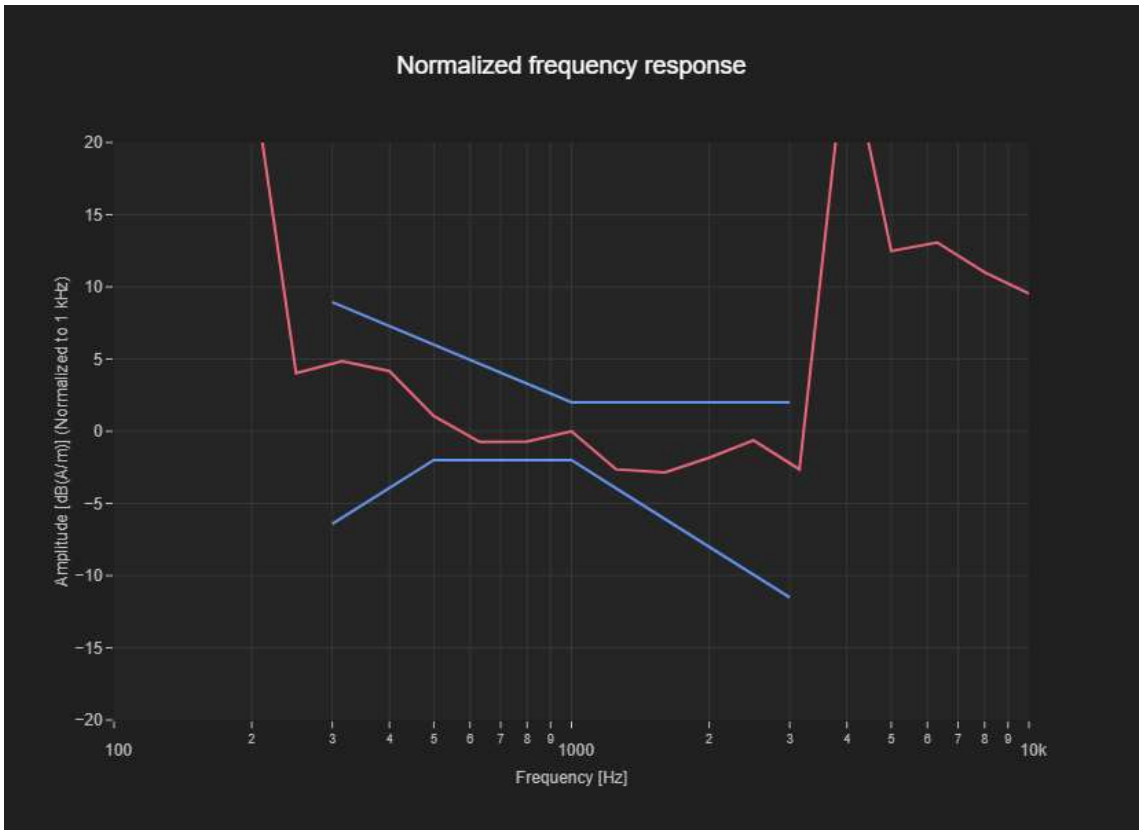
Band Name	Communication Systems Name	Channel	Frequency [MHz]
PCS 1900	EDGE-FDD (TDMA, 8PSK, TN 0-1)	661	1880.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

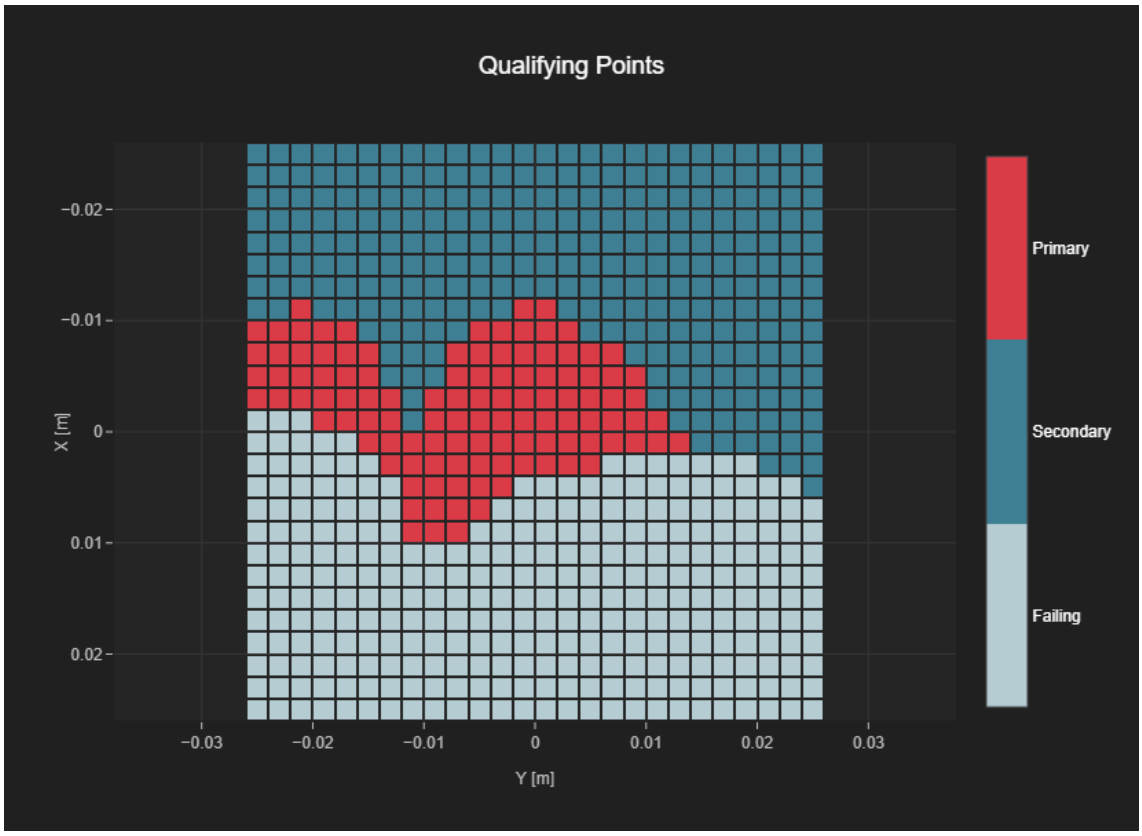
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	4.0	2.0	1.25



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
111	382	18	26



Plot 28 GSM1900 CH.512 EDGE 2 slots Google Meet Codec: 6 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

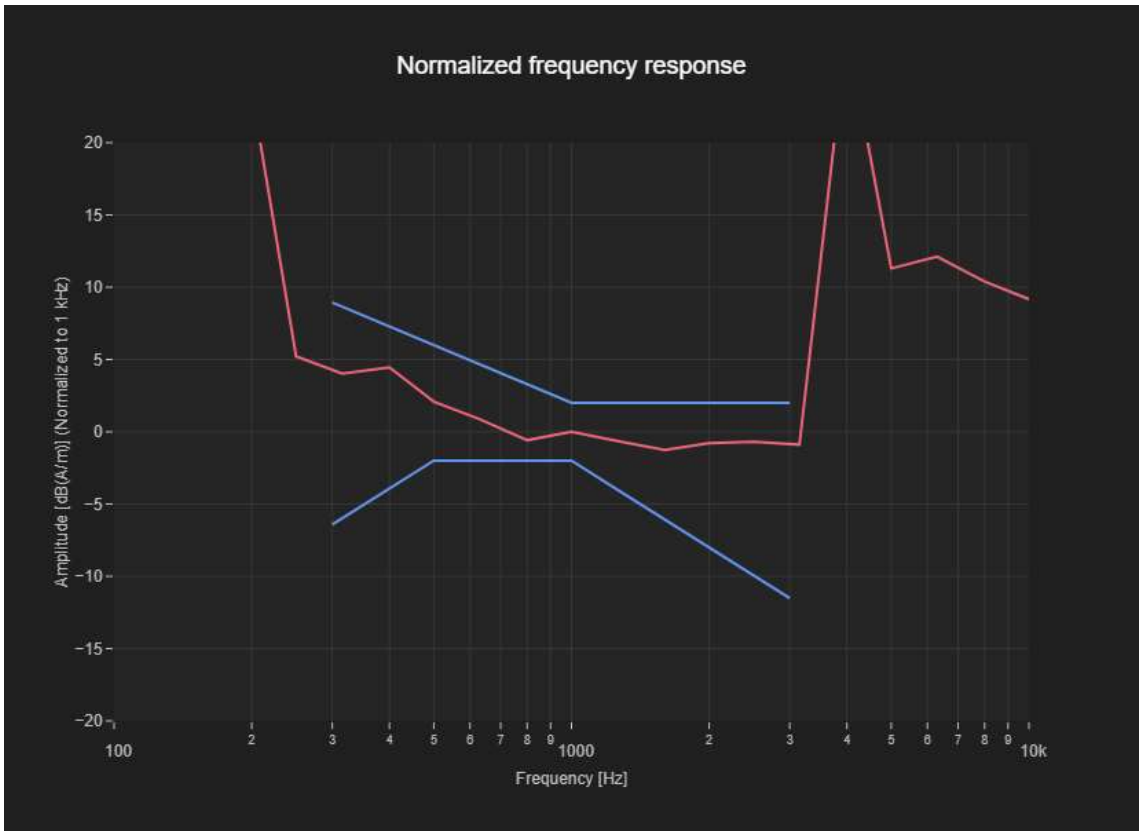
Band Name	Communication Systems Name	Channel	Frequency [MHz]
PCS 1900	EDGE-FDD (TDMA, 8PSK, TN 0-1)	512	1850.2

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

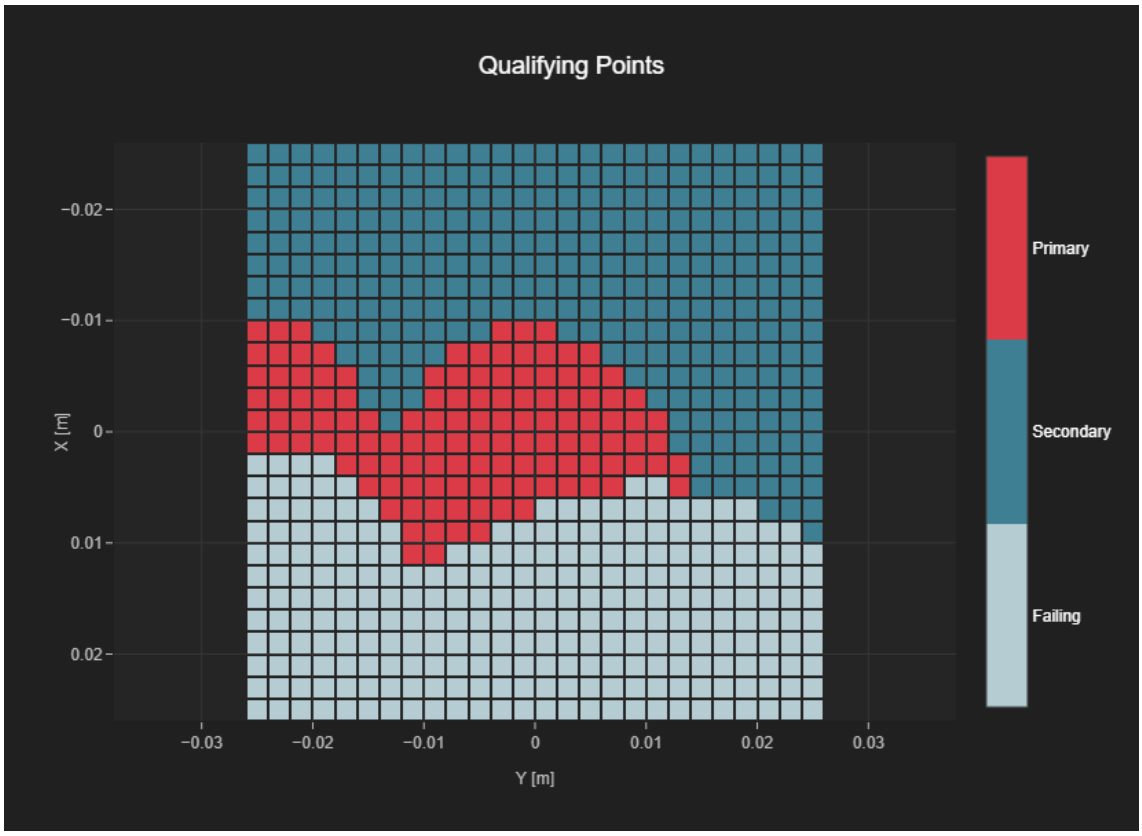
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	4.0	2.0	1.42



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
125	422	19	26



Plot 29 GSM1900 CH.810 EDGE 2 slots Google Meet Codec: 6 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

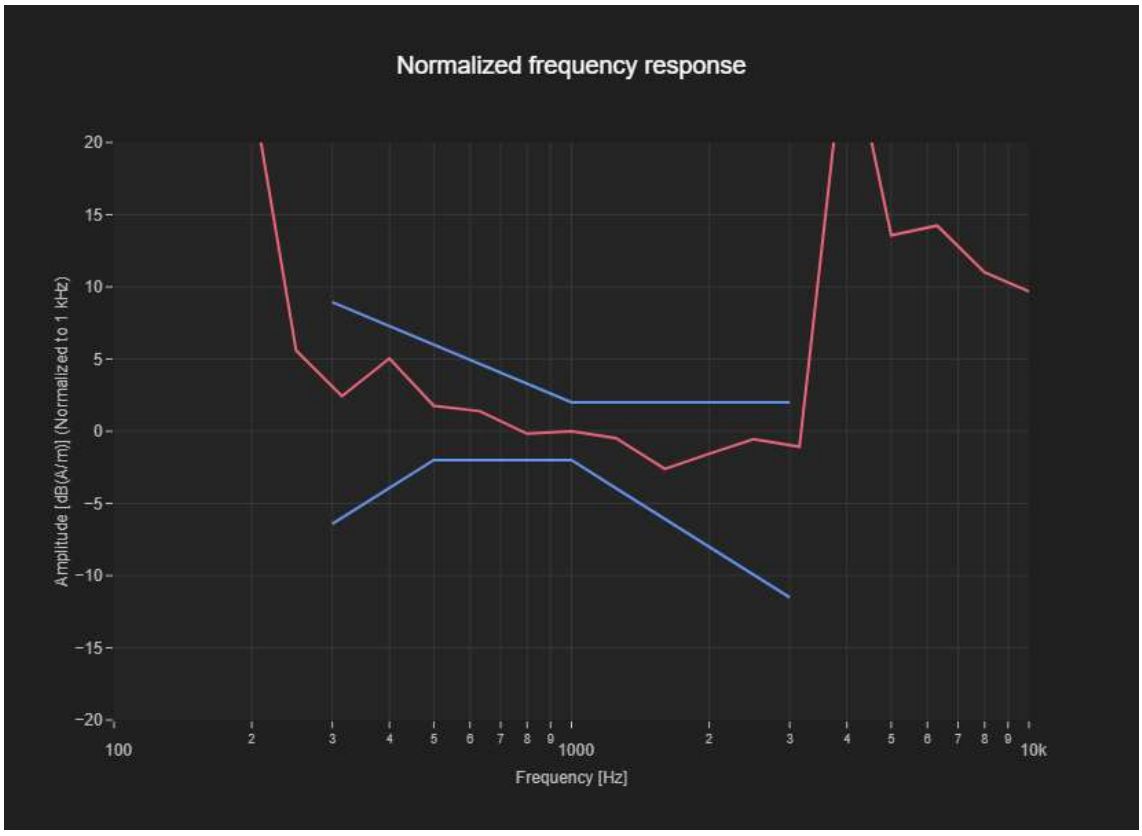
Band Name	Communication Systems Name	Channel	Frequency [MHz]
PCS 1900	EDGE-FDD (TDMA, 8PSK, TN 0-1)	810	1909.8

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

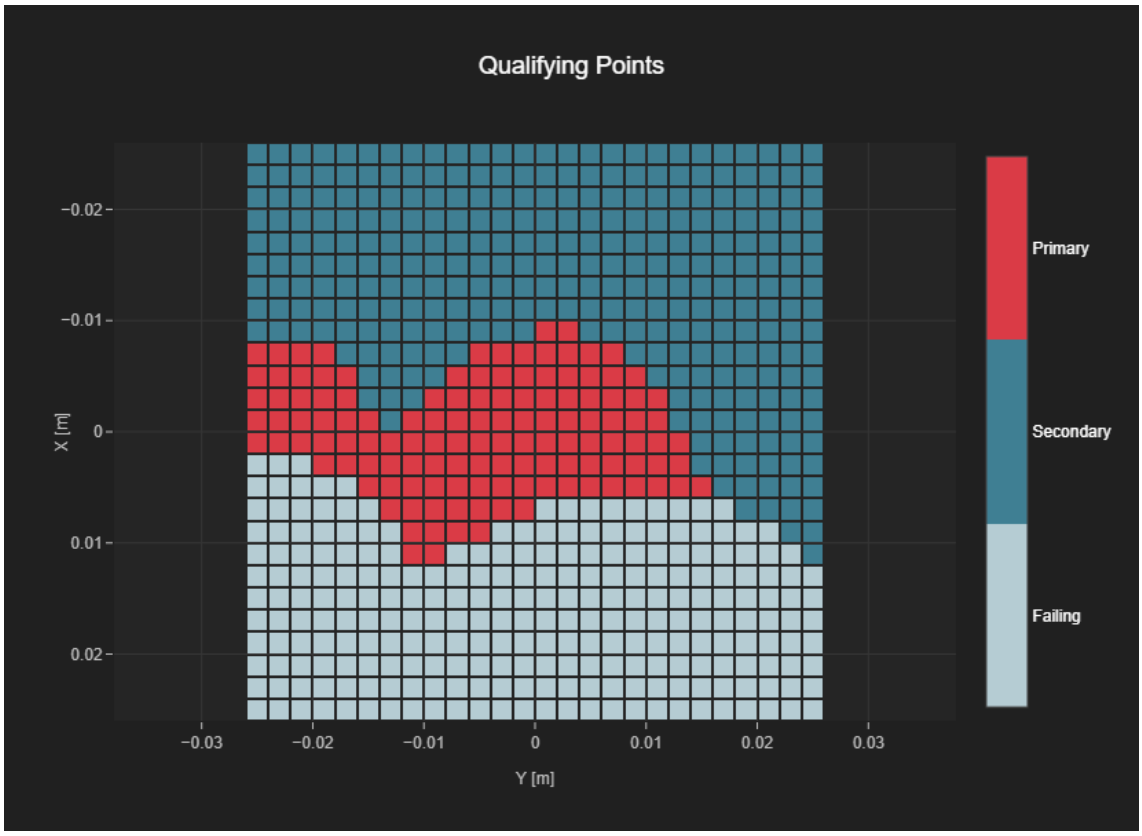
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	4.0	2.0	1.83



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
127	428	19	26



Plot 30 UMTS Band 4 CH.1412 Google Meet Codec: 6 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

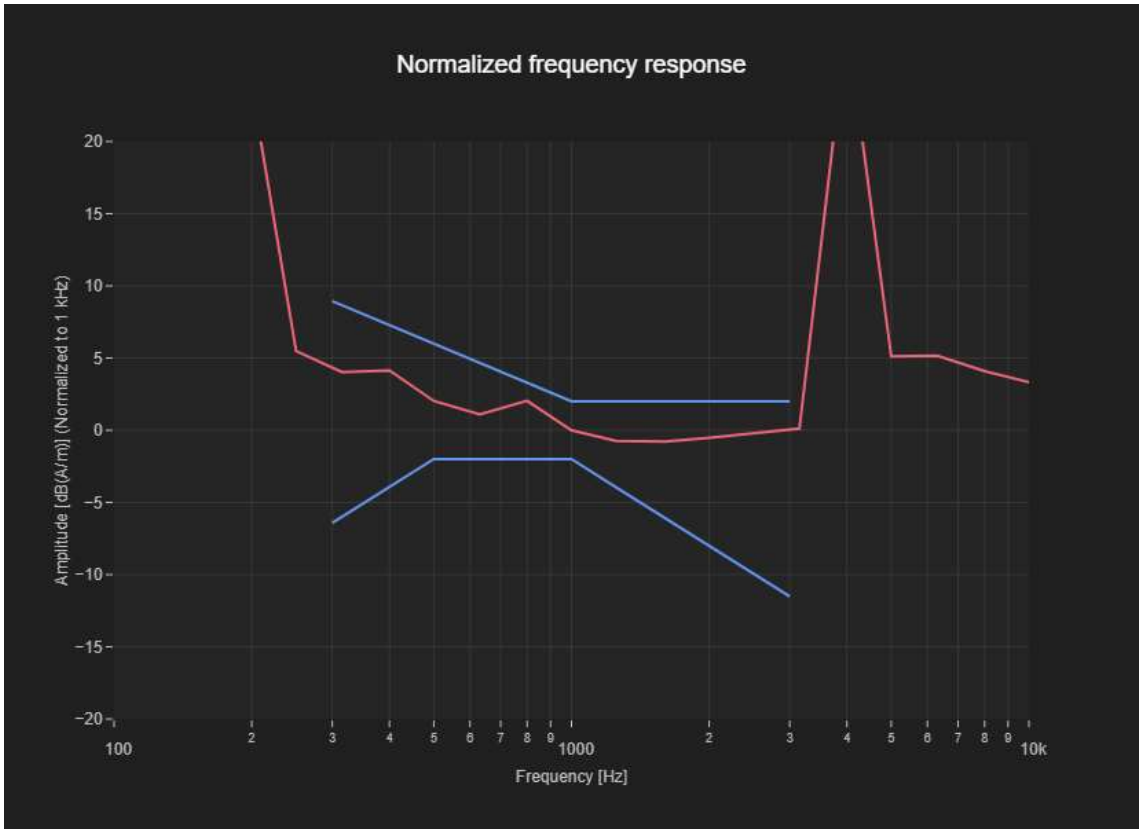
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 4	UMTS-FDD (HSUPA, Subtest 2)	1412	1732.4

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

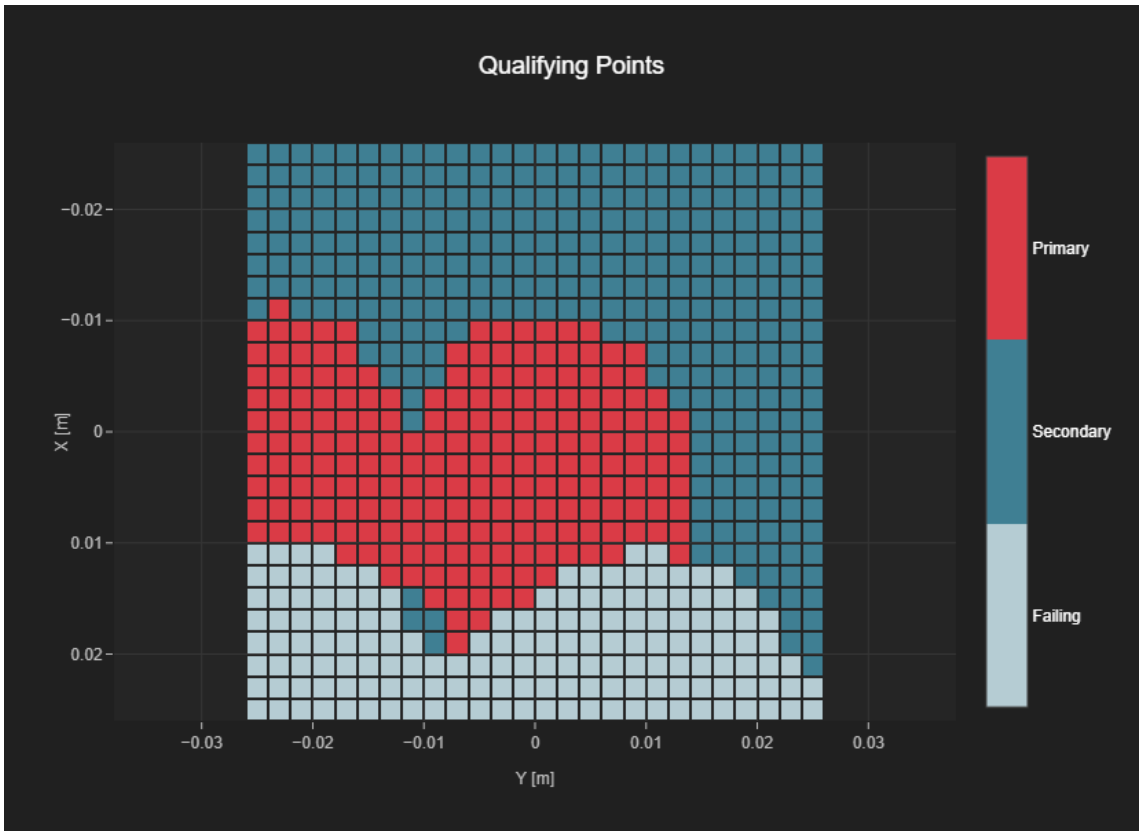
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.25	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
208	520	24	26



Plot 31 LTE Band 2 20MHz QPSK 1RB 49offset CH.19100 ANT D
Google Meet Codec: 6 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

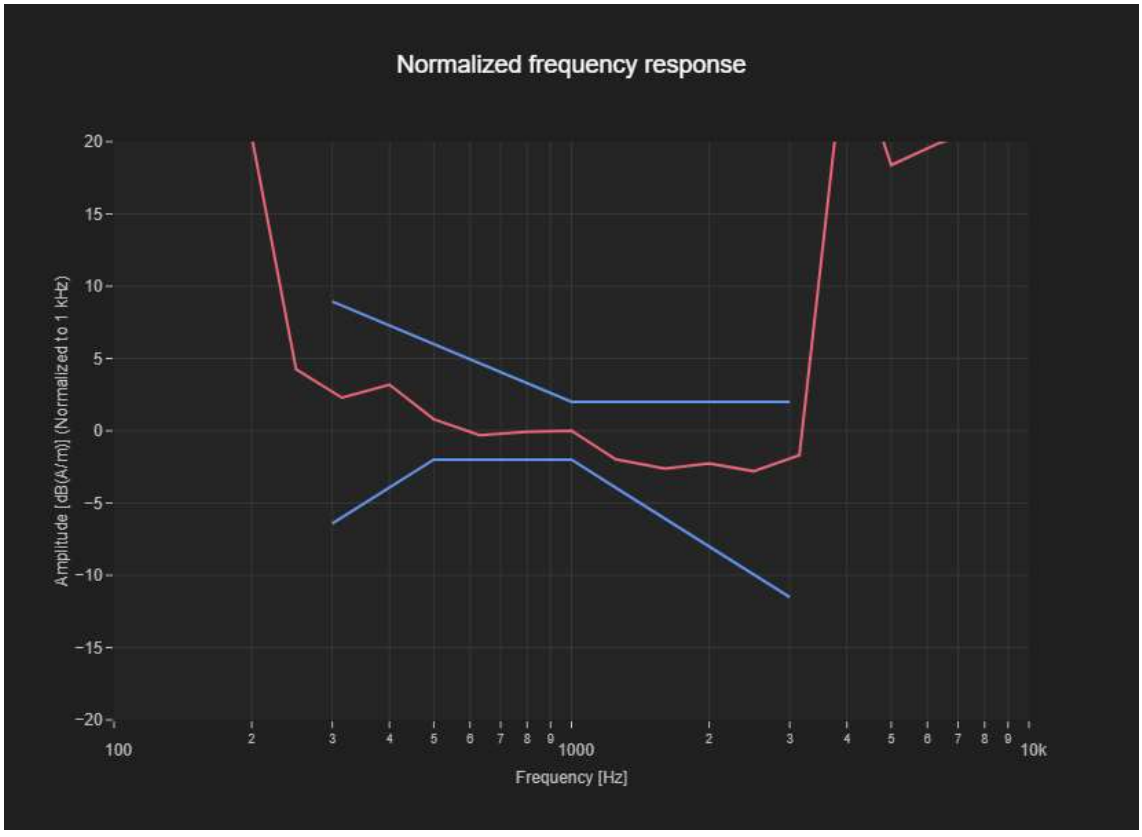
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 2	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	19100	1900.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

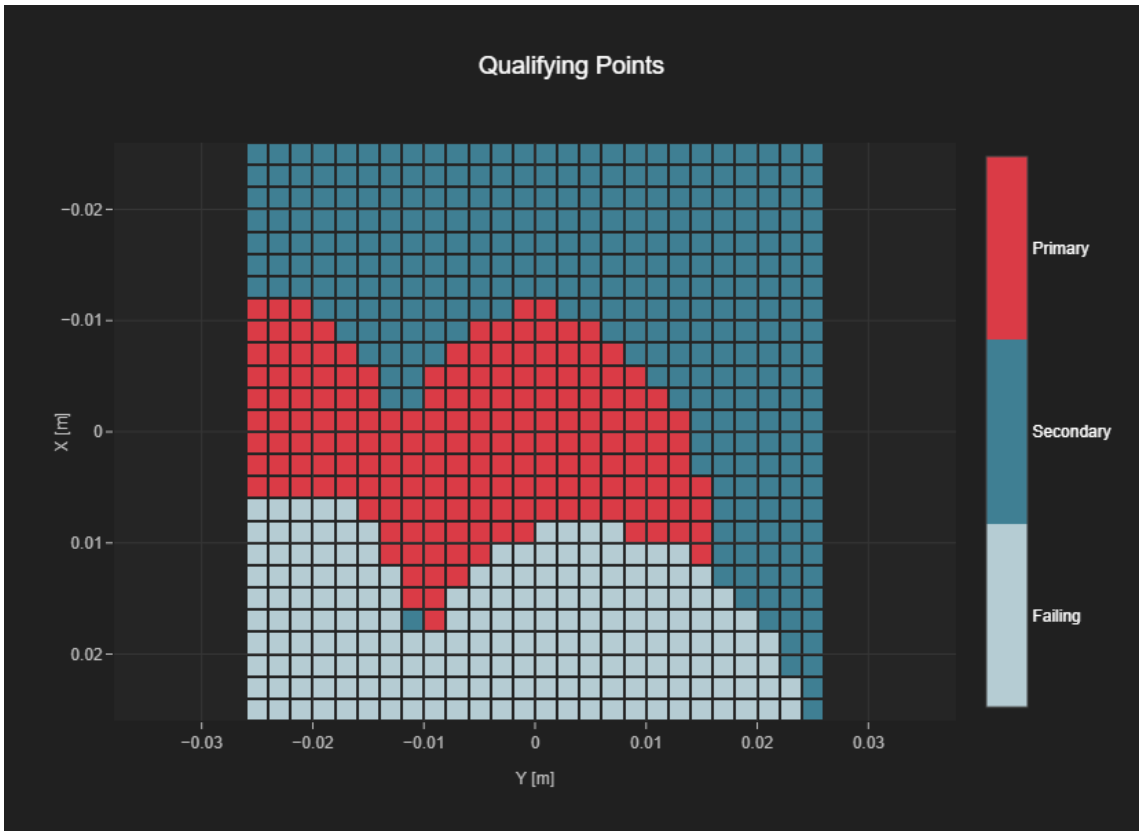
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	1.7



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
181	489	26	26



Plot 32 LTE Band 41 20MHz QPSK 1RB 0offset CH.40620
Google Meet Codec: 6 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

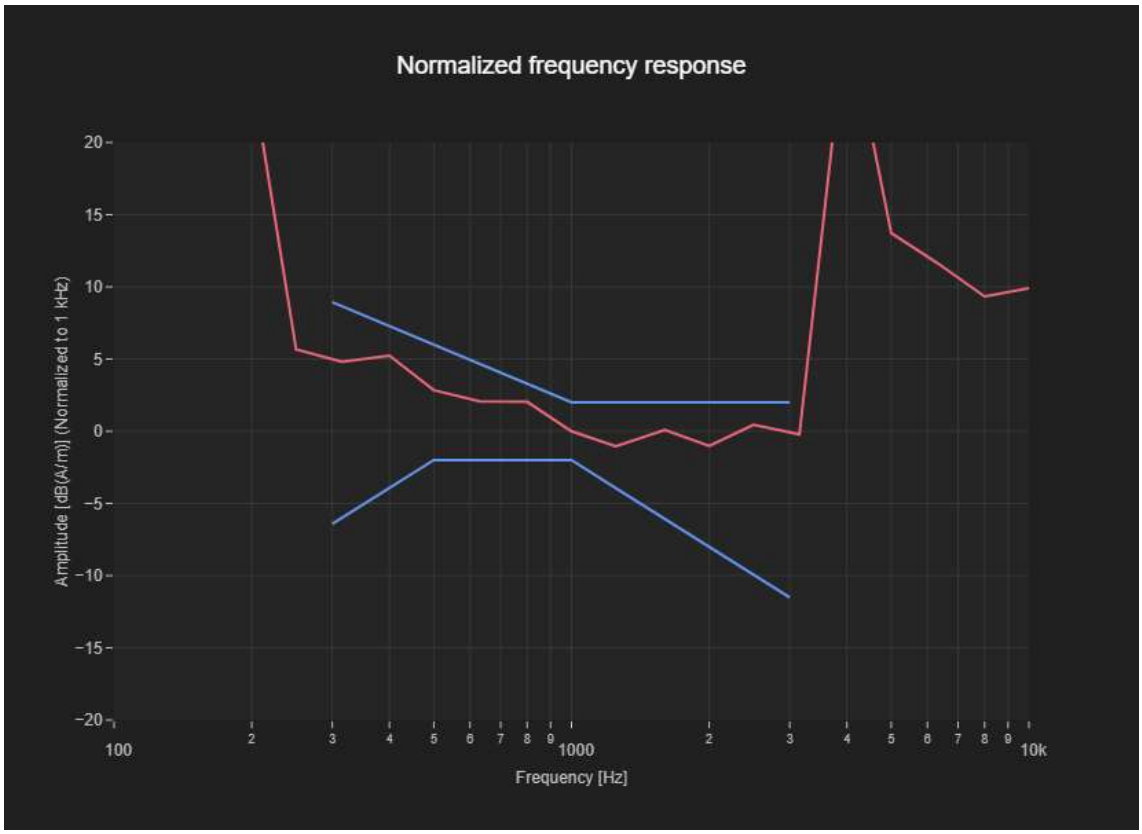
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band 41	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	40620	2593.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

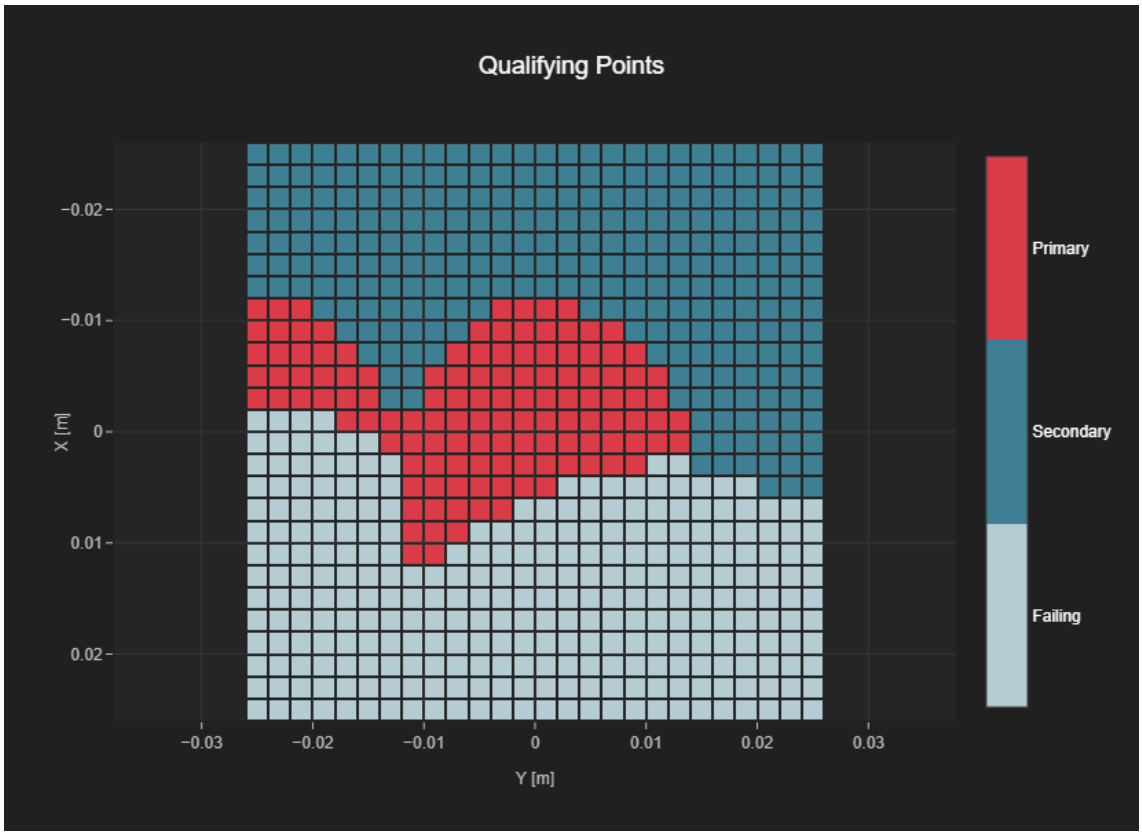
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.25	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
124	391	19	26



Plot 33 Wi-Fi 2.4 GHz 802.11b 11Mbps CH.6 Google Meet Codec: 6 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

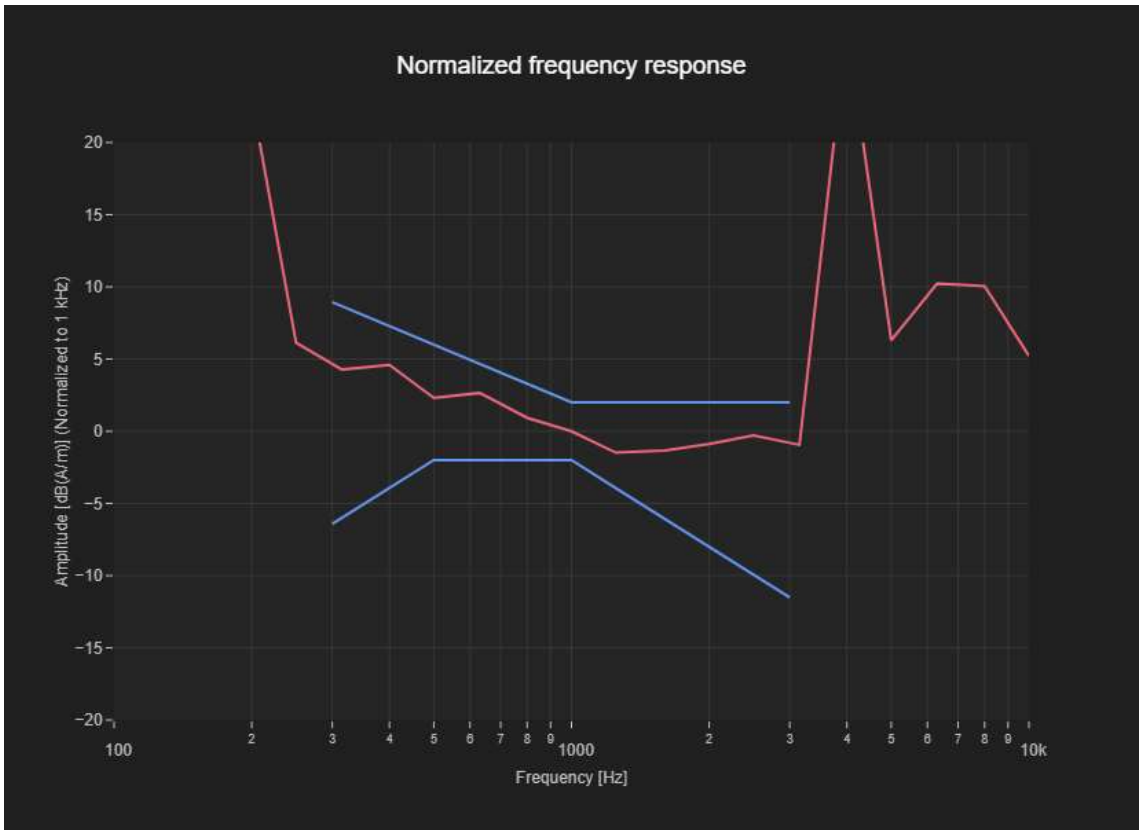
Band Name	Communication Systems Name	Channel	Frequency [MHz]
WLAN 2.4GHz	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	6	2437.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

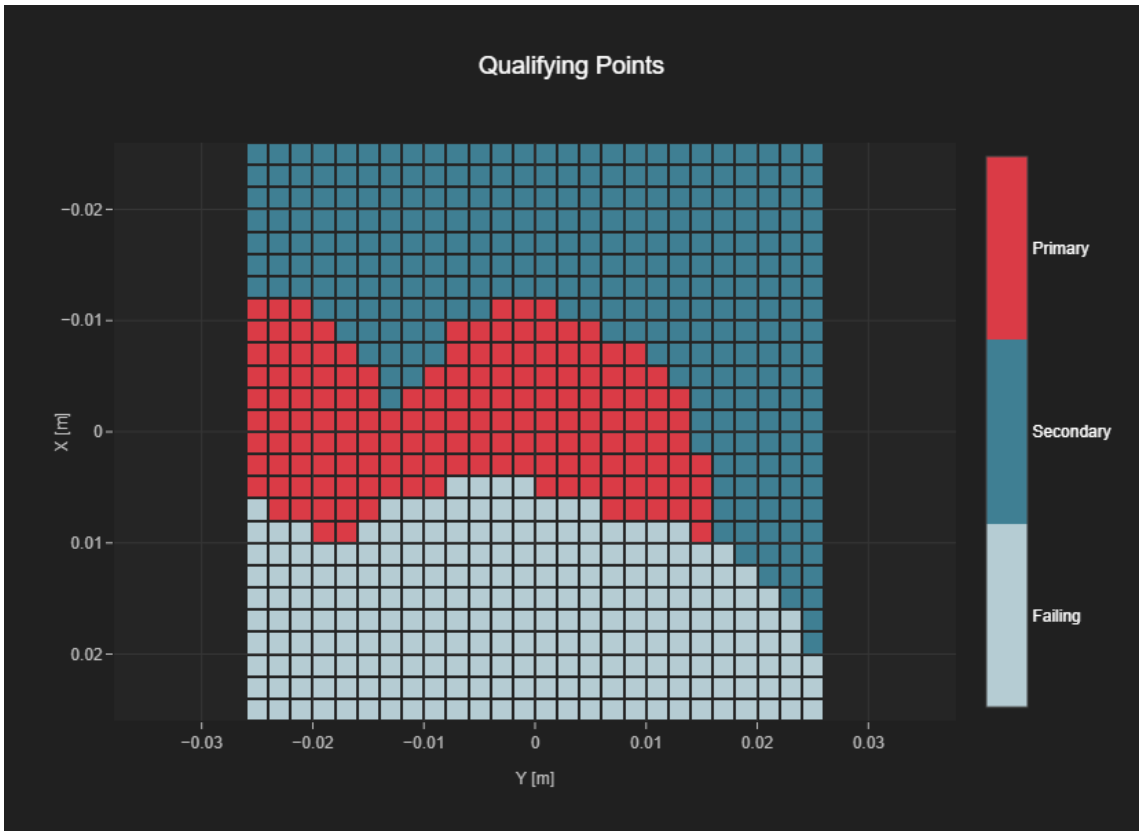
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
158	446	23	26



Plot 34 Wi-Fi 5.2 GHz 802.11a 18Mbps CH.40 Google Meet Codec: 40 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

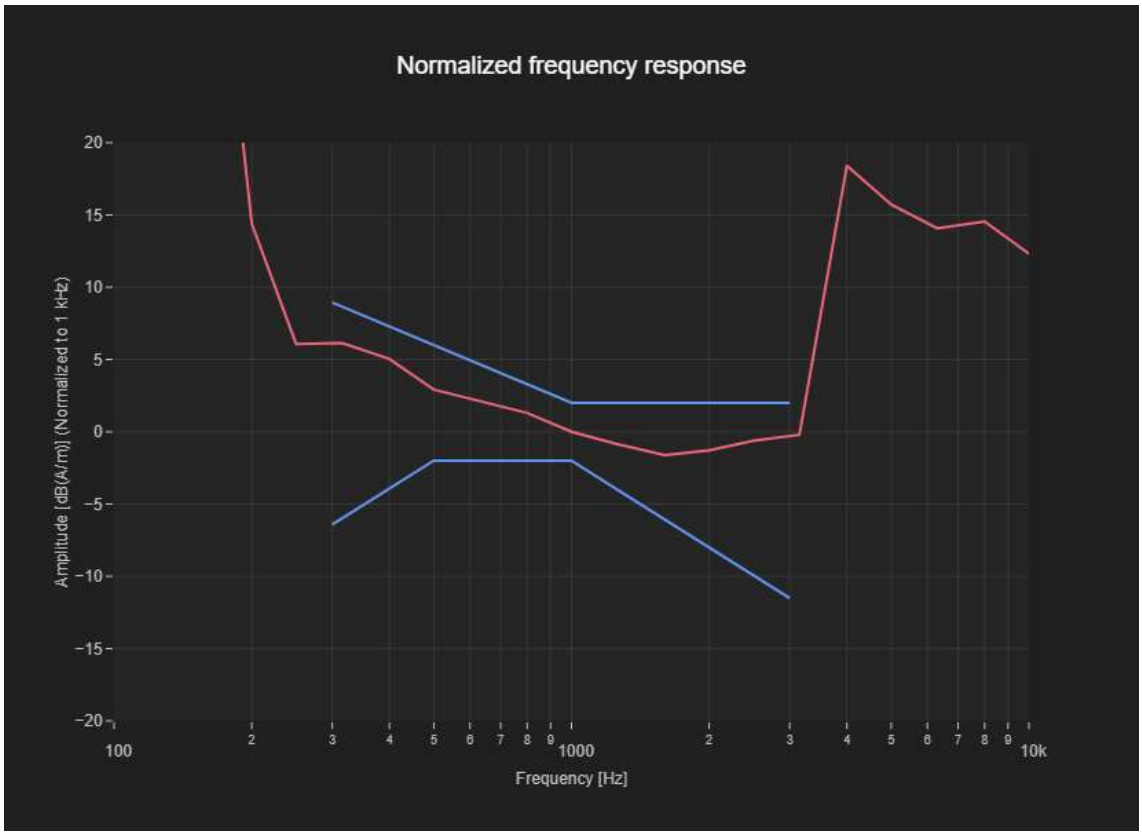
Band Name	Communication Systems Name	Channel	Frequency [MHz]
WLAN 5GHz	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	40	5200.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

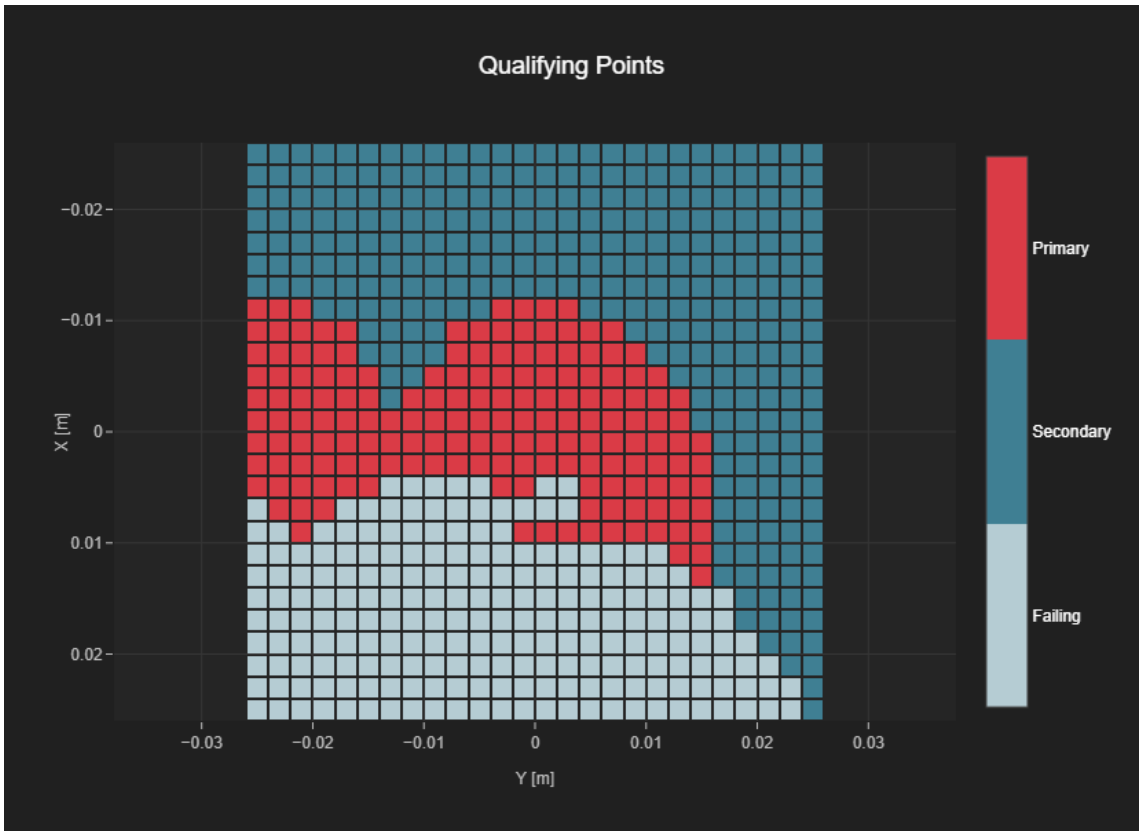
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	1.99	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
168	466	26	26



Plot 35 NR Band n2 CP OFDM 40MHz 16QAM 216RB 0offset CH.376000
Google Meet Codec: 75 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

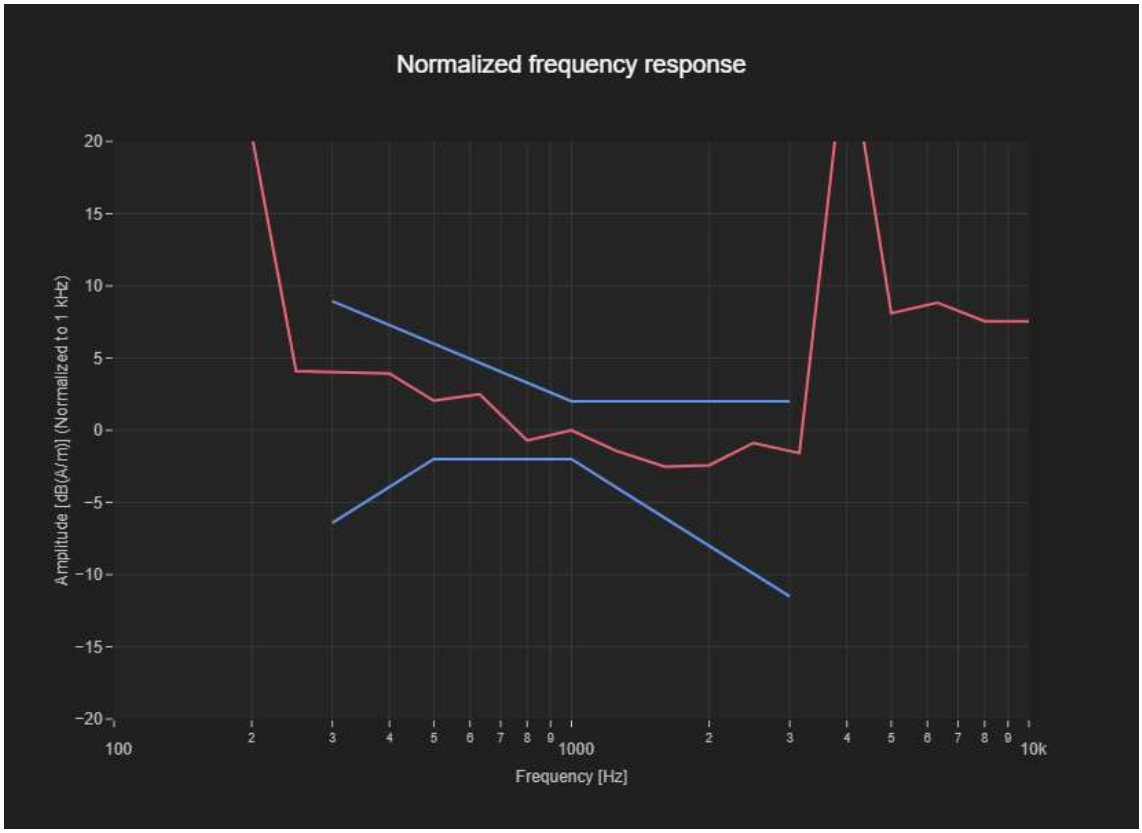
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band n2	5G NR (DFT-s-OFDM, 100% RB, 20 MHz, QPSK, 15 kHz)	376000	1880.0

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

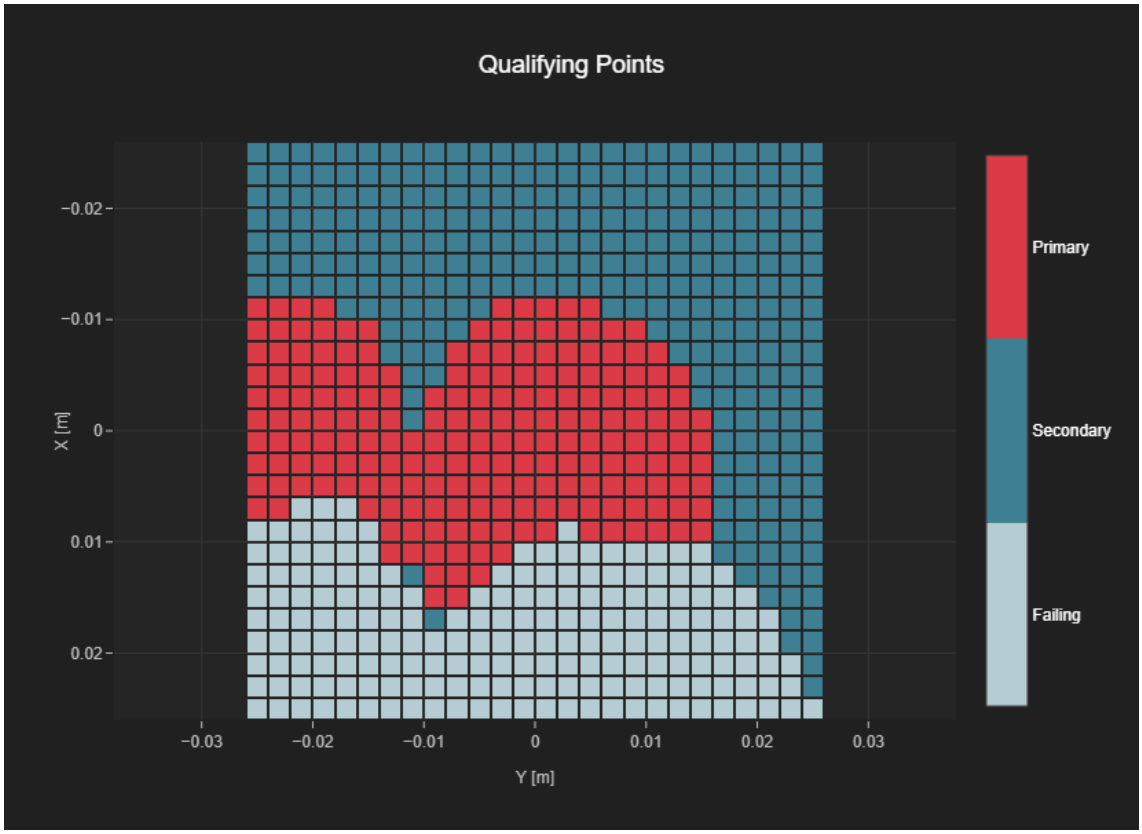
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	1.29



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
202	489	25	26



Plot 36 NR Band n77 DoD DFT-s OFDM 100MHz QPSK 1RB 137offset CH.633334 Google Meet Codec: 6 kbit/s

Hardware Setup

Probe Name	Probe Calibration Date	DAE Name	DAE Calibration Date
AM1DV3 - 3049	November 14, 2024	DAE4 Sn780	June 19, 2024

Communication Systems

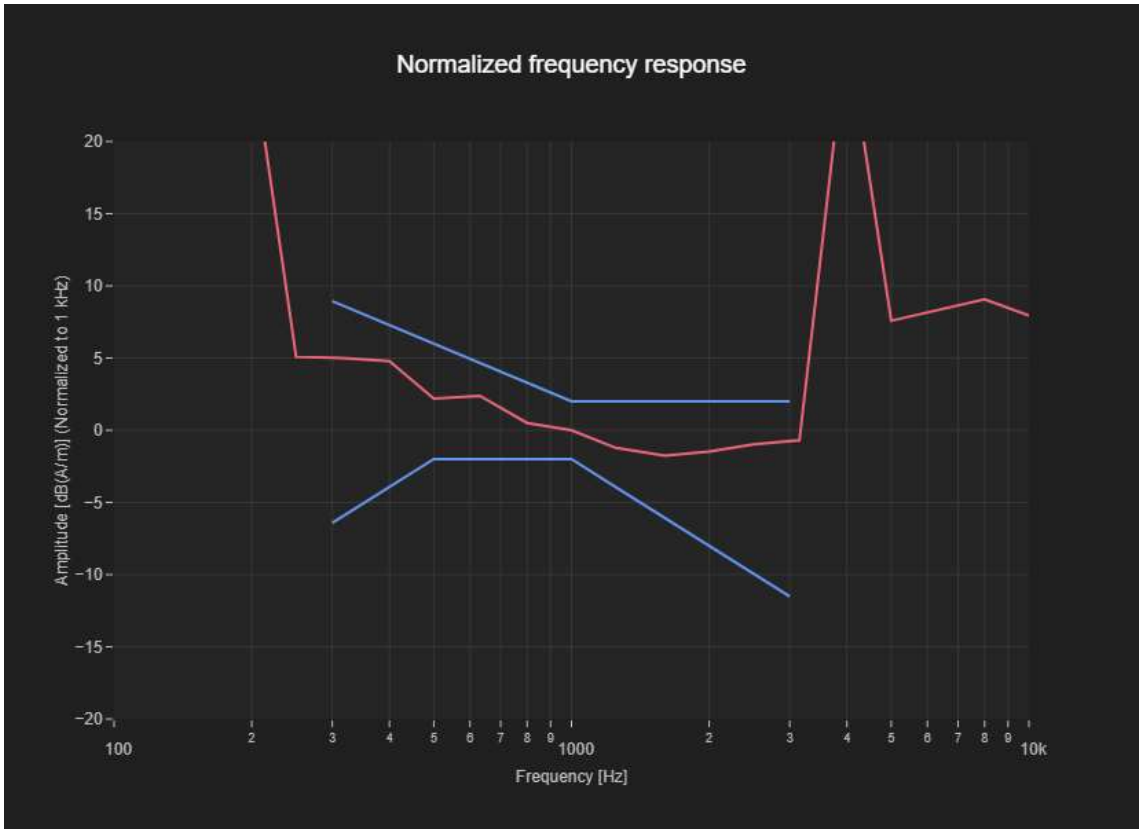
Band Name	Communication Systems Name	Channel	Frequency [MHz]
Band n77	5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)	633334	3500.01

Grid Settings

Extent X [mm]	Extent Y [mm]	Step X [mm]	Step Y [mm]	Distance [mm]
52.0	52.0	4.0	4.0	10.0

Results

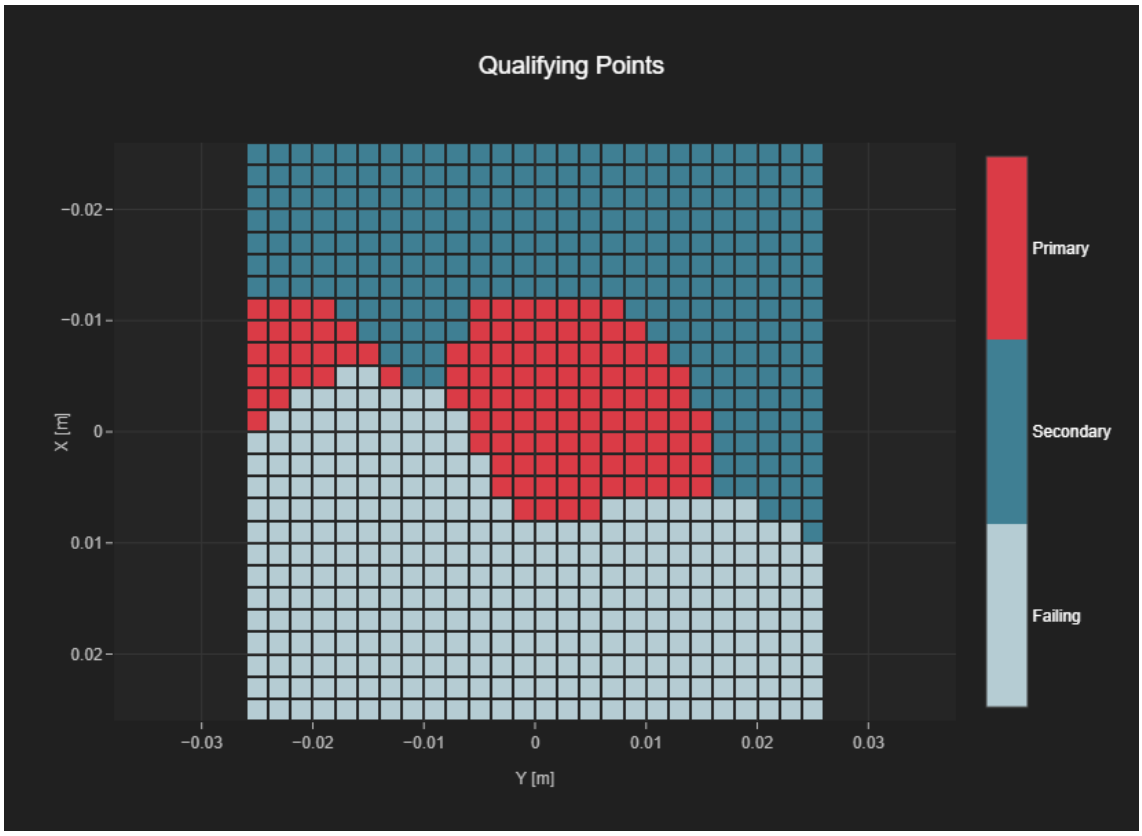
Audio File	Measurement Duration [s]	Margin Upper Bound [dB]	Margin Lower Bound [dB]
48k_voice_300-3000_2s.wav	2.0	2.0	2.0



T-Coil Coupling Mode Test Report

Results

Primary Group Contiguous Point Count	Secondary Group Point Count	Secondary Group Max Longitudinal	Secondary Group Max Transverse
116	374	18	26



Appendix 3. HAC T-Coil Probe Certificates

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.: AM1DV3-3049_Nov24

CALIBRATION CERTIFICATE

Object	AM1DV3 - SN: 3049
Calibration procedure(s)	QA CAL-24.v4 Calibration procedure for AM1D magnetic field probes and TMFS in the audio range
Calibration date:	November 14, 2024

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
Keithley Multimeter Type 2001	SN: 0810278	27-Aug-24 (No. 40547)	Aug-25
Reference Probe AM1DV3	SN: 3000	25-Sep-24 (No. AM1DV3-3000_Sep24)	Sep-25
DAE4	SN: 781	16-Feb-24 (No. DAE4-781_Feb24)	Feb-25

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
AMCC	SN: 1050	01-Oct-13 (in house check Sep-24)	Sep-25
AMMI Audio Measuring Instrument	SN: 1062	26-Sep-12 (in house check Sep-24)	Sep-25

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Sven Kühn	Technical Manager	

Issued: November 14, 2024

[**References**

[1] ANSI-C63.19-2007
American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.
[2] ANSI-C63.19-2019 (ANSI-C63.19-2011)
American National Standard, Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.
[3] DASY System Handbook

Description of the AM1D probe

The AM1D Audio Magnetic Field Probe is a fully shielded magnetic field probe for the frequency range from 100 Hz to 20 kHz. The pickup coil is compliant with the dimensional requirements of [1+2]. The probe includes a symmetric low noise amplifier for the signal available at the shielded 3 pin connector at the side. Power is supplied via the same connector (phantom power supply) and monitored via the LED near the connector. The 7 pin connector at the end of the probe does not carry any signals, but determines the angle of the sensor when mounted on the DAE. The probe supports mechanical detection of the surface.
The single sensor in the probe is arranged in a tilt angle allowing measurement of 3 orthogonal field components when rotating the probe by 120° around its axis. It is aligned with the perpendicular component of the field, if the probe axis is tilted nominally 35.3° above the measurement plane, using the connector rotation and sensor angle stated below.
The probe is fully RF shielded when operated with the matching signal cable (shielded) and allows measurement of audio magnetic fields in the close vicinity of RF emitting wireless devices according to [1+2] without additional shielding.

Handling of the item

The probe is manufactured from stainless steel. In order to maintain the performance and calibration of the probe, it must not be opened. The probe is designed for operation in air and shall not be exposed to humidity or liquids. For proper operation of the surface detection and emergency stop functions in a DASY system, the probe must be operated with the special probe cup provided (larger diameter).

Methods Applied and Interpretation of Parameters

- *Coordinate System:* The AM1D probe is mounted in the DASY system for operation with a HAC Test Arch phantom with AMCC Helmholtz calibration coil according to [3], with the tip pointing to "southwest" orientation.
- *Functional Test:* The functional test preceding calibration includes test of
  Noise level
  RF immunity (1kHz AM modulated signal). The shield of the probe cable must be well connected.
  Frequency response verification from 100 Hz to 10 kHz.
- *Connector Rotation:* The connector at the end of the probe does not carry any signals and is used for fixation to the DAE only. The probe is operated in the center of the AMCC Helmholtz coil using a 1 kHz magnetic field signal. Its angle is determined from the two minima at nominally +120° and –120° rotation, so the sensor in the tip of the probe is aligned to the vertical plane in z-direction, corresponding to the field maximum in the AMCC Helmholtz calibration coil.
- *Sensor Angle:* The sensor tilting in the vertical plane from the ideal vertical direction is determined from the two minima at nominally +120° and –120°. DASY system uses this angle to align the sensor for radial measurements to the x and y axis in the horizontal plane.

Sensitivity: With the probe sensor aligned to the z-field in the AMCC, the output of the probe is compared to the magnetic field in the AMCC at 1 kHz. The field in the AMCC Helmholtz coil is given by the geometry and the current through the coil, which is monitored on the precision shunt resistor of the coil.

AM1D probe identification and configuration data

Item	**AM1DV3** Audio Magnetic 1D Field Probe
Type No	SP AM1 001 BA
Serial No	**3049**

Overall length	296 mm
Tip diameter	6.0 mm (at the tip)
Sensor offset	3.0 mm (centre of sensor from tip)
Internal Amplifier	20 dB

Manufacturer / Origin	Schmid & Partner Engineering AG, Zurich, Switzerland

Calibration data

Connector rotation angle	(in DASY system)	**281.2°**	+/- 3.6 ° (k=2)
Sensor angle	(in DASY system)	**-0.30°**	+/- 0.5 ° (k=2)
Sensitivity at 1 kHz	(in DASY system)	**0.00747 V/(A/m)**	+/- 2.2 % (k=2)

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%.

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. **AM1DV3-3153_May24**

CALIBRATION CERTIFICATE

검	확 인 자	작 성 자
재		
서명	SW / 방경식	CJ / 최종철
일 자	2024.06.05	2024.06.05

Object: AM1DV3 - SN: 3153

Calibration procedure(s): QA CAL-24.v4
Calibration procedure for AM1D magnetic field probes and TMFS in the audio range

Calibration date: May 14, 2024

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
Keithley Multimeter Type 2001	SN: 0810278	29-Aug-23 (No. 37421)	Aug-24
Reference Probe AM1DV3	SN: 3000	09-Oct-23 (No. AM1DV3-3000_Oct23)	Oct-24
DAE4	SN: 781	16-Feb-24 (No. DAE4-781_Feb24)	Feb-25

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
AMCC	SN: 1050	01-Oct-13 (in house check Sep-23)	Sep-26
AMMI Audio Measuring Instrument	SN: 1062	26-Sep-12 (in house check Sep-23)	Sep-26

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

Issued: May 15, 2024

[**References**

[1] ANSI-C63.19-2007
American National Standard for Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.
[2] ANSI-C63.19-2019 (ANSI-C63.19-2011)
American National Standard, Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids.
[3] DASY System Handbook

Description of the AM1D probe

The AM1D Audio Magnetic Field Probe is a fully shielded magnetic field probe for the frequency range from 100 Hz to 20 kHz. The pickup coil is compliant with the dimensional requirements of [1+2]. The probe includes a symmetric low noise amplifier for the signal available at the shielded 3 pin connector at the side. Power is supplied via the same connector (phantom power supply) and monitored via the LED near the connector. The 7 pin connector at the end of the probe does not carry any signals, but determines the angle of the sensor when mounted on the DAE. The probe supports mechanical detection of the surface.
The single sensor in the probe is arranged in a tilt angle allowing measurement of 3 orthogonal field components when rotating the probe by 120° around its axis. It is aligned with the perpendicular component of the field, if the probe axis is tilted nominally 35.3° above the measurement plane, using the connector rotation and sensor angle stated below.
The probe is fully RF shielded when operated with the matching signal cable (shielded) and allows measurement of audio magnetic fields in the close vicinity of RF emitting wireless devices according to [1+2] without additional shielding.

Handling of the item

The probe is manufactured from stainless steel. In order to maintain the performance and calibration of the probe, it must not be opened. The probe is designed for operation in air and shall not be exposed to humidity or liquids. For proper operation of the surface detection and emergency stop functions in a DASY system, the probe must be operated with the special probe cup provided (larger diameter).

Methods Applied and Interpretation of Parameters

- *Coordinate System:* The AM1D probe is mounted in the DASY system for operation with a HAC Test Arch phantom with AMCC Helmholtz calibration coil according to [3], with the tip pointing to "southwest" orientation.
- *Functional Test:* The functional test preceding calibration includes test of
  Noise level
  RF immunity (1kHz AM modulated signal). The shield of the probe cable must be well connected.
  Frequency response verification from 100 Hz to 10 kHz.
- *Connector Rotation:* The connector at the end of the probe does not carry any signals and is used for fixation to the DAE only. The probe is operated in the center of the AMCC Helmholtz coil using a 1 kHz magnetic field signal. Its angle is determined from the two minima at nominally +120° and –120° rotation, so the sensor in the tip of the probe is aligned to the vertical plane in z-direction, corresponding to the field maximum in the AMCC Helmholtz calibration coil.
- *Sensor Angle:* The sensor tilting in the vertical plane from the ideal vertical direction is determined from the two minima at nominally +120° and –120°. DASY system uses this angle to align the sensor for radial measurements to the x and y axis in the horizontal plane.

Sensitivity: With the probe sensor aligned to the z-field in the AMCC, the output of the probe is compared to the magnetic field in the AMCC at 1 kHz. The field in the AMCC Helmholtz coil is given by the geometry and the current through the coil, which is monitored on the precision shunt resistor of the coil.

AM1D probe identification and configuration data

Item	**AM1DV3** Audio Magnetic 1D Field Probe
Type No	SP AM1 001 BA
Serial No	**3153**

Overall length	296 mm
Tip diameter	6.0 mm (at the tip)
Sensor offset	3.0 mm (centre of sensor from tip)
Internal Amplifier	20 dB

Manufacturer / Origin	Schmid & Partner Engineering AG, Zurich, Switzerland

Calibration data

Connector rotation angle	(in DASY system)	**236.6** °	+/- 3.6 ° (k=2)
Sensor angle	(in DASY system)	**0.81** °	+/- 0.5 ° (k=2)
Sensitivity at 1 kHz	(in DASY system)	**0.00737 V/(A/m)**	+/- 2.2 % (k=2)

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%.