74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea
TEL: +82-31-645-6300 FAX: +82-31-645-6401

# SAR TEST REPORT

| | |
|---|---|
| **Applicant Name:**<br>**JVC KENWOOD CORPORATION**<br>1-16-2 Hakusan Midori-ku Yokohama-shi<br>Kanagawa 226-8525 Japan | **Date of Issue: 12. 20, 2018**<br>**Test Report No.: HCT-SR-1812-FI001**<br>**Test Site: HCT CO., LTD.** |

| | |
|---|---|
| **FCC ID:** | **K44502500** |
| **IC ID:** | **282F-502500** |

| | |
|---|---|
| **Equipment Type:** | **800/900 MHz DIGITAL TRANSCEIVER** |
| **Application Type** | **Certification** |
| **FCC Rule Part(s):** | **47CFR §2.1093** |
| **IC Rule Part(s):** | **RSS-102 Issue 5; Health Canada Safety Code 6** |
| **FCC Model Name:** | **NX-3400-K3, NX-3420-K3, NX-3420-M3, NX-3420-M** |
| **ISED/HVIN/PMN Name:** | **NX-3400-K3, NX-3420-K3** |
| **Date of Test:** | **12/17/2018 ~ 12/19/2018** |

**This device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in FCC KDB procedures and had been tested in accordance with the measurement procedures specified in FCC KDB procedures.**

**I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.**

| **Tested By** | **Reviewed By** |
|---|---|
| **Min-young, Kim**<br>**Test Engineer**<br>**SAR Team**<br>**Certification Division** | **Yun-Jeang, Heo**<br>**Technical Manager**<br>**SAR Team**<br>**Certification Division** |

# DOCUMENT HISTORY

| Rev. | DATE | DESCRIPTION |
|---|---|---|
| HCT-SR-1812-FI001 | 12. 20, 2018 | First Approval Report |

# Table of Contents

# 1. Attestation of Test Result of Device Under Test

| Test Laboratory | |
|---|---|
| Company Name: | HCT Co., LTD |
| Address | 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of Korea |
| Telephone | +82 31 645 6300 |
| Fax. | +82 31 645 6401 |

| Attestation of SAR test result | |
|---|---|
| Applicant Name: | JVC KENWOOD CORPORATION |
| FCC ID: | K44502500 |
| IC ID: | 282F-502500 |
| FCC Model: | NX-3400-K3, NX-3420-K3, NX-3420-M3, NX-3420-M |
| ISED/HVIN/PMN Model: | NX-3400-K3, NX-3420-K3 |
| EUT Type: | 800/900 MHz DIGITAL TRANSCEIVER |
| Application Type: | Certification |

| The Highest Reported SAR for FCC | | | | |
|---|---|---|---|---|
| Band | Tx. Frequency (MHz) | Equipment Class | Reported 1g SAR (W/kg) | |
| | | | Hand-held to Face | Body-Worn Belt clip |
| 800/900 MHz | 806-824, 851-869, 896-901, 935-940, 901-902, 940-941 | TNF | 3.79 | 6.29 |
| Bluetooth | 2 402 ~ 2 480 | DSS | N/A | |
| Simultaneous SAR per KDB 690783 D01v01r03 | | | 6.40 | |
| Date(s) of Tests: | 12/17/2018 ~ 12/19/2018 | | | |

| The Highest Reported SAR for IC | | | | |
|---|---|---|---|---|
| Band | Tx. Frequency (MHz) | Equipment Class | Reported 1g SAR (W/kg) | |
| | | | Hand-held to Face | Body-Worn Belt clip |
| 800/900 MHz | 806-824, 851-869, 896-901, 935-940, 901-902, 940-941 | TNF | 3.79 | 6.29 |
| Bluetooth | 2 402 ~ 2 480 | DSS | N/A | |
| Simultaneous SAR per KDB 690783 D01v01r03 | | | 6.54 | |
| Date(s) of Tests: | 12/17/2018 ~ 12/19/2018 | | | |

Note : The Duty Cycle of PTT was 50% applied.

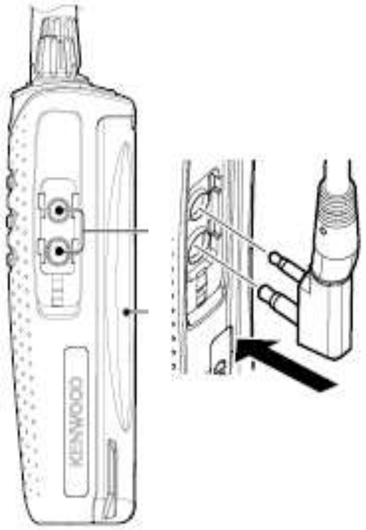
# 2. Test Methodology and Procedures

The tests documented in this report were performed in accordance with IEEE Standard 1528-2013 & IEEE 1528-2005 and the following published KDB procedures.

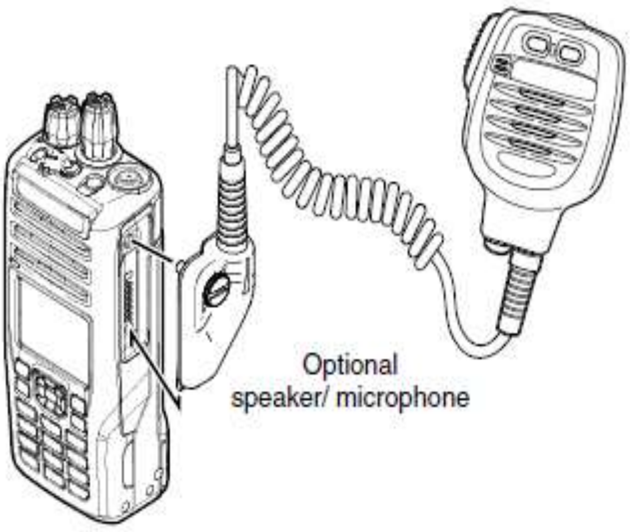
- RSS-102 issue 5
- Health Canada Safety Code 6
- IEC 62209-2:2010
- IEEE 1528:2013
- FCC KDB Publication 447498 D01 General SAR Guidance v06
- FCC KDB Publication 648474 D04 Handset SAR v01r03
- FCC KDB Publication 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04
- FCC KDB Publication 865664 D02 SAR Reporting v01r02
- FCC KDB Publication 643646 D01 SAR Test for PTT Radios v01r03

| Model Name | NX-3400-K3 | NX-3420-K3 (NX-3420-M3) | NX-3420-M |
|---|---|---|---|
| Mic Jack type | Universal type | 2 pin | 2 pin |
| Key type | Full | Full | Basic |


2 pin type




Universal type



# 3. Output Power Specifications.

## 3.1 Nominal and Maximum Output Power Specifications

This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB publication 447498 D01v06.

## 3.2 Maximum Output Power

| Band | Frequency | Power |
|---|---|---|
| 800/900 MHz | 806 MHz - 824 MHz<br>851 MHz - 869 MHz<br>896 MHz - 901 MHz<br>935 MHz - 940 MHz<br>901 MHz - 902 MHz<br>940 MHz - 941 MHz | 3.3 W |
| Bluetooth 4.0 | 2 402 MHz ~ 2 480 MHz | 2.5 mW |

## .3 Output Average Conducted Power

| 800/900 MHz | | |
|---|---|---|
| **Frequency (MHz)** | **Channel** | **Power (dBm)** |
| 806.050 | 1 | 34.83 |
| 823.950 | 3 | 34.94 |
| 851.050 | 4 | 35.01 |
| 868.950 | 6 | 34.97 |
| 898.550 | 8 | 34.77 |
| 901.550 | 10 | 34.75 |
| 937.550 | 12 | 34.57 |
| 940.550 | 14 | 34.58 |

:

Per KDB 447498 D01 v05r01 Page 7 section 6) pages 7-8, the number of channels required to be tested is as follows.

$F_{high}$ = 940.550 MHz
$F_c$ = 873.300 MHz
$F_{Low}$ = 806.050 MHz
$N_c = \text{Round}\{[100(f_{high} - f_{low}) / f_c]^{0.5} \times (f_c / 100)^{0.2}\} = \text{Round}\{[100(940.550 - 806.050) / 873.300]^{0.5} \times (873.300 / 100)^{0.2}\}$ = 6

Therefore, for the frequency band from 806.050MHz to 940.550MHz channels are required for testing.

## 3.4 SAR Summation Scenario

According to FCC KDB 447498 D01v06, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the EUT are shown below paths and are mode in same rectangle to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.


Simultaneous transmission paths

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB 447498 D01v06.

| Simultaneous Transmission Scenarios | |
|---|---|
| **Applicable Combination** | **Body-Worn** |
| 800/900 MHz + 2.4 GHz Bluetooth | Yes |

## 3.5 SAR Test Exclusions Applied

## (A) Bluetooth for FCC

Per FCC KDB 447498 D01v06, The SAR exclusion threshold for distance < 50mm is defined by the following equation:

$$\frac{Max\ \ Power\ \ of\ \ Channel(mW)}{Test\ \ \ Separation\ Distance\ \ (mm)} * \sqrt{Frequency(GHz)} \leq\ \ 3.0\ \ \text{for}\ \ 1-\text{g}\ \ \text{SAR}$$

| Mode | Frequency | Maximum Allowed Power | Separation Distance | ≤ 3.0 for 1g SAR |
|---|---|---|---|---|
| | [MHz] | [mW] | [mm] | |
| Bluetooth | 2 480 | 2.5 | 5 | 0.8 |

Based on the maximum conducted power of Bluetooth and antenna to use separation distance, Bluetooth SAR was not required [(2.5/5)*√2.480] = 0.8 < 3.0.

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D01v06 IV.C.1iii, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤ 1.6W/kg. When standalone SAR is not required to be measured per FCC KDB 447498 D01v06 4.3.22, the following equation must be used to estimate the standalone 1-g SAR and 10g SAR for simultaneous transmission assessment involving that transmitter.

$$Estimated\ \ SAR = \frac{\sqrt{f(GHZ)}}{7.5} * \frac{(Max\ \ Power\ \ of\ \ channel\ \ mW)}{Min\ \ Seperation\ \ Distance}.$$

Estimated 1-g SAR

| Mode | Frequency | Maximum Allowed Power | Separation Distance (Body) | Estimated 1g SAR (Body) |
|---|---|---|---|---|
| | [MHz] | [mW] | [mm] | [W/kg] |
| Bluetooth | 2 480 | 2.5 | 5 | 0.105 |

**Note:**
Held-to ear configurations are not applicable to Bluetooth operations and therefore were not considered for simultaneous transmission. The Estimated SAR results were determined according to FCC KDB447498 D01v06.

## (B) Bluetooth for IC

Per RSS102 Issue 5, 2.5.1 Exemption Limits for Routine Evaluation

**Table 1: SAR evaluation – Exemption limits for routine evaluation based on frequency and separation distance[4,5]**

| Frequency (MHz) | Exemption Limits (mW) | | | | |
|---|---|---|---|---|---|
| | At separation distance of ≤5 mm | At separation distance of 10 mm | At separation distance of 15 mm | At separation distance of 20 mm | At separation distance of 25 mm |
| ≤300 | 71 mW | 101 mW | 132 mW | 162 mW | 193 mW |
| 450 | 52 mW | 70 mW | 88 mW | 106 mW | 123 mW |
| 835 | 17 mW | 30 mW | 42 mW | 55 mW | 67 mW |
| 1900 | 7 mW | 10 mW | 18 mW | 34 mW | 60 mW |
| 2450 | 4 mW | 7 mW | 15 mW | 30 mW | 52 mW |
| 3500 | 2 mW | 6 mW | 16 mW | 32 mW | 55 mW |
| 5800 | 1 mW | 6 mW | 15 mW | 27 mW | 41 mW |

| Frequency (MHz) | Exemption Limits (mW) | | | | |
|---|---|---|---|---|---|
| | At separation distance of 30 mm | At separation distance of 35 mm | At separation distance of 40 mm | At separation distance of 45 mm | At separation distance of ≥50 mm |
| ≤300 | 223 mW | 254 mW | 284 mW | 315 mW | 345 mW |
| 450 | 141 mW | 159 mW | 177 mW | 195 mW | 213 mW |
| 835 | 80 mW | 92 mW | 105 mW | 117 mW | 130 mW |
| 1900 | 99 mW | 153 mW | 225 mW | 316 mW | 431 mW |
| 2450 | 83 mW | 123 mW | 173 mW | 235 mW | 309 mW |
| 3500 | 86 mW | 124 mW | 170 mW | 225 mW | 290 mW |
| 5800 | 56 mW | 71 mW | 85 mW | 97 mW | 106 mW |

The SAR exemption from RSS102: Issue 5 was also exempted by the above exclusion conditions.

The estimate SAR value is calculated based the following equation:
(maximum power level including tune-up tolerance for transmitter A / maximum power level of exemption at the same frequency and distance) * 0.4W/Kg

The estimate SAR for Bluetooth = 2.5/4*0.4(W/Kg) = 0.25 W/kg

# 4. Manufacturer's Accessory List

| Part No. | Description | Accessory Type | Accessory |
|---|---|---|---|
| KRA-32 | 700/800 MHz WHIP Antenna | Antennas | 1 |
| KRA-36 | 700/800 MHz Stuby Antenna | | 2 |
| KRA-38 | 800/900 MHz WHIP Antenna | | 3 |
| KRA-39 | 700/800 MHz Stuby Antenna | | 4 |
| KNB-55L | Li-Ion Battery Pack (1480mA) | Battery | 1 |
| KNB-56N | Ni-MH Battery Pack (1400mA) | | 2 |
| KNB-57L | Li-Ion Battery Pack (2000mA) | | 3 |
| KBP-5 | AA Alkaline Battery Pack | | 4 |
| KNB-78L | Li-Ion Battery Pack (2860mAh) | | 5 |
| KNB-79LC | Li-Ion Battery Pack (2860mAh) | | 6 |
| KWR-1 | Water Resistance Bag | Body-worn | 1 |
| KBH-11 | Belt Clip | | 2 |
| KLH-207K | Nylon Case (non Display) | | 3 |
| KLH-207K3 | Nylon Case (Full Keypad) | | 4 |
| KLH-206K | Leather Case (non Display) | | 5 |
| KLH-206K3 | Leather Case (Full Keypad) | | 6 |
| KLH-208P | Leather Case (non Display) | | 7 |
| KLH-208P3 | Leather Case (Full Keypad) | | 8 |
| KBH-13DS | Leather swivel belt loop | | 9 |
| KLH-140SW | Swivel Belt Loop With D Ring | | 10 |
| KLH-37BT | Leather Belt | | 11 |
| KLH-38ST | Shoulder Strap | | 12 |
| KLH-212-P3 | Leather Case for NX-3000srs w/KNB-78L/79LC | | 13 |
| KLH-212-P | Leather Case for NX-3000srs w/KNB-78L/79LC | | 14 |
| KMC-45D | Speaker Microphone | | 1 |
| KMC-45 | Speaker Microphone | | 2 |
| KMC-21 | Compact Speaker Microphone | | 3 |
| KMC-21S | Compact Speaker Microphone | | 4 |
| KEP-2 | 25mm Earphone kit for KMC-45 | | 5 |
| KHS-10-BH | Heavy-duty headset | | 6 |
| KHS-10-OH | Heavy-duty headset | | 7 |
| KHS-7 | Single Muff Headset | | 8 |
| KHS-7A | Single Muff Headset w/in-line PTT | | 9 |
| KHS-8BL | 2-Wire Palm Mic w/ Earphone | | 10 |
| KHS-8BE | 2-Wire Palm Mic w/ Earphone | | 11 |
| KHS-8NC | 2-Wire Palm Mic w/ Earphone, NC | | 12 |
| KHS-9BL | 3-Wire Lapel Mic w/ Earphone | | 13 |
| KHS-9BE | 3-Wire Lapel Mic w/ Earphone | | 14 |
| KHS-22 | Behind-the-head Headset w/PTT | | 15 |
| KHS-23 | 2-Wire Palm Mic | | 16 |
| KHS-25 | D-Ring Ear Headset | | 17 |
| KHS-26 | Ear bund In-line PTT Headset | | 18 |
| KHS-27 | D-Ring In-line PTT Headset | | 19 |
| KHS-27A | D-Ring In-line PTT Headset | | 20 |
| KHS-31 | C-Ring Headset | | 21 |
| KHS-31C | C-Ring Headset | | 22 |
| KHS-1 | Headset with PTT/VOX | | 23 |
| KHS-21 | Headset | | 24 |
| KHS-29F | Headset | | 25 |
| EMC-11 | Clip Microphone with Earphone | | 26 |

| | | | |
|---|---|---|---|
| KHS-35F | Headset | Microphones Audio Accessory | 27 |
| EMC-12 | Clip Microphone with Earphone | | 28 |
| KMC-54WD | Speaker Phone | | 29 |
| KMC-25 | MIL-SPEC, Noise canceling Speaker mic | | 30 |
| KMC-25S | MIL-SPEC, Noise canceling Speaker mic | | 31 |
| KMC-41 | MIL-SPEC, IP54/55 Noise-canceling Speaker Mic | | 32 |
| KMC-41D | MIL-SPEC, IP54/55 Noise-canceling Speaker Mic | | 33 |
| KMC-42W | MIL-SPEC, IP67 (Immersion) Noise-canceling Speaker Mic | | 34 |
| KMC-42WD | MIL-SPEC, IP67 (Immersion) Noise-canceling Speaker Mic | | 35 |
| KEP-1 | 3.5mm earphone kit | | 36 |
| KCT-51 | Hirose 6-pin Adapter (adapts KVL/aftermarket audio acc. to portable connector) | | 37 |
| KHS-11BE | 2-wire palm mic w/earphone, universal connector (Beige) | | 38 |
| KHS-11BL | 2-wire palm mic w/earphone, universal connector (Black) | | 39 |
| KHS-12BE | 3-wire mini lapel mic w/earphone, universal connector (Beige) | | 40 |
| KHS-12BL | 3-wire mini lapel mic w/earphone, universal connector (Black) | | 41 |
| KHS-14 | Lt. Wt. Single muff headset w/boom mic & In-line PTT | | 42 |
| KHS-15-BH | Hvy-duty noise reduction behind-the-headset w/noise cancelling boom mic & in-line PTT | | 43 |
| KHS-15-OH | Hvy-duty noise reduction over-the-headset w/noise cancelling boom mic & in-line PTT | | 44 |
| KMC-40 | Speaker Mic. with Antenna Connector | | 45 |
| KMC-46EX | Speaker Microphone | | 46 |
| KMC-51D | Speaker Microphone | | 47 |
| KMC-52 | Speaker Microphone | | 48 |
| KMC-52D | Speaker Microphone | | 49 |
| KCT-48VU | External Vibration Unit | | 50 |

*** Note:** Battery Dimensions

| No. | Battery Model | description | Size (mm) |
|---|---|---|---|
| 1 | KNB-55L | Li-Ion Battery Pack (1480mA) | WHD 56.0 x 100.5 x 15.5 |
| 2 | KNB-56N | Ni-MH Battery Pack (1400mA) | WHD 56.0 x 100.5 x 20.2 |
| 3 | KNB-57L | Li-Ion Battery Pack (2000mA) | WHD 56.0 x 100.5 x 20.2 |
| 4 | KBP-5 | AA Alkaline Battery Pack | WHD 56.0 x 100.5 x 21.5 |
| 5 | KNB-78L | Li-Ion Battery Pack (2860mAh) | WHD 56.0 x 100.5 x 23.7 |
| 6 | KNB-79LC | Li-Ion Battery Pack (2860mAh) | WHD 56.0 x 100.5 x 23.7 |

This SAR report is the result of a change test for the addition of a battery Since the additional battery has the biggest capacity of the battery, the Head Face SAR test were performed the Full SAR test and the body worn SAR were evaluated under the worst case condition of the original SAR report.

**Radio Face Test (Hand-held to Face)**

| Battery 1 | | | |
|---|---|---|---|
| Ant. 1 | Ant. 2 | Ant. 3 | Ant. 4 |
| Yes | Yes | Yes | Yes |
| Battery 2 | | | |
| Ant. 1 | Ant. 2 | Ant. 3 | Ant. 4 |
| Yes | Yes | Yes | Yes |
| Battery 3 | | | |
| Ant. 1 | Ant. 2 | Ant. 3 | Ant. 4 |
| Yes | Yes | Yes | Yes |
| Battery 4 | | | |
| Ant. 1 | Ant. 2 | Ant. 3 | Ant. 4 |
| Yes | Yes | Yes | Yes |
| Battery 5 | | | |
| Ant. 1 | Ant. 2 | Ant. 3 | Ant. 4 |
| Yes | Yes | Yes | Yes |
| Battery 6 | | | |
| Ant. 1 | Ant. 2 | Ant. 3 | Ant. 4 |
| Yes | Yes | Yes | Yes |

## Radio Body Test (Body-Worn)

| Audio Accessory | Battery | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | No | No | No | No | No | No |
| 2 | Yes | Yes | Yes | Yes | Yes | Yes |
| 3 | No | No | No | No | No | No |
| 4 | No | No | No | No | No | No |
| 5 | No | No | No | No | No | No |
| 6 | No | No | No | No | No | No |
| 7 | No | No | No | No | No | No |
| 8 | No | No | No | No | No | No |
| 9 | No | No | No | No | No | No |
| 10 | No | No | No | No | No | No |
| 11 | No | No | No | No | No | No |
| 12 | No | No | No | No | No | No |
| 13 | No | No | No | No | No | No |
| 14 | No | No | No | No | No | No |
| 15 | No | No | No | No | No | No |
| 16 | No | No | No | No | No | No |
| 17 | No | No | No | No | No | No |
| 18 | No | No | No | No | No | No |
| 19 | No | No | No | No | No | No |
| 20 | No | No | No | No | No | No |
| 21 | No | No | No | No | No | No |
| 22 | No | No | No | No | No | No |
| 23 | No | No | No | No | No | No |
| 24 | No | No | No | No | No | No |
| 25 | No | No | No | No | No | No |
| 26 | No | No | No | No | No | No |
| 27 | No | No | No | No | No | No |
| 28 | No | No | No | No | No | No |
| 29 | Yes | Yes | Yes | Yes | Yes | Yes |
| 30 | No | No | No | No | No | No |
| 31 | No | No | No | No | No | No |
| 32 | No | No | No | No | No | No |
| 33 | No | No | No | No | No | No |
| 34 | No | No | No | No | No | No |
| 35 | No | No | No | No | No | No |
| 36 | No | No | No | No | No | No |
| 37 | No | No | No | No | No | No |
| 38 | No | No | No | No | No | No |
| 39 | No | No | No | No | No | No |
| 40 | No | No | No | No | No | No |
| 41 | No | No | No | No | No | No |
| 42 | No | No | No | No | No | No |
| 43 | No | No | No | No | No | No |
| 44 | No | No | No | No | No | No |
| 45 | No | No | No | No | No | No |
| 46 | No | No | No | No | No | No |
| 47 | No | No | No | No | No | No |
| 48 | No | No | No | No | No | No |
| 49 | No | No | No | No | No | No |
| 50 | No | No | No | No | No | No |

*** Manufacture's disclosed accessory listing information provided by Kenwood corporation.**

*** Note:**

Audio Accessory KMC-45 and KMC-54WD was chosen for the testing body worn radio configuration.

# 5. INTRODUCTION

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on Aug. 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices.

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-2005 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York 10017. The measurement procedure described in IEEE/ANSI C95.3-1992 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave is used for guidance in measuring SAR due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86 NCRP, 1986, Bethesda, MD 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

## SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative of the incremental electromagnetic energy (d*W*) absorbed by (dissipated in) an incremental mass (d*m*) contained in a volume element (d*V*) of a given density (*r* ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body.

$$SAR = \frac{d}{dt}\left(\frac{dU}{dm}\right)$$

Figure 1. SAR Mathematical Equation

*SAR is expressed in units of Watts per Kilogram (W/kg)*

$$SAR = \sigma E^2 / \rho$$

Where:
$\sigma$ = conductivity of the tissue-simulant material (S/m)
$\rho$ = mass density of the tissue-simulant material (kg/㎥)
$E$ = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relations to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.

# 6. DESCRIPTION OF TEST EQUIPMENT

## 6.1 SAR MEASUREMENT SETUP

These measurements are performed using the DASY4 automated dosimetric assessment system. It is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland. It consists of high precision robotics system (Staubli), robot controller, Pentium III computer, near-field probe, probe alignment sensor, and the generic twin phantom containing the brain equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF) (see Figure.2).

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The PC with Windows XP or Windows 7 is working with SAR Measurement system DASY4 & DASY5, A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

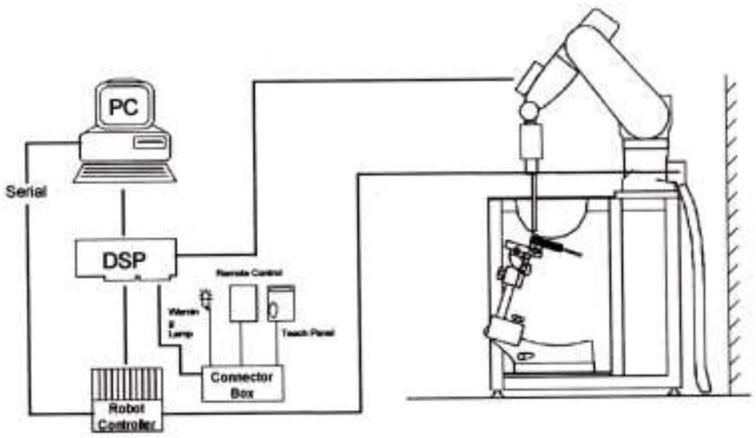



Figure 2. HCT SAR Lab. Test Measurement Set-up

The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer. The system is described in detail in.

## 6.2 Phantom

### • ELI Phantom

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG diametric probes and dipoles.

Figure 6.1 ELI Phantom

| | |
|---|---|
| Shell Thickness | 2.0 ± 0.2mm |
| Filling Volume | approx. 30 liters |
| Dimensions | Major axis: 600 mm, Minor axis: 400 mm |

## 6.3 Device Holder for Transmitters

| Device Holder – Mounting Device | |
|---|---|
| In combination with the SAM Phantom, the Mounting Device enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation points is the ear opening. The devices can be easily, accurately, and repeatable positioned according to the EN 50360:2001/A:2001 and FCC KDB specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).<br><br>Note: A simulating human hand is not used due to the complex anatomical and geometrical structure of the hand that may produced infinite number of configurations. To produce the Worst-case condition (the hand absorbs antenna output power), the hand is omitted during the tests. |  |

## 6.4 Validation Dipole

The reference dipole should have a return loss better than -20 dB (measured in the setup) at the resonant frequency to reduce the uncertainty in the power measurement.

| System Validation Dipole | | |
|---|---|---|
| **Description** | Symmetrical dipole with λ/4 balun. Enables measurement of feedpoint impedance with network analyzer (NWA). Matched for use near flat phantoms filled with tissue simulating liquids. |  |
| **Frequency** | 835 MHz | |
| **Return Loss** | > 20 dB at specified validation position | |
| **Power Capability** | > 100 W ( f < 1GHz), >40 W ( f > 1 GHz) | |
| **Dimension** | D835V2: dipole length : 161.0 mm ; overall height : 340.0 mm | |

## 6.5 Brain & Muscle Tissue Simulating Mixture Characterization

The brain and muscle mixtures consist of a viscous gel using hydrox-ethyl cellulose (HEC) gelling agent and saline solution (see Table 1). Preservation with a bactericide is added and visual inspection is made to make sure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the desired tissue. The mixture characterizations used for the brain and muscle tissue simulating liquids are according to the data by C. Gabriel and G. Hartsgrove.

| **Frequency (MHz)** | **30** | **50** | | **144** | | **450** | | **835** | **900** | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Recipe source number** | 3 | 3 | 2 | 2 | 3 | 2 | 4 | 2 | 2 | 4 |
| **Ingredients (% by weight)** | | | | | | | | | | |
| Deionised water | 48,30 | 48,30 | 53,53 | 55,12 | 48,30 | 48,53 | 56 | 50,36 | 50,31 | 56 |
| Tween | | | 44,70 | 43,31 | | 49,51 | | 48,39 | 48,34 | |
| Oxidised mineral oil | | | | | | | 44 | | | 44 |
| Diethylenglycol monohexylether | | | | | | | | | | |
| Triton X-100 | | | | | | | | | | |
| Diacetin | 50,00 | 50,00 | | | 50,00 | | | | | |
| DGBE | | | | | | | | | | |
| NaCl | 1,60 | 1,60 | 1,77 | 1,57 | 1,60 | 1,96 | | 1,25 | 1,35 | |
| Additives and salt | 0,10 | 0,10 | | | 0,10 | | | | | |
| **Measured dielectric parameters** | | | | | | | | | | |
| $\varepsilon_r'$ | 54,2 | 53,1 | 54,54 | 52,81 | 51,0 | 43,29 | 42,3 | 41,6 | 41,0 | 40,6 |
| **σ (S/m)** | 0,75 | 0,75 | 0,76 | 0,76 | 0,77 | 0,88 | 0,84 | 0,90 | 0,98 | 0,98 |
| **Temp. (°C)** | | | 21 | 21 | | 21 | 20 | 21 | 21 | 20 |
| **ε_temp_liquid$_{uncertainty}$ (%)** | 0,8 | 0,1 | | | 0,1 | 0,1 | | 0,04 | 0,04 | |
| **σ_temp_liquid$_{uncertainty}$ (%)** | 2,8 | 2,8 | | | 2,6 | 4,2 | | 1,6 | 1,6 | |
| **Target values (from Table 1)** | | | | | | | | | | |
| $\varepsilon_r'$ | 55,0 | 54,5 | | 52,4 | | 43,5 | | 41,5 | 41,5 | |
| **σ (S/m)** | 0,75 | 0,75 | | 0,76 | | 0,87 | | 0,90 | 0,97 | |

**Fig 4. Composition of the Tissue Equivalent Matter**

# 7. SAR MEASUREMENT PROCEDURE

The evaluation was performed with the following procedure:

1. The SAR distribution at the exposed side of the head or body was measured at a distance no more than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the DUT's head and body area and the horizontal grid resolution was depending on the FCC KDB 865664 D01v01r04 table 4-1 & IEEE 1528-2013.

2. Based on step, the area of the maximum absorption was determined by sophisticated interpolations routines implemented in DASY software. When an Area Scan has measured all reachable point. DASY system computes the field maximal found in the scanned are, within a range of the maximum. SAR at this fixed point was measured and used as a reference value.

3. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB 865664 D01v01r04 table 4-1 and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (reference from the DASY manual.)

   **a.** The data at the surface were extrapolated, since the center of the dipoles is no more than 2.7 mm away from the tip of the probe (it is different from the probe type) and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

   **b.** The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions. The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

   **c.** All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan. If the value changed by more than 5 %, the SAR evaluation and drift measurements were repeated.

Area scan and zoom scan resolution setting follow KDB 865664 D01v01r04 quoted below.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5±1 mm</td><td>$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30°±1°</td><td>20°±1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan Spatial resolution: $\Delta x_{Area}$, $\Delta y_{Area}$</td><td>≤ 2 GHz: ≤15 mm<br>2-3 GHz: ≤12 mm</td><td>3-4 GHz: ≤12 mm<br>4-6 GHz: ≤10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan Spatial resolution: $\Delta x_{zoom}$, $\Delta y_{zoom}$</td><td>≤ 2 GHz: ≤8mm<br>2-3 GHz: ≤5mm*</td><td>3-4 GHz: ≤5 mm*<br>4-6 GHz: ≤4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan Spatial resolution normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{zoom}(n)$</td><td>≤ 5 mm</td><td>3-4 GHz: ≤4 mm<br>4-5 GHz: ≤3 mm<br>5-6 GHz: ≤2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{zoom}(1)$: between 1st two Points closest to phantom surface</td><td>≤ 4 mm</td><td>3-4 GHz: ≤3 mm<br>4-5 GHz: ≤2.5 mm<br>5-6 GHz: ≤2 mm</td></tr>
<tr><td>$\Delta z_{zoom}(n>1)$: between subsequent Points</td><td colspan="2">$\leq 1.5 \cdot \Delta z_{zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3-4 GHz: ≥28 mm<br>4-5 GHz: ≥25 mm<br>5-6 GHz: ≥22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.<br>* When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

# 8. DESCRIPTION OF TEST POSITION

## 8.1 Body Holster/Belt Clip Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. A device with a headset output is tested with a headset connected to the device. Body dielectric parameters are used.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with each accessory. If multiple accessory share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some Devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used.

Since this EUT does not supply any body worn accessory to the end user a distance of 0 cm from the EUT back surface to the liquid interface is configured for the generic test.

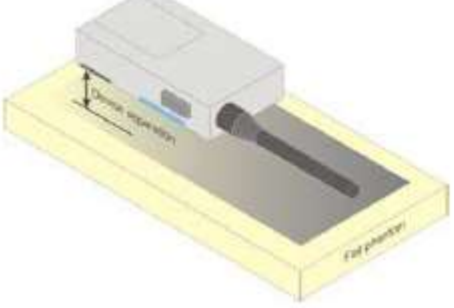
"See the Test SET-UP Photo"

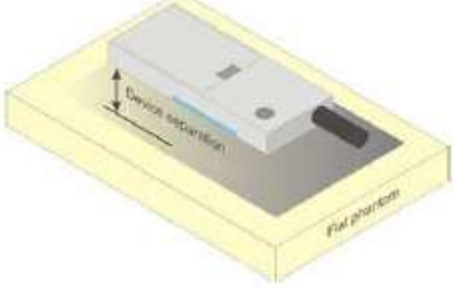
Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessory(ies), Including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

In all cases SAR measurements are performed to investigate the worst-case positioning. Worst case positioning is then documented and used to perform Body SAR testing.

## 8.2 Hand-held to Face device

A typical example of a front-of-face device is a two-way radio that is held at a distance from the face of the user when transmitting. In these cases the device under test shall be positioned at the distance to the phantom surface that corresponds to the intended use as specified by the manufacturer in the user instructions. If the intended use is not specified, a separation distance of 25 mm[5] between the phantom surface and the device shall be used.



# 9. RF EXPOSURE LIMITS

| HUMAN EXPOSURE | UNCONTROLLED ENVIRONMENT General Population | CONTROLLED ENVIRONMENT Occupational |
|---|---|---|
| | (W/kg) or (mW/g) | (W/kg) or (mW/g) |
| SPATIAL PEAK SAR * (Brain) | 1.60 | 8.00 |
| SPATIAL AVERAGE SAR ** (Whole Body) | 0.08 | 0.40 |
| SPATIAL PEAK SAR *** (Hands / Feet / Ankle / Wrist) | 4.00 | 20.00 |

**Table 8.1 Safety Limits for Partial Body Exposure**

**NOTES:**

* The Spatial Peak value of the SAR averaged over any 1 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

** The Spatial Average value of the SAR averaged over the whole-body.

******* The Spatial Peak value of the SAR averaged over any 10 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

**Uncontrolled Environments** are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be mad fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

**Controlled Environments** are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e.as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

# 10. SYSTEM VERIFICATION

## 10.1 Tissue Verification

The Head/ body simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity.

**Table for Head Tissue Verification**

| Date of Tests | Tissue Temp. (°C) | Tissue Type | Freq. (MHz) | Measured Conductivity σ (S/m) | Measured Dielectric Constant, ε | Target Conductivity σ (S/m) | Target Dielectric Constant, ε | % dev σ | % dev ε |
|---|---|---|---|---|---|---|---|---|---|
| 12/17/2018 | 20.3 | 900H | 800 | 0.878 | 43.601 | 0.897 | 41.680 | -2.12% | 4.61% |
| | | | 900 | 0.980 | 42.822 | 0.970 | 41.500 | 1.03% | 3.19% |
| | | | 920 | 0.999 | 42.490 | 0.982 | 41.490 | 1.73% | 2.41% |

**Table for Body Tissue Verification**

| Date of Tests | Tissue Temp. (°C) | Tissue Type | Freq. (MHz) | Measured Conductivity σ (S/m) | Measured Dielectric Constant, ε | Target Conductivity σ (S/m) | Target Dielectric Constant, ε | % dev σ | % dev ε |
|---|---|---|---|---|---|---|---|---|---|
| 12/19/2018 | 21.0 | 900B | 800 | 0.928 | 54.602 | 0.967 | 55.34 | -4.03% | -1.33% |
| | | | 900 | 1.033 | 53.594 | 1.050 | 55.000 | -1.62% | -2.56% |
| | | | 920 | 1.058 | 53.377 | 1.060 | 54.990 | -0.19% | -2.93% |

## 10.2 System Check

Prior to assessment, the system is verified to the ± 10 % of the specifications at 900 MHz by using the system Verification kit. (Graphic Plots Attached)

**System Verification Results** *** Input Power: 50 mW**

| Freq. | Date | Probe (S/N) | Dipole (S/N) | Liquid | Amb. Temp. | Liquid Temp. | 1 W Target $SAR_{1g}$ (SPEAG) | Measured $SAR_{1g}$ | 1 W Normalized $SAR_{1g}$ | Deviation | Limit [%] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | | | | | [°C] | [°C] | [W/kg] | [W/kg] | [W/kg] | [%] | [%] |
| 900 | 12/17/2018 | 3968 | 1d069 | Head | 20.5 | 20.3 | 10.8 | 0.529 | 10.58 | - 2.04 | ± 10 |
| 900 | 12/19/2018 | 3076 | 1d069 | Body | 21.1 | 21.0 | 11.1 | 0.571 | 11.42 | + 2.88 | ± 10 |

## 10.3 System Verification Procedure

SAR measurement was prior to assessment, the system is verified to the ± 10 % of the specifications at each frequency band by using the system Verification kit. (Graphic Plots Attached)

- Cabling the system, using the Verification kit equipments.
- Generate about 50 mW Input Level from the Signal generator to the Dipole Antenna.
- Dipole Antenna was placed below the Flat phantom.
- The measured one-gram SAR at the surface of the phantom above the dipole feed-point should be within 10 % of the target reference value.
- The results are normalized to 1 W input power.

NOTE;
SAR Verification was performed according to the FCC KDB 865664 D01v01r04.

# 11. SAR TEST DATA SUMMARY

## 11.1 Measurement Results (Hand-held to Face SAR)

| Model Name | Antenna | Frequency (MHz) | Ch. | Tune-Up Limit (dBm) | Conducted Power (dBm) | Power Drift (dB) | Battery | Separation Distance (mm) | Measured SAR (mW/g) | SAR 50% Duty (mW/g) | Reported SAR (mW/g) | Plot No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NX-3400-M3 | KRA-32 | 851.05 | 4 | 35.19 | 35.01 | -0.95 | KNB-78L | 25 | 1.63 | 0.815 | 1.060 | - |
| | KRA-38 | 851.05 | 4 | 35.19 | 35.01 | -1.21 | KNB-78L | 25 | 3.18 | 1.590 | 2.190 | - |
| | KRA-36 | 851.05 | 4 | 35.19 | 35.01 | -0.38 | KNB-78L | 25 | 6.21 | 3.105 | 3.530 | - |
| | KRA-36 | 868.95 | 6 | 35.19 | 34.97 | -0.50 | KNB-78L | 25 | 5.32 | 2.660 | 3.140 | - |
| | KRA-39 | 901.55 | 10 | 35.19 | 34.75 | -0.27 | KNB-78L | 25 | 3.12 | 1.560 | 1.820 | - |
| | KRA-36 | 851.05 | 4 | 35.19 | 35.01 | -0.32 | KNB-79LC | 25 | 5.91 | 2.955 | 3.320 | - |
| | KRA-36 | 851.05 | 4 | 35.19 | 35.01 | -0.35 | KNB-55L | 25 | 6.07 | 3.035 | 3.430 | - |
| | KRA-36 | 851.05 | 4 | 35.19 | 35.01 | -0.21 | KNB-57L | 25 | 5.76 | 2.880 | 3.150 | - |
| | KRA-36 | 851.05 | 4 | 35.19 | 35.01 | -0.35 | KNB-56N | 25 | 5.5 | 2.750 | 3.110 | - |
| | KRA-36 | 851.05 | 4 | 35.19 | 35.01 | -1.54 | KBP-5 | 25 | 4.61 | 2.305 | 3.430 | - |
| NX-3400-K3 | KRA-36 | 851.05 | 4 | 35.19 | 35.01 | 0.03 | KNB-78L | 25 | 5.88 | 2.940 | 3.040 | - |
| NX-3400-M | KRA-36 | 851.05 | 4 | 35.19 | 35.01 | -0.39 | KNB-78L | 25 | 6.64 | 2.415 | **3.790** | 1 |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Controlled Exposure/ Occupational | | | | | | | | Head<br>8 W/kg (mW/g)<br>Averaged over 1 gram | | | | |

**Audio accessory : KMC-45 : NX-3400-M3, NX-3400-M**
**Audio accessory : KMC-54WD : NX-3400-K3**

## 11.2 Measurement Results (Body-worn Belt clip SAR)

| Model | Antenna | Frequency (MHz) | Ch. | Tune-Up Limit (dBm) | Conducted Power (dBm) | Power Drift (dB) | Battery | Separation Distance (mm) | Measured SAR (mW/g) | SAR 50% Duty (mW/g) | Reported SAR (mW/g) | Plot No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NX-3400-M3 | KRA-32 | 851.05 | 4 | 35.19 | 35.01 | -0.43 | KNB-55L | 0 | 1.09 | 0.545 | 0.630 | - |
| | KRA-38 | 851.05 | 4 | 35.19 | 35.01 | -0.69 | KNB-55L | 0 | 1.76 | 0.880 | 1.080 | - |
| | KRA-36 | 851.05 | 4 | 35.19 | 35.01 | -0.24 | KNB-55L | 0 | **10.7** | 5.350 | 5.890 | 2 |
| | KRA-36 | 868.95 | 6 | 35.19 | 34.97 | -0.65 | KNB-55L | 0 | 10.3 | 5.150 | **6.292** | 3 |
| | KRA-36 | 823.95 | 3 | 35.19 | 34.94 | -0.65 | KNB-55L | 0 | 6.49 | 3.245 | 3.990 | - |
| | KRA-36 | 806.05 | 1 | 35.19 | 34.83 | -0.28 | KNB-55L | 0 | 6.52 | 3.260 | 3.778 | - |
| | KRA-39 | 898.55 | 8 | 35.19 | 34.77 | -0.14 | KNB-55L | 0 | 7.64 | 3.820 | 4.346 | - |
| | KRA-39 | 901.55 | 10 | 35.19 | 34.75 | -0.55 | KNB-55L | 0 | 6.95 | 3.475 | 4.365 | - |
| | KRA-36 | 868.95 | 6 | 35.19 | 34.97 | -0.25 | KNB-79LC | 0 | 8.28 | 4.140 | 4.613 | - |
| | KRA-36 | 868.95 | 6 | 35.19 | 34.97 | -0.71 | KNB-79LC | 0 | 7.65 | 3.825 | 4.738 | - |
| | KRA-36 | 868.95 | 6 | 35.19 | 34.97 | -0.57 | KNB-57L | 0 | 9.36 | 4.680 | 5.614 | - |
| | KRA-36 | 868.95 | 6 | 35.19 | 34.97 | -0.55 | KNB-56N | 0 | 10.4 | 5.200 | 6.209 | - |
| | KRA-36 | 868.95 | 6 | 35.19 | 34.97 | -1.72 | KBP-5 | 0 | 8.02 | 4.010 | 6.268 | - |
| | KRA-36 | 851.05 | 4 | 35.19 | 35.01 | -1.32 | KBP-5 | 0 | 8.06 | 4.030 | 5.693 | - |
| | KRA-39 | 898.55 | 8 | 35.19 | 34.77 | -0.11 | KNB-79LC | 0 | 5.93 | 2.965 | 3.350 | - |
| | KRA-39 | 898.55 | 8 | 35.19 | 34.77 | -0.06 | KNB-78L | 0 | 7.69 | 3.845 | 4.291 | - |
| | KRA-39 | 898.55 | 8 | 35.19 | 34.77 | -0.23 | KNB-57L | 0 | 7.15 | 3.575 | 4.152 | - |
| | KRA-39 | 898.55 | 8 | 35.19 | 34.77 | -0.71 | KNB-56N | 0 | 6.01 | 3.005 | 3.898 | - |
| | KRA-39 | 898.55 | 8 | 35.19 | 34.77 | -1.37 | KBP-5 | 0 | 5.11 | 2.555 | 3.858 | - |
| NX-3400-K3 | KRA-36 | 868.95 | 6 | 35.19 | 34.97 | -0.35 | KNB-55L | 0 | 8.52 | 4.260 | 4.857 | - |
| NX-3400-M | KRA-36 | 868.95 | 6 | 35.19 | 34.97 | -0.44 | KNB-55L | 0 | 10.6 | 5.300 | 6.170 | - |
| ANSI/ IEEE C95.1 - 2005 – Safety Limit<br>Spatial Peak<br>Controlled Exposure/ Occupational | | | | | | | | Body<br>8 W/kg (mW/g)<br>Averaged over 1 gram | | | | |

## 11.3 SAR Test Notes

**General Notes:**

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, FCC KDB Procedure.
2. Batteries are fully charged at the beginning of the SAR measurements. A standard battery was used for all SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB 447498 D01v06.
6. Test signal call mode is Manual test cord.
7. The EUT was tested for face-held SAR with a 2.5 cm separation distance between the front of the EUT and the outer surface of the planer phantom
8. The Body-worn SAR evaluation was performed with the Balt-clip body-worn accessory attached to the DUT and touching the outer surface of the planar phantom.
9. The adjusted SAR value was calculated by first scaling the SAR value up by the drift. This value was then scaled up based on the difference of the upper end the tolerance and the measured conducted power. The resultant value is then multiplied by 0.5 to give the SAR value at 50% duty cycle.
10. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB 447498 D01v06. Test Procedures applied in accordance with FCC KDB 643646 D01v01r03.
11. Measurement was reduced per KDB 643646 D01v01r03.
12. When the SAR for all antennas tested using the default battery is ≤3.5 W/kg, testing of all other required channels is not necessary.
13. When the SAR of an antenna tested on the highest output power using the default battery is >3.5 W/Kg and ≤4.0 W/Kg, testing of the immediately adjacent channel(s) is not necessary, but testing of other required channels may still be required.
14. When the SAR for all antennas tested using the default battery ≤ 4.0 W/kg, test additional batteries using the antenna and channel configuration that resulted in the highest SAR.
15. When the SAR of an antenna tested on the highest output power channel using the default battery is > 4.0 W/kg and ≤6.0 W/kg, testing of the required immediately adjacent channel(s) is necessary. For the remaining channels that cannot be excluded, this rule may be applied recursively with respect to the highest output power channel among the remaining channels.
16. Based on the SAR measured in the body-worn test sequence with default audio accessory, if the SAR for the antenna, body-worn accessory and battery combination(s) applicable to an audio accessory is/are >4.0 W/kg and <6.0 W/kg, test that audio accessory using the highest body-worn SAR combination (antenna, battery and body-worn accessory) and channel configuration previously identified that is applicable to the audio accessory.
17. When the SAR of an antenna tested is > 6.0 W/kg, test that battery and antenna combination with the default body-worn and audio accessory on the required immediately adjacent channels.
18. If the SAR measured >7.0 W/kg, test that battery, antenna, body-worn and audio accessory combination on all required channels.

# 12. Simultaneous SAR Analysis

## 12.1 Simultaneous Transmission Summation for Body-Worn FCC

| Simultaneous Transmission Summation Scenario with Bluetooth | | | | |
|---|---|---|---|---|
| Exposure condition | Band | Max SAR | Bluetooth SAR | ∑ 1-g SAR |
| | | (W/kg) | (W/kg) | (W/kg) |
| Body-worn | Body-worn Belt clip | 6.292 | 0.105 | 6.397 |

Note: Bluetooth SAR was not required to be measured per FCC KDB 447498 D01v06. Estimated SAR results were used for SAR summation for body-worn back side at 5 mm to determine simultaneous transmission SAR test exclusion.
The simultaneous transmission summation is applied only for body-worn case according to user condition. Bluetooth transmission is using for Bluetooth headset when DUT is on the body-worn case.

## 12.2 Simultaneous Transmission Summation for Body-Worn IC

| Simultaneous Transmission Summation Scenario with Bluetooth For IC | | | | |
|---|---|---|---|---|
| Exposure condition | Band | Max SAR | Bluetooth SAR | ∑ 1-g SAR |
| | | (W/kg) | (W/kg) | (W/kg) |
| Body-worn | Body-worn Belt clip | 6.292 | 0.250 | 6.542 |

Note: Bluetooth SAR was not required to be measured per RSS102:Issue 5 .Estimated SAR results were used for SAR summation for body-worn back side at 5 mm to determine simultaneous transmission SAR test exclusion.
The simultaneous transmission summation is applied only for body-worn case according to user condition. Bluetooth transmission is using for Bluetooth headset when DUT is on the body-worn case.

## 12.3 Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the worst-case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit. And therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and RSS102 :Issue 5.

# 13. MEASUREMENT UNCERTAINTY

**Measurement Uncertainty for DUT SAR test**

| a | c | d | e | f | g | h = c x f / e | i = c x g / e | k |
|---|---|---|---|---|---|---|---|---|
| **Source of uncertainty** | **Uncertainty ± %** | **Probability distribution** | **Div.** | **$c_i$** (1 g) | **$c_i$** (10 g) | **Standard Uncertainty ± % (1 g)** | **Standard Uncertainty ± % (10 g)** | **$v_i$ or $v_{eff}$** |
| **Measurement system** | | | | | | | | |
| Probe calibration | 6.65 | N | 1 | 1 | 1 | 6.65 | 6.65 | ∞ |
| Axial isotropy | 4.70 | R | 1.73 | 0.71 | 0.71 | 1.92 | 1.92 | ∞ |
| Hemispherical isotropy | 9.60 | R | 1.73 | 0.71 | 0.71 | 3.92 | 3.92 | ∞ |
| Boundary effect | 2.00 | R | 1.73 | 1 | 1 | 1.15 | 1.15 | ∞ |
| Linearity | 4.70 | R | 1.73 | 1 | 1 | 2.71 | 2.71 | ∞ |
| Detection limits | 1.00 | R | 1.73 | 1 | 1 | 0.58 | 0.58 | ∞ |
| Readout electronics | 0.30 | N | 1 | 1 | 1 | 0.30 | 0.30 | ∞ |
| Response time | 0.80 | R | 1.73 | 1 | 1 | 0.46 | 0.46 | ∞ |
| Integration time | 2.60 | R | 1.73 | 1 | 1 | 1.50 | 1.50 | ∞ |
| RF ambient conditions - noise | 3.00 | R | 1.73 | 1 | 1 | 1.73 | 1.73 | ∞ |
| RF ambient conditions - reflections | 3.00 | R | 1.73 | 1 | 1 | 1.73 | 1.73 | ∞ |
| Probe positioner mechanical tolerance | 0.80 | R | 1.73 | 1 | 1 | 0.46 | 0.46 | ∞ |
| Probe positioning with respect to phantom shell | 6.70 | R | 1.73 | 1 | 1 | 3.87 | 3.87 | ∞ |
| Max. SAR Evaluation | 4.00 | R | 1.73 | 1 | 1 | 2.31 | 2.31 | ∞ |
| **Test sample related** | | | | | | | | |
| Test sample positioning | 5.51 | N | 1 | 1 | 1 | 5.51 | 5.51 | 47 |
| Device holder uncertainity | 2.99 | N | 1 | 1 | 1 | 2.99 | 2.99 | 5 |
| SAR drift measurement | 5.00 | R | 1.73 | 1 | 1 | 2.89 | 2.89 | ∞ |
| SAR scaling | 0.00 | R | 1.73 | 1 | 1 | 0.00 | 0.00 | ∞ |
| **Phantom and set-up** | | | | | | | | |
| Phantom uncertainty (shape and thickness uncertainty) | 7.60 | R | 1.73 | 1 | 1 | 4.39 | 4.39 | ∞ |
| Liquid conductivity (measured) | 1.54 | N | 1 | 0.78 | 0.71 | 1.20 | 1.09 | ∞ |
| Liquid permittivity (measured) | 1.17 | N | 1 | 0.23 | 0.26 | 0.22 | 0.25 | ∞ |
| Liquid conductivity (temperature uncert | 2.93 | R | 1.73 | 0.78 | 0.71 | 1.32 | 1.20 | ∞ |
| Liquid permittivity (temperature uncerta | 0.95 | R | 1.73 | 0.23 | 0.26 | 0.13 | 0.14 | ∞ |
| Liquid conductivity - deviation from targ | 5.00 | R | 1.73 | 0.64 | 0.43 | 1.85 | 1.24 | ∞ |
| Liquid permittivity - deviation from targe | 5.00 | R | 1.73 | 0.6 | 0.49 | 1.73 | 1.41 | ∞ |
| Combined standard uncertainty | | RSS | | | | 13.34 | 13.21 | ∞ |
| **Expanded uncertainty (95% confidence interval)** | | *k = 2* | | | | **26.68** | **26.42** | |

# 14. SAR TEST EQUIPMENT

| Manufacturer | Type / Model | S/N | Calib. Date | Calib.Interval | Calib.Due |
|---|---|---|---|---|---|
| SPEAG | ELI Phantom | - | N/A | N/A | N/A |
| HP | SAR System Control PC | - | N/A | N/A | N/A |
| Staubli | CS8Cspeag-TX90 | F13/5R4XF1/C/01 | N/A | N/A | N/A |
| Staubli | TX90 XLspeag | F13/5R4XF1/A/01 | N/A | N/A | N/A |
| Staubli | Teach Pendant (Joystick) | S-1338 1332 | N/A | N/A | N/A |
| SPEAG | DAE4 | 648 | 05/25/2018 | Annual | 05/25/2019 |
| SPEAG | DAE3 | 446 | 08/10/2018 | Annual | 08/10/2019 |
| SPEAG | E-Field Probe ES3DV3 | 3076 | 07/26/2018 | Annual | 07/26/2019 |
| SPEAG | E-Field Probe EX3DV4 | 3968 | 09/25/2018 | Annual | 09/25/2019 |
| SPEAG | Dipole D900V2 | 1d069 | 05/30/2018 | Annual | 05/30/2019 |
| Agilent | Power Meter E4419B | MY40511244 | 04/25/2018 | Annual | 04/25/2019 |
| Agilent | Power Meter N1911A | MY45101406 | 09/06/2018 | Annual | 09/06/2019 |
| Agilent | Power Sensor 8481A | SG1091286 | 10/11/2018 | Annual | 10/11/2019 |
| Agilent | Power Sensor 8481A | MY41090873 | 10/11/2018 | Annual | 10/11/2019 |
| Agilent | Power Sensor N1921A | MY55220026 | 09/06/2018 | Annual | 09/06/2019 |
| SPEAG | DAKS 3.5 | 1038 | 05/29/2018 | Annual | 05/29/2019 |
| SPEAG | VNA-R140 | 0141013 | 05/29/2018 | Annual | 05/29/2019 |
| Agilent | Directional Bridge | 3140A03878 | 06/11/2018 | Annual | 06/11/2019 |
| Agilent | Signal Generator N5182A | MY47070230 | 05/10/2018 | Annual | 05/10/2019 |
| TESTO | 175-H1/Thermometer | 40332651310 | 02/06/2018 | Annual | 02/06/2019 |
| EMPOWER | RF Power Amplifier | 1084 | 06/11/2018 | Annual | 06/11/2019 |
| Apitech | Attenuator (3dB) 18B-03 | 1 | 06/07/2018 | Annual | 06/07/2019 |
| Agilent | Attenuator (20dB) 33340C | 13311 | 05/10/2018 | Annual | 05/10/2019 |
| HP | Notebook(DAKS) | - | N/A | N/A | N/A |
| HP | Dual Directional Coupler | 16072 | 10/11/2018 | Annual | 10/11/2019 |
| HP | Network Analyzer 8753ES | JP39240221 | 02/08/2018 | Annual | 02/08/2019 |
| MICRO LAB | LP Filter / LA-15N | 10453 | 10/11/2018 | Annual | 10/11/2019 |
| Aeroflex | Fixed Coaxial Attenuator (30dB) | CE6106 | 11/20/2018 | Annual | 11/20/2019 |

NOTE:
1. The E-field probe was calibrated by SPEAG, by the waveguide technique procedure. Dipole Verification measurement is performed by HCT Lab. before each test. The brain/body simulating material is calibrated by HCT using the DAKS-12 to determine the conductivity and permittivity (dielectric constant) of the brain/body-equivalent material.

# 15. CONCLUSION

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the ANSI/ IEEE C95.1- 2005.

These measurements are taken to simulate the RF effects exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests.

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the FCC and Industry Canada. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

# 16. REFERENCES

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# Attachment 1. – SAR Test Plots

| | |
|---|---|
| Test Laboratory: | HCT CO., LTD |
| EUT Type: | 800/900 MHz DIGITAL TRANSCEIVER |
| Liquid Temperature: | 20.3 ℃ |
| Ambient Temperature: | 20.5 ℃ |
| Test Date: | 12/17/2018 |
| Plot No.: | 1 |

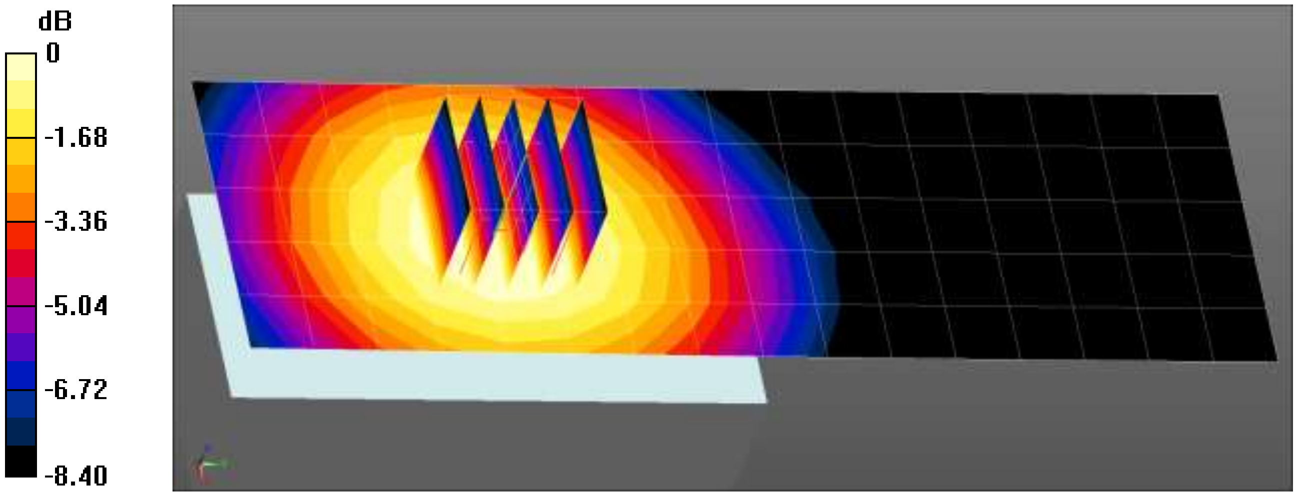
Communication System: UID 0, 900MHz (0); Frequency: 851.05 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 851.05 MHz; σ = 0.935 S/m; $\varepsilon_r$ = 43.351; ρ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(9.86, 9.86, 9.86); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2018-08-10
- Phantom: ELI V6.0
- Measurement SW: DASY52, Version 52.8 (8);

**Hand-held to Face 25mm Battery KNB-78L Ant KRA-36 4ch/Area Scan (6x17x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 8.71 W/kg

**Hand-held to Face 25mm Battery KNB-78L Ant KRA-36 4ch/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.76 V/m; Power Drift = -0.39 dB
Peak SAR (extrapolated) = 9.69 W/kg
**SAR(1 g) = 6.64 W/kg; SAR(10 g) = 4.83 W/kg**
Maximum value of SAR (measured) = 8.49 W/kg




0 dB = 8.49 W/kg = 9.29 dBW/kg

| | |
|---|---|
| Test Laboratory: | HCT CO., LTD |
| EUT Type: | 800/900 MHz DIGITAL TRANSCEIVER |
| Liquid Temperature: | 21.0 ℃ |
| Ambient Temperature: | 21.1 ℃ |
| Test Date: | 12/19/2018 |
| Plot No.: | 2 |

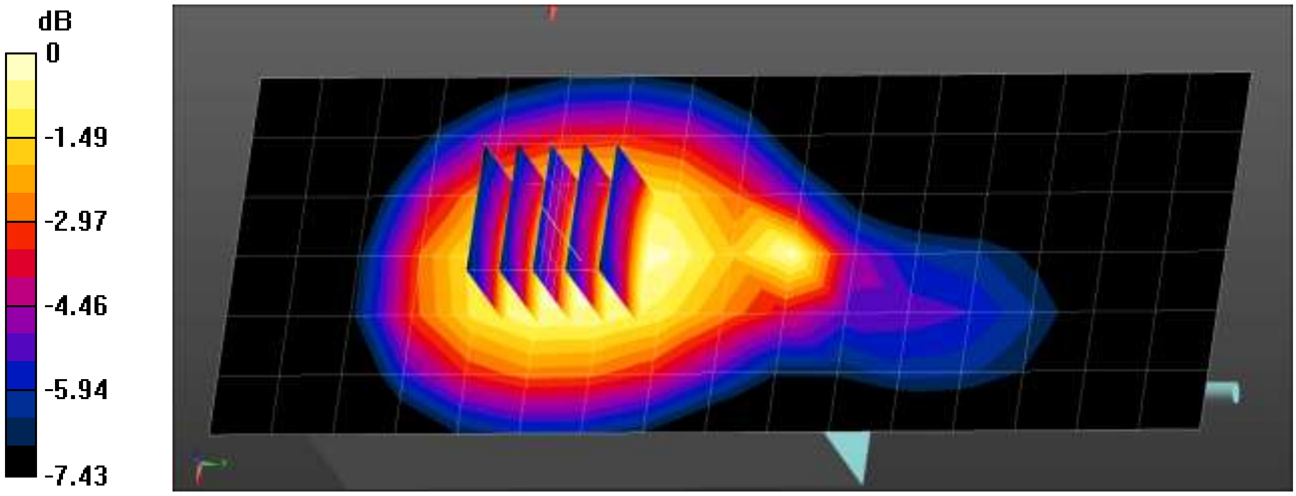
Communication System: UID 0, 900MHz (0); Frequency: 851.05 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 851.05 MHz; σ = 0.982 S/m; $\varepsilon_r$ = 54.045; ρ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.03, 6.03, 6.03); Calibrated: 2018-07-26;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2018-05-25
- Phantom: ELI V6.0
- Measurement SW: DASY52, Version 52.8 (8);

**Body-worn Belt clip Battery KNB-55L Ant KRA-36 4ch/Area Scan (7x17x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 12.0 W/kg

**Body-worn Belt clip Battery KNB-55L Ant KRA-36 4ch/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 111.0 V/m; Power Drift = -0.24 dB
Peak SAR (extrapolated) = 12.9 W/kg
**SAR(1 g) = 10.7 W/kg; SAR(10 g) = 7.94 W/kg**
Maximum value of SAR (measured) = 11.8 W/kg




0 dB = 11.8 W/kg = 10.72 dBW/kg

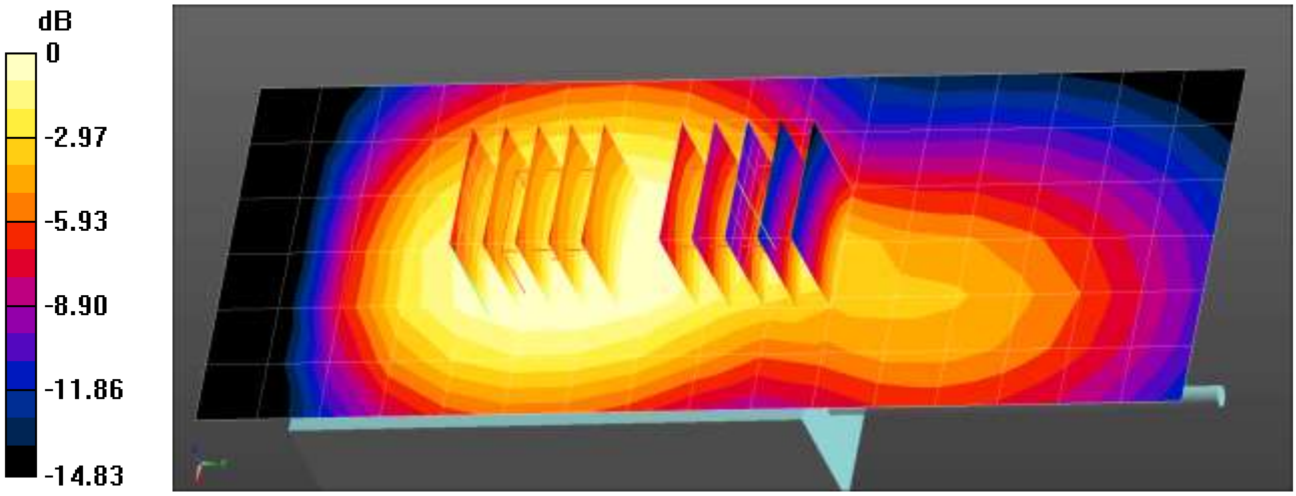
| | |
|---|---|
| Test Laboratory: | HCT CO., LTD |
| EUT Type: | 800/900 MHz DIGITAL TRANSCEIVER |
| Liquid Temperature: | 21.0 ℃ |
| Ambient Temperature: | 21.1 ℃ |
| Test Date: | 12/19/2018 |
| Plot No.: | 3 |

Communication System: UID 0, 900MHz (0); Frequency: 868.95 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 868.95 MHz; σ = 1 S/m; $\varepsilon_r$ = 53.854; ρ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.03, 6.03, 6.03); Calibrated: 2018-07-26;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2018-05-25
- Phantom: ELI V6.0
- Measurement SW: DASY52, Version 52.8 (8);

**Body Rear Battery KNB-55L Ant KRA-36 6ch/Area Scan (7x17x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 11.8 W/kg
**Body Rear Battery KNB-55L Ant KRA-36 6ch/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 111.5 V/m; Power Drift = -0.65 dB
Peak SAR (extrapolated) = 12.4 W/kg
**SAR(1 g) = 10.3 W/kg; SAR(10 g) = 7.61 W/kg**
Maximum value of SAR (measured) = 11.3 W/kg
**Body Rear Battery KNB-55L Ant KRA-36 6ch/Zoom Scan (5x5x7)/Cube 1:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 111.5 V/m; Power Drift = -0.65 dB
Peak SAR (extrapolated) = 15.0 W/kg
**SAR(1 g) = 7.56 W/kg; SAR(10 g) = 4.75 W/kg**
Maximum value of SAR (measured) = 9.86 W/kg




0 dB = 9.86 W/kg = 9.94 dBW/kg

# Attachment 2. – Dipole Verification Plots

## ■ Verification Data (900 MHz Head)

| | |
|---|---|
| Test Laboratory: | HCT CO., LTD |
| Input Power | 50 mW |
| Liquid Temp: | 20.3 ℃ |
| Test Date: | 12/17/2018 |

**DUT: Dipole 900 MHz; Type: D900V2**

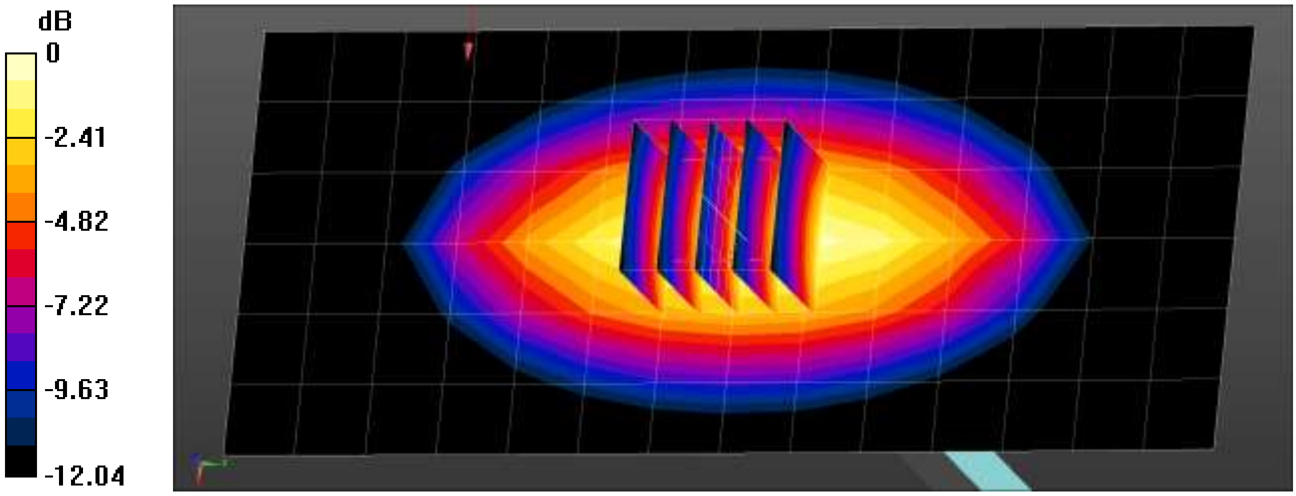
Communication System: UID 0, CW (0); Frequency: 900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 900 MHz; $\sigma$ = 0.98 S/m; $\varepsilon_r$ = 42.822; $\rho$ = 1000 kg/$m^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(9.7, 9.7, 9.7); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2018-08-10
- Phantom: ELI V6.0
- Measurement SW: DASY52, Version 52.8 (8);

**Dipole/900 MHz Head Verification/Area Scan (7x15x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.755 W/kg

**Dipole/900 MHz Head Verification/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 29.11 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.915 W/kg
**SAR(1 g) = 0.529 W/kg; SAR(10 g) = 0.331 W/kg**
Maximum value of SAR (measured) = 0.764 W/kg




0 dB = 0.764 W/kg = -1.17 dBW/kg

## ■ Verification Data (900 MHz Body)

Test Laboratory: HCT CO., LTD
Input Power 50 mW
Liquid Temp: 21.0 ℃
Test Date: 12/19/2018

**DUT: Dipole 900 MHz; Type: D900V2**

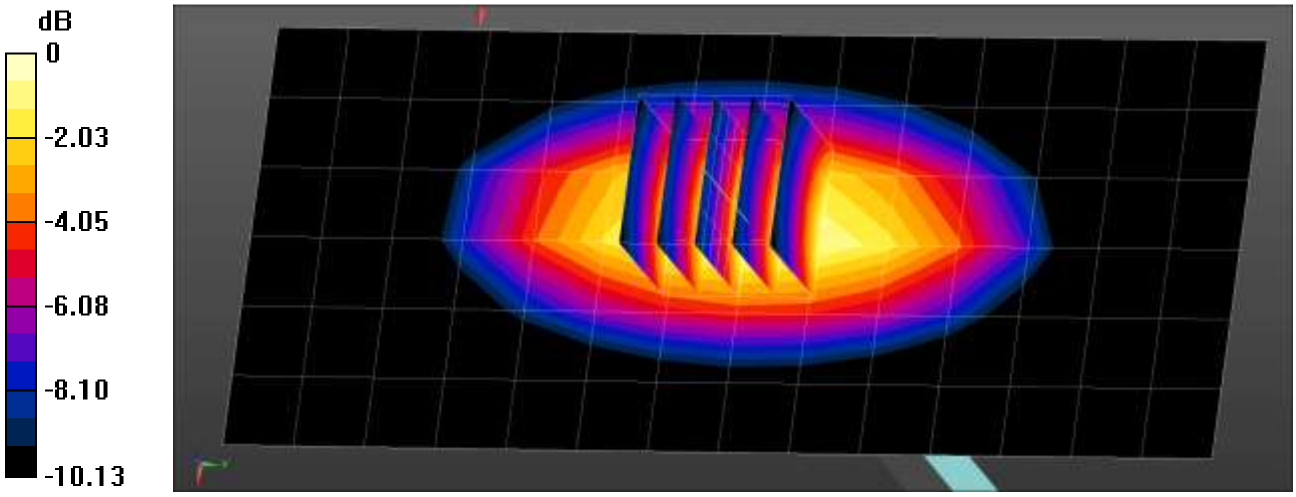
Communication System: UID 0, CW (0); Frequency: 900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 900 MHz; σ = 1.033 S/m; $\varepsilon_r$ = 53.594; ρ = 1000 kg/$m^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.03, 6.03, 6.03); Calibrated: 2018-07-26;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2018-05-25
- Phantom: ELI V6.0
- Measurement SW: DASY52, Version 52.8 (8);

**Dipole/900 MHz Body Verification/Area Scan (7x15x1):** Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.619 W/kg

**Dipole/900 MHz Body Verification/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.29 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.842 W/kg
**SAR(1 g) = 0.571 W/kg; SAR(10 g) = 0.365 W/kg**
Maximum value of SAR (measured) = 0.662 W/kg




0 dB = 0.662 W/kg = -1.79 dBW/kg

# Attachment 3. – Probe Calibration Data

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

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

Accredited by the Swiss Accreditation Service (SAS)
**The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates**

Accreditation No.: **SCS 0108**

Client **HCT (Dymstec)**

Certificate No: **EX3-3968_Sep18**

| 결재 | 담당자 | 확인자 |
|---|---|---|
| | | |
| 작성/성명 | | |
| 일자 | 2018/10.05 | 2018/10.05 |

# CALIBRATION CERTIFICATE

| | |
|---|---|
| Object | EX3DV4 - SN:3968 |
| Calibration procedure(s) | QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v4, QA CAL-23.v5, QA CAL-25.v6<br>Calibration procedure for dosimetric E-field probes |
| Calibration date: | September 25, 2018 |

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

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

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID | Cal Date (Certificate No.) | Scheduled Calibration |
|---|---|---|---|
| Power meter NRP | SN: 104778 | 04-Apr-18 (No. 217-02672/02673) | Apr-19 |
| Power sensor NRP-Z91 | SN: 103244 | 04-Apr-18 (No. 217-02672) | Apr-19 |
| Power sensor NRP-Z91 | SN: 103245 | 04-Apr-18 (No. 217-02673) | Apr-19 |
| Reference 20 dB Attenuator | SN: S5277 (20x) | 04-Apr-18 (No. 217-02682) | Apr-19 |
| Reference Probe ES3DV2 | SN: 3013 | 30-Dec-17 (No. ES3-3013_Dec17) | Dec-18 |
| DAE4 | SN: 660 | 21-Dec-17 (No. DAE4-660_Dec17) | Dec-18 |
| | | | |
| Secondary Standards | ID | Check Date (in house) | Scheduled Check |
| Power meter E4419B | SN: GB41293874 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A | SN: MY41498087 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A | SN: 000110210 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| RF generator HP 8648C | SN: US3642U01700 | 04-Aug-99 (in house check Jun-18) | In house check: Jun-20 |
| Network Analyzer E8358A | SN: US41080477 | 31-Mar-14 (in house check Oct-17) | In house check: Oct-18 |

| | Name | Function | Signature |
|---|---|---|---|
| Calibrated by: | Jeton Kastrati | Laboratory Technician | |
| Approved by: | Katja Pokovic | Technical Manager | |

Issued: September 27, 2018

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

Certificate No: EX3-3968_Sep18 Page 1 of 39

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Schmid & Partner
Engineering AG
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**S** Schweizerischer Kalibrierdienst
**C** Service suisse d'étalonnage
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**S** Swiss Calibration Service

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Accreditation No.: **SCS 0108**

## Glossary:

| | |
|---|---|
| TSL | tissue simulating liquid |
| NORMx,y,z | sensitivity in free space |
| ConvF | sensitivity in TSL / NORMx,y,z |
| DCP | diode compression point |
| CF | crest factor (1/duty_cycle) of the RF signal |
| A, B, C, D | modulation dependent linearization parameters |
| Polarization φ | φ rotation around probe axis |
| Polarization ϑ | ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis |
| Connector Angle | information used in DASY system to align probe sensor X to the robot coordinate system |

## Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

## Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the $E^2$-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle:* The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Certificate No: EX3-3968_Sep18 Page 2 of 39

# Probe EX3DV4

## SN:3968

| | |
|---|---|
| Manufactured: | September 30, 2013 |
| Repaired: | September 13, 2018 |
| Calibrated: | September 25, 2018 |

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

EX3DV4– SN:3968 September 25, 2018

# DASY/EASY - Parameters of Probe: EX3DV4 - SN:3968

## Basic Calibration Parameters

| | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|---|---|---|---|---|
| Norm (µV/(V/m)²)[A] | 0.56 | 0.57 | 0.56 | ± 10.1 % |
| DCP (mV)[B] | 98.0 | 99.0 | 97.6 | |

## Modulation Calibration Parameters

| UID | Communication System Name | | A dB | B dB√µV | C | D dB | VR mV | Unc[E] (k=2) |
|---|---|---|---|---|---|---|---|---|
| 0 | CW | X | 0.0 | 0.0 | 1.0 | 0.00 | 171.6 | ±2.7 % |
| | | Y | 0.0 | 0.0 | 1.0 | | 161.8 | |
| | | Z | 0.0 | 0.0 | 1.0 | | 178.8 | |

Note: For details on UID parameters see Appendix.

## Sensor Model Parameters

| | C1 fF | C2 fF | α V⁻¹ | T1 ms.V⁻² | T2 ms.V⁻¹ | T3 ms | T4 V⁻² | T5 V⁻¹ | T6 |
|---|---|---|---|---|---|---|---|---|---|
| X | 46.84 | 361.8 | 37.71 | 11.82 | 0.384 | 5.084 | 0.048 | 0.556 | 1.008 |
| Y | 48.24 | 363.7 | 36.17 | 17.75 | 0.176 | 5.100 | 1.558 | 0.280 | 1.009 |
| Z | 45.97 | 356.8 | 37.98 | 12.75 | 0.415 | 5.100 | 0.000 | 0.555 | 1.011 |

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%.

[A] The uncertainties of Norm X,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

Certificate No: EX3-3968_Sep18 Page 4 of 39

# DASY/EASY - Parameters of Probe: EX3DV4 - SN:3968

**Calibration Parameter Determined in Head Tissue Simulating Media**

| f (MHz) [C] | Relative Permittivity [F] | Conductivity (S/m) [F] | ConvF X | ConvF Y | ConvF Z | Alpha [G] | Depth [G] (mm) | Unc (k=2) |
|---|---|---|---|---|---|---|---|---|
| 600 | 42.7 | 0.88 | 10.56 | 10.56 | 10.56 | 0.09 | 1.20 | ± 13.3 % |
| 750 | 41.9 | 0.89 | 10.04 | 10.04 | 10.04 | 0.34 | 1.05 | ± 12.0 % |
| 835 | 41.5 | 0.90 | 9.86 | 9.86 | 9.86 | 0.47 | 0.84 | ± 12.0 % |
| 900 | 41.5 | 0.97 | 9.70 | 9.70 | 9.70 | 0.41 | 0.89 | ± 12.0 % |
| 1450 | 40.5 | 1.20 | 8.51 | 8.51 | 8.51 | 0.30 | 0.88 | ± 12.0 % |
| 1750 | 40.1 | 1.37 | 8.57 | 8.57 | 8.57 | 0.31 | 0.90 | ± 12.0 % |
| 1900 | 40.0 | 1.40 | 8.19 | 8.19 | 8.19 | 0.37 | 0.90 | ± 12.0 % |
| 2450 | 39.2 | 1.80 | 7.52 | 7.52 | 7.52 | 0.33 | 0.97 | ± 12.0 % |
| 2600 | 39.0 | 1.96 | 7.37 | 7.37 | 7.37 | 0.39 | 0.93 | ± 12.0 % |
| 3500 | 37.9 | 2.91 | 7.11 | 7.11 | 7.11 | 0.23 | 1.20 | ± 13.1 % |
| 5250 | 35.9 | 4.71 | 5.52 | 5.52 | 5.52 | 0.40 | 1.80 | ± 13.1 % |
| 5600 | 35.5 | 5.07 | 4.78 | 4.78 | 4.78 | 0.40 | 1.80 | ± 13.1 % |
| 5750 | 35.4 | 5.22 | 4.94 | 4.94 | 4.94 | 0.40 | 1.80 | ± 13.1 % |

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

# DASY/EASY - Parameters of Probe: EX3DV4 - SN:3968

## Calibration Parameter Determined in Body Tissue Simulating Media

| f (MHz) [C] | Relative Permittivity [F] | Conductivity (S/m) [F] | ConvF X | ConvF Y | ConvF Z | Alpha [G] | Depth [G] (mm) | Unc (k=2) |
|---|---|---|---|---|---|---|---|---|
| 600 | 56.1 | 0.95 | 10.50 | 10.50 | 10.50 | 0.10 | 1.20 | ± 13.3 % |
| 750 | 55.5 | 0.96 | 10.07 | 10.07 | 10.07 | 0.49 | 0.80 | ± 12.0 % |
| 835 | 55.2 | 0.97 | 9.86 | 9.86 | 9.86 | 0.49 | 0.82 | ± 12.0 % |
| 1750 | 53.4 | 1.49 | 8.19 | 8.19 | 8.19 | 0.36 | 0.92 | ± 12.0 % |
| 1900 | 53.3 | 1.52 | 7.76 | 7.76 | 7.76 | 0.39 | 0.92 | ± 12.0 % |
| 2450 | 52.7 | 1.95 | 7.54 | 7.54 | 7.54 | 0.35 | 0.95 | ± 12.0 % |
| 2600 | 52.5 | 2.16 | 7.50 | 7.50 | 7.50 | 0.33 | 1.05 | ± 12.0 % |
| 3500 | 51.3 | 3.31 | 7.00 | 7.00 | 7.00 | 0.25 | 1.20 | ± 13.1 % |
| 5250 | 48.9 | 5.36 | 4.98 | 4.98 | 4.98 | 0.50 | 1.90 | ± 13.1 % |
| 5600 | 48.5 | 5.77 | 4.28 | 4.28 | 4.28 | 0.50 | 1.90 | ± 13.1 % |
| 5750 | 48.3 | 5.94 | 4.49 | 4.49 | 4.49 | 0.50 | 1.90 | ± 13.1 % |

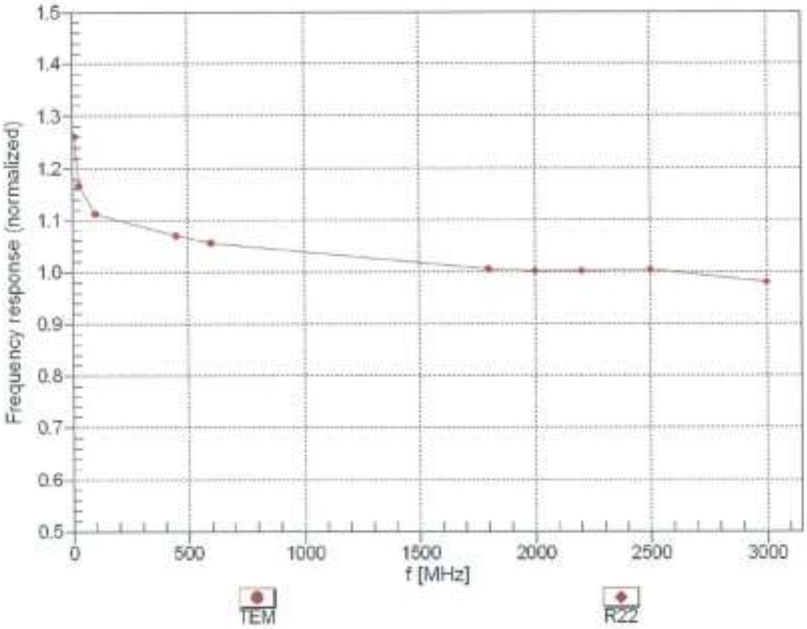
[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

EX3DV4– SN:3968

September 25, 2018

## Frequency Response of E-Field

**(TEM-Cell:ifi110 EXX, Waveguide: R22)**

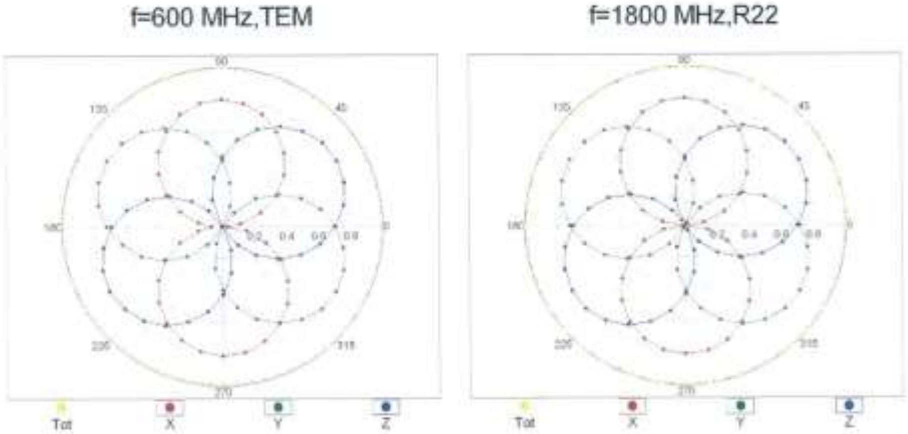


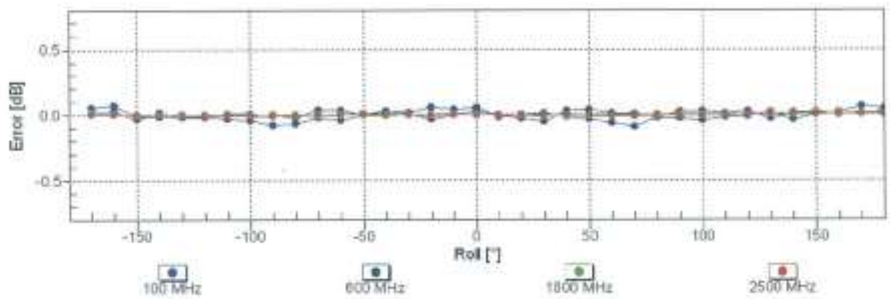

**Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)**

Certificate No: EX3-3968_Sep18

Page 7 of 39

## Receiving Pattern (ϕ), ϑ = 0°



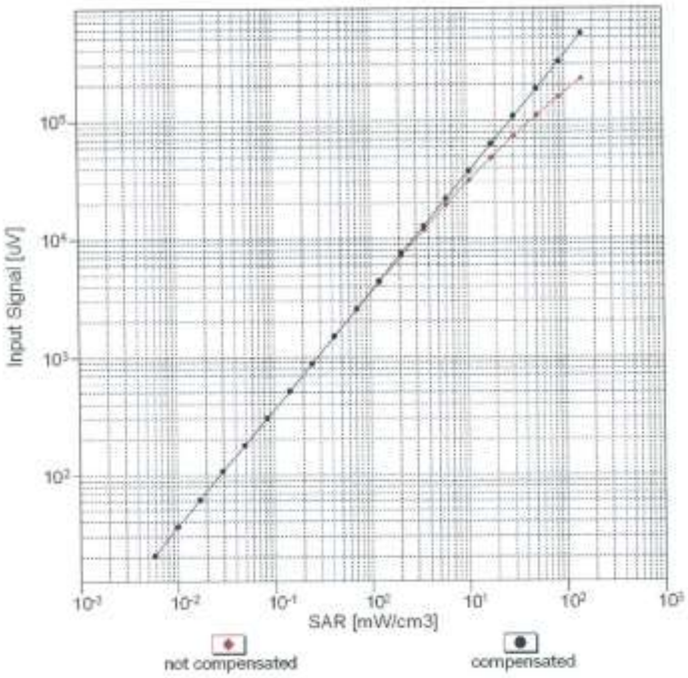



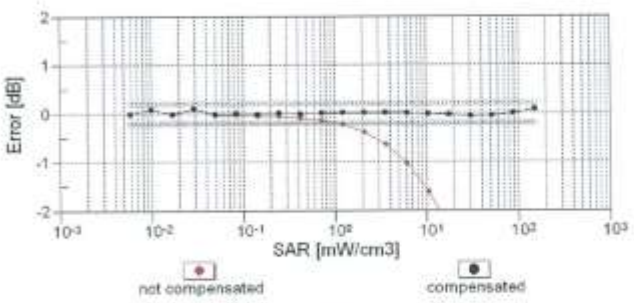

**Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)**

EX3DV4– SN:3968

September 25, 2018

## Dynamic Range f(SAR$_{head}$)
**(TEM cell , $f_{eval}$= 1900 MHz)**



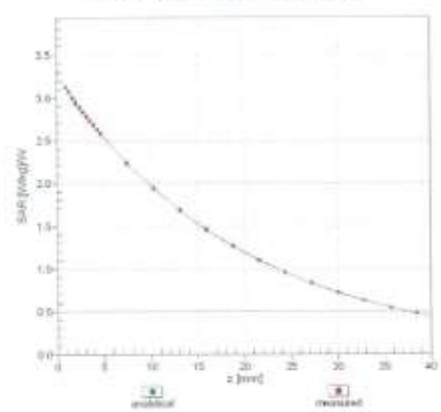



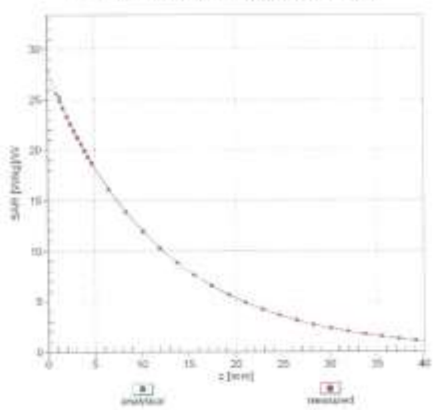

**Uncertainty of Linearity Assessment: ± 0.6% (k=2)**

Certificate No: EX3-3968_Sep18

Page 9 of 39

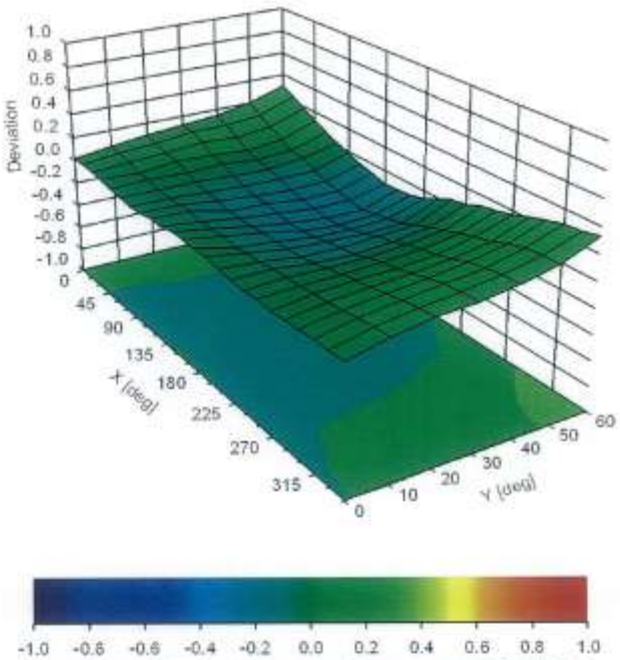
# Conversion Factor Assessment




# Deviation from Isotropy in Liquid

**Error (ϕ, ϑ), f = 900 MHz**




**Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)**

# DASY/EASY - Parameters of Probe: EX3DV4 - SN:3968

## Other Probe Parameters

| | |
|---|---|
| Sensor Arrangement | Triangular |
| Connector Angle (°) | 89.8 |
| Mechanical Surface Detection Mode | enabled |
| Optical Surface Detection Mode | disabled |
| Probe Overall Length | 337 mm |
| Probe Body Diameter | 10 mm |
| Tip Length | 9 mm |
| Tip Diameter | 2.5 mm |
| Probe Tip to Sensor X Calibration Point | 1 mm |
| Probe Tip to Sensor Y Calibration Point | 1 mm |
| Probe Tip to Sensor Z Calibration Point | 1 mm |
| Recommended Measurement Distance from Surface | 1.4 mm |

EX3DV4– SN:3968 September 25, 2018

## Appendix: Modulation Calibration Parameters

| UID | Communication System Name | | A dB | B dB√μV | C | D dB | VR mV | Max Unc$^{E}$ (k=2) |
|---|---|---|---|---|---|---|---|---|
| 0 | CW | X | 0.00 | 0.00 | 1.00 | 0.00 | 171.6 | ± 2.7 % |
| | | Y | 0.00 | 0.00 | 1.00 | | 161.8 | |
| | | Z | 0.00 | 0.00 | 1.00 | | 178.8 | |
| 10010-CAA | SAR Validation (Square, 100ms, 10ms) | X | 2.04 | 65.17 | 9.68 | 10.00 | 20.0 | ± 9.6 % |
| | | Y | 8.18 | 79.85 | 15.61 | | 20.0 | |
| | | Z | 2.07 | 65.29 | 9.80 | | 20.0 | |
| 10011-CAB | UMTS-FDD (WCDMA) | X | 0.90 | 65.65 | 13.92 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.01 | 66.71 | 14.83 | | 150.0 | |
| | | Z | 0.85 | 64.91 | 13.28 | | 150.0 | |
| 10012-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) | X | 1.09 | 63.09 | 14.68 | 0.41 | 150.0 | ± 9.6 % |
| | | Y | 1.18 | 63.85 | 15.22 | | 150.0 | |
| | | Z | 1.07 | 62.88 | 14.43 | | 150.0 | |
| 10013-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps) | X | 4.82 | 66.49 | 17.05 | 1.46 | 150.0 | ± 9.6 % |
| | | Y | 4.90 | 66.72 | 17.19 | | 150.0 | |
| | | Z | 4.80 | 66.47 | 17.03 | | 150.0 | |
| 10021-DAC | GSM-FDD (TDMA, GMSK) | X | 100.00 | 112.95 | 26.54 | 9.39 | 50.0 | ± 9.6 % |
| | | Y | 100.00 | 116.78 | 28.34 | | 50.0 | |
| | | Z | 100.00 | 113.62 | 26.91 | | 50.0 | |
| 10023-DAC | GPRS-FDD (TDMA, GMSK, TN 0) | X | 100.00 | 112.47 | 26.37 | 9.57 | 50.0 | ± 9.6 % |
| | | Y | 100.00 | 116.29 | 28.16 | | 50.0 | |
| | | Z | 100.00 | 113.15 | 26.74 | | 50.0 | |
| 10024-DAC | GPRS-FDD (TDMA, GMSK, TN 0-1) | X | 100.00 | 112.42 | 25.25 | 6.56 | 60.0 | ± 9.6 % |
| | | Y | 100.00 | 116.67 | 27.49 | | 60.0 | |
| | | Z | 100.00 | 112.63 | 25.42 | | 60.0 | |
| 10025-DAC | EDGE-FDD (TDMA, 8PSK, TN 0) | X | 4.17 | 71.31 | 27.26 | 12.57 | 50.0 | ± 9.6 % |
| | | Y | 18.57 | 125.03 | 51.51 | | 50.0 | |
| | | Z | 4.56 | 74.25 | 28.97 | | 50.0 | |
| 10026-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1) | X | 8.55 | 91.99 | 33.25 | 9.56 | 60.0 | ± 9.6 % |
| | | Y | 17.88 | 112.30 | 40.96 | | 60.0 | |
| | | Z | 9.37 | 94.40 | 34.22 | | 60.0 | |
| 10027-DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2) | X | 100.00 | 112.80 | 24.64 | 4.80 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 118.20 | 27.50 | | 80.0 | |
| | | Z | 100.00 | 112.38 | 24.54 | | 80.0 | |
| 10028-DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2-3) | X | 100.00 | 113.26 | 24.14 | 3.55 | 100.0 | ± 9.6 % |
| | | Y | 100.00 | 120.76 | 27.96 | | 100.0 | |
| | | Z | 100.00 | 111.87 | 23.62 | | 100.0 | |
| 10029-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2) | X | 5.36 | 80.78 | 27.54 | 7.80 | 80.0 | ± 9.6 % |
| | | Y | 8.03 | 90.56 | 31.77 | | 80.0 | |
| | | Z | 5.68 | 82.14 | 28.14 | | 80.0 | |
| 10030-CAA | IEEE 802.15.1 Bluetooth (GFSK, DH1) | X | 100.00 | 110.54 | 23.97 | 5.30 | 70.0 | ± 9.6 % |
| | | Y | 100.00 | 115.44 | 26.56 | | 70.0 | |
| | | Z | 100.00 | 110.48 | 24.01 | | 70.0 | |
| 10031-CAA | IEEE 802.15.1 Bluetooth (GFSK, DH3) | X | 100.00 | 102.53 | 18.42 | 1.88 | 100.0 | ± 9.6 % |
| | | Y | 100.00 | 120.75 | 26.58 | | 100.0 | |
| | | Z | 100.00 | 98.98 | 17.01 | | 100.0 | |

Certificate No: EX3-3968_Sep18 Page 12 of 39

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10032-CAA | IEEE 802.15.1 Bluetooth (GFSK, DH5) | X | 100.00 | 94.07 | 14.33 | 1.17 | 100.0 | ± 9.6 % |
| | | Y | 100.00 | 127.26 | 28.22 | | 100.0 | |
| | | Z | 0.19 | 60.00 | 4.45 | | 100.0 | |
| 10033-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1) | X | 33.86 | 113.15 | 30.86 | 5.30 | 70.0 | ± 9.6 % |
| | | Y | 100.00 | 131.70 | 35.94 | | 70.0 | |
| | | Z | 47.35 | 117.79 | 31.89 | | 70.0 | |
| 10034-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3) | X | 3.06 | 78.07 | 18.40 | 1.88 | 100.0 | ± 9.6 % |
| | | Y | 5.91 | 87.15 | 22.07 | | 100.0 | |
| | | Z | 3.00 | 77.34 | 17.88 | | 100.0 | |
| 10035-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5) | X | 1.81 | 71.83 | 15.59 | 1.17 | 100.0 | ± 9.6 % |
| | | Y | 2.81 | 77.49 | 18.37 | | 100.0 | |
| | | Z | 1.71 | 70.83 | 14.89 | | 100.0 | |
| 10036-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH1) | X | 85.81 | 128.27 | 34.60 | 5.30 | 70.0 | ± 9.6 % |
| | | Y | 100.00 | 132.16 | 36.15 | | 70.0 | |
| | | Z | 100.00 | 129.96 | 34.84 | | 70.0 | |
| 10037-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH3) | X | 2.81 | 77.00 | 17.98 | 1.88 | 100.0 | ± 9.6 % |
| | | Y | 5.36 | 85.87 | 21.63 | | 100.0 | |
| | | Z | 2.75 | 76.32 | 17.47 | | 100.0 | |
| 10038-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH5) | X | 1.83 | 72.24 | 15.88 | 1.17 | 100.0 | ± 9.6 % |
| | | Y | 2.84 | 77.93 | 18.66 | | 100.0 | |
| | | Z | 1.73 | 71.23 | 15.18 | | 100.0 | |
| 10039-CAB | CDMA2000 (1xRTT, RC1) | X | 1.37 | 68.10 | 13.32 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.65 | 70.32 | 14.90 | | 150.0 | |
| | | Z | 1.20 | 66.45 | 12.23 | | 150.0 | |
| 10042-CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate) | X | 100.00 | 108.41 | 23.72 | 7.78 | 50.0 | ± 9.6 % |
| | | Y | 100.00 | 112.64 | 25.84 | | 50.0 | |
| | | Z | 100.00 | 108.62 | 23.87 | | 50.0 | |
| 10044-CAA | IS-91/EIA/TIA-553 FDD (FDMA, FM) | X | 0.05 | 120.80 | 5.80 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.00 | 95.70 | 1.57 | | 150.0 | |
| | | Z | 0.08 | 122.23 | 6.34 | | 150.0 | |
| 10048-CAA | DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24) | X | 100.00 | 109.98 | 26.73 | 13.80 | 25.0 | ± 9.6 % |
| | | Y | 100.00 | 116.82 | 29.41 | | 25.0 | |
| | | Z | 100.00 | 111.08 | 27.25 | | 25.0 | |
| 10049-CAA | DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12) | X | 100.00 | 111.11 | 26.09 | 10.79 | 40.0 | ± 9.6 % |
| | | Y | 100.00 | 114.75 | 27.66 | | 40.0 | |
| | | Z | 100.00 | 111.84 | 26.47 | | 40.0 | |
| 10056-CAA | UMTS-TDD (TD-SCDMA, 1.28 Mcps) | X | 100.00 | 124.74 | 33.65 | 9.03 | 50.0 | ± 9.6 % |
| | | Y | 100.00 | 127.81 | 35.22 | | 50.0 | |
| | | Z | 100.00 | 124.78 | 33.70 | | 50.0 | |
| 10058-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3) | X | 4.18 | 75.71 | 24.53 | 6.55 | 100.0 | ± 9.6 % |
| | | Y | 5.57 | 81.92 | 27.38 | | 100.0 | |
| | | Z | 4.36 | 76.62 | 24.94 | | 100.0 | |
| 10059-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps) | X | 1.12 | 64.15 | 15.32 | 0.61 | 110.0 | ± 9.6 % |
| | | Y | 1.24 | 65.19 | 16.01 | | 110.0 | |
| | | Z | 1.10 | 63.98 | 15.09 | | 110.0 | |
| 10060-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps) | X | 17.73 | 112.41 | 29.57 | 1.30 | 110.0 | ± 9.6 % |
| | | Y | 100.00 | 139.22 | 36.38 | | 110.0 | |
| | | Z | 18.16 | 111.27 | 28.85 | | 110.0 | |

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10061-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps) | X | 2.73 | 80.78 | 22.58 | 2.04 | 110.0 | ± 9.6 % |
| | | Y | 4.63 | 89.02 | 25.72 | | 110.0 | |
| | | Z | 2.93 | 81.74 | 22.80 | | 110.0 | |
| 10062-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps) | X | 4.61 | 66.43 | 16.43 | 0.49 | 100.0 | ± 9.6 % |
| | | Y | 4.69 | 66.64 | 16.54 | | 100.0 | |
| | | Z | 4.58 | 66.37 | 16.37 | | 100.0 | |
| 10063-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps) | X | 4.63 | 66.53 | 16.53 | 0.72 | 100.0 | ± 9.6 % |
| | | Y | 4.71 | 66.75 | 16.66 | | 100.0 | |
| | | Z | 4.60 | 66.48 | 16.48 | | 100.0 | |
| 10064-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps) | X | 4.92 | 66.82 | 16.78 | 0.86 | 100.0 | ± 9.6 % |
| | | Y | 5.01 | 67.04 | 16.90 | | 100.0 | |
| | | Z | 4.89 | 66.77 | 16.74 | | 100.0 | |
| 10065-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps) | X | 4.78 | 66.71 | 16.89 | 1.21 | 100.0 | ± 9.6 % |
| | | Y | 4.88 | 66.96 | 17.03 | | 100.0 | |
| | | Z | 4.76 | 66.68 | 16.86 | | 100.0 | |
| 10066-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps) | X | 4.80 | 66.75 | 17.07 | 1.46 | 100.0 | ± 9.6 % |
| | | Y | 4.90 | 67.00 | 17.22 | | 100.0 | |
| | | Z | 4.78 | 66.72 | 17.05 | | 100.0 | |
| 10067-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps) | X | 5.09 | 66.94 | 17.54 | 2.04 | 100.0 | ± 9.6 % |
| | | Y | 5.19 | 67.20 | 17.70 | | 100.0 | |
| | | Z | 5.08 | 66.95 | 17.54 | | 100.0 | |
| 10068-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps) | X | 5.14 | 66.99 | 17.78 | 2.55 | 100.0 | ± 9.6 % |
| | | Y | 5.25 | 67.29 | 17.97 | | 100.0 | |
| | | Z | 5.13 | 67.00 | 17.79 | | 100.0 | |
| 10069-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps) | X | 5.22 | 66.99 | 17.97 | 2.67 | 100.0 | ± 9.6 % |
| | | Y | 5.33 | 67.29 | 18.16 | | 100.0 | |
| | | Z | 5.21 | 67.02 | 17.99 | | 100.0 | |
| 10071-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps) | X | 4.91 | 66.58 | 17.37 | 1.99 | 100.0 | ± 9.6 % |
| | | Y | 5.00 | 66.84 | 17.53 | | 100.0 | |
| | | Z | 4.90 | 66.59 | 17.37 | | 100.0 | |
| 10072-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps) | X | 4.88 | 66.90 | 17.60 | 2.30 | 100.0 | ± 9.6 % |
| | | Y | 4.99 | 67.19 | 17.78 | | 100.0 | |
| | | Z | 4.87 | 66.92 | 17.60 | | 100.0 | |
| 10073-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps) | X | 4.94 | 67.06 | 17.93 | 2.83 | 100.0 | ± 9.6 % |
| | | Y | 5.05 | 67.38 | 18.14 | | 100.0 | |
| | | Z | 4.94 | 67.10 | 17.96 | | 100.0 | |
| 10074-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps) | X | 4.92 | 66.94 | 18.08 | 3.30 | 100.0 | ± 9.6 % |
| | | Y | 5.03 | 67.28 | 18.32 | | 100.0 | |
| | | Z | 4.92 | 67.00 | 18.13 | | 100.0 | |
| 10075-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps) | X | 4.95 | 67.05 | 18.41 | 3.82 | 90.0 | ± 9.6 % |
| | | Y | 5.07 | 67.43 | 18.68 | | 90.0 | |
| | | Z | 4.96 | 67.12 | 18.46 | | 90.0 | |
| 10076-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps) | X | 4.96 | 66.81 | 18.52 | 4.15 | 90.0 | ± 9.6 % |
| | | Y | 5.07 | 67.20 | 18.79 | | 90.0 | |
| | | Z | 4.97 | 66.91 | 18.59 | | 90.0 | |
| 10077-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps) | X | 4.98 | 66.88 | 18.61 | 4.30 | 90.0 | ± 9.6 % |
| | | Y | 5.09 | 67.26 | 18.89 | | 90.0 | |
| | | Z | 4.99 | 66.97 | 18.68 | | 90.0 | |

Certificate No: EX3-3968_Sep18 Page 14 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10081-CAB | CDMA2000 (1xRTT, RC3) | X | 0.67 | 63.43 | 10.45 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.80 | 65.03 | 12.00 | | 150.0 | |
| | | Z | 0.60 | 62.42 | 9.53 | | 150.0 | |
| 10082-CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate) | X | 0.74 | 60.59 | 4.32 | 4.77 | 80.0 | ± 9.6 % |
| | | Y | 0.77 | 60.00 | 4.71 | | 80.0 | |
| | | Z | 0.68 | 60.00 | 4.18 | | 80.0 | |
| 10090-DAC | GPRS-FDD (TDMA, GMSK, TN 0-4) | X | 100.00 | 112.51 | 25.31 | 6.56 | 60.0 | ± 9.6 % |
| | | Y | 100.00 | 116.70 | 27.52 | | 60.0 | |
| | | Z | 100.00 | 112.75 | 25.49 | | 60.0 | |
| 10097-CAB | UMTS-FDD (HSDPA) | X | 1.70 | 66.59 | 14.87 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.80 | 67.17 | 15.37 | | 150.0 | |
| | | Z | 1.64 | 66.09 | 14.46 | | 150.0 | |
| 10098-CAB | UMTS-FDD (HSUPA, Subtest 2) | X | 1.66 | 66.53 | 14.83 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.76 | 67.13 | 15.34 | | 150.0 | |
| | | Z | 1.60 | 66.03 | 14.41 | | 150.0 | |
| 10099-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-4) | X | 8.62 | 92.18 | 33.31 | 9.56 | 60.0 | ± 9.6 % |
| | | Y | 18.17 | 112.67 | 41.07 | | 60.0 | |
| | | Z | 9.46 | 94.60 | 34.29 | | 60.0 | |
| 10100-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK) | X | 2.94 | 69.26 | 16.08 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.08 | 69.91 | 16.47 | | 150.0 | |
| | | Z | 2.86 | 68.79 | 15.77 | | 150.0 | |
| 10101-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM) | X | 3.13 | 66.93 | 15.58 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.23 | 67.31 | 15.81 | | 150.0 | |
| | | Z | 3.08 | 66.69 | 15.39 | | 150.0 | |
| 10102-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM) | X | 3.24 | 66.93 | 15.69 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.33 | 67.27 | 15.89 | | 150.0 | |
| | | Z | 3.19 | 66.70 | 15.51 | | 150.0 | |
| 10103-CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK) | X | 5.89 | 75.24 | 20.52 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 7.02 | 77.93 | 21.63 | | 65.0 | |
| | | Z | 6.16 | 76.00 | 20.83 | | 65.0 | |
| 10104-CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM) | X | 5.91 | 73.19 | 20.43 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.81 | 75.57 | 21.49 | | 65.0 | |
| | | Z | 5.99 | 73.48 | 20.55 | | 65.0 | |
| 10105-CAG | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM) | X | 5.43 | 71.36 | 19.90 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.17 | 73.49 | 20.88 | | 65.0 | |
| | | Z | 5.70 | 72.30 | 20.34 | | 65.0 | |
| 10108-CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK) | X | 2.57 | 68.54 | 15.90 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.69 | 69.13 | 16.28 | | 150.0 | |
| | | Z | 2.49 | 68.09 | 15.58 | | 150.0 | |
| 10109-CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM) | X | 2.78 | 66.74 | 15.42 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.88 | 67.12 | 15.68 | | 150.0 | |
| | | Z | 2.73 | 66.46 | 15.20 | | 150.0 | |
| 10110-CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK) | X | 2.06 | 67.61 | 15.42 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.19 | 68.23 | 15.87 | | 150.0 | |
| | | Z | 1.99 | 67.12 | 15.05 | | 150.0 | |
| 10111-CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM) | X | 2.47 | 67.39 | 15.56 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.57 | 67.74 | 15.85 | | 150.0 | |
| | | Z | 2.40 | 66.99 | 15.24 | | 150.0 | |

Certificate No: EX3-3968_Sep18 Page 15 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10112-CAG | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM) | X | 2.91 | 66.77 | 15.51 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.00 | 67.11 | 15.74 | | 150.0 | |
| | | Z | 2.85 | 66.51 | 15.30 | | 150.0 | |
| 10113-CAG | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM) | X | 2.63 | 67.58 | 15.73 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.72 | 67.88 | 15.98 | | 150.0 | |
| | | Z | 2.56 | 67.21 | 15.43 | | 150.0 | |
| 10114-CAC | IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK) | X | 5.07 | 66.97 | 16.35 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.13 | 67.11 | 16.40 | | 150.0 | |
| | | Z | 5.04 | 66.87 | 16.27 | | 150.0 | |
| 10115-CAC | IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM) | X | 5.36 | 67.10 | 16.43 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.42 | 67.26 | 16.48 | | 150.0 | |
| | | Z | 5.32 | 67.00 | 16.35 | | 150.0 | |
| 10116-CAC | IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM) | X | 5.17 | 67.15 | 16.36 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.22 | 67.31 | 16.42 | | 150.0 | |
| | | Z | 5.13 | 67.04 | 16.28 | | 150.0 | |
| 10117-CAC | IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK) | X | 5.03 | 66.79 | 16.28 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.09 | 66.97 | 16.34 | | 150.0 | |
| | | Z | 4.99 | 66.69 | 16.20 | | 150.0 | |
| 10118-CAC | IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM) | X | 5.45 | 67.34 | 16.56 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.50 | 67.47 | 16.60 | | 150.0 | |
| | | Z | 5.41 | 67.24 | 16.48 | | 150.0 | |
| 10119-CAC | IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM) | X | 5.15 | 67.11 | 16.36 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.20 | 67.25 | 16.40 | | 150.0 | |
| | | Z | 5.11 | 67.02 | 16.28 | | 150.0 | |
| 10140-CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM) | X | 3.27 | 66.94 | 15.61 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.37 | 67.29 | 15.82 | | 150.0 | |
| | | Z | 3.22 | 66.71 | 15.43 | | 150.0 | |
| 10141-CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM) | X | 3.40 | 67.07 | 15.80 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.49 | 67.38 | 15.98 | | 150.0 | |
| | | Z | 3.35 | 66.84 | 15.63 | | 150.0 | |
| 10142-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK) | X | 1.82 | 67.38 | 14.89 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.95 | 68.11 | 15.47 | | 150.0 | |
| | | Z | 1.74 | 66.77 | 14.42 | | 150.0 | |
| 10143-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM) | X | 2.29 | 67.77 | 15.00 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.41 | 68.29 | 15.47 | | 150.0 | |
| | | Z | 2.19 | 67.17 | 14.54 | | 150.0 | |
| 10144-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM) | X | 2.09 | 65.65 | 13.45 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.22 | 66.30 | 14.02 | | 150.0 | |
| | | Z | 2.01 | 65.21 | 13.07 | | 150.0 | |
| 10145-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK) | X | 1.02 | 63.04 | 10.13 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.19 | 64.55 | 11.49 | | 150.0 | |
| | | Z | 0.94 | 62.23 | 9.40 | | 150.0 | |
| 10146-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | X | 1.64 | 64.33 | 10.46 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.25 | 67.70 | 12.40 | | 150.0 | |
| | | Z | 1.61 | 64.22 | 10.34 | | 150.0 | |
| 10147-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | X | 1.83 | 65.63 | 11.25 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.75 | 70.16 | 13.64 | | 150.0 | |
| | | Z | 1.80 | 65.52 | 11.13 | | 150.0 | |

Certificate No: EX3-3968_Sep18 Page 16 of 39

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|---|---|---|---|---|---|---|---|---|
| 10149-CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM) | X | 2.79 | 66.80 | 15.47 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.89 | 67.17 | 15.72 | | 150.0 | |
| | | Z | 2.74 | 66.52 | 15.25 | | 150.0 | |
| 10150-CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM) | X | 2.92 | 66.82 | 15.55 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.01 | 67.16 | 15.77 | | 150.0 | |
| | | Z | 2.86 | 66.56 | 15.34 | | 150.0 | |
| 10151-CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK) | X | 6.38 | 78.39 | 21.90 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 7.96 | 81.84 | 23.27 | | 65.0 | |
| | | Z | 6.55 | 78.84 | 22.07 | | 65.0 | |
| 10152-CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM) | X | 5.44 | 73.19 | 20.13 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.39 | 75.81 | 21.33 | | 65.0 | |
| | | Z | 5.54 | 73.50 | 20.26 | | 65.0 | |
| 10153-CAG | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM) | X | 5.81 | 74.18 | 20.94 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.76 | 76.68 | 22.05 | | 65.0 | |
| | | Z | 5.90 | 74.49 | 21.07 | | 65.0 | |
| 10154-CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK) | X | 2.10 | 67.98 | 15.66 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.23 | 68.58 | 16.10 | | 150.0 | |
| | | Z | 2.03 | 67.46 | 15.28 | | 150.0 | |
| 10155-CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM) | X | 2.48 | 67.41 | 15.58 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.58 | 67.75 | 15.87 | | 150.0 | |
| | | Z | 2.41 | 67.01 | 15.26 | | 150.0 | |
| 10156-CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK) | X | 1.65 | 67.22 | 14.50 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.79 | 68.09 | 15.21 | | 150.0 | |
| | | Z | 1.56 | 66.49 | 13.94 | | 150.0 | |
| 10157-CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM) | X | 1.89 | 65.92 | 13.28 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.04 | 66.73 | 13.98 | | 150.0 | |
| | | Z | 1.81 | 65.34 | 12.80 | | 150.0 | |
| 10158-CAG | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM) | X | 2.63 | 67.65 | 15.78 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.73 | 67.93 | 16.02 | | 150.0 | |
| | | Z | 2.56 | 67.26 | 15.47 | | 150.0 | |
| 10159-CAG | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM) | X | 1.99 | 66.31 | 13.54 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.14 | 67.12 | 14.23 | | 150.0 | |
| | | Z | 1.89 | 65.68 | 13.04 | | 150.0 | |
| 10160-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK) | X | 2.62 | 67.95 | 15.84 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.71 | 68.30 | 16.11 | | 150.0 | |
| | | Z | 2.56 | 67.61 | 15.57 | | 150.0 | |
| 10161-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM) | X | 2.81 | 66.75 | 15.45 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.91 | 67.09 | 15.69 | | 150.0 | |
| | | Z | 2.75 | 66.47 | 15.23 | | 150.0 | |
| 10162-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM) | X | 2.92 | 66.92 | 15.58 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.01 | 67.23 | 15.81 | | 150.0 | |
| | | Z | 2.86 | 66.66 | 15.36 | | 150.0 | |
| 10166-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK) | X | 3.47 | 69.06 | 18.90 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.75 | 70.40 | 19.62 | | 150.0 | |
| | | Z | 3.46 | 69.17 | 19.02 | | 150.0 | |
| 10167-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | X | 4.19 | 71.60 | 19.20 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 4.88 | 74.37 | 20.47 | | 150.0 | |
| | | Z | 4.17 | 71.73 | 19.32 | | 150.0 | |

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10168-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | X | 4.66 | 73.93 | 20.59 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.47 | 76.81 | 21.82 | | 150.0 | |
| | | Z | 4.64 | 74.07 | 20.71 | | 150.0 | |
| 10169-CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | X | 2.85 | 68.15 | 18.49 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.24 | 70.73 | 19.81 | | 150.0 | |
| | | Z | 2.83 | 68.15 | 18.57 | | 150.0 | |
| 10170-CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM) | X | 3.77 | 73.38 | 20.58 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.05 | 79.05 | 22.92 | | 150.0 | |
| | | Z | 3.72 | 73.34 | 20.65 | | 150.0 | |
| 10171-AAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM) | X | 3.13 | 69.50 | 17.87 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.98 | 74.01 | 19.90 | | 150.0 | |
| | | Z | 3.11 | 69.53 | 17.97 | | 150.0 | |
| 10172-CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | X | 6.35 | 87.03 | 27.58 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 15.94 | 106.71 | 34.46 | | 65.0 | |
| | | Z | 8.03 | 92.20 | 29.65 | | 65.0 | |
| 10173-CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM) | X | 14.65 | 99.05 | 29.57 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 134.50 | 39.08 | | 65.0 | |
| | | Z | 17.81 | 103.32 | 31.13 | | 65.0 | |
| 10174-CAG | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM) | X | 10.22 | 91.37 | 26.56 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 131.83 | 37.69 | | 65.0 | |
| | | Z | 13.56 | 96.88 | 28.56 | | 65.0 | |
| 10175-CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | X | 2.82 | 67.86 | 18.25 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.20 | 70.41 | 19.56 | | 150.0 | |
| | | Z | 2.80 | 67.86 | 18.33 | | 150.0 | |
| 10176-CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM) | X | 3.78 | 73.40 | 20.59 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.06 | 79.08 | 22.94 | | 150.0 | |
| | | Z | 3.73 | 73.36 | 20.66 | | 150.0 | |
| 10177-CAI | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK) | X | 2.84 | 68.00 | 18.34 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.22 | 70.56 | 19.65 | | 150.0 | |
| | | Z | 2.82 | 68.00 | 18.42 | | 150.0 | |
| 10178-CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM) | X | 3.75 | 73.20 | 20.48 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.00 | 78.82 | 22.81 | | 150.0 | |
| | | Z | 3.70 | 73.17 | 20.56 | | 150.0 | |
| 10179-CAG | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM) | X | 3.42 | 71.31 | 19.09 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 4.47 | 76.39 | 21.27 | | 150.0 | |
| | | Z | 3.39 | 71.32 | 19.18 | | 150.0 | |
| 10180-CAG | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM) | X | 3.13 | 69.44 | 17.83 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.97 | 73.93 | 19.85 | | 150.0 | |
| | | Z | 3.10 | 69.48 | 17.93 | | 150.0 | |
| 10181-CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK) | X | 2.84 | 67.98 | 18.33 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.22 | 70.55 | 19.65 | | 150.0 | |
| | | Z | 2.82 | 67.98 | 18.41 | | 150.0 | |
| 10182-CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM) | X | 3.74 | 73.18 | 20.47 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 4.99 | 78.80 | 22.80 | | 150.0 | |
| | | Z | 3.69 | 73.15 | 20.55 | | 150.0 | |
| 10183-AAD | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM) | X | 3.12 | 69.42 | 17.82 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.96 | 73.90 | 19.84 | | 150.0 | |
| | | Z | 3.10 | 69.45 | 17.92 | | 150.0 | |

Certificate No: EX3-3968_Sep18 Page 18 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10184-CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK) | X | 2.85 | 68.02 | 18.35 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.23 | 70.59 | 19.67 | | 150.0 | |
| | | Z | 2.83 | 68.02 | 18.43 | | 150.0 | |
| 10185-CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM) | X | 3.76 | 73.25 | 20.51 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.02 | 78.88 | 22.84 | | 150.0 | |
| | | Z | 3.71 | 73.22 | 20.58 | | 150.0 | |
| 10186-AAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM) | X | 3.14 | 69.48 | 17.85 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.98 | 73.98 | 19.87 | | 150.0 | |
| | | Z | 3.11 | 69.52 | 17.95 | | 150.0 | |
| 10187-CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK) | X | 2.86 | 68.08 | 18.42 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.24 | 70.65 | 19.73 | | 150.0 | |
| | | Z | 2.84 | 68.08 | 18.50 | | 150.0 | |
| 10188-CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM) | X | 3.87 | 73.87 | 20.88 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.21 | 79.68 | 23.25 | | 150.0 | |
| | | Z | 3.82 | 73.81 | 20.94 | | 150.0 | |
| 10189-AAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM) | X | 3.20 | 69.87 | 18.12 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 4.09 | 74.49 | 20.17 | | 150.0 | |
| | | Z | 3.17 | 69.90 | 18.22 | | 150.0 | |
| 10193-CAC | IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK) | X | 4.45 | 66.33 | 15.99 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.52 | 66.51 | 16.09 | | 150.0 | |
| | | Z | 4.41 | 66.22 | 15.89 | | 150.0 | |
| 10194-CAC | IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM) | X | 4.62 | 66.63 | 16.12 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.69 | 66.83 | 16.21 | | 150.0 | |
| | | Z | 4.57 | 66.52 | 16.03 | | 150.0 | |
| 10195-CAC | IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM) | X | 4.66 | 66.67 | 16.14 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.73 | 66.86 | 16.23 | | 150.0 | |
| | | Z | 4.61 | 66.56 | 16.05 | | 150.0 | |
| 10196-CAC | IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK) | X | 4.45 | 66.38 | 16.01 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.52 | 66.57 | 16.10 | | 150.0 | |
| | | Z | 4.41 | 66.27 | 15.91 | | 150.0 | |
| 10197-CAC | IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM) | X | 4.63 | 66.65 | 16.13 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.71 | 66.85 | 16.22 | | 150.0 | |
| | | Z | 4.59 | 66.54 | 16.04 | | 150.0 | |
| 10198-CAC | IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM) | X | 4.66 | 66.68 | 16.15 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.74 | 66.88 | 16.24 | | 150.0 | |
| | | Z | 4.62 | 66.57 | 16.06 | | 150.0 | |
| 10219-CAC | IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK) | X | 4.40 | 66.39 | 15.96 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.47 | 66.58 | 16.06 | | 150.0 | |
| | | Z | 4.36 | 66.27 | 15.86 | | 150.0 | |
| 10220-CAC | IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM) | X | 4.62 | 66.62 | 16.12 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.70 | 66.82 | 16.21 | | 150.0 | |
| | | Z | 4.58 | 66.51 | 16.03 | | 150.0 | |
| 10221-CAC | IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM) | X | 4.67 | 66.62 | 16.14 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.74 | 66.81 | 16.23 | | 150.0 | |
| | | Z | 4.63 | 66.51 | 16.05 | | 150.0 | |
| 10222-CAC | IEEE 802.11n (HT Mixed, 15 Mbps, BPSK) | X | 5.01 | 66.80 | 16.27 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.07 | 66.99 | 16.34 | | 150.0 | |
| | | Z | 4.97 | 66.70 | 16.19 | | 150.0 | |

Certificate No: EX3-3968_Sep18 Page 19 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10223-CAC | IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM) | X | 5.33 | 67.09 | 16.44 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.37 | 67.19 | 16.47 | | 150.0 | |
| | | Z | 5.29 | 67.02 | 16.38 | | 150.0 | |
| 10224-CAC | IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM) | X | 5.05 | 66.91 | 16.25 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.11 | 67.09 | 16.32 | | 150.0 | |
| | | Z | 5.01 | 66.81 | 16.17 | | 150.0 | |
| 10225-CAB | UMTS-FDD (HSPA+) | X | 2.70 | 65.61 | 14.92 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.79 | 65.91 | 15.17 | | 150.0 | |
| | | Z | 2.65 | 65.38 | 14.70 | | 150.0 | |
| 10226-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM) | X | 15.91 | 100.71 | 30.17 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 134.76 | 39.24 | | 65.0 | |
| | | Z | 19.48 | 105.15 | 31.77 | | 65.0 | |
| 10227-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM) | X | 15.46 | 98.54 | 28.84 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 131.75 | 37.69 | | 65.0 | |
| | | Z | 19.14 | 103.03 | 30.45 | | 65.0 | |
| 10228-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK) | X | 8.70 | 93.83 | 30.04 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 31.18 | 120.91 | 38.54 | | 65.0 | |
| | | Z | 9.84 | 96.88 | 31.33 | | 65.0 | |
| 10229-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM) | X | 14.77 | 99.16 | 29.61 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 134.48 | 39.08 | | 65.0 | |
| | | Z | 17.95 | 103.43 | 31.17 | | 65.0 | |
| 10230-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM) | X | 14.28 | 97.04 | 28.30 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 131.57 | 37.58 | | 65.0 | |
| | | Z | 17.53 | 101.34 | 29.87 | | 65.0 | |
| 10231-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK) | X | 8.28 | 92.74 | 29.58 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 28.48 | 118.85 | 37.89 | | 65.0 | |
| | | Z | 9.33 | 95.69 | 30.85 | | 65.0 | |
| 10232-CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM) | X | 14.74 | 99.14 | 29.60 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 134.50 | 39.08 | | 65.0 | |
| | | Z | 17.92 | 103.41 | 31.17 | | 65.0 | |
| 10233-CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM) | X | 14.24 | 97.01 | 28.29 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 131.59 | 37.58 | | 65.0 | |
| | | Z | 17.48 | 101.31 | 29.86 | | 65.0 | |
| 10234-CAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK) | X | 7.96 | 91.78 | 29.14 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 26.39 | 116.98 | 37.24 | | 65.0 | |
| | | Z | 8.95 | 94.67 | 30.39 | | 65.0 | |
| 10235-CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM) | X | 14.77 | 99.20 | 29.62 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 134.52 | 39.09 | | 65.0 | |
| | | Z | 17.96 | 103.48 | 31.19 | | 65.0 | |
| 10236-CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM) | X | 14.45 | 97.22 | 28.35 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 131.52 | 37.55 | | 65.0 | |
| | | Z | 17.77 | 101.56 | 29.93 | | 65.0 | |
| 10237-CAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | X | 8.29 | 92.81 | 29.61 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 28.81 | 119.14 | 37.97 | | 65.0 | |
| | | Z | 9.36 | 95.78 | 30.89 | | 65.0 | |
| 10238-CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM) | X | 14.71 | 99.12 | 29.60 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 134.52 | 39.09 | | 65.0 | |
| | | Z | 17.88 | 103.39 | 31.16 | | 65.0 | |

Certificate No: EX3-3968_Sep18 Page 20 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10239-CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM) | X | 14.19 | 96.97 | 28.28 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 100.00 | 131.62 | 37.59 | | 65.0 | |
| | | Z | 17.42 | 101.27 | 29.85 | | 65.0 | |
| 10240-CAF | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK) | X | 8.26 | 92.76 | 29.59 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 28.65 | 119.04 | 37.94 | | 65.0 | |
| | | Z | 9.32 | 95.73 | 30.87 | | 65.0 | |
| 10241-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | X | 7.59 | 80.37 | 25.35 | 6.98 | 65.0 | ± 9.6 % |
| | | Y | 10.04 | 86.74 | 28.12 | | 65.0 | |
| | | Z | 7.85 | 81.34 | 25.88 | | 65.0 | |
| 10242-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | X | 6.75 | 77.85 | 24.21 | 6.98 | 65.0 | ± 9.6 % |
| | | Y | 8.43 | 82.90 | 26.54 | | 65.0 | |
| | | Z | 7.30 | 79.75 | 25.14 | | 65.0 | |
| 10243-CAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK) | X | 5.48 | 74.42 | 23.60 | 6.98 | 65.0 | ± 9.6 % |
| | | Y | 6.39 | 77.98 | 25.46 | | 65.0 | |
| | | Z | 5.87 | 76.16 | 24.52 | | 65.0 | |
| 10244-CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM) | X | 5.71 | 76.00 | 18.70 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 8.34 | 81.60 | 21.07 | | 65.0 | |
| | | Z | 6.18 | 77.32 | 19.29 | | 65.0 | |
| 10245-CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM) | X | 5.52 | 75.19 | 18.30 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 7.93 | 80.50 | 20.60 | | 65.0 | |
| | | Z | 5.92 | 76.37 | 18.84 | | 65.0 | |
| 10246-CAC | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK) | X | 5.55 | 79.41 | 20.24 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 8.48 | 85.64 | 22.77 | | 65.0 | |
| | | Z | 5.70 | 79.66 | 20.24 | | 65.0 | |
| 10247-CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM) | X | 4.73 | 73.67 | 18.61 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 5.88 | 76.83 | 20.12 | | 65.0 | |
| | | Z | 4.80 | 73.85 | 18.62 | | 65.0 | |
| 10248-CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM) | X | 4.69 | 72.99 | 18.29 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 5.79 | 76.03 | 19.77 | | 65.0 | |
| | | Z | 4.76 | 73.16 | 18.29 | | 65.0 | |
| 10249-CAF | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK) | X | 6.83 | 83.08 | 22.65 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 10.11 | 89.16 | 24.96 | | 65.0 | |
| | | Z | 7.14 | 83.71 | 22.81 | | 65.0 | |
| 10250-CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM) | X | 5.54 | 75.91 | 21.31 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.67 | 78.81 | 22.56 | | 65.0 | |
| | | Z | 5.66 | 76.27 | 21.42 | | 65.0 | |
| 10251-CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM) | X | 5.27 | 73.65 | 19.94 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.28 | 76.41 | 21.21 | | 65.0 | |
| | | Z | 5.36 | 73.96 | 20.04 | | 65.0 | |
| 10252-CAF | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK) | X | 6.69 | 81.76 | 23.20 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 9.02 | 86.54 | 25.02 | | 65.0 | |
| | | Z | 6.96 | 82.43 | 23.43 | | 65.0 | |
| 10253-CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM) | X | 5.33 | 72.65 | 19.87 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.21 | 75.13 | 21.03 | | 65.0 | |
| | | Z | 5.42 | 72.95 | 19.99 | | 65.0 | |
| 10254-CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM) | X | 5.67 | 73.57 | 20.59 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.57 | 75.98 | 21.69 | | 65.0 | |
| | | Z | 5.76 | 73.88 | 20.72 | | 65.0 | |

Certificate No: EX3-3968_Sep18 Page 21 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10255-CAF | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK) | X | 6.02 | 77.53 | 21.77 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 7.45 | 80.90 | 23.15 | | 65.0 | |
| | | Z | 6.18 | 78.00 | 21.96 | | 65.0 | |
| 10256-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | X | 4.22 | 71.25 | 15.55 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.28 | 76.68 | 18.08 | | 65.0 | |
| | | Z | 4.50 | 72.23 | 16.02 | | 65.0 | |
| 10257-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | X | 4.05 | 70.31 | 15.02 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 5.87 | 75.29 | 17.42 | | 65.0 | |
| | | Z | 4.28 | 71.12 | 15.42 | | 65.0 | |
| 10258-CAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK) | X | 3.88 | 73.49 | 16.91 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 5.91 | 79.26 | 19.55 | | 65.0 | |
| | | Z | 3.89 | 73.38 | 16.75 | | 65.0 | |
| 10259-CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM) | X | 5.06 | 74.57 | 19.62 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.21 | 77.60 | 21.01 | | 65.0 | |
| | | Z | 5.16 | 74.84 | 19.67 | | 65.0 | |
| 10260-CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM) | X | 5.08 | 74.24 | 19.47 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.18 | 77.16 | 20.83 | | 65.0 | |
| | | Z | 5.17 | 74.49 | 19.52 | | 65.0 | |
| 10261-CAC | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK) | X | 6.31 | 81.37 | 22.47 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 8.82 | 86.60 | 24.51 | | 65.0 | |
| | | Z | 6.58 | 82.00 | 22.65 | | 65.0 | |
| 10262-CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM) | X | 5.53 | 75.85 | 21.26 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.66 | 78.76 | 22.52 | | 65.0 | |
| | | Z | 5.64 | 76.21 | 21.38 | | 65.0 | |
| 10263-CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM) | X | 5.26 | 73.62 | 19.93 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.27 | 76.38 | 21.20 | | 65.0 | |
| | | Z | 5.35 | 73.94 | 20.03 | | 65.0 | |
| 10264-CAF | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK) | X | 6.61 | 81.54 | 23.09 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 8.92 | 86.30 | 24.91 | | 65.0 | |
| | | Z | 6.88 | 82.20 | 23.32 | | 65.0 | |
| 10265-CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM) | X | 5.44 | 73.20 | 20.14 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.39 | 75.80 | 21.33 | | 65.0 | |
| | | Z | 5.53 | 73.50 | 20.27 | | 65.0 | |
| 10266-CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM) | X | 5.80 | 74.17 | 20.93 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.76 | 76.67 | 22.04 | | 65.0 | |
| | | Z | 5.90 | 74.48 | 21.06 | | 65.0 | |
| 10267-CAF | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK) | X | 6.37 | 78.34 | 21.88 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 7.94 | 81.79 | 23.25 | | 65.0 | |
| | | Z | 6.54 | 78.79 | 22.05 | | 65.0 | |
| 10268-CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM) | X | 6.05 | 73.02 | 20.46 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.91 | 75.24 | 21.46 | | 65.0 | |
| | | Z | 6.13 | 73.28 | 20.58 | | 65.0 | |
| 10269-CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM) | X | 6.03 | 72.59 | 20.31 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 6.85 | 74.73 | 21.29 | | 65.0 | |
| | | Z | 6.11 | 72.84 | 20.43 | | 65.0 | |
| 10270-CAF | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK) | X | 6.16 | 75.30 | 20.76 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 7.23 | 77.79 | 21.80 | | 65.0 | |
| | | Z | 6.27 | 75.60 | 20.89 | | 65.0 | |

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10274-CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10) | X | 2.48 | 65.89 | 14.77 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.57 | 66.26 | 15.08 | | 150.0 | |
| | | Z | 2.43 | 65.63 | 14.53 | | 150.0 | |
| 10275-CAB | UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4) | X | 1.46 | 66.57 | 14.58 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.58 | 67.38 | 15.22 | | 150.0 | |
| | | Z | 1.40 | 65.98 | 14.11 | | 150.0 | |
| 10277-CAA | PHS (QPSK) | X | 1.89 | 60.99 | 6.60 | 9.03 | 50.0 | ± 9.6 % |
| | | Y | 2.04 | 61.80 | 7.27 | | 50.0 | |
| | | Z | 1.93 | 61.08 | 6.68 | | 50.0 | |
| 10278-CAA | PHS (QPSK, BW 884MHz, Rolloff 0.5) | X | 5.01 | 74.12 | 16.13 | 9.03 | 50.0 | ± 9.6 % |
| | | Y | 10.14 | 84.97 | 20.68 | | 50.0 | |
| | | Z | 5.05 | 74.09 | 16.12 | | 50.0 | |
| 10279-CAA | PHS (QPSK, BW 884MHz, Rolloff 0.38) | X | 5.19 | 74.51 | 16.36 | 9.03 | 50.0 | ± 9.6 % |
| | | Y | 10.43 | 85.32 | 20.88 | | 50.0 | |
| | | Z | 5.22 | 74.48 | 16.34 | | 50.0 | |
| 10290-AAB | CDMA2000, RC1, SO55, Full Rate | X | 1.14 | 65.76 | 11.93 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.35 | 67.60 | 13.38 | | 150.0 | |
| | | Z | 1.03 | 64.58 | 11.03 | | 150.0 | |
| 10291-AAB | CDMA2000, RC3, SO55, Full Rate | X | 0.66 | 63.28 | 10.35 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.78 | 64.84 | 11.89 | | 150.0 | |
| | | Z | 0.59 | 62.30 | 9.44 | | 150.0 | |
| 10292-AAB | CDMA2000, RC3, SO32, Full Rate | X | 0.77 | 65.89 | 12.06 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.96 | 68.30 | 13.99 | | 150.0 | |
| | | Z | 0.66 | 64.23 | 10.80 | | 150.0 | |
| 10293-AAB | CDMA2000, RC3, SO3, Full Rate | X | 1.08 | 70.27 | 14.58 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.37 | 73.27 | 16.65 | | 150.0 | |
| | | Z | 0.87 | 67.38 | 12.83 | | 150.0 | |
| 10295-AAB | CDMA2000, RC1, SO3, 1/8th Rate 25 fr. | X | 12.10 | 90.80 | 25.88 | 9.03 | 50.0 | ± 9.6 % |
| | | Y | 14.51 | 95.81 | 28.29 | | 50.0 | |
| | | Z | 13.51 | 92.56 | 26.41 | | 50.0 | |
| 10297-AAD | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK) | X | 2.58 | 68.64 | 15.97 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.70 | 69.22 | 16.34 | | 150.0 | |
| | | Z | 2.50 | 68.17 | 15.65 | | 150.0 | |
| 10298-AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK) | X | 1.33 | 65.58 | 12.57 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.50 | 66.88 | 13.65 | | 150.0 | |
| | | Z | 1.23 | 64.69 | 11.86 | | 150.0 | |
| 10299-AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM) | X | 2.27 | 67.72 | 13.20 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.10 | 71.52 | 15.11 | | 150.0 | |
| | | Z | 2.26 | 67.85 | 13.23 | | 150.0 | |
| 10300-AAD | LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM) | X | 1.77 | 63.96 | 10.61 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.17 | 66.08 | 11.91 | | 150.0 | |
| | | Z | 1.74 | 63.91 | 10.54 | | 150.0 | |
| 10301-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC) | X | 4.74 | 65.53 | 17.46 | 4.17 | 50.0 | ± 9.6 % |
| | | Y | 4.92 | 66.12 | 17.84 | | 50.0 | |
| | | Z | 4.67 | 65.40 | 17.36 | | 50.0 | |
| 10302-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols) | X | 5.15 | 65.82 | 17.99 | 4.96 | 50.0 | ± 9.6 % |
| | | Y | 5.33 | 66.49 | 18.44 | | 50.0 | |
| | | Z | 5.17 | 65.97 | 18.01 | | 50.0 | |

Certificate No: EX3-3968_Sep18 Page 23 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10303-AAA | IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC) | X | 4.90 | 65.45 | 17.81 | 4.96 | 50.0 | ± 9.6 % |
| | | Y | 5.08 | 66.14 | 18.28 | | 50.0 | |
| | | Z | 4.92 | 65.62 | 17.83 | | 50.0 | |
| 10304-AAA | IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC) | X | 4.71 | 65.31 | 17.29 | 4.17 | 50.0 | ± 9.6 % |
| | | Y | 4.88 | 65.94 | 17.70 | | 50.0 | |
| | | Z | 4.72 | 65.44 | 17.29 | | 50.0 | |
| 10305-AAA | IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols) | X | 4.32 | 67.25 | 19.33 | 6.02 | 35.0 | ± 9.6 % |
| | | Y | 4.49 | 67.99 | 19.97 | | 35.0 | |
| | | Z | 4.43 | 67.86 | 19.55 | | 35.0 | |
| 10306-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols) | X | 4.65 | 66.33 | 18.99 | 6.02 | 35.0 | ± 9.6 % |
| | | Y | 4.80 | 66.94 | 19.51 | | 35.0 | |
| | | Z | 4.71 | 66.75 | 19.14 | | 35.0 | |
| 10307-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols) | X | 4.54 | 66.47 | 18.94 | 6.02 | 35.0 | ± 9.6 % |
| | | Y | 4.70 | 67.11 | 19.48 | | 35.0 | |
| | | Z | 4.61 | 66.90 | 19.09 | | 35.0 | |
| 10308-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC) | X | 4.52 | 66.66 | 19.07 | 6.02 | 35.0 | ± 9.6 % |
| | | Y | 4.68 | 67.33 | 19.63 | | 35.0 | |
| | | Z | 4.59 | 67.13 | 19.24 | | 35.0 | |
| 10309-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols) | X | 4.70 | 66.54 | 19.13 | 6.02 | 35.0 | ± 9.6 % |
| | | Y | 4.86 | 67.20 | 19.68 | | 35.0 | |
| | | Z | 4.77 | 66.96 | 19.29 | | 35.0 | |
| 10310-AAA | IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols) | X | 4.60 | 66.38 | 18.96 | 6.02 | 35.0 | ± 9.6 % |
| | | Y | 4.75 | 67.00 | 19.48 | | 35.0 | |
| | | Z | 4.66 | 66.81 | 19.12 | | 35.0 | |
| 10311-AAD | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK) | X | 2.92 | 67.94 | 15.67 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.06 | 68.53 | 16.01 | | 150.0 | |
| | | Z | 2.84 | 67.50 | 15.38 | | 150.0 | |
| 10313-AAA | iDEN 1:3 | X | 3.59 | 74.52 | 16.76 | 6.99 | 70.0 | ± 9.6 % |
| | | Y | 7.81 | 84.35 | 20.54 | | 70.0 | |
| | | Z | 3.75 | 74.74 | 16.77 | | 70.0 | |
| 10314-AAA | iDEN 1:6 | X | 6.18 | 85.62 | 23.85 | 10.00 | 30.0 | ± 9.6 % |
| | | Y | 11.31 | 96.43 | 27.87 | | 30.0 | |
| | | Z | 6.24 | 85.41 | 23.69 | | 30.0 | |
| 10315-AAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle) | X | 1.00 | 62.92 | 14.51 | 0.17 | 150.0 | ± 9.6 % |
| | | Y | 1.08 | 63.58 | 15.01 | | 150.0 | |
| | | Z | 0.98 | 62.64 | 14.20 | | 150.0 | |
| 10316-AAB | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle) | X | 4.51 | 66.40 | 16.17 | 0.17 | 150.0 | ± 9.6 % |
| | | Y | 4.59 | 66.62 | 16.28 | | 150.0 | |
| | | Z | 4.47 | 66.32 | 16.09 | | 150.0 | |
| 10317-AAC | IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle) | X | 4.51 | 66.40 | 16.17 | 0.17 | 150.0 | ± 9.6 % |
| | | Y | 4.59 | 66.62 | 16.28 | | 150.0 | |
| | | Z | 4.47 | 66.32 | 16.09 | | 150.0 | |
| 10400-AAD | IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle) | X | 4.61 | 66.69 | 16.12 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.69 | 66.90 | 16.22 | | 150.0 | |
| | | Z | 4.56 | 66.58 | 16.02 | | 150.0 | |
| 10401-AAD | IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle) | X | 5.36 | 67.03 | 16.39 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.40 | 67.13 | 16.42 | | 150.0 | |
| | | Z | 5.33 | 66.97 | 16.33 | | 150.0 | |

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10402-AAD | IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle) | X | 5.57 | 67.19 | 16.33 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.64 | 67.39 | 16.40 | | 150.0 | |
| | | Z | 5.53 | 67.09 | 16.25 | | 150.0 | |
| 10403-AAB | CDMA2000 (1xEV-DO, Rev. 0) | X | 1.14 | 65.76 | 11.93 | 0.00 | 115.0 | ± 9.6 % |
| | | Y | 1.35 | 67.60 | 13.38 | | 115.0 | |
| | | Z | 1.03 | 64.58 | 11.03 | | 115.0 | |
| 10404-AAB | CDMA2000 (1xEV-DO, Rev. A) | X | 1.14 | 65.76 | 11.93 | 0.00 | 115.0 | ± 9.6 % |
| | | Y | 1.35 | 67.60 | 13.38 | | 115.0 | |
| | | Z | 1.03 | 64.58 | 11.03 | | 115.0 | |
| 10406-AAB | CDMA2000, RC3, SO32, SCH0, Full Rate | X | 18.73 | 99.86 | 25.25 | 0.00 | 100.0 | ± 9.6 % |
| | | Y | 100.00 | 118.69 | 29.03 | | 100.0 | |
| | | Z | 26.61 | 105.17 | 26.73 | | 100.0 | |
| 10410-AAF | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4) | X | 100.00 | 125.74 | 31.85 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 125.21 | 31.87 | | 80.0 | |
| | | Z | 100.00 | 127.36 | 32.62 | | 80.0 | |
| 10415-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle) | X | 0.94 | 62.19 | 13.93 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.01 | 62.70 | 14.36 | | 150.0 | |
| | | Z | 0.91 | 61.87 | 13.58 | | 150.0 | |
| 10416-AAA | IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle) | X | 4.45 | 66.36 | 16.06 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.52 | 66.55 | 16.15 | | 150.0 | |
| | | Z | 4.41 | 66.26 | 15.97 | | 150.0 | |
| 10417-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle) | X | 4.45 | 66.36 | 16.06 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.52 | 66.55 | 16.15 | | 150.0 | |
| | | Z | 4.41 | 66.26 | 15.97 | | 150.0 | |
| 10418-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preambule) | X | 4.44 | 66.52 | 16.08 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.51 | 66.71 | 16.17 | | 150.0 | |
| | | Z | 4.40 | 66.41 | 15.98 | | 150.0 | |
| 10419-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preambule) | X | 4.46 | 66.47 | 16.08 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.53 | 66.66 | 16.17 | | 150.0 | |
| | | Z | 4.42 | 66.36 | 15.99 | | 150.0 | |
| 10422-AAB | IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK) | X | 4.58 | 66.48 | 16.11 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.65 | 66.66 | 16.19 | | 150.0 | |
| | | Z | 4.54 | 66.37 | 16.01 | | 150.0 | |
| 10423-AAB | IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM) | X | 4.74 | 66.78 | 16.22 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.82 | 66.98 | 16.31 | | 150.0 | |
| | | Z | 4.69 | 66.67 | 16.12 | | 150.0 | |
| 10424-AAB | IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM) | X | 4.66 | 66.73 | 16.19 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.74 | 66.93 | 16.28 | | 150.0 | |
| | | Z | 4.62 | 66.62 | 16.09 | | 150.0 | |
| 10425-AAB | IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK) | X | 5.28 | 67.10 | 16.42 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.34 | 67.25 | 16.47 | | 150.0 | |
| | | Z | 5.24 | 66.99 | 16.34 | | 150.0 | |
| 10426-AAB | IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM) | X | 5.31 | 67.19 | 16.46 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.35 | 67.28 | 16.48 | | 150.0 | |
| | | Z | 5.27 | 67.10 | 16.39 | | 150.0 | |

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10427-AAB | IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM) | X | 5.31 | 67.11 | 16.42 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.36 | 67.25 | 16.47 | | 150.0 | |
| | | Z | 5.27 | 67.02 | 16.35 | | 150.0 | |
| 10430-AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1) | X | 4.13 | 70.48 | 17.90 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.14 | 70.12 | 17.76 | | 150.0 | |
| | | Z | 4.04 | 70.12 | 17.62 | | 150.0 | |
| 10431-AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1) | X | 4.11 | 66.86 | 15.99 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.20 | 67.07 | 16.12 | | 150.0 | |
| | | Z | 4.06 | 66.72 | 15.86 | | 150.0 | |
| 10432-AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1) | X | 4.42 | 66.76 | 16.11 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.50 | 66.96 | 16.22 | | 150.0 | |
| | | Z | 4.37 | 66.64 | 16.00 | | 150.0 | |
| 10433-AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1) | X | 4.67 | 66.76 | 16.21 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.75 | 66.96 | 16.30 | | 150.0 | |
| | | Z | 4.63 | 66.65 | 16.11 | | 150.0 | |
| 10434-AAA | W-CDMA (BS Test Model 1, 64 DPCH) | X | 4.21 | 71.23 | 17.77 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.20 | 70.85 | 17.67 | | 150.0 | |
| | | Z | 4.08 | 70.76 | 17.43 | | 150.0 | |
| 10435-AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 125.51 | 31.74 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 124.99 | 31.77 | | 80.0 | |
| | | Z | 100.00 | 127.13 | 32.51 | | 80.0 | |
| 10447-AAD | LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%) | X | 3.37 | 66.69 | 15.12 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.48 | 67.00 | 15.38 | | 150.0 | |
| | | Z | 3.30 | 66.46 | 14.90 | | 150.0 | |
| 10448-AAD | LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clippin 44%) | X | 3.95 | 66.63 | 15.84 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.04 | 66.85 | 15.98 | | 150.0 | |
| | | Z | 3.90 | 66.49 | 15.71 | | 150.0 | |
| 10449-AAC | LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Cliping 44%) | X | 4.24 | 66.58 | 16.00 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.31 | 66.78 | 16.11 | | 150.0 | |
| | | Z | 4.19 | 66.45 | 15.89 | | 150.0 | |
| 10450-AAC | LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%) | X | 4.44 | 66.52 | 16.05 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.51 | 66.72 | 16.15 | | 150.0 | |
| | | Z | 4.40 | 66.40 | 15.95 | | 150.0 | |
| 10451-AAA | W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%) | X | 3.23 | 66.72 | 14.62 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.36 | 67.12 | 14.96 | | 150.0 | |
| | | Z | 3.16 | 66.43 | 14.35 | | 150.0 | |
| 10456-AAB | IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle) | X | 6.17 | 67.68 | 16.60 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 6.21 | 67.80 | 16.63 | | 150.0 | |
| | | Z | 6.14 | 67.60 | 16.55 | | 150.0 | |
| 10457-AAA | UMTS-FDD (DC-HSDPA) | X | 3.73 | 65.01 | 15.76 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.79 | 65.20 | 15.86 | | 150.0 | |
| | | Z | 3.69 | 64.91 | 15.66 | | 150.0 | |
| 10458-AAA | CDMA2000 (1xEV-DO, Rev. B, 2 carriers) | X | 3.82 | 70.31 | 17.01 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.87 | 70.19 | 17.09 | | 150.0 | |
| | | Z | 3.70 | 69.82 | 16.64 | | 150.0 | |
| 10459-AAA | CDMA2000 (1xEV-DO, Rev. B, 3 carriers) | X | 5.02 | 68.38 | 18.06 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.01 | 68.01 | 17.87 | | 150.0 | |
| | | Z | 4.90 | 68.02 | 17.80 | | 150.0 | |

Certificate No: EX3-3968_Sep18 Page 26 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10460-AAA | UMTS-FDD (WCDMA, AMR) | X | 0.77 | 66.07 | 14.49 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.87 | 67.17 | 15.47 | | 150.0 | |
| | | Z | 0.71 | 65.16 | 13.72 | | 150.0 | |
| 10461-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 129.90 | 33.85 | 3.29 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 132.00 | 35.01 | | 80.0 | |
| | | Z | 100.00 | 132.22 | 34.92 | | 80.0 | |
| 10462-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.87 | 74.90 | 15.08 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 108.52 | 24.03 | | 80.0 | |
| | | Z | 38.61 | 99.17 | 22.00 | | 80.0 | |
| 10463-AAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.47 | 64.49 | 10.53 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 18.61 | 88.22 | 18.26 | | 80.0 | |
| | | Z | 2.38 | 69.36 | 12.68 | | 80.0 | |
| 10464-AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 126.98 | 32.32 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 129.46 | 33.65 | | 80.0 | |
| | | Z | 100.00 | 129.44 | 33.45 | | 80.0 | |
| 10465-AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 2.64 | 70.91 | 13.61 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 107.75 | 23.67 | | 80.0 | |
| | | Z | 9.59 | 84.57 | 18.17 | | 80.0 | |
| 10466-AAB | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.32 | 63.40 | 9.99 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 7.36 | 79.35 | 15.77 | | 80.0 | |
| | | Z | 1.85 | 66.87 | 11.66 | | 80.0 | |
| 10467-AAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 127.32 | 32.47 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 129.78 | 33.79 | | 80.0 | |
| | | Z | 100.00 | 129.78 | 33.60 | | 80.0 | |
| 10468-AAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 2.89 | 71.87 | 13.98 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 108.00 | 23.78 | | 80.0 | |
| | | Z | 12.94 | 87.74 | 19.07 | | 80.0 | |
| 10469-AAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.32 | 63.43 | 10.00 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 7.57 | 79.64 | 15.85 | | 80.0 | |
| | | Z | 1.86 | 66.94 | 11.68 | | 80.0 | |
| 10470-AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 127.35 | 32.48 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 129.83 | 33.80 | | 80.0 | |
| | | Z | 100.00 | 129.83 | 33.61 | | 80.0 | |
| 10471-AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 2.85 | 71.73 | 13.91 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 107.91 | 23.73 | | 80.0 | |
| | | Z | 12.63 | 87.45 | 18.98 | | 80.0 | |
| 10472-AAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.31 | 63.37 | 9.96 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 7.42 | 79.41 | 15.76 | | 80.0 | |
| | | Z | 1.85 | 66.84 | 11.63 | | 80.0 | |
| 10473-AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 100.00 | 127.31 | 32.46 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 129.79 | 33.78 | | 80.0 | |
| | | Z | 100.00 | 129.79 | 33.59 | | 80.0 | |
| 10474-AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 2.82 | 71.64 | 13.88 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 107.92 | 23.73 | | 80.0 | |
| | | Z | 12.30 | 87.19 | 18.91 | | 80.0 | |
| 10475-AAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.31 | 63.34 | 9.94 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 7.28 | 79.25 | 15.72 | | 80.0 | |
| | | Z | 1.83 | 66.79 | 11.61 | | 80.0 | |

Certificate No: EX3-3968_Sep18 Page 27 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10477-AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 2.62 | 70.87 | 13.57 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 107.68 | 23.62 | | 80.0 | |
| | | Z | 9.80 | 84.77 | 18.21 | | 80.0 | |
| 10478-AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.30 | 63.28 | 9.91 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 7.06 | 78.93 | 15.61 | | 80.0 | |
| | | Z | 1.82 | 66.68 | 11.55 | | 80.0 | |
| 10479-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 9.70 | 91.06 | 24.81 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 17.04 | 100.06 | 27.83 | | 80.0 | |
| | | Z | 16.10 | 99.35 | 27.41 | | 80.0 | |
| 10480-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 8.70 | 83.60 | 20.39 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 25.58 | 98.26 | 24.94 | | 80.0 | |
| | | Z | 14.49 | 90.66 | 22.64 | | 80.0 | |
| 10481-AAA | LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 6.35 | 78.71 | 18.36 | 3.23 | 80.0 | ± 9.6 % |
| | | Y | 16.87 | 91.50 | 22.61 | | 80.0 | |
| | | Z | 9.60 | 84.24 | 20.25 | | 80.0 | |
| 10482-AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 2.65 | 70.99 | 16.26 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.76 | 75.55 | 18.44 | | 80.0 | |
| | | Z | 2.58 | 70.58 | 15.95 | | 80.0 | |
| 10483-AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 4.26 | 73.54 | 16.84 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 6.80 | 79.82 | 19.49 | | 80.0 | |
| | | Z | 5.19 | 76.27 | 17.90 | | 80.0 | |
| 10484-AAB | LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.91 | 72.14 | 16.30 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 5.99 | 77.84 | 18.79 | | 80.0 | |
| | | Z | 4.59 | 74.40 | 17.21 | | 80.0 | |
| 10485-AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 3.05 | 72.90 | 18.14 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.95 | 76.31 | 19.73 | | 80.0 | |
| | | Z | 3.06 | 72.88 | 18.03 | | 80.0 | |
| 10486-AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 2.92 | 68.63 | 15.74 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.52 | 70.98 | 17.01 | | 80.0 | |
| | | Z | 2.89 | 68.46 | 15.56 | | 80.0 | |
| 10487-AAE | LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 2.91 | 68.22 | 15.54 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.49 | 70.47 | 16.77 | | 80.0 | |
| | | Z | 2.88 | 68.04 | 15.36 | | 80.0 | |
| 10488-AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 3.32 | 71.98 | 18.56 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.99 | 74.45 | 19.69 | | 80.0 | |
| | | Z | 3.34 | 72.06 | 18.55 | | 80.0 | |
| 10489-AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.25 | 68.48 | 17.05 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.66 | 69.98 | 17.82 | | 80.0 | |
| | | Z | 3.25 | 68.52 | 17.02 | | 80.0 | |
| 10490-AAE | LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.34 | 68.33 | 17.00 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.74 | 69.75 | 17.74 | | 80.0 | |
| | | Z | 3.34 | 68.37 | 16.96 | | 80.0 | |
| 10491-AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 3.55 | 70.45 | 18.07 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.09 | 72.36 | 18.94 | | 80.0 | |
| | | Z | 3.56 | 70.52 | 18.06 | | 80.0 | |
| 10492-AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.60 | 67.75 | 17.07 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.96 | 69.00 | 17.69 | | 80.0 | |
| | | Z | 3.61 | 67.80 | 17.06 | | 80.0 | |

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10493-AAE | LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.67 | 67.64 | 17.03 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.02 | 68.84 | 17.63 | | 80.0 | |
| | | Z | 3.67 | 67.68 | 17.02 | | 80.0 | |
| 10494-AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 3.85 | 71.95 | 18.54 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.51 | 74.15 | 19.51 | | 80.0 | |
| | | Z | 3.86 | 71.99 | 18.52 | | 80.0 | |
| 10495-AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.63 | 68.11 | 17.26 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.00 | 69.41 | 17.90 | | 80.0 | |
| | | Z | 3.63 | 68.15 | 17.26 | | 80.0 | |
| 10496-AAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.71 | 67.85 | 17.19 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.07 | 69.08 | 17.79 | | 80.0 | |
| | | Z | 3.71 | 67.90 | 17.18 | | 80.0 | |
| 10497-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 1.75 | 65.66 | 12.81 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 2.70 | 70.76 | 15.51 | | 80.0 | |
| | | Z | 1.67 | 64.98 | 12.32 | | 80.0 | |
| 10498-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.38 | 60.53 | 9.12 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 1.84 | 63.33 | 11.05 | | 80.0 | |
| | | Z | 1.32 | 60.12 | 8.74 | | 80.0 | |
| 10499-AAA | LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 1.34 | 60.07 | 8.72 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 1.76 | 62.61 | 10.54 | | 80.0 | |
| | | Z | 1.33 | 60.00 | 8.53 | | 80.0 | |
| 10500-AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 3.11 | 72.23 | 18.21 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.87 | 75.11 | 19.56 | | 80.0 | |
| | | Z | 3.13 | 72.29 | 18.15 | | 80.0 | |
| 10501-AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.08 | 68.70 | 16.31 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.59 | 70.61 | 17.33 | | 80.0 | |
| | | Z | 3.07 | 68.64 | 16.19 | | 80.0 | |
| 10502-AAB | LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.14 | 68.55 | 16.17 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.64 | 70.41 | 17.18 | | 80.0 | |
| | | Z | 3.12 | 68.48 | 16.06 | | 80.0 | |
| 10503-AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 3.27 | 71.77 | 18.46 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.94 | 74.25 | 19.60 | | 80.0 | |
| | | Z | 3.29 | 71.86 | 18.45 | | 80.0 | |
| 10504-AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.23 | 68.38 | 17.00 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.64 | 69.90 | 17.77 | | 80.0 | |
| | | Z | 3.24 | 68.42 | 16.96 | | 80.0 | |
| 10505-AAE | LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.32 | 68.23 | 16.94 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.72 | 69.67 | 17.68 | | 80.0 | |
| | | Z | 3.33 | 68.27 | 16.91 | | 80.0 | |
| 10506-AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 3.82 | 71.80 | 18.46 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.48 | 74.01 | 19.44 | | 80.0 | |
| | | Z | 3.83 | 71.85 | 18.45 | | 80.0 | |
| 10507-AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.61 | 68.04 | 17.23 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.99 | 69.36 | 17.87 | | 80.0 | |
| | | Z | 3.62 | 68.09 | 17.22 | | 80.0 | |

Certificate No: EX3-3968_Sep18 Page 29 of 39

EX3DV4– SN:3968

September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10508-AAE | LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.70 | 67.79 | 17.14 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.06 | 69.02 | 17.75 | | 80.0 | |
| | | Z | 3.70 | 67.83 | 17.14 | | 80.0 | |
| 10509-AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 4.16 | 70.56 | 17.95 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.71 | 72.27 | 18.72 | | 80.0 | |
| | | Z | 4.16 | 70.57 | 17.93 | | 80.0 | |
| 10510-AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 4.10 | 67.80 | 17.22 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.46 | 68.96 | 17.77 | | 80.0 | |
| | | Z | 4.10 | 67.83 | 17.22 | | 80.0 | |
| 10511-AAE | LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 4.15 | 67.56 | 17.16 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.50 | 68.67 | 17.69 | | 80.0 | |
| | | Z | 4.16 | 67.60 | 17.16 | | 80.0 | |
| 10512-AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9) | X | 4.33 | 72.08 | 18.43 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 5.03 | 74.19 | 19.34 | | 80.0 | |
| | | Z | 4.34 | 72.08 | 18.40 | | 80.0 | |
| 10513-AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9) | X | 3.98 | 68.03 | 17.32 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.35 | 69.28 | 17.91 | | 80.0 | |
| | | Z | 3.99 | 68.06 | 17.32 | | 80.0 | |
| 10514-AAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9) | X | 4.01 | 67.63 | 17.20 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.36 | 68.80 | 17.75 | | 80.0 | |
| | | Z | 4.01 | 67.66 | 17.20 | | 80.0 | |
| 10515-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle) | X | 0.90 | 62.32 | 13.94 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.97 | 62.85 | 14.40 | | 150.0 | |
| | | Z | 0.87 | 61.98 | 13.57 | | 150.0 | |
| 10516-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle) | X | 0.47 | 67.11 | 14.64 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.56 | 68.58 | 16.14 | | 150.0 | |
| | | Z | 0.42 | 65.78 | 13.44 | | 150.0 | |
| 10517-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle) | X | 0.73 | 63.74 | 14.17 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.81 | 64.51 | 14.86 | | 150.0 | |
| | | Z | 0.70 | 63.20 | 13.62 | | 150.0 | |
| 10518-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle) | X | 4.44 | 66.44 | 16.04 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.52 | 66.63 | 16.13 | | 150.0 | |
| | | Z | 4.40 | 66.33 | 15.94 | | 150.0 | |
| 10519-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle) | X | 4.62 | 66.67 | 16.16 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.70 | 66.86 | 16.25 | | 150.0 | |
| | | Z | 4.58 | 66.56 | 16.06 | | 150.0 | |
| 10520-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle) | X | 4.47 | 66.61 | 16.07 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.55 | 66.81 | 16.17 | | 150.0 | |
| | | Z | 4.43 | 66.49 | 15.97 | | 150.0 | |
| 10521-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle) | X | 4.40 | 66.59 | 16.05 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.48 | 66.80 | 16.15 | | 150.0 | |
| | | Z | 4.36 | 66.47 | 15.94 | | 150.0 | |
| 10522-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle) | X | 4.47 | 66.71 | 16.15 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.54 | 66.90 | 16.24 | | 150.0 | |
| | | Z | 4.42 | 66.60 | 16.05 | | 150.0 | |

Certificate No: EX3-3968_Sep18

Page 30 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10523-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle) | X | 4.35 | 66.57 | 15.99 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.43 | 66.77 | 16.09 | | 150.0 | |
| | | Z | 4.31 | 66.45 | 15.89 | | 150.0 | |
| 10524-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle) | X | 4.41 | 66.62 | 16.11 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.49 | 66.82 | 16.21 | | 150.0 | |
| | | Z | 4.36 | 66.51 | 16.01 | | 150.0 | |
| 10525-AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle) | X | 4.40 | 65.67 | 15.71 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.48 | 65.87 | 15.80 | | 150.0 | |
| | | Z | 4.36 | 65.55 | 15.61 | | 150.0 | |
| 10526-AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle) | X | 4.56 | 66.02 | 15.85 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.64 | 66.23 | 15.94 | | 150.0 | |
| | | Z | 4.51 | 65.90 | 15.75 | | 150.0 | |
| 10527-AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle) | X | 4.48 | 65.97 | 15.78 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.56 | 66.18 | 15.88 | | 150.0 | |
| | | Z | 4.44 | 65.85 | 15.68 | | 150.0 | |
| 10528-AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle) | X | 4.50 | 65.99 | 15.81 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.58 | 66.20 | 15.91 | | 150.0 | |
| | | Z | 4.45 | 65.86 | 15.71 | | 150.0 | |
| 10529-AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle) | X | 4.50 | 65.99 | 15.81 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.58 | 66.20 | 15.91 | | 150.0 | |
| | | Z | 4.45 | 65.86 | 15.71 | | 150.0 | |
| 10531-AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle) | X | 4.48 | 66.07 | 15.82 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.56 | 66.29 | 15.92 | | 150.0 | |
| | | Z | 4.43 | 65.94 | 15.71 | | 150.0 | |
| 10532-AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle) | X | 4.35 | 65.92 | 15.74 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.43 | 66.14 | 15.85 | | 150.0 | |
| | | Z | 4.30 | 65.78 | 15.63 | | 150.0 | |
| 10533-AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle) | X | 4.51 | 66.04 | 15.81 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.59 | 66.25 | 15.90 | | 150.0 | |
| | | Z | 4.46 | 65.92 | 15.70 | | 150.0 | |
| 10534-AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle) | X | 5.05 | 66.12 | 15.91 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.11 | 66.31 | 15.98 | | 150.0 | |
| | | Z | 5.01 | 66.01 | 15.83 | | 150.0 | |
| 10535-AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle) | X | 5.12 | 66.32 | 16.01 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.18 | 66.49 | 16.07 | | 150.0 | |
| | | Z | 5.08 | 66.22 | 15.92 | | 150.0 | |
| 10536-AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle) | X | 4.99 | 66.25 | 15.95 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.05 | 66.44 | 16.02 | | 150.0 | |
| | | Z | 4.95 | 66.14 | 15.86 | | 150.0 | |
| 10537-AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle) | X | 5.04 | 66.22 | 15.94 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.11 | 66.41 | 16.01 | | 150.0 | |
| | | Z | 5.00 | 66.11 | 15.85 | | 150.0 | |
| 10538-AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle) | X | 5.13 | 66.24 | 15.99 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.20 | 66.43 | 16.06 | | 150.0 | |
| | | Z | 5.09 | 66.13 | 15.90 | | 150.0 | |
| 10540-AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle) | X | 5.07 | 66.28 | 16.02 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.13 | 66.45 | 16.08 | | 150.0 | |
| | | Z | 5.03 | 66.16 | 15.93 | | 150.0 | |

Certificate No: EX3-3968_Sep18 Page 31 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10541-AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle) | X | 5.04 | 66.12 | 15.93 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.10 | 66.31 | 16.01 | | 150.0 | |
| | | Z | 5.00 | 66.01 | 15.85 | | 150.0 | |
| 10542-AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle) | X | 5.19 | 66.21 | 16.00 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.26 | 66.39 | 16.06 | | 150.0 | |
| | | Z | 5.15 | 66.10 | 15.91 | | 150.0 | |
| 10543-AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle) | X | 5.27 | 66.24 | 16.04 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.33 | 66.42 | 16.10 | | 150.0 | |
| | | Z | 5.22 | 66.14 | 15.96 | | 150.0 | |
| 10544-AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle) | X | 5.37 | 66.24 | 15.92 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.43 | 66.44 | 15.99 | | 150.0 | |
| | | Z | 5.33 | 66.14 | 15.84 | | 150.0 | |
| 10545-AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle) | X | 5.57 | 66.70 | 16.10 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.62 | 66.84 | 16.14 | | 150.0 | |
| | | Z | 5.53 | 66.60 | 16.03 | | 150.0 | |
| 10546-AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle) | X | 5.43 | 66.43 | 15.98 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.49 | 66.63 | 16.05 | | 150.0 | |
| | | Z | 5.39 | 66.32 | 15.90 | | 150.0 | |
| 10547-AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle) | X | 5.50 | 66.49 | 16.00 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.56 | 66.67 | 16.06 | | 150.0 | |
| | | Z | 5.46 | 66.39 | 15.92 | | 150.0 | |
| 10548-AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle) | X | 5.77 | 67.48 | 16.47 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.79 | 67.55 | 16.48 | | 150.0 | |
| | | Z | 5.72 | 67.37 | 16.39 | | 150.0 | |
| 10550-AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle) | X | 5.47 | 66.50 | 16.03 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.52 | 66.66 | 16.07 | | 150.0 | |
| | | Z | 5.43 | 66.41 | 15.95 | | 150.0 | |
| 10551-AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle) | X | 5.46 | 66.50 | 15.99 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.52 | 66.70 | 16.05 | | 150.0 | |
| | | Z | 5.42 | 66.39 | 15.90 | | 150.0 | |
| 10552-AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle) | X | 5.38 | 66.30 | 15.89 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.44 | 66.50 | 15.96 | | 150.0 | |
| | | Z | 5.34 | 66.19 | 15.81 | | 150.0 | |
| 10553-AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle) | X | 5.46 | 66.33 | 15.94 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.52 | 66.54 | 16.01 | | 150.0 | |
| | | Z | 5.42 | 66.22 | 15.86 | | 150.0 | |
| 10554-AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle) | X | 5.79 | 66.62 | 16.02 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.84 | 66.80 | 16.08 | | 150.0 | |
| | | Z | 5.75 | 66.52 | 15.95 | | 150.0 | |
| 10555-AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle) | X | 5.92 | 66.94 | 16.16 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.96 | 67.09 | 16.20 | | 150.0 | |
| | | Z | 5.88 | 66.84 | 16.08 | | 150.0 | |
| 10556-AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle) | X | 5.94 | 66.98 | 16.17 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.98 | 67.14 | 16.22 | | 150.0 | |
| | | Z | 5.90 | 66.88 | 16.10 | | 150.0 | |
| 10557-AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle) | X | 5.89 | 66.86 | 16.13 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.95 | 67.04 | 16.19 | | 150.0 | |
| | | Z | 5.86 | 66.75 | 16.06 | | 150.0 | |

Certificate No: EX3-3968_Sep18 Page 32 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10558-AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle) | X | 5.94 | 67.02 | 16.23 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.99 | 67.20 | 16.29 | | 150.0 | |
| | | Z | 5.90 | 66.92 | 16.15 | | 150.0 | |
| 10560-AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle) | X | 5.93 | 66.86 | 16.19 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.99 | 67.06 | 16.25 | | 150.0 | |
| | | Z | 5.89 | 66.76 | 16.11 | | 150.0 | |
| 10561-AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle) | X | 5.86 | 66.86 | 16.22 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.91 | 67.03 | 16.28 | | 150.0 | |
| | | Z | 5.83 | 66.76 | 16.15 | | 150.0 | |
| 10562-AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle) | X | 5.97 | 67.20 | 16.39 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 6.03 | 67.39 | 16.46 | | 150.0 | |
| | | Z | 5.93 | 67.08 | 16.31 | | 150.0 | |
| 10563-AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle) | X | 6.12 | 67.28 | 16.39 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 6.21 | 67.56 | 16.50 | | 150.0 | |
| | | Z | 6.06 | 67.12 | 16.29 | | 150.0 | |
| 10564-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle) | X | 4.77 | 66.53 | 16.22 | 0.46 | 150.0 | ± 9.6 % |
| | | Y | 4.85 | 66.74 | 16.33 | | 150.0 | |
| | | Z | 4.73 | 66.44 | 16.14 | | 150.0 | |
| 10565-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle) | X | 4.99 | 66.98 | 16.54 | 0.46 | 150.0 | ± 9.6 % |
| | | Y | 5.07 | 67.16 | 16.63 | | 150.0 | |
| | | Z | 4.95 | 66.88 | 16.46 | | 150.0 | |
| 10566-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle) | X | 4.83 | 66.81 | 16.35 | 0.46 | 150.0 | ± 9.6 % |
| | | Y | 4.91 | 67.02 | 16.45 | | 150.0 | |
| | | Z | 4.79 | 66.71 | 16.26 | | 150.0 | |
| 10567-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle) | X | 4.85 | 67.20 | 16.71 | 0.46 | 150.0 | ± 9.6 % |
| | | Y | 4.93 | 67.36 | 16.77 | | 150.0 | |
| | | Z | 4.81 | 67.08 | 16.61 | | 150.0 | |
| 10568-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle) | X | 4.74 | 66.58 | 16.12 | 0.46 | 150.0 | ± 9.6 % |
| | | Y | 4.83 | 66.83 | 16.26 | | 150.0 | |
| | | Z | 4.70 | 66.51 | 16.04 | | 150.0 | |
| 10569-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle) | X | 4.82 | 67.31 | 16.78 | 0.46 | 150.0 | ± 9.6 % |
| | | Y | 4.89 | 67.45 | 16.83 | | 150.0 | |
| | | Z | 4.77 | 67.20 | 16.69 | | 150.0 | |
| 10570-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle) | X | 4.85 | 67.15 | 16.71 | 0.46 | 150.0 | ± 9.6 % |
| | | Y | 4.92 | 67.31 | 16.77 | | 150.0 | |
| | | Z | 4.80 | 67.05 | 16.62 | | 150.0 | |
| 10571-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle) | X | 1.07 | 63.46 | 14.88 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 1.18 | 64.36 | 15.50 | | 130.0 | |
| | | Z | 1.05 | 63.26 | 14.63 | | 130.0 | |
| 10572-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle) | X | 1.08 | 63.96 | 15.20 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 1.19 | 64.89 | 15.83 | | 130.0 | |
| | | Z | 1.06 | 63.74 | 14.94 | | 130.0 | |
| 10573-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle) | X | 1.25 | 78.23 | 19.86 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 1.96 | 84.50 | 22.78 | | 130.0 | |
| | | Z | 1.13 | 76.27 | 18.64 | | 130.0 | |
| 10574-AAA | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle) | X | 1.12 | 68.84 | 17.70 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 1.27 | 70.06 | 18.45 | | 130.0 | |
| | | Z | 1.08 | 68.29 | 17.23 | | 130.0 | |

Certificate No: EX3-3968_Sep18 Page 33 of 39

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10575-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle) | X | 4.56 | 66.33 | 16.28 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.64 | 66.55 | 16.39 | | 130.0 | |
| | | Z | 4.52 | 66.26 | 16.21 | | 130.0 | |
| 10576-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle) | X | 4.58 | 66.49 | 16.34 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.66 | 66.70 | 16.45 | | 130.0 | |
| | | Z | 4.55 | 66.42 | 16.27 | | 130.0 | |
| 10577-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle) | X | 4.78 | 66.79 | 16.51 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.86 | 66.98 | 16.62 | | 130.0 | |
| | | Z | 4.74 | 66.70 | 16.44 | | 130.0 | |
| 10578-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle) | X | 4.67 | 66.93 | 16.61 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.75 | 67.11 | 16.70 | | 130.0 | |
| | | Z | 4.64 | 66.84 | 16.53 | | 130.0 | |
| 10579-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle) | X | 4.44 | 66.18 | 15.90 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.53 | 66.47 | 16.06 | | 130.0 | |
| | | Z | 4.40 | 66.11 | 15.83 | | 130.0 | |
| 10580-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle) | X | 4.49 | 66.25 | 15.93 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.58 | 66.53 | 16.10 | | 130.0 | |
| | | Z | 4.45 | 66.18 | 15.87 | | 130.0 | |
| 10581-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle) | X | 4.57 | 66.95 | 16.55 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.65 | 67.15 | 16.64 | | 130.0 | |
| | | Z | 4.53 | 66.86 | 16.47 | | 130.0 | |
| 10582-AAA | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle) | X | 4.38 | 65.95 | 15.69 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.48 | 66.26 | 15.88 | | 130.0 | |
| | | Z | 4.34 | 65.89 | 15.62 | | 130.0 | |
| 10583-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle) | X | 4.56 | 66.33 | 16.28 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.64 | 66.55 | 16.39 | | 130.0 | |
| | | Z | 4.52 | 66.26 | 16.21 | | 130.0 | |
| 10584-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle) | X | 4.58 | 66.49 | 16.34 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.66 | 66.70 | 16.45 | | 130.0 | |
| | | Z | 4.55 | 66.42 | 16.27 | | 130.0 | |
| 10585-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle) | X | 4.78 | 66.79 | 16.51 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.86 | 66.98 | 16.62 | | 130.0 | |
| | | Z | 4.74 | 66.70 | 16.44 | | 130.0 | |
| 10586-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle) | X | 4.67 | 66.93 | 16.61 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.75 | 67.11 | 16.70 | | 130.0 | |
| | | Z | 4.64 | 66.84 | 16.53 | | 130.0 | |
| 10587-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle) | X | 4.44 | 66.18 | 15.90 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.53 | 66.47 | 16.06 | | 130.0 | |
| | | Z | 4.40 | 66.11 | 15.83 | | 130.0 | |
| 10588-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle) | X | 4.49 | 66.25 | 15.93 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.58 | 66.53 | 16.10 | | 130.0 | |
| | | Z | 4.45 | 66.18 | 15.87 | | 130.0 | |
| 10589-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle) | X | 4.57 | 66.95 | 16.55 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.65 | 67.15 | 16.64 | | 130.0 | |
| | | Z | 4.53 | 66.86 | 16.47 | | 130.0 | |
| 10590-AAB | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle) | X | 4.38 | 65.95 | 15.69 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.48 | 66.26 | 15.88 | | 130.0 | |
| | | Z | 4.34 | 65.89 | 15.62 | | 130.0 | |

EX3DV4– SN:3968 September 25, 2018

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|---|---|---|---|---|---|---|---|---|
| 10591-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle) | X | 4.71 | 66.40 | 16.39 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.79 | 66.60 | 16.49 | | 130.0 | |
| | | Z | 4.68 | 66.33 | 16.32 | | 130.0 | |
| 10592-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle) | X | 4.86 | 66.73 | 16.52 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.94 | 66.93 | 16.62 | | 130.0 | |
| | | Z | 4.82 | 66.66 | 16.45 | | 130.0 | |
| 10593-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle) | X | 4.78 | 66.63 | 16.39 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.86 | 66.85 | 16.50 | | 130.0 | |
| | | Z | 4.74 | 66.55 | 16.32 | | 130.0 | |
| 10594-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle) | X | 4.83 | 66.80 | 16.55 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.91 | 67.00 | 16.65 | | 130.0 | |
| | | Z | 4.80 | 66.72 | 16.48 | | 130.0 | |
| 10595-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle) | X | 4.80 | 66.75 | 16.44 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.88 | 66.96 | 16.55 | | 130.0 | |
| | | Z | 4.76 | 66.67 | 16.38 | | 130.0 | |
| 10596-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle) | X | 4.73 | 66.74 | 16.44 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.82 | 66.96 | 16.56 | | 130.0 | |
| | | Z | 4.70 | 66.66 | 16.38 | | 130.0 | |
| 10597-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle) | X | 4.68 | 66.63 | 16.32 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.77 | 66.87 | 16.44 | | 130.0 | |
| | | Z | 4.65 | 66.55 | 16.25 | | 130.0 | |
| 10598-AAB | IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle) | X | 4.66 | 66.85 | 16.58 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.74 | 67.06 | 16.68 | | 130.0 | |
| | | Z | 4.63 | 66.76 | 16.50 | | 130.0 | |
| 10599-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle) | X | 5.40 | 66.99 | 16.64 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.46 | 67.17 | 16.72 | | 130.0 | |
| | | Z | 5.37 | 66.92 | 16.59 | | 130.0 | |
| 10600-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle) | X | 5.56 | 67.50 | 16.87 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.59 | 67.56 | 16.89 | | 130.0 | |
| | | Z | 5.52 | 67.44 | 16.82 | | 130.0 | |
| 10601-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle) | X | 5.42 | 67.18 | 16.73 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.48 | 67.31 | 16.78 | | 130.0 | |
| | | Z | 5.39 | 67.11 | 16.68 | | 130.0 | |
| 10602-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle) | X | 5.54 | 67.27 | 16.69 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.58 | 67.37 | 16.73 | | 130.0 | |
| | | Z | 5.51 | 67.23 | 16.66 | | 130.0 | |
| 10603-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle) | X | 5.60 | 67.53 | 16.96 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.65 | 67.64 | 16.99 | | 130.0 | |
| | | Z | 5.58 | 67.49 | 16.92 | | 130.0 | |
| 10604-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle) | X | 5.43 | 67.06 | 16.71 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.48 | 67.16 | 16.74 | | 130.0 | |
| | | Z | 5.41 | 67.03 | 16.68 | | 130.0 | |
| 10605-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle) | X | 5.54 | 67.37 | 16.86 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.58 | 67.47 | 16.90 | | 130.0 | |
| | | Z | 5.51 | 67.32 | 16.82 | | 130.0 | |
| 10606-AAB | IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle) | X | 5.25 | 66.58 | 16.32 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.33 | 66.83 | 16.44 | | 130.0 | |
| | | Z | 5.22 | 66.51 | 16.27 | | 130.0 | |

Certificate No: EX3-3968_Sep18 Page 35 of 39

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|---|---|---|---|---|---|---|---|---|
| 10607-AAB | IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle) | X | 4.55 | 65.71 | 16.00 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.63 | 65.91 | 16.11 | | 130.0 | |
| | | Z | 4.51 | 65.62 | 15.93 | | 130.0 | |
| 10608-AAB | IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle) | X | 4.72 | 66.10 | 16.17 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.81 | 66.31 | 16.27 | | 130.0 | |
| | | Z | 4.69 | 66.01 | 16.10 | | 130.0 | |
| 10609-AAB | IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle) | X | 4.61 | 65.93 | 16.00 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.70 | 66.17 | 16.12 | | 130.0 | |
| | | Z | 4.58 | 65.85 | 15.92 | | 130.0 | |
| 10610-AAB | IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle) | X | 4.66 | 66.10 | 16.16 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.75 | 66.31 | 16.27 | | 130.0 | |
| | | Z | 4.63 | 66.01 | 16.09 | | 130.0 | |
| 10611-AAB | IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle) | X | 4.58 | 65.90 | 16.01 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.66 | 66.13 | 16.12 | | 130.0 | |
| | | Z | 4.54 | 65.81 | 15.93 | | 130.0 | |
| 10612-AAB | IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle) | X | 4.58 | 66.05 | 16.05 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.67 | 66.29 | 16.18 | | 130.0 | |
| | | Z | 4.55 | 65.96 | 15.98 | | 130.0 | |
| 10613-AAB | IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle) | X | 4.59 | 65.92 | 15.92 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.68 | 66.17 | 16.06 | | 130.0 | |
| | | Z | 4.55 | 65.83 | 15.85 | | 130.0 | |
| 10614-AAB | IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle) | X | 4.53 | 66.10 | 16.15 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.62 | 66.32 | 16.26 | | 130.0 | |
| | | Z | 4.49 | 66.00 | 16.07 | | 130.0 | |
| 10615-AAB | IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle) | X | 4.58 | 65.73 | 15.78 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 4.67 | 66.00 | 15.93 | | 130.0 | |
| | | Z | 4.54 | 65.66 | 15.71 | | 130.0 | |
| 10616-AAB | IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle) | X | 5.21 | 66.20 | 16.23 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.28 | 66.39 | 16.31 | | 130.0 | |
| | | Z | 5.18 | 66.12 | 16.17 | | 130.0 | |
| 10617-AAB | IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle) | X | 5.29 | 66.42 | 16.31 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.34 | 66.57 | 16.38 | | 130.0 | |
| | | Z | 5.26 | 66.35 | 16.26 | | 130.0 | |
| 10618-AAB | IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle) | X | 5.17 | 66.40 | 16.32 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.23 | 66.57 | 16.38 | | 130.0 | |
| | | Z | 5.13 | 66.32 | 16.26 | | 130.0 | |
| 10619-AAB | IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle) | X | 5.18 | 66.20 | 16.15 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.25 | 66.39 | 16.24 | | 130.0 | |
| | | Z | 5.15 | 66.12 | 16.09 | | 130.0 | |
| 10620-AAB | IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle) | X | 5.27 | 66.24 | 16.22 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.34 | 66.43 | 16.31 | | 130.0 | |
| | | Z | 5.24 | 66.17 | 16.17 | | 130.0 | |
| 10621-AAB | IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle) | X | 5.27 | 66.37 | 16.41 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.33 | 66.53 | 16.46 | | 130.0 | |
| | | Z | 5.24 | 66.29 | 16.35 | | 130.0 | |
| 10622-AAB | IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle) | X | 5.29 | 66.54 | 16.49 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.35 | 66.70 | 16.54 | | 130.0 | |
| | | Z | 5.25 | 66.46 | 16.43 | | 130.0 | |

EX3DV4– SN:3968 September 25, 2018

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10623-AAB | IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle) | X | 5.16 | 66.06 | 16.12 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.23 | 66.26 | 16.20 | | 130.0 | |
| | | Z | 5.13 | 65.98 | 16.06 | | 130.0 | |
| 10624-AAB | IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle) | X | 5.35 | 66.27 | 16.29 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.42 | 66.45 | 16.36 | | 130.0 | |
| | | Z | 5.32 | 66.19 | 16.23 | | 130.0 | |
| 10625-AAB | IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle) | X | 5.70 | 67.19 | 16.80 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.76 | 67.36 | 16.87 | | 130.0 | |
| | | Z | 5.65 | 67.07 | 16.73 | | 130.0 | |
| 10626-AAB | IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle) | X | 5.52 | 66.27 | 16.20 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.57 | 66.46 | 16.27 | | 130.0 | |
| | | Z | 5.49 | 66.19 | 16.14 | | 130.0 | |
| 10627-AAB | IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle) | X | 5.77 | 66.91 | 16.48 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.81 | 67.01 | 16.51 | | 130.0 | |
| | | Z | 5.75 | 66.84 | 16.43 | | 130.0 | |
| 10628-AAB | IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle) | X | 5.54 | 66.35 | 16.13 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.61 | 66.56 | 16.22 | | 130.0 | |
| | | Z | 5.51 | 66.27 | 16.08 | | 130.0 | |
| 10629-AAB | IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle) | X | 5.62 | 66.41 | 16.16 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.68 | 66.60 | 16.24 | | 130.0 | |
| | | Z | 5.59 | 66.34 | 16.11 | | 130.0 | |
| 10630-AAB | IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle) | X | 6.09 | 68.03 | 16.97 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 6.09 | 68.04 | 16.96 | | 130.0 | |
| | | Z | 6.06 | 67.95 | 16.91 | | 130.0 | |
| 10631-AAB | IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle) | X | 5.94 | 67.68 | 16.99 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.99 | 67.81 | 17.02 | | 130.0 | |
| | | Z | 5.90 | 67.57 | 16.91 | | 130.0 | |
| 10632-AAB | IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle) | X | 5.74 | 66.96 | 16.65 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.77 | 67.05 | 16.65 | | 130.0 | |
| | | Z | 5.71 | 66.89 | 16.60 | | 130.0 | |
| 10633-AAB | IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle) | X | 5.60 | 66.48 | 16.23 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.67 | 66.71 | 16.32 | | 130.0 | |
| | | Z | 5.56 | 66.40 | 16.18 | | 130.0 | |
| 10634-AAB | IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle) | X | 5.58 | 66.52 | 16.31 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.65 | 66.72 | 16.38 | | 130.0 | |
| | | Z | 5.55 | 66.43 | 16.25 | | 130.0 | |
| 10635-AAB | IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle) | X | 5.47 | 65.85 | 15.71 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.54 | 66.13 | 15.85 | | 130.0 | |
| | | Z | 5.43 | 65.78 | 15.66 | | 130.0 | |
| 10636-AAC | IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle) | X | 5.94 | 66.65 | 16.30 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 5.99 | 66.83 | 16.36 | | 130.0 | |
| | | Z | 5.91 | 66.57 | 16.24 | | 130.0 | |
| 10637-AAC | IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle) | X | 6.11 | 67.07 | 16.49 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 6.14 | 67.20 | 16.53 | | 130.0 | |
| | | Z | 6.08 | 67.00 | 16.44 | | 130.0 | |
| 10638-AAC | IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle) | X | 6.10 | 67.03 | 16.45 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 6.14 | 67.18 | 16.50 | | 130.0 | |
| | | Z | 6.07 | 66.96 | 16.40 | | 130.0 | |

Certificate No: EX3-3968_Sep18 Page 37 of 39

EX3DV4– SN:3968 September 25, 2018

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10639-AAC | IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle) | X | 6.07 | 66.94 | 16.45 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 6.12 | 67.13 | 16.51 | | 130.0 | |
| | | Z | 6.04 | 66.86 | 16.39 | | 130.0 | |
| 10640-AAC | IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle) | X | 6.07 | 66.95 | 16.40 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 6.13 | 67.15 | 16.48 | | 130.0 | |
| | | Z | 6.04 | 66.88 | 16.34 | | 130.0 | |
| 10641-AAC | IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle) | X | 6.13 | 66.91 | 16.40 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 6.17 | 67.07 | 16.45 | | 130.0 | |
| | | Z | 6.11 | 66.86 | 16.36 | | 130.0 | |
| 10642-AAC | IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle) | X | 6.16 | 67.11 | 16.66 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 6.21 | 67.28 | 16.71 | | 130.0 | |
| | | Z | 6.12 | 67.04 | 16.61 | | 130.0 | |
| 10643-AAC | IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle) | X | 6.00 | 66.83 | 16.42 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 6.05 | 67.00 | 16.48 | | 130.0 | |
| | | Z | 5.98 | 66.76 | 16.37 | | 130.0 | |
| 10644-AAC | IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle) | X | 6.14 | 67.25 | 16.65 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 6.20 | 67.47 | 16.74 | | 130.0 | |
| | | Z | 6.10 | 67.16 | 16.59 | | 130.0 | |
| 10645-AAC | IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle) | X | 6.37 | 67.57 | 16.77 | 0.46 | 130.0 | ± 9.6 % |
| | | Y | 6.47 | 67.90 | 16.92 | | 130.0 | |
| | | Z | 6.31 | 67.40 | 16.68 | | 130.0 | |
| 10646-AAF | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7) | X | 15.25 | 107.38 | 37.28 | 9.30 | 60.0 | ± 9.6 % |
| | | Y | 82.59 | 150.95 | 50.26 | | 60.0 | |
| | | Z | 18.10 | 112.25 | 39.14 | | 60.0 | |
| 10647-AAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7) | X | 13.17 | 104.57 | 36.53 | 9.30 | 60.0 | ± 9.6 % |
| | | Y | 57.35 | 142.83 | 48.41 | | 60.0 | |
| | | Z | 15.41 | 109.07 | 38.31 | | 60.0 | |
| 10648-AAA | CDMA2000 (1x Advanced) | X | 0.56 | 61.68 | 8.92 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.66 | 62.85 | 10.29 | | 150.0 | |
| | | Z | 0.51 | 60.97 | 8.15 | | 150.0 | |
| 10652-AAD | LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%) | X | 3.43 | 66.30 | 16.29 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 3.69 | 67.19 | 16.78 | | 80.0 | |
| | | Z | 3.42 | 66.28 | 16.22 | | 80.0 | |
| 10653-AAD | LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%) | X | 3.97 | 65.72 | 16.50 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.20 | 66.48 | 16.89 | | 80.0 | |
| | | Z | 3.96 | 65.72 | 16.47 | | 80.0 | |
| 10654-AAD | LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%) | X | 3.96 | 65.37 | 16.51 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.17 | 66.11 | 16.89 | | 80.0 | |
| | | Z | 3.96 | 65.37 | 16.48 | | 80.0 | |
| 10655-AAE | LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%) | X | 4.02 | 65.35 | 16.55 | 2.23 | 80.0 | ± 9.6 % |
| | | Y | 4.24 | 66.10 | 16.93 | | 80.0 | |
| | | Z | 4.02 | 65.35 | 16.53 | | 80.0 | |
| 10658-AAA | Pulse Waveform (200Hz, 10%) | X | 100.00 | 109.96 | 25.46 | 10.00 | 50.0 | ± 9.6 % |
| | | Y | 100.00 | 113.08 | 26.90 | | 50.0 | |
| | | Z | 100.00 | 110.58 | 25.80 | | 50.0 | |
| 10659-AAA | Pulse Waveform (200Hz, 20%) | X | 100.00 | 108.07 | 23.54 | 6.99 | 60.0 | ± 9.6 % |
| | | Y | 100.00 | 111.97 | 25.57 | | 60.0 | |
| | | Z | 100.00 | 108.43 | 23.77 | | 60.0 | |

Certificate No: EX3-3968_Sep18 Page 38 of 39

EX3DV4– SN:3968 September 25, 2018

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10660-AAA | Pulse Waveform (200Hz, 40%) | X | 100.00 | 106.10 | 21.40 | 3.98 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 113.15 | 24.95 | | 80.0 | |
| | | Z | 100.00 | 105.59 | 21.24 | | 80.0 | |
| 10661-AAA | Pulse Waveform (200Hz, 60%) | X | 100.00 | 101.77 | 18.47 | 2.22 | 100.0 | ± 9.6 % |
| | | Y | 100.00 | 116.26 | 25.11 | | 100.0 | |
| | | Z | 100.00 | 99.43 | 17.54 | | 100.0 | |
| 10662-AAA | Pulse Waveform (200Hz, 80%) | X | 0.18 | 60.00 | 3.99 | 0.97 | 120.0 | ± 9.6 % |
| | | Y | 100.00 | 121.06 | 25.41 | | 120.0 | |
| | | Z | 0.19 | 60.00 | 3.60 | | 120.0 | |
| 10670-AAA | Bluetooth Low Energy | X | 100.00 | 109.06 | 21.78 | 2.19 | 100.0 | ± 9.6 % |
| | | Y | 100.00 | 118.52 | 26.46 | | 100.0 | |
| | | Z | 100.00 | 106.33 | 20.69 | | 100.0 | |

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

Certificate No: EX3-3968_Sep18 Page 39 of 39

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

ilac-MRA

S Schweizerischer Kalibrierdienst
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Accreditation No.: **SCS 0108**

Client **HCT (Dymstec)**

Certificate No: **ES3-3076_Jul18/2**

# CALIBRATION CERTIFICATE(Replacement of No: ES3-3076_Jul18)

| | |
|---|---|
| Object | ES3DV3 - SN:3076 |
| Calibration procedure(s) | QA CAL-01.v9, QA CAL-12.v9, QA CAL-23.v5, QA CAL-25.v6<br>Calibration procedure for dosimetric E-field probes |
| Calibration date: | July 26, 2018 |

| 결 재 | 작 성 자 | 확 인 자 |
|---|---|---|
| 직위/성명 | SW | |
| 일 자 | 2018 / 08.23 | 2018 / 08.23 |

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

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

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards | ID | Cal Date (Certificate No.) | Scheduled Calibration |
|---|---|---|---|
| Power meter NRP | SN: 104778 | 04-Apr-18 (No. 217-02672/02673) | Apr-19 |
| Power sensor NRP-Z91 | SN: 103244 | 04-Apr-18 (No. 217-02672) | Apr-19 |
| Power sensor NRP-Z91 | SN: 103245 | 04-Apr-18 (No. 217-02673) | Apr-19 |
| Reference 20 dB Attenuator | SN: S5277 (20x) | 04-Apr-18 (No. 217-02682) | Apr-19 |
| Reference Probe ES3DV2 | SN: 3013 | 30-Dec-17 (No. ES3-3013_Dec17) | Dec-18 |
| DAE4 | SN: 660 | 21-Dec-17 (No. DAE4-660_Dec17) | Dec-18 |
| | | | |
| Secondary Standards | ID | Check Date (in house) | Scheduled Check |
| Power meter E4419B | SN: GB41293874 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A | SN: MY41498087 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| Power sensor E4412A | SN: 000110210 | 06-Apr-16 (in house check Jun-18) | In house check: Jun-20 |
| RF generator HP 8648C | SN: US3642U01700 | 04-Aug-99 (in house check Jun-18) | In house check: Jun-20 |
| Network Analyzer E8358A | SN: US41080477 | 31-Mar-14 (in house check Oct-17) | In house check: Oct-18 |

| | Name | Function | Signature |
|---|---|---|---|
| Calibrated by: | Claudio Leubler | Laboratory Technician | |
| Approved by: | Katja Pokovic | Technical Manager | |

Issued: August 11, 2018

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

Certificate No: ES3-3076_Jul18/2 Page 1 of 39

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

**S** Schweizerischer Kalibrierdienst
**C** Service suisse d'étalonnage
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**

## Glossary:

| | |
|---|---|
| TSL | tissue simulating liquid |
| NORMx,y,z | sensitivity in free space |
| ConvF | sensitivity in TSL / NORMx,y,z |
| DCP | diode compression point |
| CF | crest factor (1/duty_cycle) of the RF signal |
| A, B, C, D | modulation dependent linearization parameters |
| Polarization φ | φ rotation around probe axis |
| Polarization ϑ | ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis |
| Connector Angle | information used in DASY system to align probe sensor X to the robot coordinate system |

## Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

## Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the $E^2$-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z; Dx,y,z; VRx,y,z: A, B, C, D* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- *Connector Angle*: The angle is assessed using the information gained by determining the *NORMx* (no uncertainty required).

Certificate No: ES3-3076_Jul18/2 Page 2 of 39

# Probe ES3DV3

## SN:3076

Manufactured: June 29, 2005
Calibrated: July 26, 2018

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

# DASY/EASY - Parameters of Probe: ES3DV3 - SN:3076

## Basic Calibration Parameters

| | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|---|---|---|---|---|
| Norm ($\mu V/(V/m)^2$)[A] | 1.23 | 1.25 | 1.17 | ± 10.1 % |
| DCP (mV)[B] | 105.1 | 103.9 | 105.2 | |

## Modulation Calibration Parameters

| UID | Communication System Name | | A dB | B dB√μV | C | D dB | VR mV | Unc[E] (k=2) |
|---|---|---|---|---|---|---|---|---|
| 0 | CW | X | 0.0 | 0.0 | 1.0 | 0.00 | 229.6 | ±3.5 % |
| | | Y | 0.0 | 0.0 | 1.0 | | 211.1 | |
| | | Z | 0.0 | 0.0 | 1.0 | | 212.3 | |

Note: For details on UID parameters see Appendix.

## Sensor Model Parameters

| | C1 fF | C2 fF | α $V^{-1}$ | T1 $ms.V^{-2}$ | T2 $ms.V^{-1}$ | T3 ms | T4 $V^{-2}$ | T5 $V^{-1}$ | T6 |
|---|---|---|---|---|---|---|---|---|---|
| X | 77.68 | 554.8 | 35.26 | 43.42 | 4.074 | 5.10 | 0.096 | 0.829 | 1.014 |
| Y | 65.81 | 478.9 | 36.19 | 29.79 | 3.991 | 5.10 | 0.000 | 0.773 | 1.013 |
| Z | 67.45 | 484.4 | 35.40 | 34.11 | 3.613 | 5.10 | 0.175 | 0.773 | 1.012 |

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%.

[A] The uncertainties of Norm X,Y,Z do not affect the $E^2$-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

# DASY/EASY - Parameters of Probe: ES3DV3 - SN:3076

## Calibration Parameter Determined in Head Tissue Simulating Media

| f (MHz) [C] | Relative Permittivity [F] | Conductivity (S/m) [F] | ConvF X | ConvF Y | ConvF Z | Alpha [G] | Depth [G] (mm) | Unc (k=2) |
|---|---|---|---|---|---|---|---|---|
| 6 | 55.5 | 0.75 | 5.48 | 5.48 | 5.48 | 0.10 | 1.20 | ± 13.3 % |
| 13 | 55.5 | 0.75 | 5.74 | 5.74 | 5.74 | 0.10 | 1.20 | ± 13.3 % |
| 750 | 41.9 | 0.89 | 6.61 | 6.61 | 6.61 | 0.80 | 1.21 | ± 12.0 % |
| 835 | 41.5 | 0.90 | 6.33 | 6.33 | 6.33 | 0.65 | 1.34 | ± 12.0 % |
| 900 | 41.5 | 0.97 | 6.27 | 6.27 | 6.27 | 0.42 | 1.64 | ± 12.0 % |
| 1450 | 40.5 | 1.20 | 5.54 | 5.54 | 5.54 | 0.39 | 1.46 | ± 12.0 % |
| 1750 | 40.1 | 1.37 | 5.33 | 5.33 | 5.33 | 0.55 | 1.37 | ± 12.0 % |
| 1900 | 40.0 | 1.40 | 5.14 | 5.14 | 5.14 | 0.61 | 1.34 | ± 12.0 % |
| 2450 | 39.2 | 1.80 | 4.72 | 4.72 | 4.72 | 0.79 | 1.30 | ± 12.0 % |
| 2600 | 39.0 | 1.96 | 4.57 | 4.57 | 4.57 | 0.80 | 1.24 | ± 12.0 % |

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Validity of ConvF assessed at 6 MHz is 4-9 MHz, and ConvF assessed at 13 MHz is 9-19 MHz. Above 5 GHz frequency validity can be extended to ± 110 MHz

[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

# DASY/EASY - Parameters of Probe: ES3DV3 - SN:3076

## Calibration Parameter Determined in Body Tissue Simulating Media

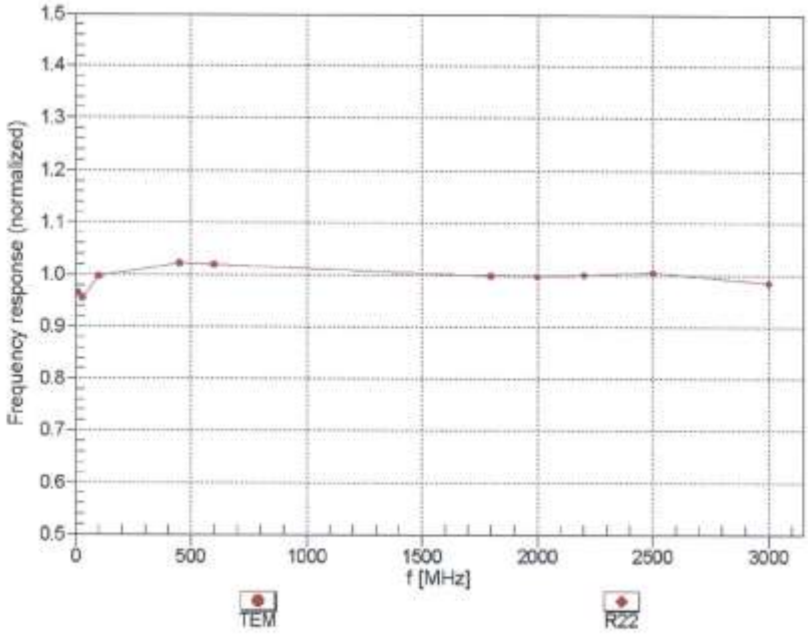
| f (MHz) [C] | Relative Permittivity [F] | Conductivity (S/m) [F] | ConvF X | ConvF Y | ConvF Z | Alpha [G] | Depth [G] (mm) | Unc (k=2) |
|---|---|---|---|---|---|---|---|---|
| 750 | 55.5 | 0.96 | 6.16 | 6.16 | 6.16 | 0.64 | 1.29 | ± 12.0 % |
| 835 | 55.2 | 0.97 | 6.03 | 6.03 | 6.03 | 0.73 | 1.24 | ± 12.0 % |
| 1750 | 53.4 | 1.49 | 4.98 | 4.98 | 4.98 | 0.63 | 1.36 | ± 12.0 % |
| 1900 | 53.3 | 1.52 | 4.76 | 4.76 | 4.76 | 0.53 | 1.52 | ± 12.0 % |
| 2450 | 52.7 | 1.95 | 4.45 | 4.45 | 4.45 | 0.77 | 1.25 | ± 12.0 % |
| 2600 | 52.5 | 2.16 | 4.32 | 4.32 | 4.32 | 0.80 | 1.25 | ± 12.0 % |

[C] Frequency validity above 300 MHz of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. Frequency validity below 300 MHz is ± 10, 25, 40, 50 and 70 MHz for ConvF assessments at 30, 64, 128, 150 and 220 MHz respectively. Above 5 GHz frequency validity can be extended to ± 110 MHz.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.
[G] Alpha/Depth are determined during calibration. SPEAG warrants that the remaining deviation due to the boundary effect after compensation is always less than ± 1% for frequencies below 3 GHz and below ± 2% for frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

ES3DV3– SN:3076

July 26, 2018

## Frequency Response of E-Field
**(TEM-Cell:ifi110 EXX, Waveguide: R22)**

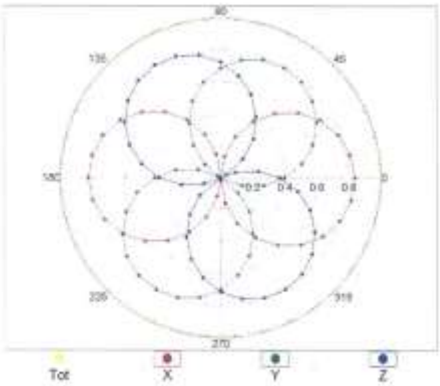



**Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)**

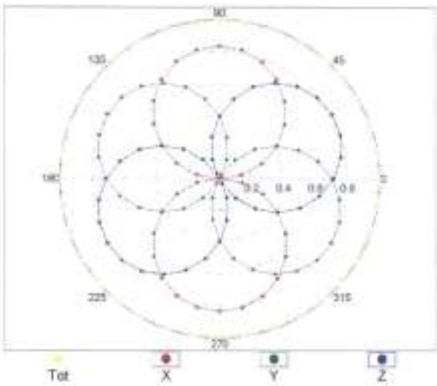
Certificate No: ES3-3076_Jul18/2 Page 7 of 39

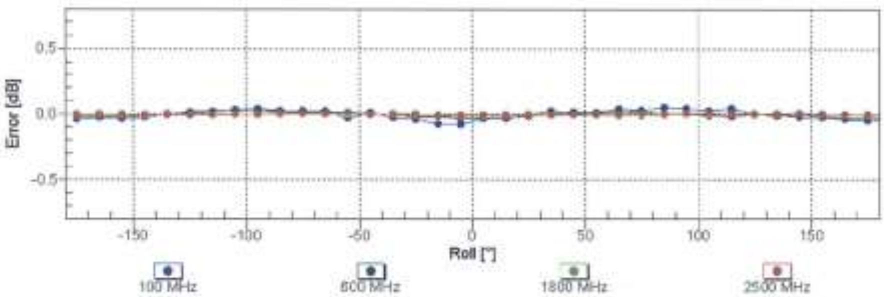
## Receiving Pattern (ϕ), $\vartheta = 0°$

f=600 MHz,TEM




f=1800 MHz,R22



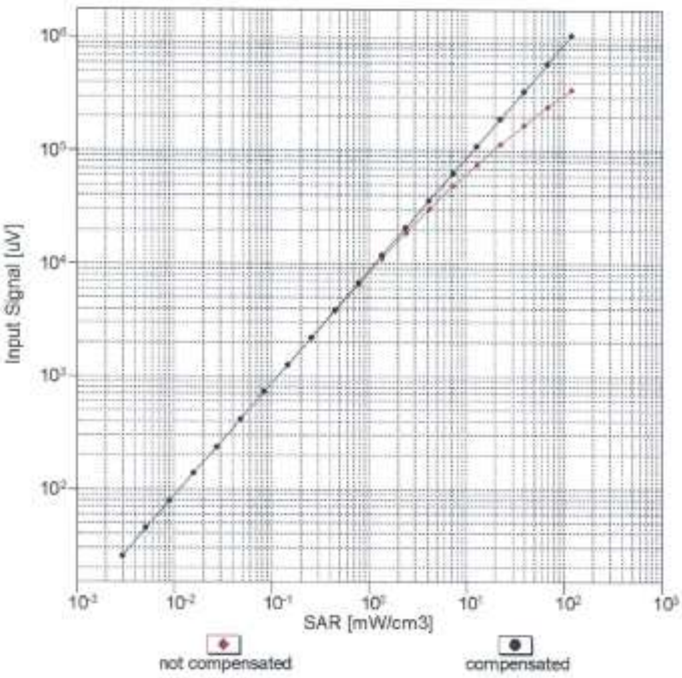

**Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)**

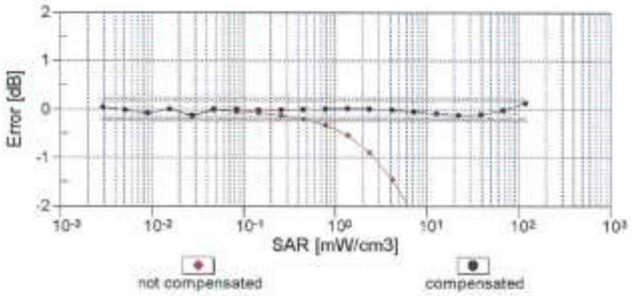
ES3DV3– SN:3076

July 26, 2018

## Dynamic Range f($SAR_{head}$)

**(TEM cell , $f_{eval}$= 1900 MHz)**




**Uncertainty of Linearity Assessment: ± 0.6% (k=2)**

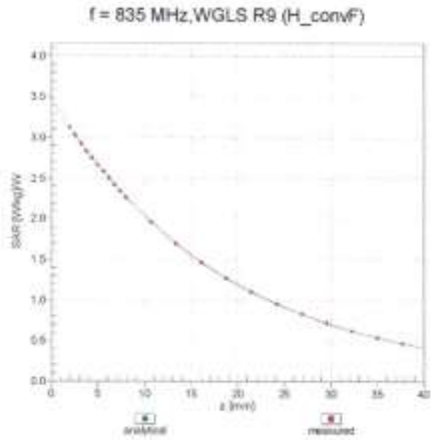
Certificate No: ES3-3076_Jul18/2

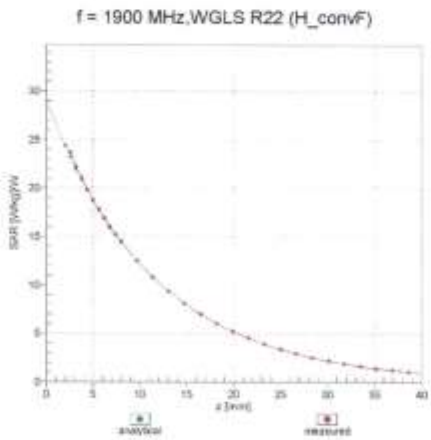
Page 9 of 39

ES3DV3– SN:3076

July 26, 2018

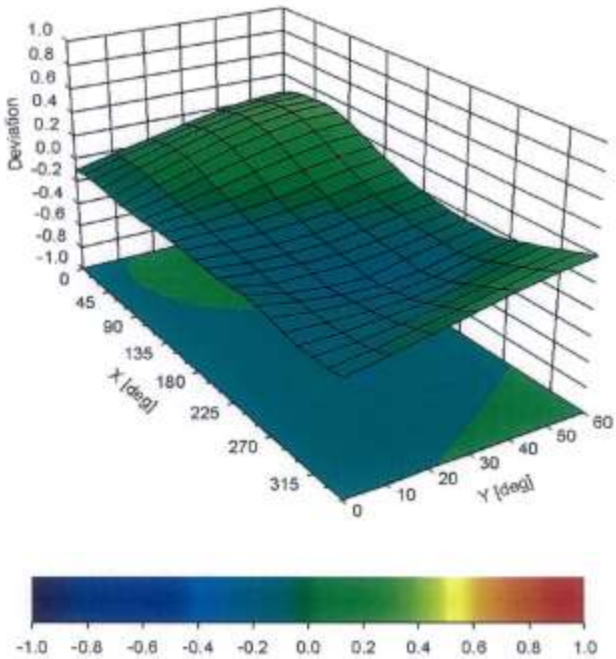
# Conversion Factor Assessment




# Deviation from Isotropy in Liquid

**Error (ϕ, ϑ), f = 900 MHz**




**Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)**

Certificate No: ES3-3076_Jul18/2 Page 10 of 39

# DASY/EASY - Parameters of Probe: ES3DV3 - SN:3076

## Other Probe Parameters

| | |
|---|---|
| Sensor Arrangement | Triangular |
| Connector Angle (°) | -35 |
| Mechanical Surface Detection Mode | enabled |
| Optical Surface Detection Mode | disabled |
| Probe Overall Length | 337 mm |
| Probe Body Diameter | 10 mm |
| Tip Length | 10 mm |
| Tip Diameter | 4 mm |
| Probe Tip to Sensor X Calibration Point | 2 mm |
| Probe Tip to Sensor Y Calibration Point | 2 mm |
| Probe Tip to Sensor Z Calibration Point | 2 mm |
| Recommended Measurement Distance from Surface | 3 mm |

ES3DV3– SN:3076 July 26, 2018

## Appendix: Modulation Calibration Parameters

| UID | Communication System Name | | A dB | B dB√μV | C | D dB | VR mV | Max Unc[E] (k=2) |
|---|---|---|---|---|---|---|---|---|
| 0 | CW | X | 0.00 | 0.00 | 1.00 | 0.00 | 229.6 | ± 3.5 % |
| | | Y | 0.00 | 0.00 | 1.00 | | 211.1 | |
| | | Z | 0.00 | 0.00 | 1.00 | | 212.3 | |
| 10010-CAA | SAR Validation (Square, 100ms, 10ms) | X | 9.16 | 78.76 | 19.58 | 10.00 | 25.0 | ± 9.6 % |
| | | Y | 8.10 | 78.11 | 19.28 | | 25.0 | |
| | | Z | 8.54 | 78.66 | 19.30 | | 25.0 | |
| 10011-CAB | UMTS-FDD (WCDMA) | X | 1.31 | 71.44 | 17.59 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.96 | 65.85 | 14.05 | | 150.0 | |
| | | Z | 1.03 | 66.82 | 14.71 | | 150.0 | |
| 10012-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps) | X | 1.43 | 66.81 | 16.97 | 0.41 | 150.0 | ± 9.6 % |
| | | Y | 1.26 | 64.34 | 15.13 | | 150.0 | |
| | | Z | 1.31 | 64.93 | 15.53 | | 150.0 | |
| 10013-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps) | X | 5.34 | 67.46 | 17.65 | 1.46 | 150.0 | ± 9.6 % |
| | | Y | 5.20 | 67.09 | 17.31 | | 150.0 | |
| | | Z | 5.23 | 67.21 | 17.38 | | 150.0 | |
| 10021-DAC | GSM-FDD (TDMA, GMSK) | X | 12.26 | 84.63 | 23.29 | 9.39 | 50.0 | ± 9.6 % |
| | | Y | 12.55 | 86.63 | 24.10 | | 50.0 | |
| | | Z | 13.08 | 86.89 | 23.92 | | 50.0 | |
| 10023-DAC | GPRS-FDD (TDMA, GMSK, TN 0) | X | 12.00 | 84.13 | 23.17 | 9.57 | 50.0 | ± 9.6 % |
| | | Y | 12.04 | 85.73 | 23.83 | | 50.0 | |
| | | Z | 12.59 | 86.09 | 23.69 | | 50.0 | |
| 10024-DAC | GPRS-FDD (TDMA, GMSK, TN 0-1) | X | 18.85 | 92.76 | 24.51 | 6.56 | 60.0 | ± 9.6 % |
| | | Y | 23.06 | 97.45 | 25.94 | | 60.0 | |
| | | Z | 24.36 | 97.48 | 25.68 | | 60.0 | |
| 10025-DAC | EDGE-FDD (TDMA, 8PSK, TN 0) | X | 20.19 | 102.77 | 38.33 | 12.57 | 50.0 | ± 9.6 % |
| | | Y | 13.86 | 93.18 | 34.75 | | 50.0 | |
| | | Z | 19.46 | 103.80 | 39.07 | | 50.0 | |
| 10026-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1) | X | 19.76 | 99.27 | 33.67 | 9.56 | 60.0 | ± 9.6 % |
| | | Y | 14.85 | 93.88 | 31.91 | | 60.0 | |
| | | Z | 18.48 | 99.29 | 33.89 | | 60.0 | |
| 10027-DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2) | X | 81.84 | 114.49 | 29.30 | 4.80 | 80.0 | ± 9.6 % |
| | | Y | 100.00 | 118.52 | 30.13 | | 80.0 | |
| | | Z | 100.00 | 117.35 | 29.60 | | 80.0 | |
| 10028-DAC | GPRS-FDD (TDMA, GMSK, TN 0-1-2-3) | X | 100.00 | 116.87 | 28.89 | 3.55 | 100.0 | ± 9.6 % |
| | | Y | 100.00 | 117.78 | 28.88 | | 100.0 | |
| | | Z | 100.00 | 116.71 | 28.44 | | 100.0 | |
| 10029-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2) | X | 15.91 | 95.03 | 31.16 | 7.80 | 80.0 | ± 9.6 % |
| | | Y | 11.38 | 88.87 | 29.06 | | 80.0 | |
| | | Z | 13.82 | 93.30 | 30.72 | | 80.0 | |
| 10030-CAA | IEEE 802.15.1 Bluetooth (GFSK, DH1) | X | 30.15 | 99.84 | 25.84 | 5.30 | 70.0 | ± 9.6 % |
| | | Y | 37.21 | 104.19 | 26.92 | | 70.0 | |
| | | Z | 41.36 | 104.79 | 26.85 | | 70.0 | |
| 10031-CAA | IEEE 802.15.1 Bluetooth (GFSK, DH3) | X | 100.00 | 118.10 | 27.80 | 1.88 | 100.0 | ± 9.6 % |
| | | Y | 100.00 | 116.72 | 26.72 | | 100.0 | |
| | | Z | 100.00 | 116.38 | 26.67 | | 100.0 | |

Certificate No: ES3-3076_Jul18/2 Page 12 of 39

ES3DV3– SN:3076 July 26, 2018

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10032-CAA | IEEE 802.15.1 Bluetooth (GFSK, DH5) | X | 100.00 | 122.30 | 28.43 | 1.17 | 100.0 | ± 9.6 % |
| | | Y | 100.00 | 117.44 | 25.86 | | 100.0 | |
| | | Z | 100.00 | 118.21 | 26.32 | | 100.0 | |
| 10033-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1) | X | 14.42 | 91.28 | 25.38 | 5.30 | 70.0 | ± 9.6 % |
| | | Y | 10.29 | 86.58 | 23.66 | | 70.0 | |
| | | Z | 12.14 | 89.11 | 24.45 | | 70.0 | |
| 10034-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3) | X | 10.48 | 91.53 | 24.19 | 1.88 | 100.0 | ± 9.6 % |
| | | Y | 4.76 | 79.75 | 19.71 | | 100.0 | |
| | | Z | 5.74 | 82.37 | 20.69 | | 100.0 | |
| 10035-CAA | IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5) | X | 6.62 | 86.73 | 22.48 | 1.17 | 100.0 | ± 9.6 % |
| | | Y | 3.05 | 75.20 | 17.68 | | 100.0 | |
| | | Z | 3.60 | 77.51 | 18.67 | | 100.0 | |
| 10036-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH1) | X | 15.95 | 93.13 | 26.03 | 5.30 | 70.0 | ± 9.6 % |
| | | Y | 11.34 | 88.37 | 24.34 | | 70.0 | |
| | | Z | 13.49 | 91.02 | 25.14 | | 70.0 | |
| 10037-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH3) | X | 10.41 | 91.42 | 24.11 | 1.88 | 100.0 | ± 9.6 % |
| | | Y | 4.64 | 79.43 | 19.55 | | 100.0 | |
| | | Z | 5.62 | 82.11 | 20.56 | | 100.0 | |
| 10038-CAA | IEEE 802.15.1 Bluetooth (8-DPSK, DH5) | X | 7.03 | 87.87 | 22.93 | 1.17 | 100.0 | ± 9.6 % |
| | | Y | 3.12 | 75.72 | 17.96 | | 100.0 | |
| | | Z | 3.70 | 78.11 | 18.96 | | 100.0 | |
| 10039-CAB | CDMA2000 (1xRTT, RC1) | X | 2.48 | 75.30 | 18.48 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.66 | 69.18 | 14.85 | | 150.0 | |
| | | Z | 1.79 | 70.23 | 15.54 | | 150.0 | |
| 10042-CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate) | X | 14.74 | 87.77 | 22.95 | 7.78 | 50.0 | ± 9.6 % |
| | | Y | 16.09 | 90.60 | 23.87 | | 50.0 | |
| | | Z | 16.98 | 90.81 | 23.69 | | 50.0 | |
| 10044-CAA | IS-91/EIA/TIA-553 FDD (FDMA, FM) | X | 0.00 | 123.82 | 2.90 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.00 | 116.34 | 0.54 | | 150.0 | |
| | | Z | 0.00 | 102.58 | 5.27 | | 150.0 | |
| 10048-CAA | DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24) | X | 10.75 | 79.68 | 23.38 | 13.80 | 25.0 | ± 9.6 % |
| | | Y | 10.01 | 79.38 | 23.29 | | 25.0 | |
| | | Z | 10.41 | 80.20 | 23.38 | | 25.0 | |
| 10049-CAA | DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12) | X | 11.22 | 82.18 | 22.90 | 10.79 | 40.0 | ± 9.6 % |
| | | Y | 10.78 | 82.85 | 23.21 | | 40.0 | |
| | | Z | 11.21 | 83.30 | 23.12 | | 40.0 | |
| 10056-CAA | UMTS-TDD (TD-SCDMA, 1.28 Mcps) | X | 11.83 | 83.67 | 23.71 | 9.03 | 50.0 | ± 9.6 % |
| | | Y | 10.56 | 82.61 | 23.25 | | 50.0 | |
| | | Z | 11.42 | 83.99 | 23.67 | | 50.0 | |
| 10058-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3) | X | 13.01 | 91.59 | 29.27 | 6.55 | 100.0 | ± 9.6 % |
| | | Y | 9.03 | 85.01 | 26.94 | | 100.0 | |
| | | Z | 10.72 | 88.68 | 28.35 | | 100.0 | |
| 10059-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps) | X | 1.75 | 69.92 | 18.34 | 0.61 | 110.0 | ± 9.6 % |
| | | Y | 1.44 | 66.31 | 16.08 | | 110.0 | |
| | | Z | 1.51 | 67.15 | 16.57 | | 110.0 | |
| 10060-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps) | X | 100.00 | 128.55 | 32.96 | 1.30 | 110.0 | ± 9.6 % |
| | | Y | 13.71 | 99.86 | 25.53 | | 110.0 | |
| | | Z | 37.52 | 113.73 | 29.09 | | 110.0 | |

Certificate No: ES3-3076_Jul18/2 Page 13 of 39

ES3DV3– SN:3076 July 26, 2018

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10061-CAB | IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps) | X | 18.88 | 103.58 | 28.87 | 2.04 | 110.0 | ± 9.6 % |
| | | Y | 6.17 | 86.09 | 23.34 | | 110.0 | |
| | | Z | 8.26 | 90.58 | 24.79 | | 110.0 | |
| 10062-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps) | X | 5.04 | 67.16 | 16.91 | 0.49 | 100.0 | ± 9.6 % |
| | | Y | 4.90 | 66.78 | 16.56 | | 100.0 | |
| | | Z | 4.93 | 66.90 | 16.63 | | 100.0 | |
| 10063-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps) | X | 5.09 | 67.37 | 17.07 | 0.72 | 100.0 | ± 9.6 % |
| | | Y | 4.95 | 66.96 | 16.71 | | 100.0 | |
| | | Z | 4.97 | 67.08 | 16.78 | | 100.0 | |
| 10064-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps) | X | 5.48 | 67.76 | 17.35 | 0.86 | 100.0 | ± 9.6 % |
| | | Y | 5.30 | 67.34 | 17.00 | | 100.0 | |
| | | Z | 5.33 | 67.46 | 17.07 | | 100.0 | |
| 10065-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps) | X | 5.38 | 67.84 | 17.54 | 1.21 | 100.0 | ± 9.6 % |
| | | Y | 5.21 | 67.40 | 17.18 | | 100.0 | |
| | | Z | 5.24 | 67.52 | 17.25 | | 100.0 | |
| 10066-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps) | X | 5.46 | 68.03 | 17.80 | 1.46 | 100.0 | ± 9.6 % |
| | | Y | 5.28 | 67.56 | 17.42 | | 100.0 | |
| | | Z | 5.31 | 67.69 | 17.49 | | 100.0 | |
| 10067-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps) | X | 5.80 | 68.19 | 18.28 | 2.04 | 100.0 | ± 9.6 % |
| | | Y | 5.62 | 67.75 | 17.90 | | 100.0 | |
| | | Z | 5.65 | 67.88 | 17.98 | | 100.0 | |
| 10068-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps) | X | 6.00 | 68.73 | 18.71 | 2.55 | 100.0 | ± 9.6 % |
| | | Y | 5.79 | 68.20 | 18.31 | | 100.0 | |
| | | Z | 5.82 | 68.34 | 18.40 | | 100.0 | |
| 10069-CAC | IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps) | X | 6.06 | 68.56 | 18.86 | 2.67 | 100.0 | ± 9.6 % |
| | | Y | 5.87 | 68.11 | 18.48 | | 100.0 | |
| | | Z | 5.90 | 68.26 | 18.58 | | 100.0 | |
| 10071-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps) | X | 5.52 | 67.78 | 18.07 | 1.99 | 100.0 | ± 9.6 % |
| | | Y | 5.37 | 67.37 | 17.72 | | 100.0 | |
| | | Z | 5.39 | 67.50 | 17.79 | | 100.0 | |
| 10072-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps) | X | 5.64 | 68.48 | 18.44 | 2.30 | 100.0 | ± 9.6 % |
| | | Y | 5.46 | 67.97 | 18.05 | | 100.0 | |
| | | Z | 5.49 | 68.12 | 18.13 | | 100.0 | |
| 10073-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps) | X | 5.82 | 68.95 | 18.91 | 2.83 | 100.0 | ± 9.6 % |
| | | Y | 5.62 | 68.38 | 18.49 | | 100.0 | |
| | | Z | 5.65 | 68.54 | 18.59 | | 100.0 | |
| 10074-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps) | X | 5.90 | 69.18 | 19.27 | 3.30 | 100.0 | ± 9.6 % |
| | | Y | 5.68 | 68.51 | 18.78 | | 100.0 | |
| | | Z | 5.71 | 68.70 | 18.90 | | 100.0 | |
| 10075-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps) | X | 6.16 | 69.98 | 19.91 | 3.82 | 90.0 | ± 9.6 % |
| | | Y | 5.88 | 69.11 | 19.32 | | 90.0 | |
| | | Z | 5.92 | 69.35 | 19.48 | | 90.0 | |
| 10076-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps) | X | 6.16 | 69.78 | 20.03 | 4.15 | 90.0 | ± 9.6 % |
| | | Y | 5.90 | 68.93 | 19.45 | | 90.0 | |
| | | Z | 5.93 | 69.17 | 19.61 | | 90.0 | |
| 10077-CAB | IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps) | X | 6.21 | 69.90 | 20.15 | 4.30 | 90.0 | ± 9.6 % |
| | | Y | 5.94 | 69.02 | 19.55 | | 90.0 | |
| | | Z | 5.97 | 69.27 | 19.72 | | 90.0 | |

Certificate No: ES3-3076_Jul18/2 Page 14 of 39

ES3DV3– SN:3076 July 26, 2018

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10081-CAB | CDMA2000 (1xRTT, RC3) | X | 1.26 | 70.70 | 16.24 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 0.84 | 64.70 | 12.17 | | 150.0 | |
| | | Z | 0.90 | 65.61 | 12.90 | | 150.0 | |
| 10082-CAB | IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate) | X | 3.15 | 66.05 | 10.71 | 4.77 | 80.0 | ± 9.6 % |
| | | Y | 2.48 | 64.66 | 9.77 | | 80.0 | |
| | | Z | 2.60 | 64.89 | 9.82 | | 80.0 | |
| 10090-DAC | GPRS-FDD (TDMA, GMSK, TN 0-4) | X | 18.57 | 92.55 | 24.48 | 6.56 | 60.0 | ± 9.6 % |
| | | Y | 22.66 | 97.21 | 25.90 | | 60.0 | |
| | | Z | 23.88 | 97.21 | 25.64 | | 60.0 | |
| 10097-CAB | UMTS-FDD (HSDPA) | X | 1.98 | 68.70 | 16.67 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.75 | 66.38 | 14.96 | | 150.0 | |
| | | Z | 1.80 | 66.87 | 15.30 | | 150.0 | |
| 10098-CAB | UMTS-FDD (HSUPA, Subtest 2) | X | 1.94 | 68.71 | 16.66 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.71 | 66.33 | 14.91 | | 150.0 | |
| | | Z | 1.77 | 66.83 | 15.26 | | 150.0 | |
| 10099-DAC | EDGE-FDD (TDMA, 8PSK, TN 0-4) | X | 19.63 | 99.08 | 33.60 | 9.56 | 60.0 | ± 9.6 % |
| | | Y | 14.80 | 93.76 | 31.87 | | 60.0 | |
| | | Z | 18.37 | 99.12 | 33.83 | | 60.0 | |
| 10100-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK) | X | 3.64 | 72.34 | 17.56 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.12 | 69.65 | 16.07 | | 150.0 | |
| | | Z | 3.22 | 70.22 | 16.37 | | 150.0 | |
| 10101-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM) | X | 3.55 | 68.64 | 16.52 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.31 | 67.34 | 15.66 | | 150.0 | |
| | | Z | 3.36 | 67.65 | 15.84 | | 150.0 | |
| 10102-CAE | LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM) | X | 3.64 | 68.45 | 16.55 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.42 | 67.30 | 15.76 | | 150.0 | |
| | | Z | 3.46 | 67.57 | 15.92 | | 150.0 | |
| 10103-CAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK) | X | 9.28 | 77.61 | 20.86 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 8.20 | 76.35 | 20.43 | | 65.0 | |
| | | Z | 8.60 | 77.04 | 20.64 | | 65.0 | |
| 10104-CAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM) | X | 9.53 | 77.20 | 21.60 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 8.47 | 75.78 | 21.04 | | 65.0 | |
| | | Z | 8.87 | 76.56 | 21.33 | | 65.0 | |
| 10105-CAF | LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM) | X | 8.43 | 74.79 | 20.82 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 7.55 | 73.49 | 20.30 | | 65.0 | |
| | | Z | 7.91 | 74.31 | 20.62 | | 65.0 | |
| 10108-CAF | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK) | X | 3.22 | 71.44 | 17.37 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.77 | 68.89 | 15.90 | | 150.0 | |
| | | Z | 2.86 | 69.42 | 16.20 | | 150.0 | |
| 10109-CAF | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM) | X | 3.23 | 68.43 | 16.49 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.98 | 67.08 | 15.55 | | 150.0 | |
| | | Z | 3.03 | 67.38 | 15.74 | | 150.0 | |
| 10110-CAF | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK) | X | 2.66 | 70.47 | 17.14 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.27 | 67.90 | 15.53 | | 150.0 | |
| | | Z | 2.35 | 68.44 | 15.86 | | 150.0 | |
| 10111-CAF | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM) | X | 2.91 | 68.82 | 16.80 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.65 | 67.37 | 15.70 | | 150.0 | |
| | | Z | 2.70 | 67.65 | 15.89 | | 150.0 | |

Certificate No: ES3-3076_Jul18/2 Page 15 of 39

ES3DV3– SN:3076 July 26, 2018

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|---|---|---|---|---|---|---|---|---|
| 10112-CAF | LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM) | X | 3.34 | 68.23 | 16.47 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.10 | 67.04 | 15.61 | | 150.0 | |
| | | Z | 3.15 | 67.31 | 15.78 | | 150.0 | |
| 10113-CAF | LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM) | X | 3.06 | 68.77 | 16.84 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.81 | 67.49 | 15.84 | | 150.0 | |
| | | Z | 2.86 | 67.74 | 16.01 | | 150.0 | |
| 10114-CAC | IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK) | X | 5.36 | 67.55 | 16.65 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.22 | 67.10 | 16.30 | | 150.0 | |
| | | Z | 5.25 | 67.22 | 16.36 | | 150.0 | |
| 10115-CAC | IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM) | X | 5.83 | 68.09 | 16.92 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.61 | 67.46 | 16.49 | | 150.0 | |
| | | Z | 5.64 | 67.58 | 16.55 | | 150.0 | |
| 10116-CAC | IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM) | X | 5.50 | 67.80 | 16.69 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.36 | 67.37 | 16.36 | | 150.0 | |
| | | Z | 5.38 | 67.48 | 16.41 | | 150.0 | |
| 10117-CAC | IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK) | X | 5.36 | 67.56 | 16.67 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.24 | 67.13 | 16.34 | | 150.0 | |
| | | Z | 5.26 | 67.25 | 16.39 | | 150.0 | |
| 10118-CAC | IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM) | X | 5.82 | 67.96 | 16.85 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.66 | 67.54 | 16.54 | | 150.0 | |
| | | Z | 5.68 | 67.63 | 16.58 | | 150.0 | |
| 10119-CAC | IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM) | X | 5.46 | 67.73 | 16.67 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.34 | 67.34 | 16.36 | | 150.0 | |
| | | Z | 5.35 | 67.44 | 16.40 | | 150.0 | |
| 10140-CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM) | X | 3.70 | 68.45 | 16.48 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.47 | 67.30 | 15.69 | | 150.0 | |
| | | Z | 3.52 | 67.58 | 15.85 | | 150.0 | |
| 10141-CAE | LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM) | X | 3.81 | 68.40 | 16.58 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.59 | 67.37 | 15.85 | | 150.0 | |
| | | Z | 3.63 | 67.61 | 15.99 | | 150.0 | |
| 10142-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK) | X | 2.44 | 70.40 | 17.07 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.04 | 67.65 | 15.24 | | 150.0 | |
| | | Z | 2.12 | 68.22 | 15.62 | | 150.0 | |
| 10143-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM) | X | 2.81 | 69.50 | 16.85 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.49 | 67.76 | 15.47 | | 150.0 | |
| | | Z | 2.55 | 68.08 | 15.71 | | 150.0 | |
| 10144-CAE | LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM) | X | 2.66 | 67.82 | 15.64 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.36 | 66.19 | 14.27 | | 150.0 | |
| | | Z | 2.43 | 66.57 | 14.56 | | 150.0 | |
| 10145-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK) | X | 1.88 | 69.82 | 15.94 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.39 | 65.57 | 12.82 | | 150.0 | |
| | | Z | 1.48 | 66.34 | 13.43 | | 150.0 | |
| 10146-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM) | X | 4.50 | 77.19 | 18.98 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.13 | 71.69 | 15.74 | | 150.0 | |
| | | Z | 3.22 | 71.87 | 15.88 | | 150.0 | |
| 10147-CAF | LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM) | X | 5.51 | 80.43 | 20.42 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.83 | 74.65 | 17.18 | | 150.0 | |
| | | Z | 3.81 | 74.36 | 17.11 | | 150.0 | |

Certificate No: ES3-3076_Jul18/2 Page 16 of 39

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|---|---|---|---|---|---|---|---|---|
| 10149-CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM) | X | 3.24 | 68.48 | 16.53 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.99 | 67.13 | 15.59 | | 150.0 | |
| | | Z | 3.04 | 67.43 | 15.77 | | 150.0 | |
| 10150-CAE | LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM) | X | 3.35 | 68.28 | 16.51 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.11 | 67.08 | 15.65 | | 150.0 | |
| | | Z | 3.16 | 67.35 | 15.81 | | 150.0 | |
| 10151-CAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK) | X | 9.61 | 79.23 | 21.61 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 8.51 | 78.11 | 21.23 | | 65.0 | |
| | | Z | 8.98 | 78.86 | 21.46 | | 65.0 | |
| 10152-CAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM) | X | 9.23 | 77.46 | 21.56 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 8.07 | 75.84 | 20.87 | | 65.0 | |
| | | Z | 8.51 | 76.72 | 21.21 | | 65.0 | |
| 10153-CAF | LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM) | X | 9.51 | 77.96 | 22.07 | 3.98 | 65.0 | ± 9.6 % |
| | | Y | 8.40 | 76.49 | 21.46 | | 65.0 | |
| | | Z | 8.82 | 77.30 | 21.77 | | 65.0 | |
| 10154-CAF | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK) | X | 2.74 | 70.98 | 17.45 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.32 | 68.30 | 15.79 | | 150.0 | |
| | | Z | 2.40 | 68.83 | 16.11 | | 150.0 | |
| 10155-CAF | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM) | X | 2.91 | 68.81 | 16.80 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.65 | 67.37 | 15.71 | | 150.0 | |
| | | Z | 2.70 | 67.65 | 15.90 | | 150.0 | |
| 10156-CAF | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK) | X | 2.33 | 70.88 | 17.23 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 1.89 | 67.69 | 15.12 | | 150.0 | |
| | | Z | 1.98 | 68.32 | 15.54 | | 150.0 | |
| 10157-CAF | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM) | X | 2.51 | 68.58 | 15.92 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.18 | 66.57 | 14.30 | | 150.0 | |
| | | Z | 2.25 | 67.01 | 14.63 | | 150.0 | |
| 10158-CAF | LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM) | X | 3.07 | 68.80 | 16.88 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.81 | 67.53 | 15.88 | | 150.0 | |
| | | Z | 2.86 | 67.77 | 16.04 | | 150.0 | |
| 10159-CAF | LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM) | X | 2.62 | 68.92 | 16.17 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.28 | 66.96 | 14.57 | | 150.0 | |
| | | Z | 2.35 | 67.37 | 14.89 | | 150.0 | |
| 10160-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK) | X | 3.09 | 69.80 | 16.96 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.79 | 68.06 | 15.82 | | 150.0 | |
| | | Z | 2.85 | 68.41 | 16.03 | | 150.0 | |
| 10161-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM) | X | 3.23 | 68.12 | 16.46 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.00 | 66.95 | 15.58 | | 150.0 | |
| | | Z | 3.05 | 67.21 | 15.75 | | 150.0 | |
| 10162-CAE | LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM) | X | 3.32 | 68.06 | 16.48 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 3.11 | 67.01 | 15.66 | | 150.0 | |
| | | Z | 3.15 | 67.26 | 15.82 | | 150.0 | |
| 10166-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK) | X | 4.29 | 70.92 | 20.04 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.99 | 69.96 | 19.35 | | 150.0 | |
| | | Z | 4.07 | 70.21 | 19.43 | | 150.0 | |
| 10167-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM) | X | 5.60 | 74.10 | 20.63 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.05 | 72.81 | 19.82 | | 150.0 | |
| | | Z | 5.22 | 73.20 | 19.95 | | 150.0 | |

ES3DV3– SN:3076 July 26, 2018

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|---|---|---|---|---|---|---|---|---|
| 10168-CAF | LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM) | X | 6.00 | 75.56 | 21.53 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.48 | 74.58 | 20.89 | | 150.0 | |
| | | Z | 5.62 | 74.77 | 20.91 | | 150.0 | |
| 10169-CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | X | 4.35 | 74.10 | 21.32 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.68 | 71.30 | 19.88 | | 150.0 | |
| | | Z | 3.85 | 72.00 | 20.14 | | 150.0 | |
| 10170-CAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM) | X | 6.52 | 80.39 | 23.41 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.25 | 77.06 | 21.95 | | 150.0 | |
| | | Z | 5.54 | 77.68 | 22.09 | | 150.0 | |
| 10171-AAE | LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM) | X | 5.43 | 76.38 | 21.00 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 4.35 | 73.06 | 19.41 | | 150.0 | |
| | | Z | 4.65 | 73.95 | 19.73 | | 150.0 | |
| 10172-CAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK) | X | 26.11 | 103.14 | 31.43 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 17.44 | 97.23 | 29.74 | | 65.0 | |
| | | Z | 21.81 | 101.08 | 30.82 | | 65.0 | |
| 10173-CAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM) | X | 21.26 | 95.48 | 27.74 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 18.61 | 94.80 | 27.59 | | 65.0 | |
| | | Z | 20.35 | 95.83 | 27.76 | | 65.0 | |
| 10174-CAF | LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM) | X | 18.48 | 92.02 | 26.25 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 15.88 | 91.01 | 25.95 | | 65.0 | |
| | | Z | 17.31 | 91.99 | 26.13 | | 65.0 | |
| 10175-CAF | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | X | 4.28 | 73.71 | 21.06 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.63 | 70.95 | 19.62 | | 150.0 | |
| | | Z | 3.80 | 71.67 | 19.90 | | 150.0 | |
| 10176-CAF | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM) | X | 6.52 | 80.41 | 23.42 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.26 | 77.08 | 21.96 | | 150.0 | |
| | | Z | 5.55 | 77.70 | 22.10 | | 150.0 | |
| 10177-CAH | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK) | X | 4.32 | 73.90 | 21.17 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.66 | 71.13 | 19.73 | | 150.0 | |
| | | Z | 3.83 | 71.83 | 19.99 | | 150.0 | |
| 10178-CAF | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM) | X | 6.42 | 80.09 | 23.26 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.18 | 76.79 | 21.81 | | 150.0 | |
| | | Z | 5.47 | 77.43 | 21.96 | | 150.0 | |
| 10179-CAF | LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM) | X | 5.91 | 78.18 | 22.04 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 4.75 | 74.89 | 20.53 | | 150.0 | |
| | | Z | 5.05 | 75.66 | 20.76 | | 150.0 | |
| 10180-CAF | LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM) | X | 5.40 | 76.26 | 20.93 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 4.34 | 72.96 | 19.34 | | 150.0 | |
| | | Z | 4.63 | 73.87 | 19.68 | | 150.0 | |
| 10181-CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK) | X | 4.32 | 73.88 | 21.16 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.65 | 71.11 | 19.72 | | 150.0 | |
| | | Z | 3.83 | 71.81 | 19.99 | | 150.0 | |
| 10182-CAE | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM) | X | 6.41 | 80.06 | 23.25 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.17 | 76.77 | 21.80 | | 150.0 | |
| | | Z | 5.46 | 77.41 | 21.96 | | 150.0 | |
| 10183-AAD | LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM) | X | 5.39 | 76.24 | 20.92 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 4.33 | 72.94 | 19.33 | | 150.0 | |
| | | Z | 4.63 | 73.84 | 19.67 | | 150.0 | |

Certificate No: ES3-3076_Jul18/2 Page 18 of 39

ES3DV3– SN:3076 July 26, 2018

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|---|---|---|---|---|---|---|---|---|
| 10184-CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK) | X | 4.33 | 73.92 | 21.18 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.67 | 71.15 | 19.74 | | 150.0 | |
| | | Z | 3.84 | 71.85 | 20.01 | | 150.0 | |
| 10185-CAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM) | X | 6.44 | 80.13 | 23.28 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.20 | 76.84 | 21.84 | | 150.0 | |
| | | Z | 5.49 | 77.47 | 21.99 | | 150.0 | |
| 10186-AAE | LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM) | X | 5.42 | 76.30 | 20.95 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 4.35 | 73.00 | 19.37 | | 150.0 | |
| | | Z | 4.65 | 73.91 | 19.70 | | 150.0 | |
| 10187-CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK) | X | 4.34 | 73.95 | 21.22 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 3.67 | 71.19 | 19.79 | | 150.0 | |
| | | Z | 3.85 | 71.89 | 20.05 | | 150.0 | |
| 10188-CAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM) | X | 6.67 | 80.85 | 23.65 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 5.38 | 77.54 | 22.22 | | 150.0 | |
| | | Z | 5.66 | 78.11 | 22.33 | | 150.0 | |
| 10189-AAF | LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM) | X | 5.55 | 76.77 | 21.22 | 3.01 | 150.0 | ± 9.6 % |
| | | Y | 4.45 | 73.44 | 19.64 | | 150.0 | |
| | | Z | 4.75 | 74.32 | 19.95 | | 150.0 | |
| 10193-CAC | IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK) | X | 4.79 | 66.88 | 16.44 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.65 | 66.47 | 16.06 | | 150.0 | |
| | | Z | 4.68 | 66.60 | 16.13 | | 150.0 | |
| 10194-CAC | IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM) | X | 5.01 | 67.29 | 16.54 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.85 | 66.85 | 16.17 | | 150.0 | |
| | | Z | 4.88 | 66.98 | 16.24 | | 150.0 | |
| 10195-CAC | IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM) | X | 5.05 | 67.27 | 16.53 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.89 | 66.86 | 16.18 | | 150.0 | |
| | | Z | 4.92 | 66.98 | 16.24 | | 150.0 | |
| 10196-CAC | IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK) | X | 4.82 | 67.00 | 16.48 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.67 | 66.57 | 16.09 | | 150.0 | |
| | | Z | 4.70 | 66.71 | 16.17 | | 150.0 | |
| 10197-CAC | IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM) | X | 5.03 | 67.30 | 16.54 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.87 | 66.87 | 16.18 | | 150.0 | |
| | | Z | 4.90 | 67.00 | 16.25 | | 150.0 | |
| 10198-CAC | IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM) | X | 5.05 | 67.28 | 16.54 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.90 | 66.87 | 16.19 | | 150.0 | |
| | | Z | 4.93 | 67.00 | 16.25 | | 150.0 | |
| 10219-CAC | IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK) | X | 4.77 | 67.03 | 16.46 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.62 | 66.58 | 16.05 | | 150.0 | |
| | | Z | 4.65 | 66.72 | 16.13 | | 150.0 | |
| 10220-CAC | IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM) | X | 5.03 | 67.31 | 16.55 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.87 | 66.86 | 16.18 | | 150.0 | |
| | | Z | 4.90 | 67.00 | 16.25 | | 150.0 | |
| 10221-CAC | IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM) | X | 5.06 | 67.23 | 16.54 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 4.90 | 66.81 | 16.18 | | 150.0 | |
| | | Z | 4.94 | 66.94 | 16.25 | | 150.0 | |
| 10222-CAC | IEEE 802.11n (HT Mixed, 15 Mbps, BPSK) | X | 5.35 | 67.60 | 16.68 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.22 | 67.15 | 16.34 | | 150.0 | |
| | | Z | 5.24 | 67.28 | 16.39 | | 150.0 | |

Certificate No: ES3-3076_Jul18/2 Page 19 of 39

ES3DV3– SN:3076 July 26, 2018

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|---|---|---|---|---|---|---|---|---|
| 10223-CAC | IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM) | X | 5.72 | 67.80 | 16.79 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.61 | 67.57 | 16.58 | | 150.0 | |
| | | Z | 5.63 | 67.65 | 16.61 | | 150.0 | |
| 10224-CAC | IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM) | X | 5.42 | 67.76 | 16.68 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 5.26 | 67.25 | 16.31 | | 150.0 | |
| | | Z | 5.29 | 67.38 | 16.37 | | 150.0 | |
| 10225-CAB | UMTS-FDD (HSPA+) | X | 3.05 | 66.56 | 16.01 | 0.00 | 150.0 | ± 9.6 % |
| | | Y | 2.88 | 65.73 | 15.22 | | 150.0 | |
| | | Z | 2.92 | 65.94 | 15.38 | | 150.0 | |
| 10226-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM) | X | 21.78 | 96.01 | 27.97 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 19.26 | 95.51 | 27.89 | | 65.0 | |
| | | Z | 20.99 | 96.47 | 28.03 | | 65.0 | |
| 10227-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM) | X | 18.78 | 92.42 | 26.46 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 16.98 | 92.27 | 26.44 | | 65.0 | |
| | | Z | 18.08 | 92.82 | 26.47 | | 65.0 | |
| 10228-CAA | LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK) | X | 26.41 | 103.89 | 31.77 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 19.31 | 99.68 | 30.62 | | 65.0 | |
| | | Z | 23.50 | 102.98 | 31.50 | | 65.0 | |
| 10229-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM) | X | 21.25 | 95.47 | 27.74 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 18.64 | 94.82 | 27.60 | | 65.0 | |
| | | Z | 20.37 | 95.83 | 27.76 | | 65.0 | |
| 10230-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM) | X | 18.37 | 91.97 | 26.25 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 16.49 | 91.69 | 26.19 | | 65.0 | |
| | | Z | 17.61 | 92.30 | 26.24 | | 65.0 | |
| 10231-CAC | LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK) | X | 25.67 | 103.26 | 31.52 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 18.66 | 98.92 | 30.32 | | 65.0 | |
| | | Z | 22.73 | 102.25 | 31.21 | | 65.0 | |
| 10232-CAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM) | X | 21.25 | 95.47 | 27.74 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 18.63 | 94.81 | 27.60 | | 65.0 | |
| | | Z | 20.36 | 95.83 | 27.76 | | 65.0 | |
| 10233-CAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM) | X | 18.38 | 91.99 | 26.26 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 16.48 | 91.69 | 26.19 | | 65.0 | |
| | | Z | 17.62 | 92.31 | 26.24 | | 65.0 | |
| 10234-CAE | LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK) | X | 24.85 | 102.50 | 31.21 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 18.00 | 98.09 | 29.97 | | 65.0 | |
| | | Z | 21.91 | 101.40 | 30.87 | | 65.0 | |
| 10235-CAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM) | X | 21.27 | 95.50 | 27.75 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 18.65 | 94.84 | 27.61 | | 65.0 | |
| | | Z | 20.39 | 95.86 | 27.77 | | 65.0 | |
| 10236-CAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM) | X | 18.47 | 92.06 | 26.28 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 16.57 | 91.78 | 26.22 | | 65.0 | |
| | | Z | 17.71 | 92.39 | 26.27 | | 65.0 | |
| 10237-CAE | LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK) | X | 25.88 | 103.44 | 31.57 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 18.75 | 99.04 | 30.35 | | 65.0 | |
| | | Z | 22.88 | 102.40 | 31.26 | | 65.0 | |
| 10238-CAE | LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM) | X | 21.25 | 95.48 | 27.74 | 6.02 | 65.0 | ± 9.6 % |
| | | Y | 18.62 | 94.81 | 27.60 | | 65.0 | |
| | | Z | 20.36 | 95.83 | 27.76 | | 65.0 | |

Certificate No: ES3-3076_Jul18/2 Page 20 of 39