# 01\_HAC -coil\_GSM850\_Voice\_Ch189

Measurement performed on October 05, 2024 at 03:23

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

# **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

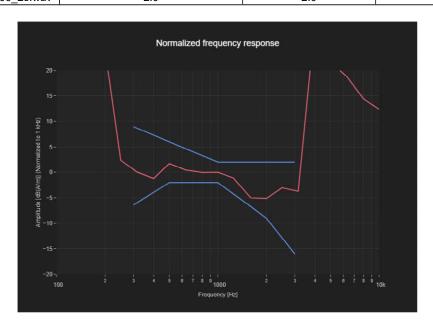
# **Communication Systems**

| Band Name | Communication Systems Name | Channel | Frequency [MHz] |
|-----------|----------------------------|---------|-----------------|
| GSM 850   | GSM-FDD (TDMA, GMSK)       | 189     | 836.4           |

# **Grid Settings**

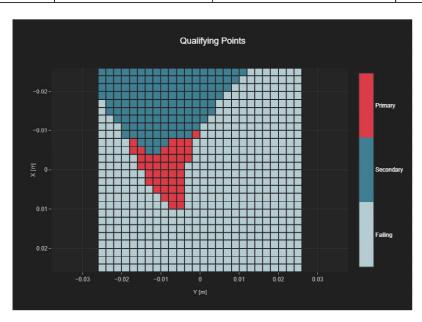
| Extent X [mm] | Extent Y [mm] | Step X [mm] | Step Y [mm] | Distance [mm] |
|---------------|---------------|-------------|-------------|---------------|
| 52.0          | 52.0          | 4.0         | 4.0         | 10.0          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 1 74                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 43                                      | 178                         | 18                               | 19                                |



# 02\_HAC -coil\_GSM1900\_Voice\_Ch661

Measurement performed on September 27, 2024 at 14:41

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

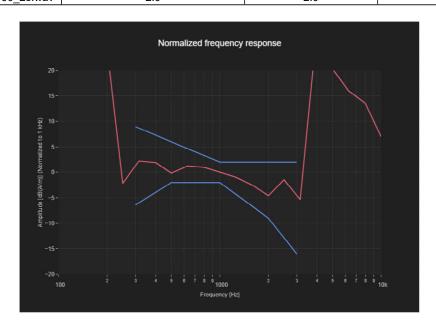
# **Communication Systems**

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

# **Grid Settings**

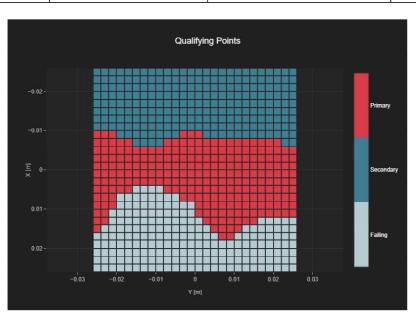
| Extent X [mm] | Extent Y [mm] | Step X [mm] | Step Y [mm] | Distance [mm] |
|---------------|---------------|-------------|-------------|---------------|
| 52.0          | 52.0          | 4.0         | 4.0         | 10.0          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 1.83                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 243                                     | 477                         | 22                               | 26                                |



# 03\_HAC -coil\_WCDMA II\_Voice\_Ch9400

Measurement performed on September 27, 2024 at 15:30

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

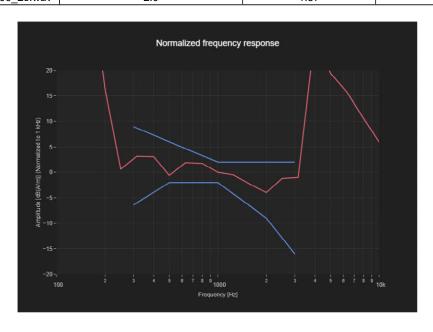
# **Communication Systems**

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

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 1.57                    | 1.38                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 402                                     | 634                         | 26                               | 26                                |



# 04\_HAC -coil\_WCDMA IV\_Voice\_Ch1413

Measurement performed on September 27, 2024 at 15:50

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

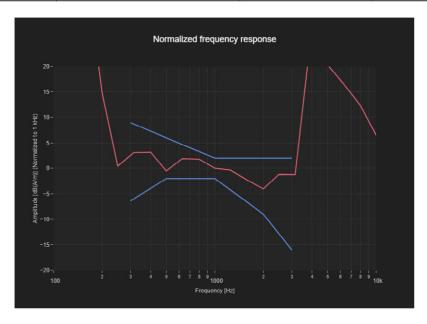
# **Communication Systems**

| Band Name | Communication Systems Name | Channel | Frequency [MHz] |
|-----------|----------------------------|---------|-----------------|
| Band 4    | UMTS-FDD (WCDMA, AMR)      | 1413    | 1732.6          |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k_voice_300-3000_2s.wav | 2.0                      | 1.52                    | 1.46                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 409                                     | 641                         | 26                               | 26                                |



# 05\_HAC -coil\_WCDMA V\_Voice\_Ch4182

Measurement performed on September 23, 2024 at 01:43

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

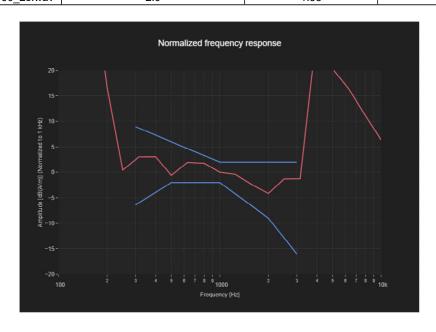
# **Communication Systems**

| Band Name | Communication Systems Name | Channel | Frequency [MHz] |
|-----------|----------------------------|---------|-----------------|
| Band 5    | UMTS-FDD (WCDMA, AMR)      | 4182    | 836.4           |

# **Grid Settings**

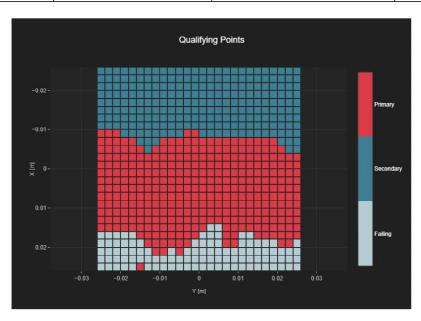
| Extent X [mm] | Extent Y [mm] | Step X [mm] | Step Y [mm] | Distance [mm] |
|---------------|---------------|-------------|-------------|---------------|
| 52.0          | 52.0          | 4.0         | 4.0         | 10.0          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 1 53                    | 1.39                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 336                                     | 573                         | 24                               | 26                                |



# 06\_HAC T-coil\_LTE Band 7\_20M\_QPSK\_1RB\_0Offset\_Ch21100

Measurement performed on September 27, 2024 at 17:06

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

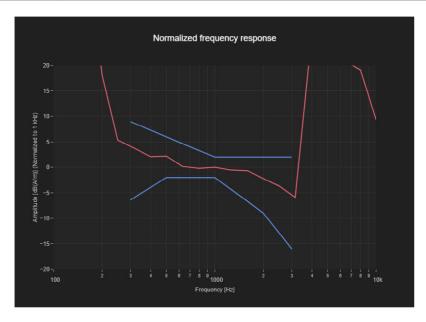
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 7    | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | 21100   | 2535.0          |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k_voice_300-3000_2s.wav | 2.0                      | 2.0                     | 1.79                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 236                                     | 532                         | 22                               | 26                                |



# 07\_HAC T-coil\_LTE Band 7\_20M\_QPSK\_1RB\_0Offset\_Ch21100

Measurement performed on October 04, 2024 at 20:12

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

### **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

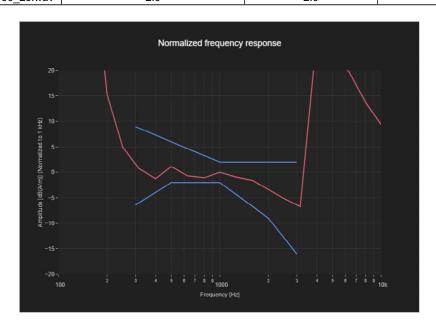
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 7    | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | 21100   | 2535.0          |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 0.92                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 94                                      | 392                         | 20                               | 26                                |



# 08\_HAC T-coil\_LTE Band 12\_10M\_QPSK\_1RB\_0Offset\_Ch23095

Measurement performed on September 27, 2024 at 18:34

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

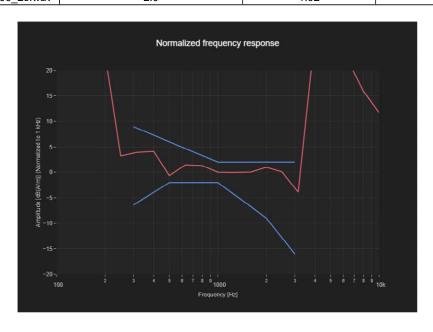
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 12   | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | 23095   | 707.5           |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 1.02                    | 1.35                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 235                                     | 529                         | 24                               | 26                                |



# 09\_HAC T-coil\_LTE Band 13\_10M\_QPSK\_1RB\_0Offset\_Ch23230

Measurement performed on October 01, 2024 at 13:38

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

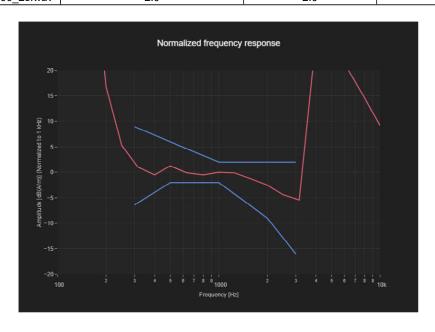
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 13   | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | 23230   | 782.0           |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s.way | 2.0                      | 2.0                     | 1.47                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 256                                     | 531                         | 22                               | 26                                |



# 10\_HAC T-coil\_LTE Band 14\_10M\_QPSK\_1RB\_0Offset\_Ch23330

Measurement performed on October 01, 2024 at 14:08

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

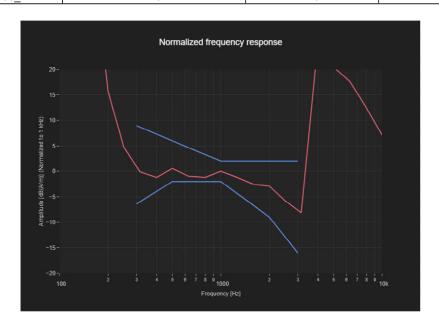
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 14   | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | 23330   | 793.0           |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 0.81                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 250                                     | 533                         | 22                               | 26                                |



# 11\_HAC T-coil\_LTE Band 25\_20M\_QPSK\_1RB\_0Offset\_Ch26340

Measurement performed on October 01, 2024 at 12:49

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

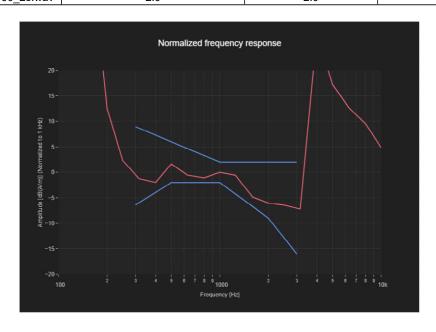
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 25   | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | 26340   | 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          |

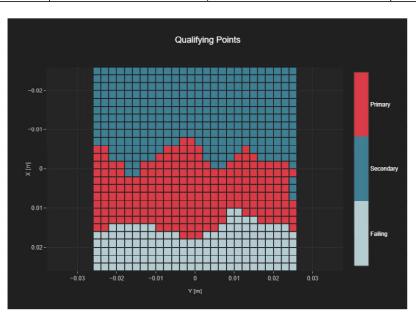
| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 0.9                     |



# **T-Coil Coupling Mode Test Report**

# Results

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 227                                     | 528                         | 22                               | 26                                |



Report No.: HA483010B

# 12\_HAC T-coil\_LTE Band 25\_20M\_QPSK\_1RB\_0Offset\_Ch26340

Measurement performed on October 03, 2024 at 20:41

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

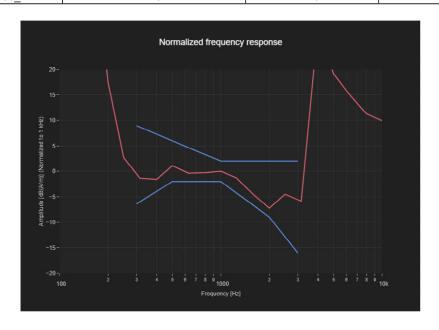
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 25   | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | 26340   | 1880.0          |

# **Grid Settings**

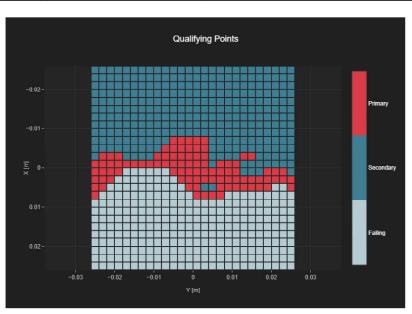
| Extent X [mm] | Extent Y [mm] | Step X [mm] | Step Y [mm] | Distance [mm] |
|---------------|---------------|-------------|-------------|---------------|
| 52.0          | 52.0          | 4.0         | 4.0         | 10.0          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 1 62                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 92                                      | 395                         | 17                               | 26                                |



# 13\_HAC T-coil\_LTE Band 2\_20M\_QPSK\_1RB\_0Offset\_Ch18900

Measurement performed on October 05, 2024 at 13:40

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

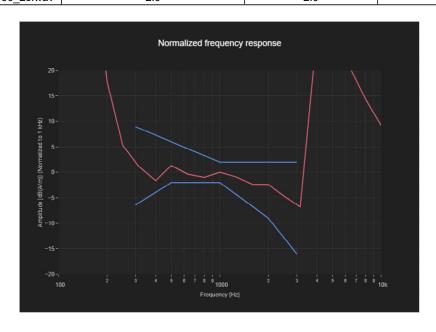
# **Communication Systems**

| 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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 1 01                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 122                                     | 416                         | 19                               | 26                                |



# 14\_HAC T-coil\_LTE Band 26\_15M\_QPSK\_1RB\_0Offset\_Ch26865

Measurement performed on October 01, 2024 at 14:37

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

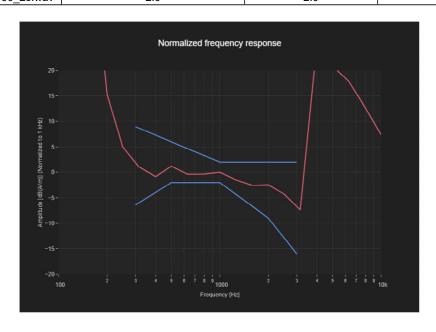
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 26   | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK) | 26865   | 831.5           |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 1 62                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 266                                     | 529                         | 22                               | 26                                |



# 15\_HAC T-coil\_LTE Band 30\_10M\_QPSK\_1RB\_0Offset\_Ch27710

Measurement performed on September 27, 2024 at 22:18

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

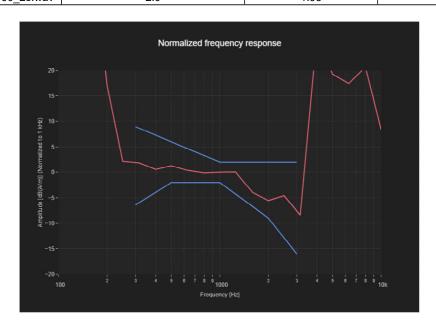
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 30   | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | 27710   | 2310.0          |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 1.95                    | 1.85                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 217                                     | 541                         | 22                               | 26                                |



# 16\_HAC T-coil\_LTE Band 30\_10M\_QPSK\_1RB\_0Offset\_Ch27710

Measurement performed on October 05, 2024 at 12:08

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

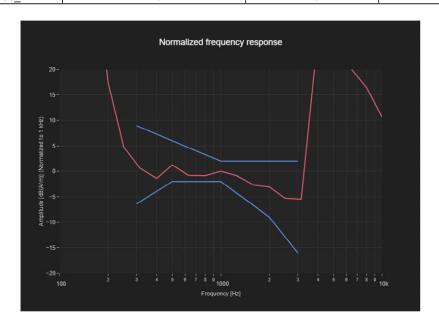
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 30   | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | 27710   | 2310.0          |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 1 15                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 122                                     | 413                         | 18                               | 26                                |



# 17\_HAC T-coil\_LTE Band 66\_20M\_QPSK\_1RB\_0Offset\_Ch132322

Measurement performed on September 27, 2024 at 18:12

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

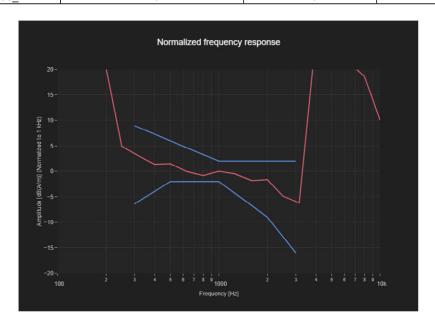
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 66   | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | 132322  | 1745.0          |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 1 16                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 286                                     | 578                         | 26                               | 26                                |



# 18\_HAC T-coil\_LTE Band 66\_20M\_QPSK\_1RB\_0Offset\_Ch132322

Measurement performed on October 03, 2024 at 23:12

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

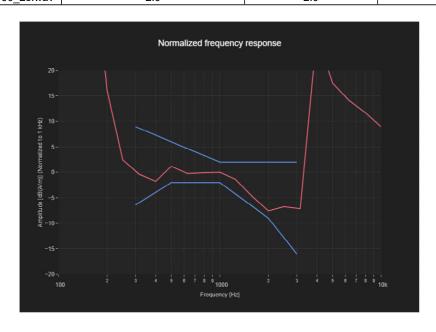
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 66   | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | 132322  | 1745.0          |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 1 41                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 109                                     | 422                         | 19                               | 26                                |



# 19\_HAC T-coil\_LTE Band 4\_20M\_QPSK\_1RB\_0Offset\_Ch20175

Measurement performed on October 03, 2024 at 22:33

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

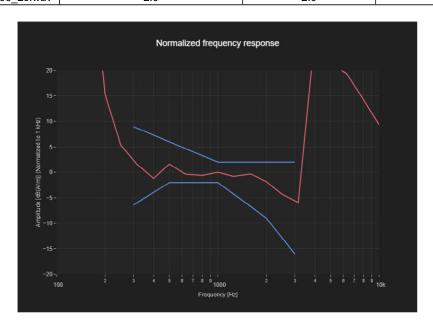
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 4    | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | 20175   | 1732.5          |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 1.38                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 106                                     | 385                         | 17                               | 26                                |



# 20\_HAC T-coil\_LTE Band 71\_20M\_QPSK\_1RB\_0Offset\_Ch133322

Measurement performed on October 01, 2024 at 15:09

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

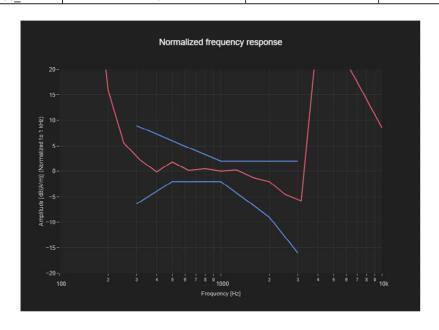
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 71   | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | 133322  | 683.0           |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 1 77                    | 2.0                     |



# Results

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 241                                     | 526                         | 22                               | 26                                |

Appendix A



# 21\_HAC T-coil\_LTE Band 41\_20M\_QPSK\_1RB\_0Offset\_Ch40620

Measurement performed on October 05, 2024 at 02:21

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

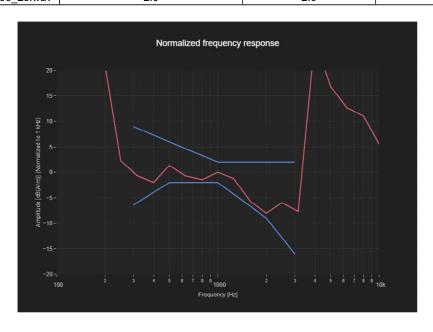
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 41   | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | 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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 0.55                    |



# **T-Coil Coupling Mode Test Report**

# Results

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 162                                     | 463                         | 20                               | 26                                |

Appendix A



# 22\_HAC T-coil\_LTE Band 48\_20M\_QPSK\_1RB\_0Offset\_Ch55830

Measurement performed on October 05, 2024 at 02:54

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

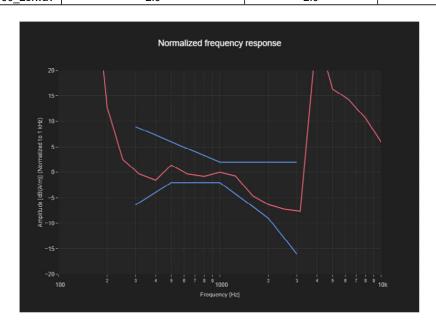
# **Communication Systems**

| Band Name | Communication Systems Name            | Channel | Frequency [MHz] |
|-----------|---------------------------------------|---------|-----------------|
| Band 48   | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | 55830   | 3609.0          |

# **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          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k voice 300-3000 2s way | 2.0                      | 2.0                     | 1 2                     |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 147                                     | 460                         | 20                               | 26                                |



# 23\_HAC T-coil\_FR1 n7\_50M\_QPSK\_1RB\_1Offset\_Ch507000

Measurement performed on September 19, 2024 at 16:53

### **Device Under Test**

| Manufacturer | Model | Dimensions [mm]    | Speaker Position [mm] |
|--------------|-------|--------------------|-----------------------|
|              |       | 146.2 x 71.8 x 7.5 | 144.3                 |

## **Hardware Setup**

| Probe Name    | Probe Calibration Date | DAE Name    | DAE Calibration Date |
|---------------|------------------------|-------------|----------------------|
| AM1DV3 - 3093 | June 05, 2024          | DAE4 Sn1691 | April 19, 2024       |

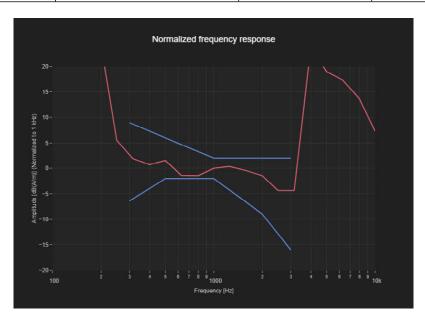
# **Communication Systems**

| Band Name | Communication Systems Name                        | Channel | Frequency [MHz] |
|-----------|---|---------|-----------------|
| Band n7   | 5G NR (DFT-s-OFDM, 1 RB, 50 MHz, QPSK,<br>15 kHz) | 507000  | 2535.0          |

# **Grid Settings**

| Extent X [mm] | Extent Y [mm] | ISTEN X IMMI | Step Y [mm] | Distance [mm] |
|---------------|---------------|--------------|-------------|---------------|
| 52.0          | 52.0          | 4.0          | 4.0         | 10.0          |

| Audio File                | Measurement Duration [s] | Margin Upper Bound [dB] | Margin Lower Bound [dB] |
|---------------------------|--------------------------|-------------------------|-------------------------|
| 48k_voice_300-3000_2s.wav | 2.0                      | 1.65                    | 0.56                    |



# **T-Coil Coupling Mode Test Report**

| Primary Group Contiguous<br>Point Count | Secondary Group Point Count | Secondary Group Max Longitudinal | Secondary Group Max<br>Transverse |
|---|-----------------------------|----------------------------------|-----------------------------------|
| 174                                     | 476                         | 21                               | 26                                |

