

Attachment 6. – 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: **EX3-3797_Nov18**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3797**

Calibration procedure(s) **QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v4, QA CAL-23.v5,
QA CAL-25.v6
Calibration procedure for dosimetric E-field probes**

Calibration date: **November 22, 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: MY41498067	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 EB358A	SN: US41080477	31-Mar-14 (in house check Oct-18)	In house check: Oct-19

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	
Issued: November 22, 2018			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

Certificate No: EX3-3797_Nov18

Page 1 of 39

**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**

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,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., $\theta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 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
- 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
- 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
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,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.
- DCP_{x,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
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ 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 NORM_{x,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 NORM_x (no uncertainty required).

EX3DV4 – SN:3797

November 22, 2018

Probe EX3DV4

SN:3797

Manufactured: April 5, 2011
Calibrated: November 22, 2018

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

EX3DV4- SN:3797

November 22, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3797

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.61	0.56	0.55	$\pm 10.1\%$
DCP (mV) ^B	99.4	98.1	97.8	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^C (k=2)
0	CW	X	0.0	0.0	1.0	0.00	150.2	$\pm 3.5\%$
		Y	0.0	0.0	1.0		150.0	
		Z	0.0	0.0	1.0		144.4	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $\text{ms}\cdot\text{V}^{-2}$	T2 $\text{ms}\cdot\text{V}^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	42.14	323.8	37.43	10.96	0.298	5.100	0.00	0.505	1.010
Y	42.30	318.1	36.05	13.52	0.084	5.100	0.00	0.435	1.006
Z	39.25	303.9	37.78	8.692	0.301	5.100	0.00	0.312	1.015

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.

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

EX3DV4- SN:3797

November 22, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3797

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^e	Conductivity (S/m) ^f	ConvF X	ConvF Y	ConvF Z	Alpha ^g	Depth ^h (mm)	Unc (k=2)
150	52.3	0.76	11.53	11.53	11.53	0.00	1.00	± 13.3 %
450	43.5	0.87	10.22	10.22	10.22	0.14	1.30	± 13.3 %
750	41.9	0.89	9.34	9.34	9.34	0.56	0.80	± 12.0 %
835	41.5	0.90	9.09	9.09	9.09	0.50	0.85	± 12.0 %
900	41.5	0.97	8.89	8.89	8.89	0.41	0.95	± 12.0 %
1450	40.5	1.20	8.05	8.05	8.05	0.37	0.80	± 12.0 %
1750	40.1	1.37	8.00	8.00	8.00	0.38	0.84	± 12.0 %
1900	40.0	1.40	7.82	7.82	7.82	0.34	0.86	± 12.0 %
2300	39.5	1.67	7.43	7.43	7.43	0.40	0.84	± 12.0 %
2450	39.2	1.80	7.06	7.06	7.06	0.38	0.86	± 12.0 %
2600	39.0	1.96	6.94	6.94	6.94	0.42	0.85	± 12.0 %
3500	37.9	2.91	6.68	6.68	6.68	0.27	1.25	± 13.1 %
5250	35.9	4.71	4.89	4.89	4.89	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.52	4.52	4.52	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.70	4.70	4.70	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.

^e At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to $\pm 10\%$ 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 $\pm 5\%$. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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

EX3DV4- SN:3797

November 22, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3797

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^E	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha ^G	Depth ^H (mm)	Unc (k=2)
150	61.9	0.80	11.04	11.04	11.04	0.00	1.00	± 13.3 %
450	56.7	0.94	10.35	10.35	10.35	0.08	1.20	± 13.3 %
750	55.5	0.96	9.55	9.55	9.55	0.51	0.80	± 12.0 %
835	55.2	0.97	9.16	9.16	9.16	0.51	0.80	± 12.0 %
1750	53.4	1.49	7.86	7.86	7.86	0.42	0.90	± 12.0 %
1900	53.3	1.52	7.52	7.52	7.52	0.39	0.90	± 12.0 %
2300	52.9	1.81	7.26	7.26	7.26	0.46	0.85	± 12.0 %
2450	52.7	1.95	7.13	7.13	7.13	0.40	0.88	± 12.0 %
2600	52.5	2.16	7.05	7.05	7.05	0.29	1.05	± 12.0 %
3500	51.3	3.31	6.91	6.91	6.91	0.25	1.25	± 13.1 %
5250	48.9	5.36	4.37	4.37	4.37	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.94	3.94	3.94	0.50	1.90	± 13.1 %
5750	48.3	5.94	4.16	4.16	4.16	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.

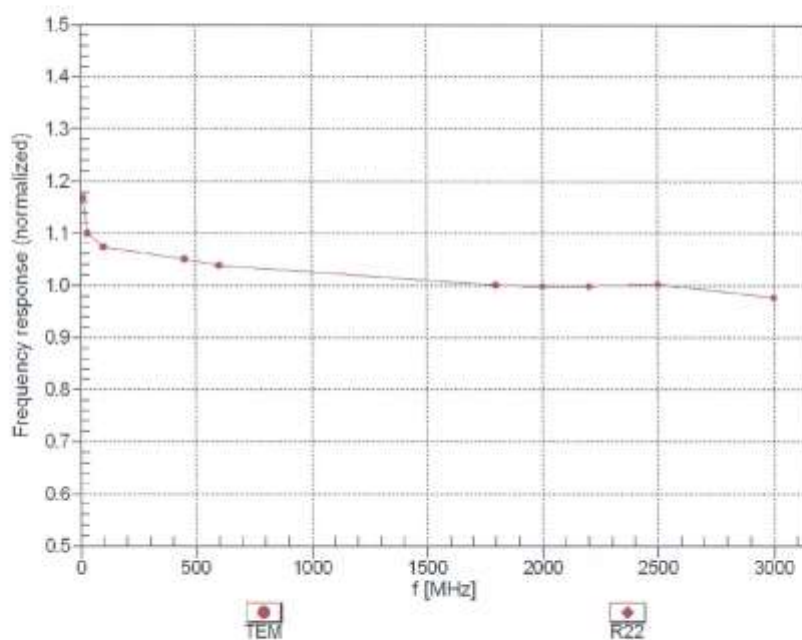
^E At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty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

^H 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:3797

November 22, 2018

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

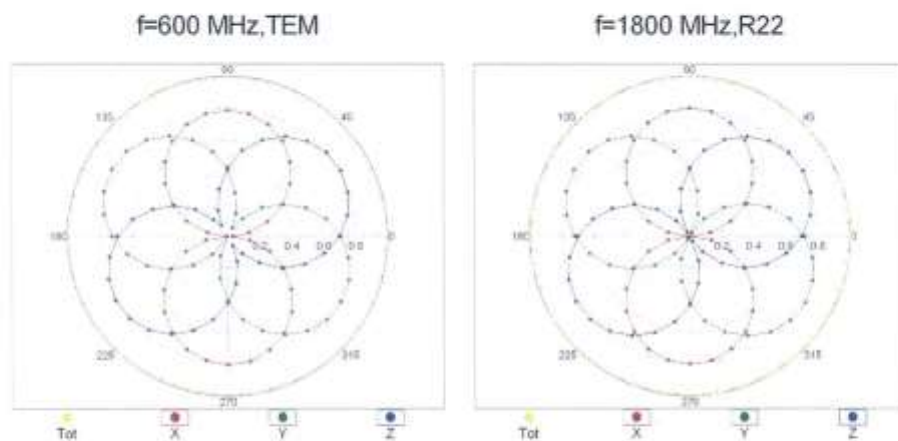
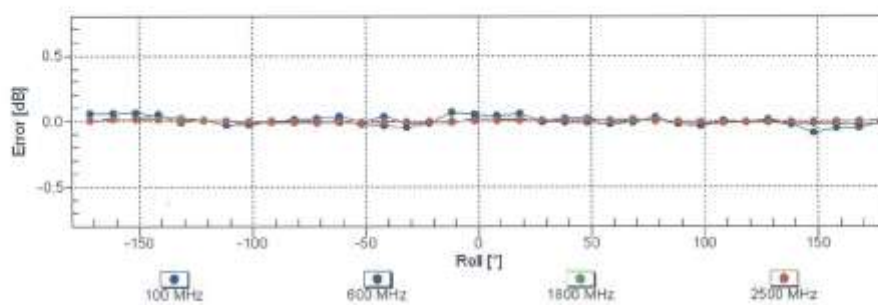


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ (k=2)

EX3DV4- SN:3797

November 22, 2018

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

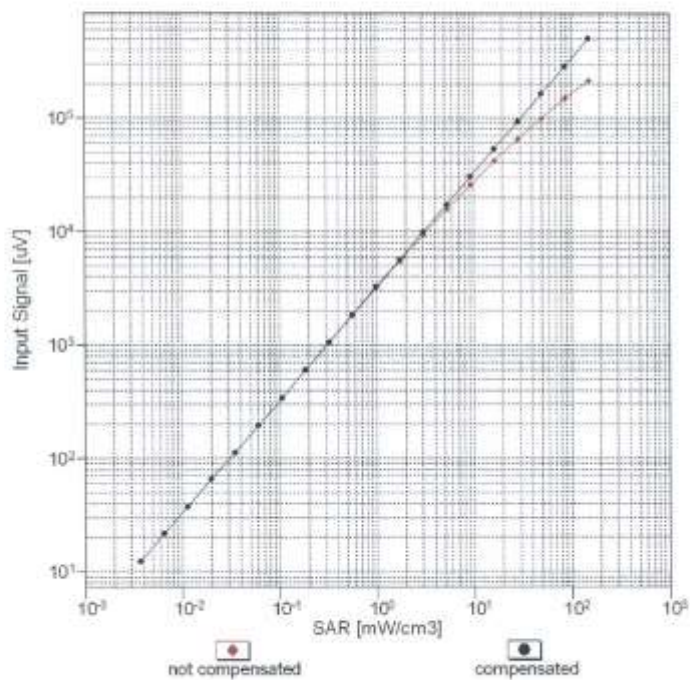
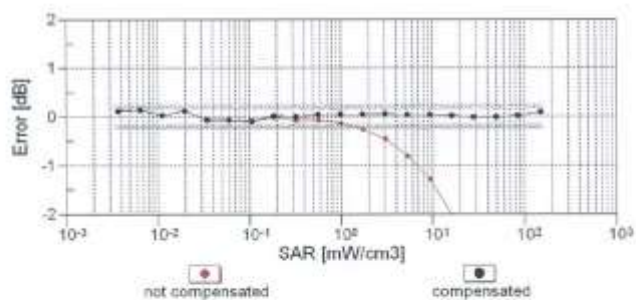


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ (k=2)

EX3DV4- SN:3797

November 22, 2018

Dynamic Range f(SAR_{head}) (TEM cell , f_{eval}= 1900 MHz)

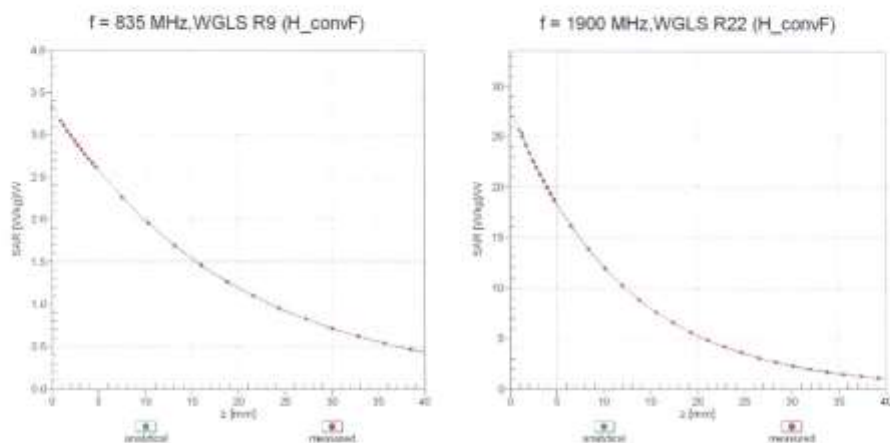


Uncertainty of Linearity Assessment: $\pm 0.6\%$ (k=2)

EX3DV4- SN:3797

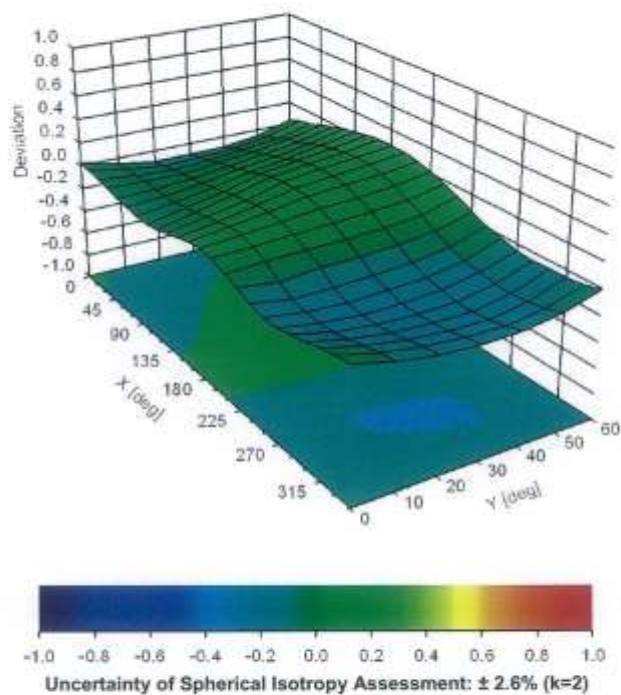
November 22, 2018

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ , θ), $f = 900$ MHz



EX3DV4- SN:3797

November 22, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3797

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	68.3
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:3797

November 22, 2018

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB μ V	C	D dB	VR mV	Max Unc ^E (k=2)
0	CW	X	0.00	0.00	1.00	0.00	150.2	$\pm 3.5\%$
		Y	0.00	0.00	1.00		150.0	
		Z	0.00	0.00	1.00		144.4	
10010- CAA	SAR Validation (Square, 100ms, 10ms)	X	2.43	67.28	10.79	10.00	20.0	$\pm 9.6\%$
		Y	2.76	69.01	11.38		20.0	
		Z	2.08	65.60	9.91		20.0	
10011- CAB	UMTS-FDD (WCDMA)	X	0.95	66.88	14.73	0.00	150.0	$\pm 9.6\%$
		Y	1.02	67.69	15.34		150.0	
		Z	0.81	64.15	12.71		150.0	
10012- CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.11	63.63	15.17	0.41	150.0	$\pm 9.6\%$
		Y	1.16	64.05	15.43		150.0	
		Z	1.05	62.45	14.04		150.0	
10013- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.79	66.72	17.21	1.46	150.0	$\pm 9.6\%$
		Y	4.82	66.83	17.24		150.0	
		Z	4.71	66.47	16.95		150.0	
10021- DAC	GSM-FDD (TDMA, GMSK)	X	100.00	115.64	27.76	9.39	50.0	$\pm 9.6\%$
		Y	100.00	115.68	27.58		50.0	
		Z	100.00	114.37	27.11		50.0	
10023- DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	100.00	114.89	27.46	9.57	50.0	$\pm 9.6\%$
		Y	100.00	114.91	27.27		50.0	
		Z	100.00	113.59	26.80		50.0	
10024- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	100.00	117.40	27.44	6.56	60.0	$\pm 9.6\%$
		Y	100.00	117.72	27.58		60.0	
		Z	100.00	115.59	26.46		60.0	
10025- DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	4.48	74.20	29.24	12.57	50.0	$\pm 9.6\%$
		Y	11.74	110.03	46.33		50.0	
		Z	3.97	70.05	26.73		50.0	
10026- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	8.28	92.40	33.92	9.56	60.0	$\pm 9.6\%$
		Y	12.03	103.56	36.43		60.0	
		Z	6.61	86.51	31.47		60.0	
10027- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	120.48	27.94	4.80	80.0	$\pm 9.6\%$
		Y	100.00	121.28	28.40		80.0	
		Z	100.00	117.35	26.35		80.0	
10028- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	124.42	28.82	3.55	100.0	$\pm 9.6\%$
		Y	100.00	126.11	29.75		100.0	
		Z	100.00	118.56	26.07		100.0	
10029- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	5.13	80.54	27.84	7.80	80.0	$\pm 9.6\%$
		Y	6.15	85.39	30.07		80.0	
		Z	4.39	76.83	26.09		80.0	
10030- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	100.00	116.07	26.36	5.30	70.0	$\pm 9.6\%$
		Y	100.00	116.79	26.74		70.0	
		Z	100.00	113.50	25.02		70.0	
10031- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	100.00	116.20	23.87	1.88	100.0	$\pm 9.6\%$
		Y	100.00	126.20	28.25		100.0	
		Z	100.00	101.52	17.73		100.0	

EX3DV4- SN:3797

November 22, 2018

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	100.00	112.02	21.23	1.17	100.0	± 9.6 %
		Y	100.00	136.79	31.30		100.0	
		Z	0.16	60.22	4.52		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH1)	X	100.00	131.62	35.50	5.30	70.0	± 9.6 %
		Y	100.00	132.08	35.76		70.0	
		Z	22.59	106.63	28.78		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH3)	X	5.74	87.09	21.40	1.88	100.0	± 9.6 %
		Y	8.49	92.58	23.30		100.0	
		Z	2.09	72.85	15.61		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (PI/4-DQPSK, DH5)	X	2.46	76.34	17.25	1.17	100.0	± 9.6 %
		Y	3.26	80.08	18.87		100.0	
		Z	1.32	67.90	13.03		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	100.00	132.20	35.76	5.30	70.0	± 9.6 %
		Y	100.00	132.62	36.01		70.0	
		Z	50.75	119.58	32.16		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	4.80	84.78	20.64	1.88	100.0	± 9.6 %
		Y	7.00	90.05	22.53		100.0	
		Z	1.92	71.86	15.20		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	2.52	76.94	17.62	1.17	100.0	± 9.6 %
		Y	3.31	80.62	19.20		100.0	
		Z	1.33	68.14	13.26		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	1.42	69.17	13.54	0.00	150.0	± 9.6 %
		Y	1.65	71.11	14.72		150.0	
		Z	0.95	64.31	10.49		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Halfrate)	X	100.00	111.47	25.07	7.78	50.0	± 9.6 %
		Y	100.00	111.92	25.21		50.0	
		Z	100.00	109.88	24.25		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.03	119.39	12.00	0.00	150.0	± 9.6 %
		Y	0.00	103.59	3.95		150.0	
		Z	0.03	121.88	0.98		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	100.00	111.20	27.29	13.80	25.0	± 9.6 %
		Y	100.00	111.87	27.12		25.0	
		Z	100.00	109.47	26.56		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	100.00	112.58	26.76	10.79	40.0	± 9.6 %
		Y	980.92	139.65	31.95		40.0	
		Z	100.00	111.36	26.17		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	100.00	125.87	34.11	9.03	50.0	± 9.6 %
		Y	100.00	126.99	34.54		50.0	
		Z	100.00	124.36	33.29		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	4.04	75.49	24.77	6.55	100.0	± 9.6 %
		Y	4.56	78.44	26.18		100.0	
		Z	3.57	72.72	23.36		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.15	64.80	15.90	0.61	110.0	± 9.6 %
		Y	1.20	65.32	16.20		110.0	
		Z	1.07	63.29	14.59		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	100.00	142.79	37.47	1.30	110.0	± 9.6 %
		Y	100.00	143.52	37.98		110.0	
		Z	3.25	88.20	22.84		110.0	

EX3DV4-- SN:3797

November 22, 2018

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	3.24	84.95	24.64	2.04	110.0	± 9.6 %
		Y	4.06	88.64	25.98		110.0	
		Z	1.99	75.80	20.63		110.0	
10062-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.58	66.64	16.56	0.49	100.0	± 9.6 %
		Y	4.81	66.76	16.59		100.0	
		Z	4.49	66.34	16.26		100.0	
10063-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.60	66.75	16.68	0.72	100.0	± 9.6 %
		Y	4.63	66.87	16.71		100.0	
		Z	4.51	66.45	16.38		100.0	
10064-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.87	67.00	16.91	0.86	100.0	± 9.6 %
		Y	4.90	67.11	16.93		100.0	
		Z	4.77	66.71	16.62		100.0	
10065-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.75	66.91	17.04	1.21	100.0	± 9.6 %
		Y	4.77	67.02	17.06		100.0	
		Z	4.64	66.60	16.74		100.0	
10066-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.76	66.93	17.22	1.46	100.0	± 9.6 %
		Y	4.79	67.05	17.24		100.0	
		Z	4.66	66.63	16.92		100.0	
10067-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	5.06	67.18	17.71	2.04	100.0	± 9.6 %
		Y	5.09	67.30	17.74		100.0	
		Z	4.96	66.94	17.46		100.0	
10068-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	5.10	67.17	17.93	2.55	100.0	± 9.6 %
		Y	5.12	67.29	17.96		100.0	
		Z	5.00	66.90	17.66		100.0	
10069-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	5.17	67.19	18.13	2.67	100.0	± 9.6 %
		Y	5.20	67.32	18.17		100.0	
		Z	5.07	66.94	17.87		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.89	66.81	17.54	1.99	100.0	± 9.6 %
		Y	4.91	66.93	17.57		100.0	
		Z	4.81	66.58	17.29		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.86	67.13	17.78	2.30	100.0	± 9.6 %
		Y	4.89	67.25	17.81		100.0	
		Z	4.77	66.85	17.51		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	4.92	67.31	18.14	2.83	100.0	± 9.6 %
		Y	4.95	67.44	18.18		100.0	
		Z	4.83	67.04	17.87		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.91	67.21	18.29	3.30	100.0	± 9.6 %
		Y	4.93	67.34	18.34		100.0	
		Z	4.83	66.96	18.04		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	4.94	67.28	18.61	3.82	90.0	± 9.6 %
		Y	4.96	67.42	18.66		90.0	
		Z	4.85	67.01	18.34		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	4.95	67.09	18.74	4.15	90.0	± 9.6 %
		Y	4.97	67.23	18.80		90.0	
		Z	4.88	66.86	18.50		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	4.98	67.16	18.85	4.30	90.0	± 9.6 %
		Y	5.00	67.30	18.91		90.0	
		Z	4.91	66.94	18.61		90.0	

EX3DV4-- SN:3797

November 22, 2018

10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.66	63.94	10.50	0.00	150.0	± 9.6 %
		Y	0.75	65.23	11.58		150.0	
		Z	0.52	61.29	8.23		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	1.28	62.90	5.22	4.77	80.0	± 9.6 %
		Y	0.66	60.00	4.27		80.0	
		Z	3.68	66.40	5.96		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	100.00	117.49	27.50	6.56	60.0	± 9.6 %
		Y	100.00	117.76	27.62		60.0	
		Z	100.00	115.71	28.53		60.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.76	67.54	15.36	0.00	150.0	± 9.6 %
		Y	1.82	67.97	15.67		150.0	
		Z	1.58	65.73	13.99		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.72	67.49	15.33	0.00	150.0	± 9.6 %
		Y	1.78	67.94	15.65		150.0	
		Z	1.54	65.66	13.95		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	8.36	92.60	33.99	9.56	60.0	± 9.6 %
		Y	12.20	103.90	38.55		60.0	
		Z	6.66	86.68	31.54		60.0	
10100-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	2.99	69.83	16.49	0.00	150.0	± 9.6 %
		Y	3.07	70.27	16.71		150.0	
		Z	2.72	68.21	15.49		150.0	
10101-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.13	67.20	15.80	0.00	150.0	± 9.6 %
		Y	3.18	67.46	15.92		150.0	
		Z	2.99	66.38	15.18		150.0	
10102-CAE	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.24	67.20	15.90	0.00	150.0	± 9.6 %
		Y	3.28	67.42	16.00		150.0	
		Z	3.10	66.43	15.32		150.0	
10103-CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.21	76.81	21.40	3.98	65.0	± 9.6 %
		Y	6.83	78.45	22.01		65.0	
		Z	5.32	74.17	20.21		65.0	
10104-CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	5.85	73.50	20.74	3.98	65.0	± 9.6 %
		Y	6.22	74.66	21.21		65.0	
		Z	5.39	72.11	20.01		65.0	
10105-CAG	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	5.63	72.54	20.60	3.98	65.0	± 9.6 %
		Y	6.09	74.10	21.28		65.0	
		Z	5.01	70.41	19.51		65.0	
10108-CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.59	69.15	16.32	0.00	150.0	± 9.6 %
		Y	2.66	69.54	16.54		150.0	
		Z	2.35	67.51	15.27		150.0	
10109-CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.78	67.09	15.66	0.00	150.0	± 9.6 %
		Y	2.83	67.34	15.80		150.0	
		Z	2.63	66.15	14.93		150.0	
10110-CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	2.08	68.31	15.85	0.00	150.0	± 9.6 %
		Y	2.15	68.74	16.13		150.0	
		Z	1.86	66.52	14.61		150.0	
10111-CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.49	68.01	15.86	0.00	150.0	± 9.6 %
		Y	2.54	68.25	16.02		150.0	
		Z	2.29	66.65	14.83		150.0	

EX3DV4- SN:3797

November 22, 2018

10112-CAG	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	2.90	67.13	15.74	0.00	150.0	± 9.6 %
		Y	2.95	67.35	15.86		150.0	
		Z	2.75	66.25	15.04		150.0	
10113-CAG	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.64	68.20	16.02	0.00	150.0	± 9.6 %
		Y	2.69	68.40	16.15		150.0	
		Z	2.44	66.90	15.03		150.0	
10114-CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	5.04	67.07	16.44	0.00	150.0	± 9.6 %
		Y	5.06	67.18	16.45		150.0	
		Z	4.94	66.72	16.15		150.0	
10115-CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.30	67.14	16.49	0.00	150.0	± 9.6 %
		Y	5.31	67.23	16.49		150.0	
		Z	5.20	66.83	16.22		150.0	
10116-CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.13	67.26	16.47	0.00	150.0	± 9.6 %
		Y	5.14	67.35	16.47		150.0	
		Z	5.02	66.92	16.18		150.0	
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	5.01	66.94	16.39	0.00	150.0	± 9.6 %
		Y	5.02	67.05	16.41		150.0	
		Z	4.92	66.86	16.14		150.0	
10118-CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.38	67.36	16.61	0.00	150.0	± 9.6 %
		Y	5.39	67.44	16.60		150.0	
		Z	5.28	67.06	16.35		150.0	
10119-CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	5.11	67.23	16.46	0.00	150.0	± 9.6 %
		Y	5.12	67.31	16.46		150.0	
		Z	5.02	66.91	16.19		150.0	
10140-CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.27	67.21	15.82	0.00	150.0	± 9.6 %
		Y	3.31	67.44	15.93		150.0	
		Z	3.12	66.44	15.23		150.0	
10141-CAE	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.39	67.34	16.00	0.00	150.0	± 9.6 %
		Y	3.43	67.55	16.09		150.0	
		Z	3.25	66.61	15.44		150.0	
10142-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	1.84	68.20	15.29	0.00	150.0	± 9.6 %
		Y	1.92	68.72	15.66		150.0	
		Z	1.59	66.01	13.74		150.0	
10143-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.31	68.50	15.23	0.00	150.0	± 9.6 %
		Y	2.38	68.90	15.52		150.0	
		Z	2.02	66.48	13.77		150.0	
10144-CAE	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	2.05	65.96	13.46	0.00	150.0	± 9.6 %
		Y	2.13	66.43	13.81		150.0	
		Z	1.85	64.54	12.27		150.0	
10145-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	0.93	62.61	9.49	0.00	150.0	± 9.6 %
		Y	1.02	63.56	10.30		150.0	
		Z	0.77	60.78	7.75		150.0	
10146-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	1.53	64.18	10.10	0.00	150.0	± 9.6 %
		Y	1.40	63.23	9.48		150.0	
		Z	1.28	62.90	9.09		150.0	
10147-CAF	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	1.75	65.67	10.97	0.00	150.0	± 9.6 %
		Y	1.54	64.27	10.14		150.0	
		Z	1.42	63.99	9.78		150.0	

Certificate No: EX3-3797_Nov18

Page 16 of 39

EX3DV4- SN:3797

November 22, 2018

10149-CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.79	67.15	15.71	0.00	150.0	± 9.6 %
		Y	2.83	67.40	15.84		150.0	
		Z	2.63	66.20	14.97		150.0	
10150-CAE	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	2.91	67.18	15.78	0.00	150.0	± 9.6 %
		Y	2.96	67.41	15.90		150.0	
		Z	2.76	66.30	15.09		150.0	
10151-CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	6.63	79.87	22.73	3.98	65.0	± 9.6 %
		Y	7.34	81.59	23.36		65.0	
		Z	5.70	77.30	21.58		65.0	
10152-CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	5.41	73.65	20.48	3.98	65.0	± 9.6 %
		Y	5.80	74.91	21.01		65.0	
		Z	4.93	72.09	19.63		65.0	
10153-CAG	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	5.79	74.70	21.31	3.98	65.0	± 9.6 %
		Y	6.18	75.87	21.78		65.0	
		Z	5.29	73.15	20.48		65.0	
10154-CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.13	68.70	16.10	0.00	150.0	± 9.6 %
		Y	2.19	69.10	16.35		150.0	
		Z	1.89	66.81	14.80		150.0	
10155-CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.50	68.04	15.89	0.00	150.0	± 9.6 %
		Y	2.55	68.28	16.04		150.0	
		Z	2.29	66.66	14.85		150.0	
10156-CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.67	68.03	14.84	0.00	150.0	± 9.6 %
		Y	1.75	68.67	15.30		150.0	
		Z	1.40	65.49	13.04		150.0	
10157-CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	1.86	66.26	13.25	0.00	150.0	± 9.6 %
		Y	1.95	66.85	13.70		150.0	
		Z	1.62	64.41	11.79		150.0	
10158-CAG	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.65	68.27	16.07	0.00	150.0	± 9.6 %
		Y	2.70	68.46	16.20		150.0	
		Z	2.44	66.97	15.07		150.0	
10159-CAG	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	1.96	66.64	13.50	0.00	150.0	± 9.6 %
		Y	2.05	67.24	13.94		150.0	
		Z	1.69	64.66	11.97		150.0	
10160-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.65	68.54	16.21	0.00	150.0	± 9.6 %
		Y	2.69	68.75	16.35		150.0	
		Z	2.45	67.22	15.28		150.0	
10161-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.80	67.14	15.68	0.00	150.0	± 9.6 %
		Y	2.85	67.36	15.81		150.0	
		Z	2.65	66.20	14.93		150.0	
10162-CAE	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	2.92	67.33	15.81	0.00	150.0	± 9.6 %
		Y	2.96	67.54	15.93		150.0	
		Z	2.76	66.42	15.09		150.0	
10166-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.44	69.55	19.40	3.01	150.0	± 9.6 %
		Y	3.33	68.90	18.87		150.0	
		Z	3.24	68.96	19.27		150.0	
10167-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	4.13	72.29	19.77	3.01	150.0	± 9.6 %
		Y	3.90	71.32	19.14		150.0	
		Z	3.70	71.38	19.59		150.0	

Certificate No: EX3-3797_Nov18

Page 17 of 39

EX3DV4- SN:3797

November 22, 2018

10168-CAF	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	4.63	74.86	21.28	3.01	150.0	± 9.6 %
		Y	4.29	73.38	20.41		150.0	
		Z	4.15	74.02	21.18		150.0	
10169-CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	2.79	68.20	18.83	3.01	150.0	± 9.6 %
		Y	2.65	67.41	18.22		150.0	
		Z	2.49	66.85	18.41		150.0	
10170-CAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	3.64	73.58	21.05	3.01	150.0	± 9.6 %
		Y	3.29	71.87	20.05		150.0	
		Z	3.00	71.52	20.54		150.0	
10171-AAE	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	3.04	69.71	18.31	3.01	150.0	± 9.6 %
		Y	2.83	68.75	17.68		150.0	
		Z	2.54	67.99	17.82		150.0	
10172-CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	7.18	91.49	29.93	6.02	65.0	± 9.6 %
		Y	8.71	95.67	31.16		65.0	
		Z	4.19	81.85	26.91		65.0	
10173-CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	17.70	105.49	32.36	6.02	65.0	± 9.6 %
		Y	16.61	103.92	31.56		65.0	
		Z	10.92	99.79	31.44		65.0	
10174-CAG	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	14.21	99.83	30.00	6.02	65.0	± 9.6 %
		Y	14.18	99.46	29.55		65.0	
		Z	10.79	98.15	30.21		65.0	
10175-CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.76	67.91	18.58	3.01	150.0	± 9.6 %
		Y	2.63	67.19	18.02		150.0	
		Z	2.47	66.60	18.17		150.0	
10176-CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	3.65	73.60	21.06	3.01	150.0	± 9.6 %
		Y	3.30	71.89	20.06		150.0	
		Z	3.00	71.54	20.55		150.0	
10177-CAI	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	2.78	68.05	18.67	3.01	150.0	± 9.6 %
		Y	2.65	67.30	18.09		150.0	
		Z	2.49	66.72	18.25		150.0	
10178-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	3.62	73.43	20.96	3.01	150.0	± 9.6 %
		Y	3.26	71.76	19.98		150.0	
		Z	2.98	71.39	20.46		150.0	
10179-CAG	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	3.31	71.56	19.56	3.01	150.0	± 9.6 %
		Y	3.04	70.27	18.77		150.0	
		Z	2.75	69.71	19.08		150.0	
10180-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	3.03	69.66	18.27	3.01	150.0	± 9.6 %
		Y	2.82	68.72	17.65		150.0	
		Z	2.53	67.95	17.79		150.0	
10181-CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	2.77	68.03	18.66	3.01	150.0	± 9.6 %
		Y	2.64	67.28	18.08		150.0	
		Z	2.48	66.71	18.25		150.0	
10182-CAE	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	3.61	73.41	20.94	3.01	150.0	± 9.6 %
		Y	3.27	71.74	19.97		150.0	
		Z	2.98	71.37	20.44		150.0	
10183-AAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	3.03	69.63	18.26	3.01	150.0	± 9.6 %
		Y	2.82	68.70	17.64		150.0	
		Z	2.53	67.93	17.78		150.0	

EX3DV4- SN:3797

November 22, 2018

10184-CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	2.78	68.07	18.68	3.01	150.0	± 9.6 %
		Y	2.65	67.32	18.10		150.0	
		Z	2.49	66.75	18.27		150.0	
10185-CAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	3.63	73.47	20.98	3.01	150.0	± 9.6 %
		Y	3.29	71.79	20.00		150.0	
		Z	2.99	71.44	20.48		150.0	
10186-AAE	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	3.04	69.70	18.29	3.01	150.0	± 9.6 %
		Y	2.83	68.75	17.67		150.0	
		Z	2.54	67.99	17.81		150.0	
10187-CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	2.79	68.13	18.75	3.01	150.0	± 9.6 %
		Y	2.66	67.37	18.17		150.0	
		Z	2.50	66.80	18.34		150.0	
10188-CAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	3.73	74.07	21.34	3.01	150.0	± 9.6 %
		Y	3.36	72.26	20.30		150.0	
		Z	3.06	71.98	20.83		150.0	
10189-AAF	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	3.10	70.08	18.56	3.01	150.0	± 9.6 %
		Y	2.86	69.07	17.91		150.0	
		Z	2.59	68.34	18.07		150.0	
10193-CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.42	66.52	16.10	0.00	150.0	± 9.6 %
		Y	4.45	66.65	16.14		150.0	
		Z	4.32	66.20	15.78		150.0	
10194-CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.57	66.80	16.23	0.00	150.0	± 9.6 %
		Y	4.60	66.94	16.27		150.0	
		Z	4.47	66.47	15.92		150.0	
10195-CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.61	66.84	16.25	0.00	150.0	± 9.6 %
		Y	4.64	66.97	16.29		150.0	
		Z	4.51	66.50	15.94		150.0	
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.41	66.56	16.11	0.00	150.0	± 9.6 %
		Y	4.44	66.69	16.14		150.0	
		Z	4.31	66.22	15.77		150.0	
10197-CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.59	66.82	16.25	0.00	150.0	± 9.6 %
		Y	4.62	66.95	16.28		150.0	
		Z	4.48	66.48	15.93		150.0	
10198-CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.61	66.85	16.26	0.00	150.0	± 9.6 %
		Y	4.64	66.98	16.30		150.0	
		Z	4.50	66.51	15.95		150.0	
10219-CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.36	66.58	16.07	0.00	150.0	± 9.6 %
		Y	4.39	66.71	16.11		150.0	
		Z	4.26	66.23	15.73		150.0	
10220-CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.58	66.78	16.23	0.00	150.0	± 9.6 %
		Y	4.61	66.92	16.27		150.0	
		Z	4.47	66.45	15.92		150.0	
10221-CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.62	66.78	16.25	0.00	150.0	± 9.6 %
		Y	4.65	66.91	16.28		150.0	
		Z	4.52	66.45	15.94		150.0	
10222-CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	4.98	68.93	18.38	0.00	150.0	± 9.6 %
		Y	5.00	67.04	16.40		150.0	
		Z	4.89	66.63	16.12		150.0	

EX3DV4- SN:3797

November 22, 2018

10223-CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.28	67.18	16.53	0.00	150.0	± 9.6 %
		Y	5.30	67.28	16.54		150.0	
		Z	5.18	66.90	16.28		150.0	
10224-CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	5.02	67.04	16.36	0.00	150.0	± 9.6 %
		Y	5.04	67.15	16.38		150.0	
		Z	4.93	66.73	16.09		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.68	65.94	15.03	0.00	150.0	± 9.6 %
		Y	2.73	66.16	15.17		150.0	
		Z	2.55	65.17	14.29		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	19.48	107.50	33.05	6.02	65.0	± 9.6 %
		Y	18.01	105.59	32.15		65.0	
		Z	11.90	101.66	32.13		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	20.78	106.86	32.13	6.02	65.0	± 9.6 %
		Y	18.24	103.95	30.91		65.0	
		Z	14.02	103.23	31.84		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	8.44	95.43	31.41	6.02	65.0	± 9.6 %
		Y	9.06	96.77	31.59		65.0	
		Z	5.47	87.97	29.35		65.0	
10229-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	17.84	105.62	32.41	6.02	65.0	± 9.6 %
		Y	16.73	104.02	31.59		65.0	
		Z	11.02	99.94	31.49		65.0	
10230-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	18.76	104.86	31.47	6.02	65.0	± 9.6 %
		Y	16.76	102.31	30.36		65.0	
		Z	12.64	101.15	31.14		65.0	
10231-CAC	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	8.03	94.27	30.94	6.02	65.0	± 9.6 %
		Y	8.64	95.70	31.16		65.0	
		Z	5.26	87.04	28.92		65.0	
10232-CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	17.81	105.60	32.40	6.02	65.0	± 9.6 %
		Y	16.70	104.01	31.59		65.0	
		Z	10.99	99.90	31.48		65.0	
10233-CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	18.88	104.80	31.46	6.02	65.0	± 9.6 %
		Y	16.70	102.27	30.35		65.0	
		Z	12.57	101.06	31.11		65.0	
10234-CAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	7.74	93.35	30.50	6.02	65.0	± 9.6 %
		Y	8.33	94.80	30.73		65.0	
		Z	5.12	86.37	28.55		65.0	
10235-CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	17.85	105.67	32.42	6.02	65.0	± 9.6 %
		Y	16.74	104.08	31.61		65.0	
		Z	11.01	99.95	31.50		65.0	
10236-CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	19.05	105.11	31.54	6.02	65.0	± 9.6 %
		Y	17.02	102.57	30.43		65.0	
		Z	12.83	101.40	31.21		65.0	
10237-CAF	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	8.04	94.35	30.97	6.02	65.0	± 9.6 %
		Y	8.66	95.80	31.20		65.0	
		Z	5.25	87.08	28.94		65.0	
10238-CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	17.77	105.58	32.40	6.02	65.0	± 9.6 %
		Y	16.67	103.99	31.59		65.0	
		Z	10.96	99.87	31.47		65.0	

EX3DV4- SN:3797

November 22, 2018

10239-CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	18.60	104.75	31.45	6.02	65.0	± 9.6 %
		Y	16.63	102.22	30.34		65.0	
		Z	12.50	100.98	31.09		65.0	
10240-CAF	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	8.02	94.30	30.95	6.02	65.0	± 9.6 %
		Y	8.64	95.75	31.18		65.0	
		Z	5.24	87.04	28.93		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	7.68	81.84	26.30	6.98	65.0	± 9.6 %
		Y	7.79	82.28	26.37		65.0	
		Z	6.72	80.23	25.93		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	7.22	80.50	25.66	6.98	65.0	± 9.6 %
		Y	7.61	81.83	26.11		65.0	
		Z	6.03	77.86	24.63		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	5.76	76.50	24.87	6.98	65.0	± 9.6 %
		Y	6.07	77.93	25.44		65.0	
		Z	5.01	74.07	23.97		65.0	
10244-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	6.36	78.37	19.60	3.98	65.0	± 9.6 %
		Y	5.83	76.62	18.65		65.0	
		Z	5.73	77.48	19.17		65.0	
10245-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	5.99	77.12	19.03	3.98	65.0	± 9.6 %
		Y	5.55	75.60	18.17		65.0	
		Z	5.35	76.12	18.55		65.0	
10246-CAC	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	6.26	81.92	21.11	3.98	65.0	± 9.6 %
		Y	7.50	84.58	22.10		65.0	
		Z	4.19	75.68	18.29		65.0	
10247-CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	4.80	74.45	18.85	3.98	65.0	± 9.6 %
		Y	5.23	75.76	19.42		65.0	
		Z	4.03	71.73	17.30		65.0	
10248-CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	4.69	73.54	18.43	3.98	65.0	± 9.6 %
		Y	5.11	74.83	19.00		65.0	
		Z	3.98	71.02	16.95		65.0	
10249-CAF	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	7.96	86.51	23.96	3.98	65.0	± 9.6 %
		Y	9.50	89.31	24.93		65.0	
		Z	5.58	80.58	21.48		65.0	
10250-CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	5.61	76.81	21.78	3.98	65.0	± 9.6 %
		Y	6.05	78.05	22.26		65.0	
		Z	4.95	74.65	20.64		65.0	
10251-CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	5.26	74.26	20.26	3.98	65.0	± 9.6 %
		Y	5.67	75.54	20.81		65.0	
		Z	4.70	72.42	19.23		65.0	
10252-CAF	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	7.24	84.15	24.32	3.98	65.0	± 9.6 %
		Y	8.33	86.51	25.15		65.0	
		Z	5.78	80.23	22.65		65.0	
10253-CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	5.31	73.15	20.20	3.98	65.0	± 9.6 %
		Y	5.67	74.35	20.72		65.0	
		Z	4.86	71.69	19.38		65.0	
10254-CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	5.65	74.10	20.93	3.98	65.0	± 9.6 %
		Y	6.02	75.23	21.40		65.0	
		Z	5.18	72.63	20.11		65.0	

Certificate No: EX3-3797_Nov18

Page 21 of 39

EX3DV4- SN:3797

November 22, 2018

10255-CAF	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.22	78.90	22.55	3.98	65.0	± 9.6 %
		Y	6.86	80.57	23.17		65.0	
		Z	5.41	76.51	21.43		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	4.34	72.18	15.80	3.98	65.0	± 9.6 %
		Y	4.09	71.08	15.11		65.0	
		Z	3.73	70.71	14.99		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	4.04	70.80	15.07	3.98	65.0	± 9.6 %
		Y	3.87	69.98	14.50		65.0	
		Z	3.47	69.31	14.21		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	3.93	74.08	16.95	3.98	65.0	± 9.6 %
		Y	4.66	76.42	17.97		65.0	
		Z	2.76	69.17	14.33		65.0	
10259-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	5.15	75.48	19.97	3.96	65.0	± 9.6 %
		Y	5.59	76.75	20.50		65.0	
		Z	4.42	72.99	18.59		65.0	
10260-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	5.14	75.03	19.77	3.98	65.0	± 9.6 %
		Y	5.56	76.25	20.28		65.0	
		Z	4.44	72.66	18.43		65.0	
10261-CAC	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	7.02	84.08	23.61	3.98	65.0	± 9.6 %
		Y	8.17	86.55	24.48		65.0	
		Z	5.35	79.48	21.59		65.0	
10262-CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	5.60	76.74	21.73	3.98	65.0	± 9.6 %
		Y	6.03	77.99	22.21		65.0	
		Z	4.94	74.58	20.59		65.0	
10263-CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	5.25	74.23	20.25	3.98	65.0	± 9.6 %
		Y	5.66	75.51	20.80		65.0	
		Z	4.69	72.39	19.22		65.0	
10264-CAF	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	7.15	83.88	24.20	3.98	65.0	± 9.6 %
		Y	8.23	86.24	25.03		65.0	
		Z	5.72	80.00	22.53		65.0	
10265-CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	5.41	73.66	20.48	3.98	65.0	± 9.6 %
		Y	5.80	74.91	21.02		65.0	
		Z	4.93	72.09	19.64		65.0	
10266-CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	5.79	74.68	21.29	3.98	65.0	± 9.6 %
		Y	6.17	75.86	21.77		65.0	
		Z	5.28	73.13	20.47		65.0	
10267-CAF	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	6.62	79.81	22.71	3.98	65.0	± 9.6 %
		Y	7.32	81.53	23.33		65.0	
		Z	5.69	77.25	21.56		65.0	
10268-CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	5.99	73.34	20.75	3.98	65.0	± 9.6 %
		Y	6.34	74.42	21.20		65.0	
		Z	5.56	72.06	20.07		65.0	
10269-CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	5.97	72.89	20.59	3.98	65.0	± 9.6 %
		Y	6.30	73.93	21.03		65.0	
		Z	5.56	71.68	19.94		65.0	
10270-CAF	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.24	76.14	21.33	3.98	65.0	± 9.6 %
		Y	6.69	77.35	21.78		65.0	
		Z	5.63	74.45	20.52		65.0	

EX3DV4- SN:3797

November 22, 2018

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.49	66.39	14.98	0.00	150.0	± 9.6 %
		Y	2.54	66.66	15.17		150.0	
		Z	2.35	65.48	14.17		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.51	67.52	15.15	0.00	150.0	± 9.6 %
		Y	1.58	68.12	15.56		150.0	
		Z	1.33	65.38	13.60		150.0	
10277-CAA	PHS (QPSK)	X	1.79	60.76	6.30	9.03	50.0	± 9.6 %
		Y	1.71	60.71	6.14		50.0	
		Z	1.67	60.31	5.83		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Roll-off 0.5)	X	5.04	74.25	15.99	9.03	50.0	± 9.6 %
		Y	6.19	77.50	17.27		50.0	
		Z	3.73	69.93	13.77		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Roll-off 0.38)	X	5.21	74.65	16.22	9.03	50.0	± 9.6 %
		Y	6.43	77.96	17.52		50.0	
		Z	3.85	70.27	13.99		50.0	
10290-AAB	CDMA2000, RC1, SO55, Full Rate	X	1.12	66.14	11.84	0.00	150.0	± 9.6 %
		Y	1.26	67.58	12.85		150.0	
		Z	0.84	62.90	9.47		150.0	
10291-AAB	CDMA2000, RC3, SO55, Full Rate	X	0.65	63.77	10.38	0.00	150.0	± 9.6 %
		Y	0.74	65.01	11.45		150.0	
		Z	0.51	61.20	8.16		150.0	
10292-AAB	CDMA2000, RC3, SO32, Full Rate	X	0.84	67.52	12.62	0.00	150.0	± 9.6 %
		Y	1.02	69.87	14.15		150.0	
		Z	0.56	62.63	9.27		150.0	
10293-AAB	CDMA2000, RC3, SO3, Full Rate	X	1.51	75.03	16.30	0.00	150.0	± 9.6 %
		Y	1.93	78.54	18.12		150.0	
		Z	0.70	64.95	10.93		150.0	
10295-AAB	CDMA2000, RC1, SO3, 1/8th Rate 25 fr.	X	22.67	101.79	29.16	9.03	50.0	± 9.6 %
		Y	23.36	103.59	30.00		50.0	
		Z	22.16	99.99	28.03		50.0	
10297-AAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.61	69.25	16.39	0.00	150.0	± 9.6 %
		Y	2.67	69.64	16.61		150.0	
		Z	2.36	67.60	15.33		150.0	
10298-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	1.29	65.83	12.46	0.00	150.0	± 9.6 %
		Y	1.40	66.79	13.17		150.0	
		Z	1.05	63.24	10.46		150.0	
10299-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	2.37	68.99	13.63	0.00	150.0	± 9.6 %
		Y	2.01	66.88	12.49		150.0	
		Z	2.07	67.96	12.95		150.0	
10300-AAD	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	1.67	63.94	10.40	0.00	150.0	± 9.6 %
		Y	1.56	63.22	9.90		150.0	
		Z	1.46	63.12	9.72		150.0	
10301-AAA	IEEE 802.16e WIMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.67	65.59	17.41	4.17	50.0	± 9.6 %
		Y	4.75	65.98	17.66		50.0	
		Z	4.59	65.51	17.20		50.0	
10302-AAA	IEEE 802.16e WIMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	5.13	66.16	18.11	4.96	50.0	± 9.6 %
		Y	5.19	66.48	18.33		50.0	
		Z	5.00	65.78	17.74		50.0	

Certificate No: EX3-3797_Nov18

Page 23 of 39

EX3DV4- SN:3797

November 22, 2018

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	4.88	65.79	17.92	4.96	50.0	± 9.6 %
		Y	4.93	66.10	18.14		50.0	
		Z	4.76	65.41	17.53		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.70	65.67	17.42	4.17	50.0	± 9.6 %
		Y	4.75	65.97	17.62		50.0	
		Z	4.57	65.27	17.01		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.37	67.94	19.50	6.02	35.0	± 9.6 %
		Y	4.33	67.88	19.63		35.0	
		Z	4.23	67.43	18.90		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.66	66.87	19.15	6.02	35.0	± 9.6 %
		Y	4.65	66.91	19.28		35.0	
		Z	4.55	66.53	18.71		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.55	66.98	19.09	6.02	35.0	± 9.6 %
		Y	4.54	67.00	19.21		35.0	
		Z	4.43	66.58	18.61		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.53	67.21	19.24	6.02	35.0	± 9.6 %
		Y	4.52	67.24	19.37		35.0	
		Z	4.41	66.79	18.75		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.70	67.05	19.29	6.02	35.0	± 9.6 %
		Y	4.70	67.11	19.42		35.0	
		Z	4.58	66.67	18.83		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.61	66.94	19.14	6.02	35.0	± 9.6 %
		Y	4.60	66.97	19.26		35.0	
		Z	4.50	66.58	18.68		35.0	
10311-AAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	2.96	68.49	16.05	0.00	150.0	± 9.6 %
		Y	3.03	68.88	16.25		150.0	
		Z	2.71	66.96	15.10		150.0	
10313-AAA	iDEN 1:3	X	4.96	79.98	19.19	6.99	70.0	± 9.6 %
		Y	7.33	85.06	20.91		70.0	
		Z	3.06	73.73	16.75		70.0	
10314-AAA	iDEN 1:6	X	10.49	95.79	27.60	10.00	30.0	± 9.6 %
		Y	12.16	99.13	28.82		30.0	
		Z	5.40	84.58	23.81		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.03	63.50	15.02	0.17	150.0	± 9.6 %
		Y	1.07	63.88	15.27		150.0	
		Z	0.97	62.27	13.82		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.48	66.60	16.30	0.17	150.0	± 9.6 %
		Y	4.50	66.73	16.33		150.0	
		Z	4.38	66.27	15.98		150.0	
10317-AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.48	66.60	16.30	0.17	150.0	± 9.6 %
		Y	4.50	66.73	16.33		150.0	
		Z	4.38	66.27	15.98		150.0	
10400-AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.55	66.85	16.23	0.00	150.0	± 9.6 %
		Y	4.59	67.00	16.27		150.0	
		Z	4.44	66.50	15.90		150.0	
10401-AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.32	67.13	16.48	0.00	150.0	± 9.6 %
		Y	5.30	67.14	16.44		150.0	
		Z	5.18	66.70	16.14		150.0	

EX3DV4- SN:3797

November 22, 2018

10402-AAD	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.54	67.28	16.41	0.00	150.0	± 9.6 %
		Y	5.56	67.40	16.43		150.0	
		Z	5.45	67.00	16.17		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	1.12	66.14	11.84	0.00	115.0	± 9.6 %
		Y	1.26	67.58	12.85		115.0	
		Z	0.84	62.90	9.47		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	1.12	66.14	11.84	0.00	115.0	± 9.6 %
		Y	1.26	67.58	12.85		115.0	
		Z	0.84	62.90	9.47		115.0	
10406-AAB	CDMA2000, RC3, SO32, SCH0, Full Rate	X	100.00	125.47	31.86	0.00	100.0	± 9.6 %
		Y	21.02	102.87	25.96		100.0	
		Z	100.00	129.86	33.20		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	132.52	34.83	3.23	80.0	± 9.6 %
		Y	100.00	128.98	33.11		80.0	
		Z	100.00	139.25	37.49		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	0.96	62.72	14.40	0.00	150.0	± 9.6 %
		Y	1.00	63.06	14.64		150.0	
		Z	0.91	61.66	13.28		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.42	66.55	16.18	0.00	150.0	± 9.6 %
		Y	4.45	66.68	16.21		150.0	
		Z	4.32	66.22	15.86		150.0	
10417-AAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.42	66.55	16.18	0.00	150.0	± 9.6 %
		Y	4.45	66.68	16.21		150.0	
		Z	4.32	66.22	15.86		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)	X	4.41	66.73	16.21	0.00	150.0	± 9.6 %
		Y	4.44	66.86	16.25		150.0	
		Z	4.31	66.39	15.89		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)	X	4.43	66.67	16.21	0.00	150.0	± 9.6 %
		Y	4.46	66.80	16.24		150.0	
		Z	4.33	66.34	15.88		150.0	
10422-AAB	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.54	66.66	16.22	0.00	150.0	± 9.6 %
		Y	4.57	66.79	16.26		150.0	
		Z	4.44	66.34	15.91		150.0	
10423-AAB	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.69	66.94	16.32	0.00	150.0	± 9.6 %
		Y	4.72	67.08	16.36		150.0	
		Z	4.57	66.61	16.01		150.0	
10424-AAB	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.61	66.90	16.30	0.00	150.0	± 9.6 %
		Y	4.64	67.03	16.33		150.0	
		Z	4.50	66.56	15.98		150.0	
10425-AAB	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.24	67.19	16.51	0.00	150.0	± 9.6 %
		Y	5.25	67.27	16.51		150.0	
		Z	5.14	66.90	16.25		150.0	
10426-AAB	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.27	67.30	16.56	0.00	150.0	± 9.6 %
		Y	5.27	67.35	16.55		150.0	
		Z	5.17	67.01	16.30		150.0	

Certificate No: EX3-3797_Nov18

Page 25 of 39

EX3DV4-- SN:3797

November 22, 2018

10427-AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.25	67.18	16.50	0.00	150.0	± 9.6 %
		Y	5.26	67.26	16.50		150.0	
		Z	5.14	66.83	16.21		150.0	
10430-AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.16	71.19	18.14	0.00	150.0	± 9.6 %
		Y	4.13	70.88	17.97		150.0	
		Z	3.92	70.23	17.36		150.0	
10431-AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	4.06	67.10	16.09	0.00	150.0	± 9.6 %
		Y	4.10	67.25	16.16		150.0	
		Z	3.92	66.63	15.65		150.0	
10432-AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.37	66.96	16.23	0.00	150.0	± 9.6 %
		Y	4.41	67.10	16.27		150.0	
		Z	4.26	66.58	15.86		150.0	
10433-AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.63	66.93	16.32	0.00	150.0	± 9.6 %
		Y	4.66	67.06	16.35		150.0	
		Z	4.52	66.59	16.00		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.26	72.02	17.99	0.00	150.0	± 9.6 %
		Y	4.21	71.70	17.85		150.0	
		Z	3.92	70.69	17.00		150.0	
10435-AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	132.27	34.71	3.23	80.0	± 9.6 %
		Y	100.00	129.74	32.99		80.0	
		Z	100.00	138.97	37.36		80.0	
10447-AAD	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.32	66.96	15.14	0.00	150.0	± 9.6 %
		Y	3.37	67.18	15.28		150.0	
		Z	3.13	66.17	14.41		150.0	
10448-AAD	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	3.91	66.88	15.96	0.00	150.0	± 9.6 %
		Y	3.95	67.04	16.02		150.0	
		Z	3.78	66.41	15.50		150.0	
10449-AAC	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.20	66.79	16.12	0.00	150.0	± 9.6 %
		Y	4.23	66.93	16.17		150.0	
		Z	4.09	66.39	15.75		150.0	
10450-AAC	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.41	66.70	16.17	0.00	150.0	± 9.6 %
		Y	4.44	66.84	16.21		150.0	
		Z	4.31	66.34	15.84		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	3.16	66.92	14.55	0.00	150.0	± 9.6 %
		Y	3.22	67.20	14.75		150.0	
		Z	2.93	65.93	13.68		150.0	
10456-AAB	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.17	67.85	16.73	0.00	150.0	± 9.6 %
		Y	6.16	67.90	16.71		150.0	
		Z	6.12	67.67	16.56		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.72	65.22	15.89	0.00	150.0	± 9.6 %
		Y	3.75	65.35	15.92		150.0	
		Z	3.66	64.93	15.56		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.83	70.92	17.07	0.00	150.0	± 9.6 %
		Y	3.84	70.86	17.09		150.0	
		Z	3.45	69.27	15.84		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	4.95	68.68	18.05	0.00	150.0	± 9.6 %
		Y	4.90	68.38	17.86		150.0	
		Z	4.77	68.23	17.54		150.0	

EX3DV4- SN:3797

November 22, 2018

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.83	67.74	15.57	0.00	150.0	± 9.6 %
		Y	0.90	68.60	16.23		150.0	
		Z	0.88	64.30	13.06		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	138.46	37.60	3.29	80.0	± 9.6 %
		Y	100.00	133.94	35.46		80.0	
		Z	100.00	145.34	40.34		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	113.15	25.89	3.23	80.0	± 9.6 %
		Y	12.26	87.96	19.03		80.0	
		Z	100.00	117.04	27.13		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	107.41	23.25	3.23	80.0	± 9.6 %
		Y	1.73	67.17	11.65		80.0	
		Z	100.00	109.44	23.70		80.0	
10464-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	135.93	36.22	3.23	80.0	± 9.6 %
		Y	100.00	131.14	33.97		80.0	
		Z	100.00	142.97	39.01		80.0	
10465-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.23	25.47	3.23	80.0	± 9.6 %
		Y	5.34	79.32	16.48		80.0	
		Z	100.00	115.61	26.57		80.0	
10466-AAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	14.68	88.25	18.68	3.23	80.0	± 9.6 %
		Y	1.42	65.25	10.80		80.0	
		Z	100.00	108.37	23.23		80.0	
10467-AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	136.33	36.40	3.23	80.0	± 9.6 %
		Y	100.00	131.51	34.13		80.0	
		Z	100.00	143.45	39.21		80.0	
10468-AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.55	25.61	3.23	80.0	± 9.6 %
		Y	6.54	81.46	17.15		80.0	
		Z	100.00	116.26	26.77		80.0	
10469-AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	16.31	89.29	18.95	3.23	80.0	± 9.6 %
		Y	1.43	65.31	10.83		80.0	
		Z	100.00	108.44	23.25		80.0	
10470-AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	136.40	36.42	3.23	80.0	± 9.6 %
		Y	100.00	131.56	34.15		80.0	
		Z	100.00	143.55	39.25		80.0	
10471-AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.47	25.57	3.23	80.0	± 9.6 %
		Y	6.43	81.26	17.07		80.0	
		Z	100.00	116.16	26.72		80.0	
10472-AAE	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	15.68	88.86	18.81	3.23	80.0	± 9.6 %
		Y	1.42	65.22	10.78		80.0	
		Z	100.00	108.30	23.19		80.0	
10473-AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	100.00	136.36	36.40	3.23	80.0	± 9.6 %
		Y	100.00	131.52	34.13		80.0	
		Z	100.00	143.51	39.23		80.0	
10474-AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.48	25.57	3.23	80.0	± 9.6 %
		Y	6.32	81.09	17.02		80.0	
		Z	100.00	116.18	26.72		80.0	
10475-AAE	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	14.93	88.40	18.70	3.23	80.0	± 9.6 %
		Y	1.41	65.18	10.76		80.0	
		Z	100.00	108.33	23.20		80.0	

Certificate No: EX3-3797_Nov18

Page 27 of 39

EX3DV4- SN:3797

November 22, 2018

10477-AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	112.19	25.43	3.23	80.0	± 9.6 %
		Y	5.42	79.47	16.50		80.0	
		Z	100.00	115.79	26.55		80.0	
10478-AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	13.76	87.56	18.47	3.23	80.0	± 9.6 %
		Y	1.40	65.09	10.71		80.0	
		Z	100.00	108.20	23.14		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	89.95	128.32	35.03	3.23	80.0	± 9.6 %
		Y	14.02	97.76	26.84		80.0	
		Z	100.00	132.70	36.43		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	100.00	117.40	29.50	3.23	80.0	± 9.6 %
		Y	12.27	88.87	21.87		80.0	
		Z	100.00	119.38	30.10		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	47.27	105.49	26.10	3.23	80.0	± 9.6 %
		Y	8.10	82.51	19.45		80.0	
		Z	100.00	116.46	28.67		80.0	
10482-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.31	74.64	17.60	2.23	80.0	± 9.6 %
		Y	3.79	76.47	18.43		80.0	
		Z	1.88	67.00	13.90		80.0	
10483-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	8.02	82.44	19.90	2.23	80.0	± 9.6 %
		Y	4.27	73.84	16.65		80.0	
		Z	8.45	83.47	20.04		80.0	
10484-AAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	6.29	79.01	18.74	2.23	80.0	± 9.6 %
		Y	3.83	72.21	16.02		80.0	
		Z	6.17	79.15	18.61		80.0	
10485-AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.71	76.64	19.69	2.23	80.0	± 9.6 %
		Y	4.01	77.69	20.16		80.0	
		Z	2.47	70.47	16.76		80.0	
10486-AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.16	70.36	16.39	2.23	80.0	± 9.6 %
		Y	3.38	71.24	16.84		80.0	
		Z	2.40	66.52	14.23		80.0	
10487-AAE	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.11	69.73	16.10	2.23	80.0	± 9.6 %
		Y	3.32	70.59	16.54		80.0	
		Z	2.40	66.15	14.03		80.0	
10488-AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.59	74.05	19.63	2.23	80.0	± 9.6 %
		Y	3.82	74.87	19.97		80.0	
		Z	2.86	70.36	17.79		80.0	
10489-AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.37	69.68	17.68	2.23	80.0	± 9.6 %
		Y	3.50	70.17	17.89		80.0	
		Z	2.95	67.59	16.43		80.0	
10490-AAE	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.45	69.44	17.57	2.23	80.0	± 9.6 %
		Y	3.58	69.91	17.78		80.0	
		Z	3.04	67.48	16.39		80.0	
10491-AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.70	71.76	18.84	2.23	80.0	± 9.6 %
		Y	3.88	72.44	19.11		80.0	
		Z	3.16	69.23	17.51		80.0	
10492-AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.65	68.52	17.53	2.23	80.0	± 9.6 %
		Y	3.77	68.97	17.71		80.0	
		Z	3.33	67.05	16.63		80.0	

EX3DV4- SN:3797

November 22, 2018

10493-AAE	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.71	68.36	17.46	2.23	80.0	± 9.6 %
		Y	3.83	68.79	17.64		80.0	
		Z	3.39	66.95	16.58		80.0	
10494-AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.06	73.48	19.41	2.23	80.0	± 9.6 %
		Y	4.29	74.26	19.71		80.0	
		Z	3.37	70.45	17.92		80.0	
10495-AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.68	68.86	17.75	2.23	80.0	± 9.6 %
		Y	3.80	69.32	17.92		80.0	
		Z	3.34	67.30	16.82		80.0	
10496-AAF	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.75	68.55	17.64	2.23	80.0	± 9.6 %
		Y	3.87	68.99	17.80		80.0	
		Z	3.43	67.12	16.77		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.86	66.84	13.06	2.23	80.0	± 9.6 %
		Y	2.31	69.41	14.35		80.0	
		Z	1.16	61.51	9.89		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.24	60.00	8.45	2.23	80.0	± 9.6 %
		Y	1.36	60.85	9.10		80.0	
		Z	1.20	60.00	7.87		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.26	60.00	8.29	2.23	80.0	± 9.6 %
		Y	1.30	60.21	8.59		80.0	
		Z	1.21	60.00	7.71		80.0	
10500-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.56	75.15	19.52	2.23	80.0	± 9.6 %
		Y	3.82	76.08	19.92		80.0	
		Z	2.62	70.35	17.15		80.0	
10501-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.29	70.30	16.97	2.23	80.0	± 9.6 %
		Y	3.46	70.96	17.30		80.0	
		Z	2.68	67.27	15.22		80.0	
10502-AAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.33	70.05	16.79	2.23	80.0	± 9.6 %
		Y	3.50	70.71	17.12		80.0	
		Z	2.72	67.11	15.07		80.0	
10503-AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.54	73.81	19.52	2.23	80.0	± 9.6 %
		Y	3.77	74.65	19.86		80.0	
		Z	2.82	70.17	17.69		80.0	
10504-AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.35	69.57	17.61	2.23	80.0	± 9.6 %
		Y	3.48	70.07	17.83		80.0	
		Z	2.93	67.49	16.37		80.0	
10505-AAE	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.43	69.34	17.51	2.23	80.0	± 9.6 %
		Y	3.56	69.82	17.72		80.0	
		Z	3.02	67.39	16.33		80.0	
10506-AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.03	73.32	19.33	2.23	80.0	± 9.6 %
		Y	4.25	74.11	19.64		80.0	
		Z	3.35	70.32	17.85		80.0	
10507-AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.67	68.79	17.71	2.23	80.0	± 9.6 %
		Y	3.79	69.26	17.89		80.0	
		Z	3.33	67.24	16.78		80.0	

EX3DV4- SN:3797

November 22, 2018

10508-AAE	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.74	68.47	17.59	2.23	80.0	± 9.6 %
		Y	3.86	68.92	17.76		80.0	
		Z	3.42	67.06	16.73		80.0	
10509-AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.29	71.60	18.60	2.23	80.0	± 9.6 %
		Y	4.48	72.24	18.84		80.0	
		Z	3.76	69.45	17.50		80.0	
10510-AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.12	68.30	17.60	2.23	80.0	± 9.6 %
		Y	4.24	68.75	17.76		80.0	
		Z	3.82	67.07	16.86		80.0	
10511-AAE	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.17	68.04	17.52	2.23	80.0	± 9.6 %
		Y	4.29	68.47	17.67		80.0	
		Z	3.89	66.90	16.82		80.0	
10512-AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.54	73.38	19.19	2.23	80.0	± 9.6 %
		Y	4.79	74.17	19.49		80.0	
		Z	3.84	70.62	17.86		80.0	
10513-AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.01	68.56	17.72	2.23	80.0	± 9.6 %
		Y	4.13	69.03	17.89		80.0	
		Z	3.70	67.20	16.93		80.0	
10514-AAF	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.03	68.11	17.57	2.23	80.0	± 9.6 %
		Y	4.15	68.55	17.73		80.0	
		Z	3.75	66.88	16.84		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.92	62.89	14.44	0.00	150.0	± 9.6 %
		Y	0.96	63.25	14.71		150.0	
		Z	0.87	61.74	13.25		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.56	70.18	16.62	0.00	150.0	± 9.6 %
		Y	0.63	71.55	17.72		150.0	
		Z	0.40	64.42	12.64		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.76	64.69	14.94	0.00	150.0	± 9.6 %
		Y	0.81	65.22	15.36		150.0	
		Z	0.69	62.67	13.15		150.0	
10518-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.41	66.63	16.16	0.00	150.0	± 9.6 %
		Y	4.44	66.77	16.20		150.0	
		Z	4.31	66.30	15.83		150.0	
10519-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.57	66.83	16.27	0.00	150.0	± 9.6 %
		Y	4.60	66.96	16.30		150.0	
		Z	4.46	66.49	15.94		150.0	
10520-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.43	66.78	16.18	0.00	150.0	± 9.6 %
		Y	4.46	66.91	16.22		150.0	
		Z	4.32	66.41	15.84		150.0	
10521-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.36	66.76	16.16	0.00	150.0	± 9.6 %
		Y	4.39	66.90	16.20		150.0	
		Z	4.25	66.37	15.81		150.0	
10522-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.42	66.89	16.27	0.00	150.0	± 9.6 %
		Y	4.45	67.03	16.31		150.0	
		Z	4.31	66.51	15.92		150.0	

Certificate No: EX3-3797_Nov18

Page 30 of 39

EX3DV4-- SN:3797

November 22, 2018

10523-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.32	66.79	16.13	0.00	150.0	± 9.6 %
		Y	4.35	66.93	16.17		150.0	
		Z	4.21	66.44	15.80		150.0	
10524-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.36	66.81	16.24	0.00	150.0	± 9.6 %
		Y	4.39	66.95	16.27		150.0	
		Z	4.25	66.44	15.89		150.0	
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.38	65.88	15.84	0.00	150.0	± 9.6 %
		Y	4.40	66.02	15.88		150.0	
		Z	4.27	65.52	15.51		150.0	
10526-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.52	66.20	15.97	0.00	150.0	± 9.6 %
		Y	4.55	66.35	16.01		150.0	
		Z	4.40	65.82	15.63		150.0	
10527-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.44	66.16	15.91	0.00	150.0	± 9.6 %
		Y	4.48	66.31	15.95		150.0	
		Z	4.33	65.77	15.56		150.0	
10528-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.46	66.18	15.94	0.00	150.0	± 9.6 %
		Y	4.49	66.32	15.98		150.0	
		Z	4.34	65.79	15.59		150.0	
10529-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.46	66.18	15.94	0.00	150.0	± 9.6 %
		Y	4.49	66.32	15.98		150.0	
		Z	4.34	65.79	15.59		150.0	
10531-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.44	66.24	15.93	0.00	150.0	± 9.6 %
		Y	4.47	66.39	15.98		150.0	
		Z	4.31	65.82	15.57		150.0	
10532-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.31	66.09	15.86	0.00	150.0	± 9.6 %
		Y	4.34	66.24	15.91		150.0	
		Z	4.19	65.67	15.49		150.0	
10533-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.47	66.25	15.94	0.00	150.0	± 9.6 %
		Y	4.50	66.39	15.98		150.0	
		Z	4.35	65.85	15.59		150.0	
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	5.02	66.26	16.02	0.00	150.0	± 9.6 %
		Y	5.04	66.38	16.04		150.0	
		Z	4.92	65.93	15.74		150.0	
10535-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	5.08	66.44	16.11	0.00	150.0	± 9.6 %
		Y	5.10	66.55	16.12		150.0	
		Z	4.97	66.08	15.82		150.0	
10536-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	4.96	66.40	16.07	0.00	150.0	± 9.6 %
		Y	4.98	66.52	16.09		150.0	
		Z	4.85	66.05	15.77		150.0	
10537-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	5.01	66.36	16.05	0.00	150.0	± 9.6 %
		Y	5.03	66.47	16.07		150.0	
		Z	4.91	66.03	15.77		150.0	
10538-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	5.09	66.36	16.09	0.00	150.0	± 9.6 %
		Y	5.11	66.47	16.11		150.0	
		Z	4.98	66.03	15.81		150.0	
10540-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	5.02	66.34	16.10	0.00	150.0	± 9.6 %
		Y	5.04	66.46	16.12		150.0	
		Z	4.91	65.99	15.81		150.0	

Certificate No: EX3-3797_Nov18

Page 31 of 39

EX3DV4- SN:3797

November 22, 2018

10541-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	5.00	66.22	16.03	0.00	150.0	± 9.6 %
		Y	5.02	66.35	16.05		150.0	
		Z	4.89	65.87	15.73		150.0	
10542-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.15	66.32	16.10	0.00	150.0	± 9.6 %
		Y	5.17	66.44	16.11		150.0	
		Z	5.05	66.00	15.82		150.0	
10543-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.22	66.34	16.13	0.00	150.0	± 9.6 %
		Y	5.24	66.46	16.14		150.0	
		Z	5.12	66.07	15.88		150.0	
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.35	66.35	16.02	0.00	150.0	± 9.6 %
		Y	5.37	66.48	16.04		150.0	
		Z	5.26	66.04	15.76		150.0	
10545-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.54	66.82	16.21	0.00	150.0	± 9.6 %
		Y	5.55	66.90	16.20		150.0	
		Z	5.45	66.52	15.96		150.0	
10546-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.39	66.50	16.06	0.00	150.0	± 9.6 %
		Y	5.41	66.63	16.08		150.0	
		Z	5.30	66.17	15.79		150.0	
10547-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.47	66.59	16.10	0.00	150.0	± 9.6 %
		Y	5.48	66.70	16.11		150.0	
		Z	5.38	66.29	15.85		150.0	
10548-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.69	67.46	16.51	0.00	150.0	± 9.6 %
		Y	5.68	67.48	16.48		150.0	
		Z	5.57	67.05	16.21		150.0	
10550-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.45	66.65	16.15	0.00	150.0	± 9.6 %
		Y	5.45	66.73	16.14		150.0	
		Z	5.36	66.37	15.91		150.0	
10551-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.42	66.56	16.06	0.00	150.0	± 9.6 %
		Y	5.43	66.68	16.08		150.0	
		Z	5.30	66.18	15.77		150.0	
10552-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.35	66.42	16.00	0.00	150.0	± 9.6 %
		Y	5.38	66.56	16.02		150.0	
		Z	5.26	66.12	15.74		150.0	
10553-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.42	66.42	16.03	0.00	150.0	± 9.6 %
		Y	5.44	66.55	16.05		150.0	
		Z	5.33	66.10	15.77		150.0	
10554-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.77	66.71	16.11	0.00	150.0	± 9.6 %
		Y	5.78	66.82	16.12		150.0	
		Z	5.69	66.41	15.87		150.0	
10555-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.89	67.00	16.24	0.00	150.0	± 9.6 %
		Y	5.89	67.10	16.24		150.0	
		Z	5.79	66.68	15.99		150.0	
10556-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	5.91	67.07	16.26	0.00	150.0	± 9.6 %
		Y	5.92	67.17	16.27		150.0	
		Z	5.83	66.77	16.03		150.0	
10557-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.87	66.93	16.21	0.00	150.0	± 9.6 %
		Y	5.88	67.05	16.22		150.0	
		Z	5.78	66.62	15.97		150.0	

EX3DV4-SN:3797

November 22, 2018

10558-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	5.91	67.08	16.30	0.00	150.0	± 9.6 %
		Y	5.92	67.20	16.31		150.0	
		Z	5.80	66.73	16.04		150.0	
10560-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	5.90	66.93	16.27	0.00	150.0	± 9.6 %
		Y	5.92	67.06	16.28		150.0	
		Z	5.81	66.62	16.02		150.0	
10561-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.84	66.94	16.30	0.00	150.0	± 9.6 %
		Y	5.85	67.04	16.31		150.0	
		Z	5.75	66.62	16.05		150.0	
10562-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	5.92	67.19	16.43	0.00	150.0	± 9.6 %
		Y	5.93	67.31	16.45		150.0	
		Z	5.80	66.81	16.15		150.0	
10563-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	6.01	67.12	16.36	0.00	150.0	± 9.6 %
		Y	6.01	67.20	16.35		150.0	
		Z	5.91	66.79	16.11		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.73	66.70	16.33	0.46	150.0	± 9.6 %
		Y	4.76	66.85	16.37		150.0	
		Z	4.64	66.41	16.03		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	4.94	67.13	16.64	0.46	150.0	± 9.6 %
		Y	4.97	67.25	16.67		150.0	
		Z	4.84	66.82	16.35		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	4.78	66.96	16.45	0.46	150.0	± 9.6 %
		Y	4.81	67.09	16.49		150.0	
		Z	4.67	66.63	16.15		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.81	67.35	16.82	0.46	150.0	± 9.6 %
		Y	4.84	67.46	16.83		150.0	
		Z	4.70	67.01	16.51		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.69	66.74	16.23	0.46	150.0	± 9.6 %
		Y	4.72	66.90	16.29		150.0	
		Z	4.58	66.40	15.91		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.78	67.52	16.93	0.46	150.0	± 9.6 %
		Y	4.81	67.61	16.93		150.0	
		Z	4.68	67.19	16.62		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	4.80	67.33	16.83	0.46	150.0	± 9.6 %
		Y	4.83	67.44	16.84		150.0	
		Z	4.69	67.01	16.53		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.10	64.06	15.41	0.46	130.0	± 9.6 %
		Y	1.15	64.53	15.70		130.0	
		Z	1.03	62.72	14.18		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.11	64.63	15.78	0.46	130.0	± 9.6 %
		Y	1.16	65.10	16.06		130.0	
		Z	1.03	63.13	14.46		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	2.01	66.99	23.67	0.46	130.0	± 9.6 %
		Y	2.65	91.42	25.49		130.0	
		Z	0.79	71.06	16.55		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.20	70.42	18.78	0.46	130.0	± 9.6 %
		Y	1.26	70.92	19.07		130.0	
		Z	1.00	66.77	16.35		130.0	

Certificate No: EX3-3797_Nov18

Page 33 of 39

EX3DV4- SN:3797

November 22, 2018

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.52	66.52	16.40	0.46	130.0	± 9.6 %
		Y	4.55	66.65	16.44		130.0	
		Z	4.43	66.21	16.09		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.55	66.70	16.47	0.46	130.0	± 9.6 %
		Y	4.58	66.83	16.51		130.0	
		Z	4.45	66.39	16.17		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	4.73	66.96	16.63	0.46	130.0	± 9.6 %
		Y	4.76	67.08	16.66		130.0	
		Z	4.62	66.64	16.32		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.63	67.11	16.74	0.46	130.0	± 9.6 %
		Y	4.66	67.21	16.75		130.0	
		Z	4.52	66.77	16.41		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.39	66.34	16.01	0.46	130.0	± 9.6 %
		Y	4.43	66.51	16.08		130.0	
		Z	4.28	65.99	15.68		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.44	66.42	16.05	0.46	130.0	± 9.6 %
		Y	4.47	66.59	16.13		130.0	
		Z	4.33	66.07	15.72		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.53	67.16	16.69	0.46	130.0	± 9.6 %
		Y	4.56	67.28	16.71		130.0	
		Z	4.43	66.81	16.37		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.33	66.11	15.80	0.46	130.0	± 9.6 %
		Y	4.37	66.30	15.88		130.0	
		Z	4.22	65.77	15.47		130.0	
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.52	66.52	16.40	0.46	130.0	± 9.6 %
		Y	4.55	66.65	16.44		130.0	
		Z	4.43	66.21	16.09		130.0	
10584-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.55	66.70	16.47	0.46	130.0	± 9.6 %
		Y	4.58	66.83	16.51		130.0	
		Z	4.45	66.39	16.17		130.0	
10585-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	4.73	66.96	16.63	0.46	130.0	± 9.6 %
		Y	4.76	67.08	16.66		130.0	
		Z	4.62	66.64	16.32		130.0	
10586-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.63	67.11	16.74	0.46	130.0	± 9.6 %
		Y	4.66	67.21	16.75		130.0	
		Z	4.52	66.77	16.41		130.0	
10587-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.39	66.34	16.01	0.46	130.0	± 9.6 %
		Y	4.43	66.51	16.08		130.0	
		Z	4.28	65.99	15.68		130.0	
10588-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.44	66.42	16.05	0.46	130.0	± 9.6 %
		Y	4.47	66.59	16.13		130.0	
		Z	4.33	66.07	15.72		130.0	
10589-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.53	67.16	16.69	0.46	130.0	± 9.6 %
		Y	4.56	67.28	16.71		130.0	
		Z	4.43	66.81	16.37		130.0	
10590-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.33	66.11	15.80	0.46	130.0	± 9.6 %
		Y	4.37	66.30	15.88		130.0	
		Z	4.22	65.77	15.47		130.0	

EX3DV4- SN:3797

November 22, 2018

10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.68	66.59	16.51	0.46	130.0	± 9.6 %
		Y	4.70	66.71	16.54		130.0	
		Z	4.59	66.31	16.22		130.0	
10592-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	4.81	66.91	16.64	0.46	130.0	± 9.6 %
		Y	4.84	67.03	16.67		130.0	
		Z	4.71	66.61	16.35		130.0	
10593-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.73	66.79	16.51	0.46	130.0	± 9.6 %
		Y	4.76	66.92	16.54		130.0	
		Z	4.63	66.48	16.21		130.0	
10594-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.79	66.97	16.67	0.46	130.0	± 9.6 %
		Y	4.81	67.09	16.70		130.0	
		Z	4.68	66.66	16.37		130.0	
10595-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.75	66.93	16.57	0.46	130.0	± 9.6 %
		Y	4.78	67.06	16.60		130.0	
		Z	4.65	66.62	16.28		130.0	
10596-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.69	66.92	16.57	0.46	130.0	± 9.6 %
		Y	4.72	67.05	16.61		130.0	
		Z	4.58	66.59	16.26		130.0	
10597-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.64	66.80	16.43	0.46	130.0	± 9.6 %
		Y	4.67	66.94	16.48		130.0	
		Z	4.53	66.46	16.12		130.0	
10598-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.62	67.02	16.70	0.46	130.0	± 9.6 %
		Y	4.65	67.14	16.72		130.0	
		Z	4.52	66.67	16.37		130.0	
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.36	67.12	16.76	0.46	130.0	± 9.6 %
		Y	5.37	67.18	16.74		130.0	
		Z	5.29	66.89	16.54		130.0	
10600-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.50	67.59	16.97	0.46	130.0	± 9.6 %
		Y	5.49	67.59	16.93		130.0	
		Z	5.42	67.34	16.74		130.0	
10601-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.38	67.30	16.84	0.46	130.0	± 9.6 %
		Y	5.39	67.35	16.82		130.0	
		Z	5.30	67.05	16.60		130.0	
10602-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.51	67.45	16.84	0.46	130.0	± 9.6 %
		Y	5.52	67.53	16.84		130.0	
		Z	5.43	67.22	16.61		130.0	
10603-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.58	67.72	17.10	0.46	130.0	± 9.6 %
		Y	5.58	67.76	17.08		130.0	
		Z	5.52	67.57	16.92		130.0	
10604-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.46	67.40	16.93	0.46	130.0	± 9.6 %
		Y	5.46	67.42	16.90		130.0	
		Z	5.39	67.20	16.72		130.0	
10605-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.50	67.49	16.97	0.46	130.0	± 9.6 %
		Y	5.49	67.53	16.95		130.0	
		Z	5.40	67.21	16.72		130.0	
10606-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.23	66.75	16.45	0.46	130.0	± 9.6 %
		Y	5.24	66.84	16.46		130.0	
		Z	5.16	66.56	16.25		130.0	

Certificate No: EX3-3797_Nov18

Page 35 of 39

EX3DV4- SN:3797

November 22, 2018

10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.52	65.93	16.15	0.46	130.0	± 9.6 %
		Y	4.55	66.05	16.18		130.0	
		Z	4.42	65.60	15.84		130.0	
10608-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.68	66.30	16.31	0.46	130.0	± 9.6 %
		Y	4.71	66.43	16.34		130.0	
		Z	4.57	65.95	15.99		130.0	
10609-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.56	66.13	16.13	0.46	130.0	± 9.6 %
		Y	4.61	66.27	16.17		130.0	
		Z	4.46	65.77	15.81		130.0	
10610-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.63	66.30	16.30	0.46	130.0	± 9.6 %
		Y	4.66	66.42	16.33		130.0	
		Z	4.51	65.94	15.98		130.0	
10611-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.54	66.10	16.15	0.46	130.0	± 9.6 %
		Y	4.57	66.24	16.18		130.0	
		Z	4.43	65.74	15.82		130.0	
10612-AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.54	66.25	16.19	0.46	130.0	± 9.6 %
		Y	4.57	66.39	16.24		130.0	
		Z	4.42	65.87	15.85		130.0	
10613-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.54	66.09	16.05	0.46	130.0	± 9.6 %
		Y	4.57	66.24	16.10		130.0	
		Z	4.42	65.70	15.71		130.0	
10614-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.50	66.29	16.29	0.46	130.0	± 9.6 %
		Y	4.52	66.42	16.32		130.0	
		Z	4.38	65.90	15.95		130.0	
10615-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.54	65.94	15.92	0.46	130.0	± 9.6 %
		Y	4.57	66.10	15.98		130.0	
		Z	4.43	65.56	15.59		130.0	
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.18	66.33	16.35	0.46	130.0	± 9.6 %
		Y	5.19	66.44	16.35		130.0	
		Z	5.08	66.03	16.08		130.0	
10617-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.25	66.56	16.44	0.46	130.0	± 9.6 %
		Y	5.26	66.64	16.43		130.0	
		Z	5.15	66.23	16.16		130.0	
10618-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.14	66.57	16.45	0.46	130.0	± 9.6 %
		Y	5.15	66.66	16.45		130.0	
		Z	5.04	66.24	16.18		130.0	
10619-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.15	66.34	16.28	0.46	130.0	± 9.6 %
		Y	5.16	66.45	16.29		130.0	
		Z	5.06	66.05	16.02		130.0	
10620-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.23	66.37	16.34	0.46	130.0	± 9.6 %
		Y	5.25	66.47	16.35		130.0	
		Z	5.13	66.08	16.08		130.0	
10621-AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.24	66.51	16.53	0.46	130.0	± 9.6 %
		Y	5.25	66.59	16.52		130.0	
		Z	5.14	66.18	16.26		130.0	
10622-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.25	66.68	16.61	0.46	130.0	± 9.6 %
		Y	5.26	66.75	16.60		130.0	
		Z	5.14	66.30	16.31		130.0	

EX3DV4-- SN:3797

November 22, 2018

10623-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.12	66.16	16.21	0.46	130.0	± 9.6 %
		Y	5.14	66.28	16.24		130.0	
		Z	5.01	65.81	15.93		130.0	
10624-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.32	66.39	16.40	0.46	130.0	± 9.6 %
		Y	5.33	66.49	16.40		130.0	
		Z	5.22	66.09	16.14		130.0	
10625-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.54	66.97	16.74	0.46	130.0	± 9.6 %
		Y	5.56	67.07	16.75		130.0	
		Z	5.36	66.40	16.36		130.0	
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.50	66.39	16.31	0.46	130.0	± 9.6 %
		Y	5.51	66.50	16.32		130.0	
		Z	5.41	66.10	16.06		130.0	
10627-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.75	67.05	16.61	0.46	130.0	± 9.6 %
		Y	5.74	67.08	16.57		130.0	
		Z	5.67	66.78	16.38		130.0	
10628-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.51	66.41	16.22	0.46	130.0	± 9.6 %
		Y	5.52	66.53	16.24		130.0	
		Z	5.41	66.10	15.97		130.0	
10629-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.60	66.53	16.28	0.46	130.0	± 9.6 %
		Y	5.60	66.63	16.28		130.0	
		Z	5.52	66.28	16.05		130.0	
10630-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	5.98	67.90	16.96	0.46	130.0	± 9.6 %
		Y	5.94	67.83	16.89		130.0	
		Z	5.84	67.46	16.65		130.0	
10631-AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.87	67.67	17.04	0.46	130.0	± 9.6 %
		Y	5.87	67.71	17.00		130.0	
		Z	5.75	67.29	16.75		130.0	
10632-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.73	67.13	16.79	0.46	130.0	± 9.6 %
		Y	5.72	67.15	16.74		130.0	
		Z	5.65	66.90	16.58		130.0	
10633-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.58	66.62	16.36	0.46	130.0	± 9.6 %
		Y	5.59	66.73	16.37		130.0	
		Z	5.47	66.28	16.09		130.0	
10634-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.55	66.62	16.41	0.46	130.0	± 9.6 %
		Y	5.57	66.74	16.42		130.0	
		Z	5.46	66.32	16.17		130.0	
10635-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.42	65.92	15.80	0.46	130.0	± 9.6 %
		Y	5.45	66.09	15.85		130.0	
		Z	5.33	65.63	15.55		130.0	
10636-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	5.93	66.76	16.40	0.46	130.0	± 9.6 %
		Y	5.94	66.86	16.40		130.0	
		Z	5.85	66.49	16.18		130.0	
10637-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.08	67.15	16.59	0.46	130.0	± 9.6 %
		Y	6.08	67.22	16.57		130.0	
		Z	5.99	66.85	16.35		130.0	
10638-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.08	67.13	16.55	0.46	130.0	± 9.6 %
		Y	6.08	67.21	16.54		130.0	
		Z	6.00	66.86	16.33		130.0	

Certificate No: EX3-3797_Nov18

Page 37 of 39

EX3DV4- SN:3797

November 22, 2018

10639-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.04	67.03	16.54	0.46	130.0	± 9.6 %
		Y	6.05	67.12	16.54		130.0	
		Z	5.96	66.74	16.31		130.0	
10640-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.04	67.03	16.46	0.46	130.0	± 9.6 %
		Y	6.05	67.14	16.50		130.0	
		Z	5.94	66.70	16.23		130.0	
10641-AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.12	67.03	16.51	0.46	130.0	± 9.6 %
		Y	6.11	67.11	16.50		130.0	
		Z	6.03	66.77	16.29		130.0	
10642-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.13	67.21	16.76	0.46	130.0	± 9.6 %
		Y	6.14	67.29	16.75		130.0	
		Z	6.04	66.92	16.53		130.0	
10643-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	5.98	66.93	16.52	0.46	130.0	± 9.6 %
		Y	5.99	67.02	16.52		130.0	
		Z	5.90	66.65	16.29		130.0	
10644-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.08	67.23	16.69	0.46	130.0	± 9.6 %
		Y	6.09	67.34	16.70		130.0	
		Z	5.96	66.86	16.41		130.0	
10645-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.23	67.35	16.71	0.46	130.0	± 9.6 %
		Y	6.21	67.36	16.68		130.0	
		Z	6.17	67.13	16.52		130.0	
10646-AAF	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	15.30	110.33	39.18	9.30	60.0	± 9.6 %
		Y	25.33	123.77	43.31		60.0	
		Z	9.37	99.56	36.09		60.0	
10647-AAF	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	12.82	106.62	38.16	9.30	60.0	± 9.6 %
		Y	19.74	118.28	41.87		60.0	
		Z	8.13	96.53	35.17		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.54	61.77	8.73	0.00	150.0	± 9.6 %
		Y	0.59	62.62	9.61		150.0	
		Z	0.44	60.08	6.96		150.0	
10652-AAD	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.47	66.98	16.64	2.23	80.0	± 9.6 %
		Y	3.56	67.32	16.79		80.0	
		Z	3.22	65.84	15.83		80.0	
10653-AAD	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	3.98	66.10	16.74	2.23	80.0	± 9.6 %
		Y	4.06	66.42	16.87		80.0	
		Z	3.79	65.35	16.19		80.0	
10654-AAD	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	3.97	65.69	16.74	2.23	80.0	± 9.6 %
		Y	4.04	66.01	16.86		80.0	
		Z	3.81	65.00	16.23		80.0	
10655-AAE	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.03	65.63	16.77	2.23	80.0	± 9.6 %
		Y	4.11	65.96	16.89		80.0	
		Z	3.88	64.95	16.27		80.0	
10658-AAA	Pulse Waveform (200Hz, 10%)	X	100.00	111.48	26.15	10.00	50.0	± 9.6 %
		Y	100.00	111.18	25.80		50.0	
		Z	100.00	110.33	25.57		50.0	
10659-AAA	Pulse Waveform (200Hz, 20%)	X	100.00	111.27	24.95	6.99	60.0	± 9.6 %
		Y	100.00	111.46	25.01		60.0	
		Z	100.00	109.63	24.08		60.0	

EX3DV4-- SN:3797

November 22, 2018

10660-AAA	Pulse Waveform (200Hz, 40%)	X	100.00	112.39	24.07	3.98	80.0	± 9.6 %
		Y	100.00	114.44	25.09		80.0	
		Z	100.00	108.23	22.06		80.0	
10661-AAA	Pulse Waveform (200Hz, 60%)	X	100.00	111.71	22.51	2.22	100.0	± 9.6 %
		Y	100.00	119.20	25.85		100.0	
		Z	100.00	101.54	18.12		100.0	
10662-AAA	Pulse Waveform (200Hz, 80%)	X	100.00	91.71	13.22	0.97	120.0	± 9.6 %
		Y	100.00	125.14	26.40		120.0	
		Z	0.16	60.00	3.44		120.0	
10670-AAA	Bluetooth Low Energy	X	100.00	119.73	26.15	2.19	100.0	± 9.6 %
		Y	100.00	123.30	27.96		100.0	
		Z	100.00	110.82	22.17		100.0	

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

**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: **EX3-3863_Apr18**

CALIBRATION CERTIFICATE

Object **EX3DV4 - SN:3863**

Calibration procedure(s) **QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v4, QA CAL-23.v5,
QA CAL-25.v6
Calibration procedure for dosimetric E-field probes**

Calibration date: **April 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
D4E4	SN: 660	21-Dec-17 (No. D4E4-660_Dec17)	Dec-18
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-16)	In house check: Jun-18
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-16)	In house check: Jun-18
Network Analyzer HP 8753E	SN: US37390585	18-Oct-01 (in house check Oct-17)	In house check: Oct-18

Calibrated by:	Name Claudio Leubler	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature
Issued: April 26, 2018			
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

Certificate No: EX3-3863_Apr18

Page 1 of 39

결	담당자	확인자
재	 2018. 05. 11 6W75 위즈	 2018. 5. 11 김기호

**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**

Glossary:

TSL	tissue simulating liquid
NORM _{x,y,z}	sensitivity in free space
ConvF	sensitivity in TSL / NORM _{x,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., $\theta = 0$ is normal to probe axis
Connector Angle	information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

- IEEE Std 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
- 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
- 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
- KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

- NORM_{x,y,z}**: Assessed for E-field polarization $\theta = 0$ ($f \leq 900$ MHz in TEM-cell; $f > 1800$ MHz: R22 waveguide). NORM_{x,y,z} are only intermediate values, i.e., the uncertainties of NORM_{x,y,z} does not affect the E^2 -field uncertainty inside TSL (see below ConvF).
- NORM(f)_{x,y,z}** = NORM_{x,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.
- DCP_{x,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
- A_{x,y,z}; B_{x,y,z}; C_{x,y,z}; D_{x,y,z}; VR_{x,y,z}**: A, B, C, D are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for $f \leq 800$ 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 NORM_{x,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 NORM_x (no uncertainty required).

EX3DV4 – SN:3863

April 25, 2018

Probe EX3DV4

SN:3863

Manufactured: February 2, 2012
Calibrated: April 25, 2018

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

EX3DV4- SN:3863

April 25, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3863

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu\text{V}/(\text{V}/\text{m})^2$) ^A	0.35	0.34	0.45	$\pm 10.1 \%$
DCP (mV) ^B	99.7	103.9	103.3	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB $\sqrt{\mu\text{V}}$	C	D dB	VR mV	Unc ^E (k=2)
0	CW	X	0.0	0.0	1.0	0.00	151.1	$\pm 3.5 \%$
		Y	0.0	0.0	1.0		153.4	
		Z	0.0	0.0	1.0		149.6	

Note: For details on UID parameters see Appendix.

Sensor Model Parameters

	C1 fF	C2 fF	α V^{-1}	T1 $\text{ms}\cdot\text{V}^{-2}$	T2 $\text{ms}\cdot\text{V}^{-1}$	T3 ms	T4 V^{-2}	T5 V^{-1}	T6
X	35.70	266.3	35.57	18.74	0.500	5.000	0.445	0.515	1.000
Y	23.67	174.6	34.99	6.322	0.441	5.000	1.481	0.043	1.003
Z	41.62	317.3	36.81	8.754	0.711	5.047	0.519	0.469	1.008

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.

EX3DV4- SN:3863

April 25, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3863

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^e	Conductivity (S/m) ^f	ConvF X	ConvF Y	ConvF Z	Alpha ^g	Depth (mm) ^g	Unc (k=2)
150	52.3	0.76	12.22	12.22	12.22	0.00	1.00	± 13.3 %
450	43.5	0.87	10.92	10.92	10.92	0.14	1.20	± 13.3 %
750	41.9	0.89	10.20	10.20	10.20	0.61	0.80	± 12.0 %
835	41.5	0.90	9.95	9.95	9.95	0.50	0.80	± 12.0 %
900	41.5	0.97	9.67	9.67	9.67	0.32	1.07	± 12.0 %
1450	40.5	1.20	8.78	8.78	8.78	0.34	0.80	± 12.0 %
1750	40.1	1.37	8.45	8.45	8.45	0.42	0.80	± 12.0 %
1900	40.0	1.40	8.19	8.19	8.19	0.36	0.80	± 12.0 %
2300	39.5	1.67	7.77	7.77	7.77	0.34	0.86	± 12.0 %
2450	39.2	1.80	7.62	7.62	7.62	0.36	0.85	± 12.0 %
2600	39.0	1.96	7.19	7.19	7.19	0.36	0.93	± 12.0 %
5250	35.9	4.71	5.04	5.04	5.04	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.68	4.68	4.68	0.40	1.80	± 13.1 %
5750	35.4	5.22	5.08	5.08	5.08	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.

^e 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:3863

April 25, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3863

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^r	Conductivity (S/m) ^r	ConvF X	ConvF Y	ConvF Z	Alpha ^g	Depth ^g (mm)	Unc (k=2)
150	61.9	0.80	11.86	11.86	11.86	0.00	1.00	± 13.3 %
450	56.7	0.94	10.78	10.78	10.78	0.08	1.20	± 13.3 %
750	55.5	0.96	10.02	10.02	10.02	0.37	0.89	± 12.0 %
835	55.2	0.97	9.66	9.66	9.66	0.42	0.91	± 12.0 %
1750	53.4	1.49	8.18	8.18	8.18	0.40	0.80	± 12.0 %
1900	53.3	1.52	7.84	7.84	7.84	0.34	0.80	± 12.0 %
2300	52.9	1.81	7.68	7.68	7.68	0.29	0.90	± 12.0 %
2450	52.7	1.95	7.48	7.48	7.48	0.27	0.97	± 12.0 %
2600	52.5	2.16	7.27	7.27	7.27	0.17	1.05	± 12.0 %
5250	48.9	5.36	4.41	4.41	4.41	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.88	3.88	3.88	0.50	1.90	± 13.1 %
5750	48.3	5.94	4.21	4.21	4.21	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.

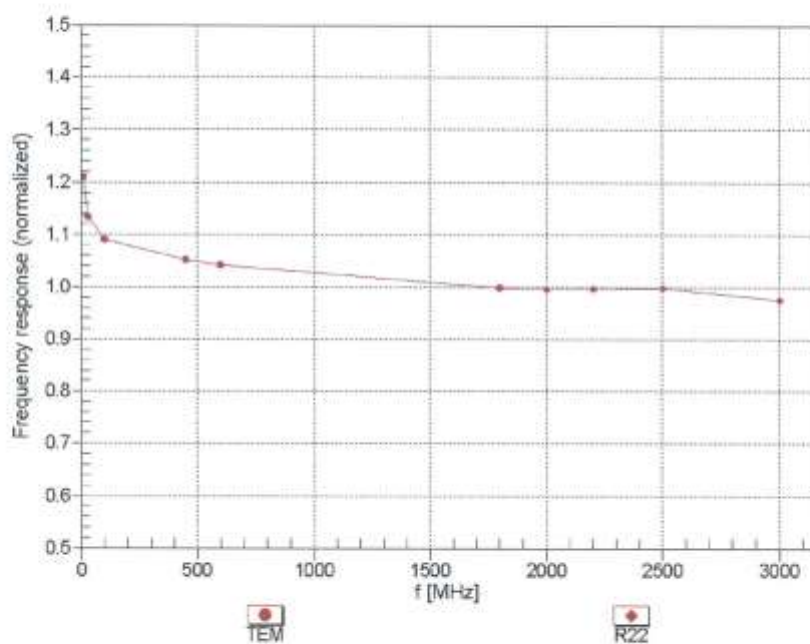
^r At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty 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:3863

April 25, 2018

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

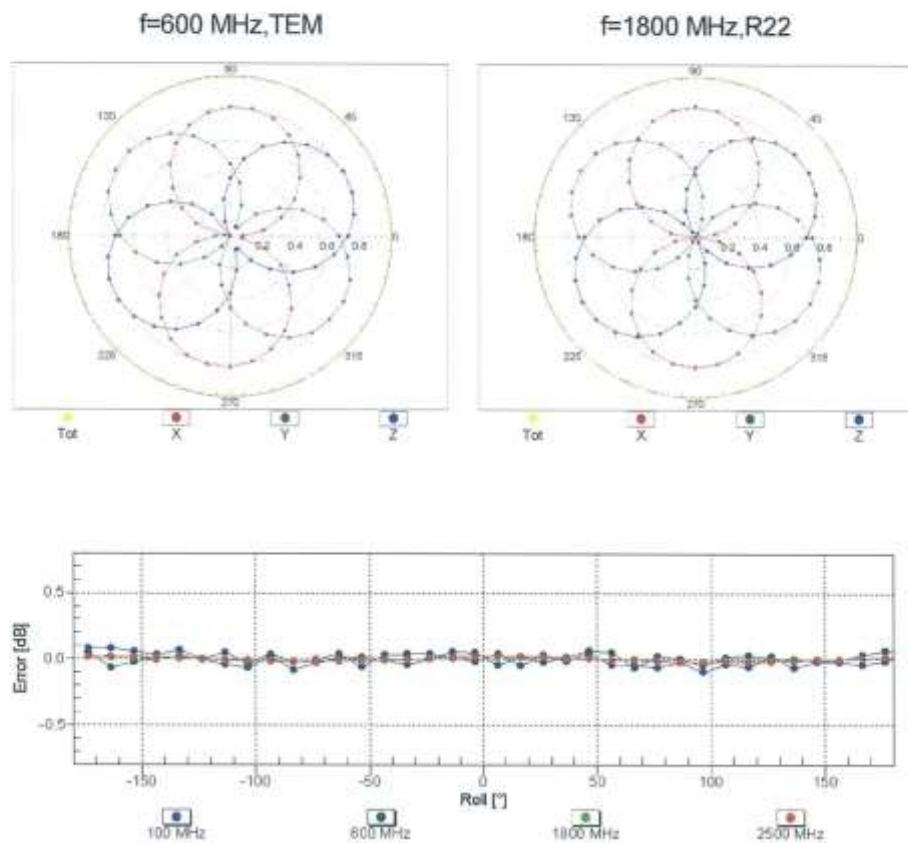


Uncertainty of Frequency Response of E-field: $\pm 6.3\%$ ($k=2$)

EX3DV4- SN:3863

April 25, 2018

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

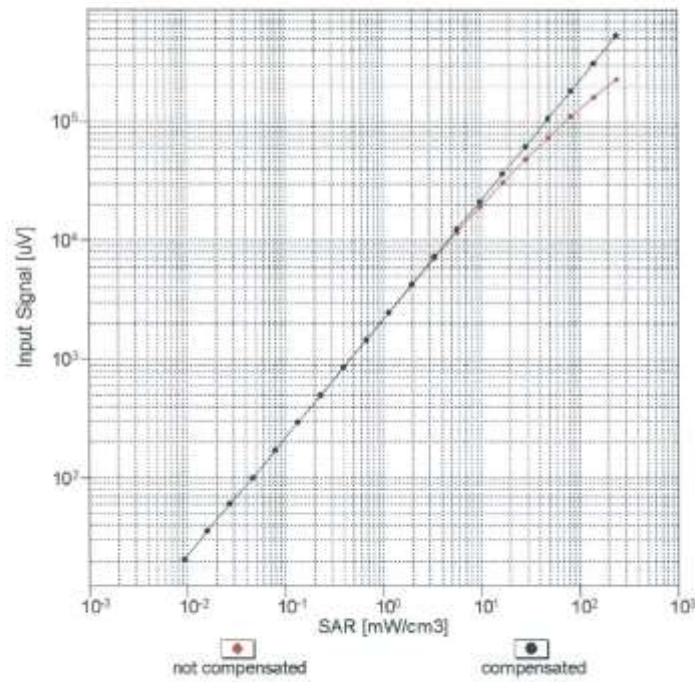
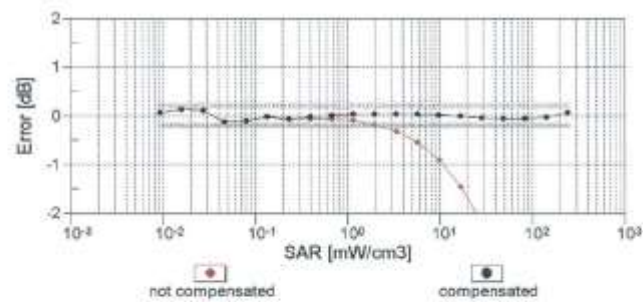


Uncertainty of Axial Isotropy Assessment: $\pm 0.5\%$ ($k=2$)

EX3DV4- SN:3863

April 25, 2018

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

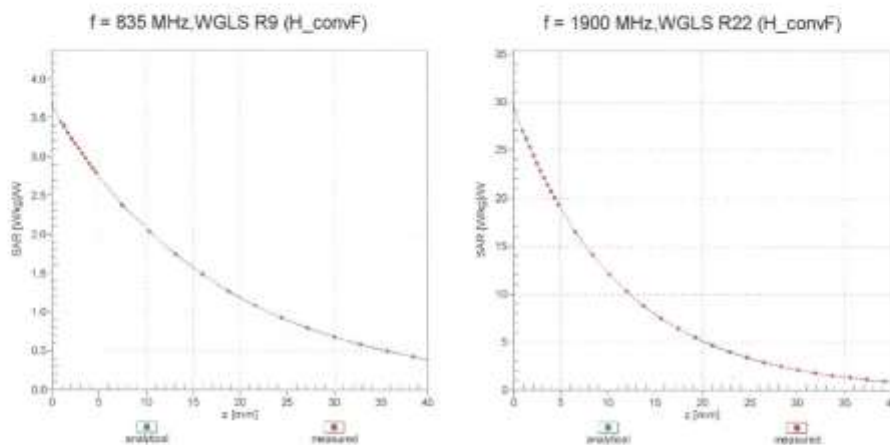


Uncertainty of Linearity Assessment: $\pm 0.6\%$ ($k=2$)

EX3DV4- SN:3863

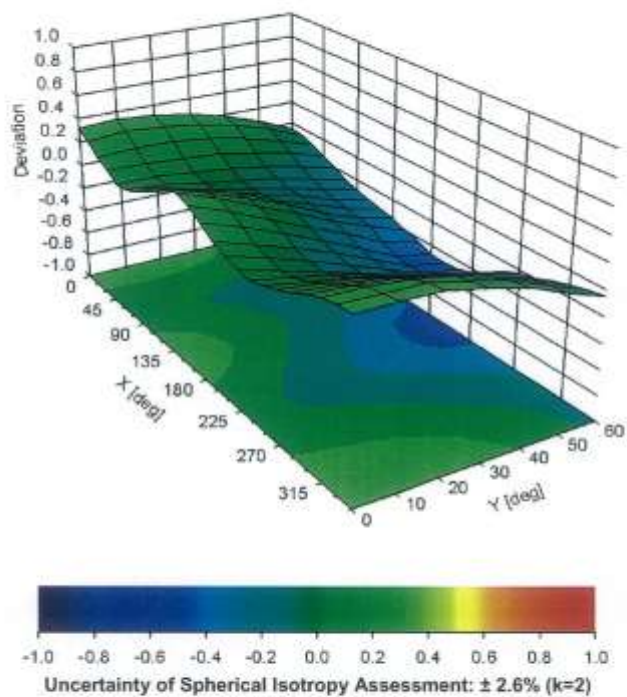
April 25, 2018

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ , θ), $f = 900$ MHz



EX3DV4- SN:3863

April 25, 2018

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3863

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	106.5
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:3863

April 25, 2018

Appendix: Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB μ V	C	D dB	VR mV	Max Unc ^E (k=2)
0	CW	X	0.00	0.00	1.00	0.00	151.1	$\pm 3.5\%$
		Y	0.00	0.00	1.00		153.4	
		Z	0.00	0.00	1.00		149.6	
10010- CAA	SAR Validation (Square, 100ms, 10ms)	X	11.00	70.00	30.00	10.00	20.0	$\pm 9.6\%$
		Y	1.74	62.66	8.09		20.0	
		Z	2.07	64.28	9.36		20.0	
10011- CAB	UMTS-FDD (WCDMA)	X	0.92	66.96	14.69	0.00	150.0	$\pm 9.6\%$
		Y	1.23	73.72	17.72		150.0	
		Z	0.82	64.81	13.15		150.0	
10012- CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps)	X	1.13	63.96	15.00	0.41	150.0	$\pm 9.6\%$
		Y	1.12	65.21	15.97		150.0	
		Z	1.04	62.64	14.13		150.0	
10013- CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps)	X	4.66	66.70	16.87	1.46	150.0	$\pm 9.6\%$
		Y	4.41	67.26	17.07		150.0	
		Z	4.70	66.40	16.80		150.0	
10021- DAC	GSM-FDD (TDMA, GMSK)	X	9.09	79.88	16.40	9.39	50.0	$\pm 9.6\%$
		Y	45.23	97.58	21.17		50.0	
		Z	100.00	110.54	25.67		50.0	
10023- DAC	GPRS-FDD (TDMA, GMSK, TN 0)	X	6.78	76.49	15.24	9.57	50.0	$\pm 9.6\%$
		Y	9.44	80.59	16.39		50.0	
		Z	67.36	105.58	24.50		50.0	
10024- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1)	X	11.10	81.88	15.87	6.56	60.0	$\pm 9.6\%$
		Y	100.00	103.67	20.95		60.0	
		Z	100.00	108.28	23.45		60.0	
10025- DAC	EDGE-FDD (TDMA, 8PSK, TN 0)	X	3.31	63.37	21.37	12.57	50.0	$\pm 9.6\%$
		Y	4.23	71.81	26.71		50.0	
		Z	3.77	66.74	23.69		50.0	
10026- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1)	X	9.84	92.28	31.76	9.56	60.0	$\pm 9.6\%$
		Y	5.95	83.99	29.74		60.0	
		Z	7.19	86.26	30.24		60.0	
10027- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2)	X	100.00	101.03	19.83	4.60	80.0	$\pm 9.6\%$
		Y	100.00	103.59	20.13		80.0	
		Z	100.00	106.91	22.02		80.0	
10028- DAC	GPRS-FDD (TDMA, GMSK, TN 0-1-2-3)	X	100.00	100.43	19.05	3.55	100.0	$\pm 9.6\%$
		Y	100.00	104.67	19.92		100.0	
		Z	100.00	105.33	20.65		100.0	
10029- DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2)	X	6.41	82.79	27.10	7.80	80.0	$\pm 9.6\%$
		Y	4.05	75.66	25.13		80.0	
		Z	4.75	77.36	25.50		80.0	
10030- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH1)	X	5.28	74.89	13.09	5.30	70.0	$\pm 9.6\%$
		Y	100.00	100.23	18.93		70.0	
		Z	100.00	105.72	21.80		70.0	
10031- CAA	IEEE 802.15.1 Bluetooth (GFSK, DH3)	X	4.86	76.31	11.58	1.86	100.0	$\pm 9.6\%$
		Y	0.28	61.23	5.16		100.0	
		Z	0.39	62.06	6.02		100.0	

EX3DV4-- SN:3863

April 25, 2018

10032-CAA	IEEE 802.15.1 Bluetooth (GFSK, DH5)	X	99.99	93.80	14.65	1.17	100.0	± 9.6 %
		Y	0.14	60.00	3.64		100.0	
		Z	0.18	60.00	3.83		100.0	
10033-CAA	IEEE 802.15.1 Bluetooth (Pi/4-DQPSK, DH1)	X	6.63	80.89	18.62	5.30	70.0	± 9.6 %
		Y	3.59	74.26	15.11		70.0	
		Z	6.50	84.64	21.35		70.0	
10034-CAA	IEEE 802.15.1 Bluetooth (Pi/4-DQPSK, DH3)	X	2.35	71.30	13.78	1.88	100.0	± 9.6 %
		Y	0.91	63.27	8.38		100.0	
		Z	1.79	70.18	14.28		100.0	
10035-CAA	IEEE 802.15.1 Bluetooth (Pi/4-DQPSK, DH5)	X	1.70	69.13	12.72	1.17	100.0	± 9.6 %
		Y	0.67	61.91	7.34		100.0	
		Z	1.29	67.25	12.66		100.0	
10036-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH1)	X	8.29	83.97	19.70	5.30	70.0	± 9.6 %
		Y	4.28	76.54	16.01		70.0	
		Z	8.57	88.94	22.82		70.0	
10037-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH3)	X	2.17	70.51	13.42	1.88	100.0	± 9.6 %
		Y	0.85	62.76	8.13		100.0	
		Z	1.68	69.54	13.98		100.0	
10038-CAA	IEEE 802.15.1 Bluetooth (8-DPSK, DH5)	X	1.73	69.53	13.00	1.17	100.0	± 9.6 %
		Y	0.68	62.14	7.59		100.0	
		Z	1.29	67.51	12.89		100.0	
10039-CAB	CDMA2000 (1xRTT, RC1)	X	1.20	68.00	12.32	0.00	150.0	± 9.6 %
		Y	0.40	60.00	5.73		150.0	
		Z	1.08	65.78	11.49		150.0	
10042-CAB	IS-54 / IS-136 FDD (TDMA/FDM, Pi/4-DQPSK, Halfrate)	X	3.96	71.13	12.28	7.78	50.0	± 9.6 %
		Y	4.33	73.40	12.83		50.0	
		Z	20.83	89.92	18.82		50.0	
10044-CAA	IS-91/EIA/TIA-553 FDD (FDMA, FM)	X	0.03	118.44	11.49	0.00	150.0	± 9.6 %
		Y	0.03	123.41	0.47		150.0	
		Z	0.10	121.86	6.25		150.0	
10048-CAA	DECT (TDD, TDMA/FDM, GFSK, Full Slot, 24)	X	4.53	70.04	14.07	13.80	25.0	± 9.6 %
		Y	4.85	69.08	13.50		25.0	
		Z	9.31	78.44	18.09		25.0	
10049-CAA	DECT (TDD, TDMA/FDM, GFSK, Double Slot, 12)	X	5.00	72.36	13.87	10.79	40.0	± 9.6 %
		Y	4.95	72.19	13.60		40.0	
		Z	10.49	82.35	18.31		40.0	
10056-CAA	UMTS-TDD (TD-SCDMA, 1.28 Mcps)	X	9.88	83.19	19.98	9.03	50.0	± 9.6 %
		Y	7.80	79.96	18.01		50.0	
		Z	13.55	90.17	23.36		50.0	
10058-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-1-2-3)	X	4.98	77.96	24.46	6.55	100.0	± 9.6 %
		Y	3.33	72.13	22.83		100.0	
		Z	3.78	73.24	22.95		100.0	
10059-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps)	X	1.19	65.20	15.58	0.61	110.0	± 9.6 %
		Y	1.14	66.22	16.48		110.0	
		Z	1.06	63.47	14.60		110.0	
10060-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps)	X	18.28	106.21	26.40	1.30	110.0	± 9.6 %
		Y	100.00	142.43	36.78		110.0	
		Z	2.88	84.70	20.89		110.0	

EX3DV4- SN:3863

April 25, 2018

10061-CAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps)	X	3.45	81.46	21.39	2.04	110.0	± 9.6 %
		Y	2.51	81.17	22.36		110.0	
		Z	1.97	74.69	19.49		110.0	
10062-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps)	X	4.45	66.68	16.34	0.49	100.0	± 9.6 %
		Y	4.22	67.27	16.54		100.0	
		Z	4.49	66.34	16.21		100.0	
10063-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps)	X	4.47	66.76	16.42	0.72	100.0	± 9.6 %
		Y	4.23	67.37	16.64		100.0	
		Z	4.51	66.43	16.31		100.0	
10064-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps)	X	4.71	66.95	16.61	0.86	100.0	± 9.6 %
		Y	4.42	67.49	16.78		100.0	
		Z	4.77	66.69	16.54		100.0	
10065-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps)	X	4.59	66.82	16.68	1.21	100.0	± 9.6 %
		Y	4.30	67.26	16.81		100.0	
		Z	4.65	66.56	16.62		100.0	
10066-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps)	X	4.60	66.82	16.82	1.46	100.0	± 9.6 %
		Y	4.29	67.17	16.89		100.0	
		Z	4.66	66.58	16.78		100.0	
10067-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps)	X	4.89	67.08	17.27	2.04	100.0	± 9.6 %
		Y	4.52	67.29	17.26		100.0	
		Z	4.96	66.83	17.27		100.0	
10068-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps)	X	4.93	67.01	17.42	2.55	100.0	± 9.6 %
		Y	4.61	67.41	17.54		100.0	
		Z	5.00	66.81	17.45		100.0	
10069-CAC	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps)	X	4.99	67.04	17.61	2.67	100.0	± 9.6 %
		Y	4.63	67.31	17.64		100.0	
		Z	5.07	66.84	17.65		100.0	
10071-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 9 Mbps)	X	4.76	66.78	17.15	1.99	100.0	± 9.6 %
		Y	4.51	67.31	17.34		100.0	
		Z	4.79	66.48	17.11		100.0	
10072-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 12 Mbps)	X	4.72	67.04	17.33	2.30	100.0	± 9.6 %
		Y	4.43	67.41	17.46		100.0	
		Z	4.76	66.75	17.30		100.0	
10073-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 18 Mbps)	X	4.80	67.25	17.65	2.83	100.0	± 9.6 %
		Y	4.51	67.66	17.82		100.0	
		Z	4.82	66.92	17.62		100.0	
10074-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 24 Mbps)	X	4.81	67.22	17.80	3.30	100.0	± 9.6 %
		Y	4.56	67.77	18.04		100.0	
		Z	4.81	66.83	17.77		100.0	
10075-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 36 Mbps)	X	4.84	67.27	18.05	3.82	90.0	± 9.6 %
		Y	4.60	67.82	18.29		90.0	
		Z	4.85	66.90	18.05		90.0	
10076-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 48 Mbps)	X	4.88	67.16	18.22	4.15	90.0	± 9.6 %
		Y	4.64	67.67	18.44		90.0	
		Z	4.88	66.75	18.20		90.0	
10077-CAB	IEEE 802.11g WiFi 2.4 GHz (DSSS/OFDM, 54 Mbps)	X	4.92	67.26	18.33	4.30	90.0	± 9.6 %
		Y	4.68	67.80	18.58		90.0	
		Z	4.90	66.83	18.30		90.0	

EX3DV4- SN:3863

April 25, 2018

10081-CAB	CDMA2000 (1xRTT, RC3)	X	0.57	63.24	9.45	0.00	150.0	± 9.6 %
		Y	0.29	60.00	5.08		150.0	
		Z	0.55	61.98	8.86		150.0	
10082-CAB	IS-54 / IS-136 FDD (TDMA/FDM, PI/4-DQPSK, Fullrate)	X	0.85	60.00	4.39	4.77	80.0	± 9.6 %
		Y	0.61	60.00	3.29		80.0	
		Z	0.85	61.10	4.43		80.0	
10090-DAC	GPRS-FDD (TDMA, GMSK, TN 0-4)	X	11.01	81.80	15.86	6.56	60.0	± 9.6 %
		Y	100.00	103.71	20.98		60.0	
		Z	100.00	108.37	23.51		80.0	
10097-CAB	UMTS-FDD (HSDPA)	X	1.75	68.14	15.41	0.00	150.0	± 9.6 %
		Y	2.15	73.36	17.10		150.0	
		Z	1.61	66.21	14.35		150.0	
10098-CAB	UMTS-FDD (HSUPA, Subtest 2)	X	1.71	68.07	15.37	0.00	150.0	± 9.6 %
		Y	2.11	73.35	17.12		150.0	
		Z	1.57	66.13	14.31		150.0	
10099-DAC	EDGE-FDD (TDMA, 8PSK, TN 0-4)	X	9.91	92.40	31.80	9.56	60.0	± 9.6 %
		Y	6.00	84.12	29.79		60.0	
		Z	7.24	86.38	30.27		60.0	
10100-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	2.91	69.93	16.52	0.00	150.0	± 9.6 %
		Y	2.94	71.66	17.64		150.0	
		Z	2.79	68.74	15.72		150.0	
10101-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	3.05	67.27	15.75	0.00	150.0	± 9.6 %
		Y	2.96	68.14	16.32		150.0	
		Z	3.02	66.65	15.31		150.0	
10102-CAD	LTE-FDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	3.16	67.31	15.88	0.00	150.0	± 9.6 %
		Y	3.06	68.19	16.41		150.0	
		Z	3.13	66.69	15.44		150.0	
10103-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK)	X	6.17	75.27	19.83	3.98	65.0	± 9.6 %
		Y	5.02	74.56	20.07		65.0	
		Z	5.58	74.23	19.78		65.0	
10104-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM)	X	6.38	74.05	20.09	3.98	65.0	± 9.6 %
		Y	4.96	71.85	19.45		65.0	
		Z	5.51	71.89	19.54		65.0	
10105-CAD	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM)	X	5.67	71.78	19.42	3.98	65.0	± 9.6 %
		Y	4.68	70.50	19.12		65.0	
		Z	5.40	71.34	19.60		65.0	
10108-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	2.50	69.27	16.35	0.00	150.0	± 9.6 %
		Y	2.53	71.57	17.63		150.0	
		Z	2.41	68.02	15.51		150.0	
10109-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	2.70	67.24	15.61	0.00	150.0	± 9.6 %
		Y	2.63	68.68	16.24		150.0	
		Z	2.66	66.45	15.11		150.0	
10110-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	1.99	68.44	15.79	0.00	150.0	± 9.6 %
		Y	2.06	71.55	17.06		150.0	
		Z	1.92	67.04	14.92		150.0	
10111-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	2.45	68.57	15.90	0.00	150.0	± 9.6 %
		Y	2.57	71.53	16.67		150.0	
		Z	2.35	67.12	15.16		150.0	

EX3DV4- SN:3863

April 25, 2018

10112-CAE	LTE-FDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	2.83	67.33	15.71	0.00	150.0	± 9.6 %
		Y	2.76	68.82	16.33		150.0	
		Z	2.79	66.53	15.22		150.0	
10113-CAE	LTE-FDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	2.60	68.79	16.07	0.00	150.0	± 9.6 %
		Y	2.70	71.55	16.71		150.0	
		Z	2.50	67.36	15.35		150.0	
10114-CAC	IEEE 802.11n (HT Greenfield, 13.5 Mbps, BPSK)	X	4.91	67.08	16.35	0.00	150.0	± 9.6 %
		Y	4.70	67.41	16.61		150.0	
		Z	4.96	66.85	16.19		150.0	
10115-CAC	IEEE 802.11n (HT Greenfield, 81 Mbps, 16-QAM)	X	5.16	67.16	16.39	0.00	150.0	± 9.6 %
		Y	4.93	67.53	16.63		150.0	
		Z	5.21	66.93	16.24		150.0	
10116-CAC	IEEE 802.11n (HT Greenfield, 135 Mbps, 64-QAM)	X	5.00	67.28	16.38	0.00	150.0	± 9.6 %
		Y	4.76	67.61	16.63		150.0	
		Z	5.04	67.03	16.21		150.0	
10117-CAC	IEEE 802.11n (HT Mixed, 13.5 Mbps, BPSK)	X	4.91	67.04	16.35	0.00	150.0	± 9.6 %
		Y	4.68	67.32	16.58		150.0	
		Z	4.93	66.73	16.15		150.0	
10118-CAC	IEEE 802.11n (HT Mixed, 81 Mbps, 16-QAM)	X	5.23	67.34	16.49	0.00	150.0	± 9.6 %
		Y	4.94	67.52	16.63		150.0	
		Z	5.30	67.14	16.35		150.0	
10119-CAC	IEEE 802.11n (HT Mixed, 135 Mbps, 64-QAM)	X	4.99	67.27	16.39	0.00	150.0	± 9.6 %
		Y	4.77	67.61	16.64		150.0	
		Z	5.03	67.00	16.20		150.0	
10140-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	3.18	67.31	15.78	0.00	150.0	± 9.6 %
		Y	3.06	68.22	16.30		150.0	
		Z	3.16	66.70	15.36		150.0	
10141-CAD	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	3.31	67.51	16.00	0.00	150.0	± 9.6 %
		Y	3.20	68.53	16.55		150.0	
		Z	3.29	66.86	15.57		150.0	
10142-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	1.75	68.36	15.09	0.00	150.0	± 9.6 %
		Y	1.78	71.06	15.42		150.0	
		Z	1.66	66.67	14.20		150.0	
10143-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	2.25	68.96	15.03	0.00	150.0	± 9.6 %
		Y	1.94	68.81	13.51		150.0	
		Z	2.12	67.21	14.32		150.0	
10144-CAD	LTE-FDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	1.90	65.74	12.89	0.00	150.0	± 9.6 %
		Y	1.39	63.90	10.43		150.0	
		Z	1.92	65.05	12.71		150.0	
10145-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	0.74	61.13	7.80	0.00	150.0	± 9.6 %
		Y	0.44	60.00	4.49		150.0	
		Z	0.83	61.47	8.46		150.0	
10146-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	0.98	60.10	6.33	0.00	150.0	± 9.6 %
		Y	0.63	60.00	3.77		150.0	
		Z	1.32	62.30	8.56		150.0	
10147-CAE	LTE-FDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	1.02	60.37	6.56	0.00	150.0	± 9.6 %
		Y	0.63	60.00	3.82		150.0	
		Z	1.41	62.99	9.03		150.0	

Certificate No: EX3-3863_Apr18

Page 16 of 39

EX3DV4-- SN:3863

April 25, 2018

10149-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	2.71	67.32	15.67	0.00	150.0	± 9.6 %
		Y	2.64	68.79	16.31		150.0	
		Z	2.67	66.51	15.16		150.0	
10150-CAD	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	2.84	67.40	15.76	0.00	150.0	± 9.6 %
		Y	2.77	68.91	16.39		150.0	
		Z	2.80	66.59	15.26		150.0	
10151-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	7.05	79.01	21.24	3.98	65.0	± 9.6 %
		Y	5.45	78.07	21.33		65.0	
		Z	5.61	76.01	20.56		65.0	
10152-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM)	X	5.87	73.86	19.52	3.98	65.0	± 9.6 %
		Y	4.45	71.66	18.62		65.0	
		Z	5.02	71.71	19.09		65.0	
10153-CAD	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM)	X	6.39	75.31	20.54	3.98	65.0	± 9.6 %
		Y	4.89	73.20	19.71		65.0	
		Z	5.39	72.79	19.96		65.0	
10154-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	2.04	68.90	16.07	0.00	150.0	± 9.6 %
		Y	2.13	72.17	17.39		150.0	
		Z	1.95	67.39	15.15		150.0	
10155-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	2.46	68.61	15.94	0.00	150.0	± 9.6 %
		Y	2.59	71.66	16.74		150.0	
		Z	2.35	67.14	15.18		150.0	
10156-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	1.56	68.06	14.48	0.00	150.0	± 9.6 %
		Y	1.39	68.73	13.43		150.0	
		Z	1.48	66.30	13.62		150.0	
10157-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	1.70	65.86	12.52	0.00	150.0	± 9.6 %
		Y	1.07	62.55	8.97		150.0	
		Z	1.71	65.08	12.35		150.0	
10158-CAE	LTE-FDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	2.62	68.90	16.14	0.00	150.0	± 9.6 %
		Y	2.73	71.76	16.82		150.0	
		Z	2.51	67.43	15.40		150.0	
10159-CAE	LTE-FDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	1.78	68.23	12.74	0.00	150.0	± 9.6 %
		Y	1.10	62.56	8.97		150.0	
		Z	1.78	65.42	12.58		150.0	
10160-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	2.55	68.64	16.16	0.00	150.0	± 9.6 %
		Y	2.51	70.60	17.09		150.0	
		Z	2.49	67.55	15.47		150.0	
10161-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	2.73	67.38	15.64	0.00	150.0	± 9.6 %
		Y	2.66	68.98	16.16		150.0	
		Z	2.69	66.51	15.14		150.0	
10162-CAD	LTE-FDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	2.84	67.62	15.79	0.00	150.0	± 9.6 %
		Y	2.77	69.32	16.34		150.0	
		Z	2.80	66.72	15.29		150.0	
10166-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	3.17	68.43	18.19	3.01	150.0	± 9.6 %
		Y	2.74	68.67	18.97		150.0	
		Z	3.37	69.16	18.82		150.0	
10167-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	3.80	70.92	18.39	3.01	150.0	± 9.6 %
		Y	3.27	72.46	19.76		150.0	
		Z	4.11	71.94	19.16		150.0	

Certificate No: EX3-3863_Apr18

Page 17 of 39

EX3DV4- SN:3863

April 25, 2018

10168-CAE	LTE-FDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	4.33	73.72	20.04	3.01	150.0	± 9.6 %
		Y	3.93	76.52	22.01		150.0	
		Z	4.68	74.75	20.78		150.0	
10169-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	2.69	67.32	17.58	3.01	150.0	± 9.6 %
		Y	2.43	68.05	18.61		150.0	
		Z	2.79	68.16	18.34		150.0	
10170-CAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	3.59	72.54	19.67	3.01	150.0	± 9.6 %
		Y	3.51	76.45	22.16		150.0	
		Z	3.83	74.10	20.71		150.0	
10171-AAD	LTE-FDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	2.93	68.40	16.78	3.01	150.0	± 9.6 %
		Y	2.63	70.44	18.33		150.0	
		Z	3.08	69.59	17.69		150.0	
10172-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK)	X	4.62	78.65	22.60	6.02	65.0	± 9.6 %
		Y	2.94	76.24	23.12		65.0	
		Z	6.04	85.62	26.43		65.0	
10173-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM)	X	7.73	84.08	22.65	6.02	65.0	± 9.6 %
		Y	6.63	89.25	25.64		65.0	
		Z	9.82	91.06	26.34		65.0	
10174-CAD	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM)	X	3.91	73.33	18.34	6.02	65.0	± 9.6 %
		Y	5.35	84.73	23.41		65.0	
		Z	6.55	83.31	23.20		65.0	
10175-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	2.66	67.02	17.32	3.01	150.0	± 9.6 %
		Y	2.39	67.72	18.33		150.0	
		Z	2.76	67.84	18.07		150.0	
10176-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	3.60	72.56	19.68	3.01	150.0	± 9.6 %
		Y	3.51	76.48	22.17		150.0	
		Z	3.84	74.12	20.72		150.0	
10177-CAG	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	2.67	67.15	17.41	3.01	150.0	± 9.6 %
		Y	2.41	67.62	18.40		150.0	
		Z	2.78	67.99	18.17		150.0	
10178-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	3.57	72.39	19.58	3.01	150.0	± 9.6 %
		Y	3.49	76.32	22.09		150.0	
		Z	3.80	73.91	20.61		150.0	
10179-CAE	LTE-FDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	3.21	70.22	18.03	3.01	150.0	± 9.6 %
		Y	3.01	73.21	20.07		150.0	
		Z	3.41	71.63	19.02		150.0	
10180-CAE	LTE-FDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	2.92	68.36	16.75	3.01	150.0	± 9.6 %
		Y	2.63	70.42	18.31		150.0	
		Z	3.08	69.53	17.64		150.0	
10181-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	2.67	67.13	17.40	3.01	150.0	± 9.6 %
		Y	2.40	67.81	18.39		150.0	
		Z	2.78	67.97	18.16		150.0	
10182-CAD	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	3.57	72.37	19.57	3.01	150.0	± 9.6 %
		Y	3.48	76.29	22.07		150.0	
		Z	3.79	73.88	20.60		150.0	
10183-AAC	LTE-FDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	2.92	68.34	16.74	3.01	150.0	± 9.6 %
		Y	2.63	70.39	18.30		150.0	
		Z	3.07	69.51	17.63		150.0	

EX3DV4-- SN:3863

April 25, 2018

10184-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	2.68	67.17	17.42	3.01	150.0	± 9.6 %
		Y	2.41	67.84	18.41		150.0	
		Z	2.79	68.01	18.18		150.0	
10185-CAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	3.58	72.44	19.61	3.01	150.0	± 9.6 %
		Y	3.50	76.39	22.12		150.0	
		Z	3.81	73.96	20.64		150.0	
10186-AAD	LTE-FDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	2.93	68.39	16.77	3.01	150.0	± 9.6 %
		Y	2.64	70.46	18.34		150.0	
		Z	3.09	69.57	17.67		150.0	
10187-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	2.69	67.25	17.51	3.01	150.0	± 9.6 %
		Y	2.43	67.98	18.53		150.0	
		Z	2.80	68.08	18.26		150.0	
10188-CAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	3.69	73.08	19.99	3.01	150.0	± 9.6 %
		Y	3.64	77.24	22.59		150.0	
		Z	3.94	74.67	21.05		150.0	
10189-AAE	LTE-FDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	2.99	68.75	17.02	3.01	150.0	± 9.6 %
		Y	2.71	70.95	18.66		150.0	
		Z	3.15	69.99	17.95		150.0	
10193-CAC	IEEE 802.11n (HT Greenfield, 6.5 Mbps, BPSK)	X	4.32	66.74	16.06	0.00	150.0	± 9.6 %
		Y	4.14	67.59	16.37		150.0	
		Z	4.34	66.29	15.83		150.0	
10194-CAC	IEEE 802.11n (HT Greenfield, 39 Mbps, 16-QAM)	X	4.46	66.98	16.19	0.00	150.0	± 9.6 %
		Y	4.24	67.67	16.48		150.0	
		Z	4.50	66.57	15.96		150.0	
10195-CAC	IEEE 802.11n (HT Greenfield, 65 Mbps, 64-QAM)	X	4.50	66.99	16.21	0.00	150.0	± 9.6 %
		Y	4.25	67.61	16.46		150.0	
		Z	4.54	66.61	15.99		150.0	
10196-CAC	IEEE 802.11n (HT Mixed, 6.5 Mbps, BPSK)	X	4.31	66.74	16.05	0.00	150.0	± 9.6 %
		Y	4.11	67.51	16.32		150.0	
		Z	4.34	66.32	15.83		150.0	
10197-CAC	IEEE 802.11n (HT Mixed, 39 Mbps, 16-QAM)	X	4.47	66.98	16.20	0.00	150.0	± 9.6 %
		Y	4.24	67.66	16.48		150.0	
		Z	4.51	66.59	15.97		150.0	
10198-CAC	IEEE 802.11n (HT Mixed, 65 Mbps, 64-QAM)	X	4.49	66.99	16.21	0.00	150.0	± 9.6 %
		Y	4.24	67.60	16.45		150.0	
		Z	4.53	66.62	15.99		150.0	
10219-CAC	IEEE 802.11n (HT Mixed, 7.2 Mbps, BPSK)	X	4.26	66.77	16.02	0.00	150.0	± 9.6 %
		Y	4.07	67.62	16.34		150.0	
		Z	4.28	66.34	15.79		150.0	
10220-CAC	IEEE 802.11n (HT Mixed, 43.3 Mbps, 16-QAM)	X	4.47	66.94	16.18	0.00	150.0	± 9.6 %
		Y	4.23	67.62	16.46		150.0	
		Z	4.50	66.55	15.96		150.0	
10221-CAC	IEEE 802.11n (HT Mixed, 72.2 Mbps, 64-QAM)	X	4.51	66.94	16.20	0.00	150.0	± 9.6 %
		Y	4.26	67.58	16.45		150.0	
		Z	4.55	66.56	15.98		150.0	
10222-CAC	IEEE 802.11n (HT Mixed, 15 Mbps, BPSK)	X	4.88	67.02	16.33	0.00	150.0	± 9.6 %
		Y	4.67	67.32	16.57		150.0	
		Z	4.90	66.72	16.13		150.0	

EX3DV4- SN:3863

April 25, 2018

10223-CAC	IEEE 802.11n (HT Mixed, 90 Mbps, 16-QAM)	X	5.15	67.21	16.44	0.00	150.0	± 9.6 %
		Y	4.85	67.37	16.57		150.0	
		Z	5.20	66.97	16.28		150.0	
10224-CAC	IEEE 802.11n (HT Mixed, 150 Mbps, 64-QAM)	X	4.92	67.13	16.32	0.00	150.0	± 9.6 %
		Y	4.70	67.49	16.58		150.0	
		Z	4.94	66.83	16.11		150.0	
10225-CAB	UMTS-FDD (HSPA+)	X	2.60	66.16	14.83	0.00	150.0	± 9.6 %
		Y	2.41	67.00	14.35		150.0	
		Z	2.59	65.42	14.54		150.0	
10226-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM)	X	8.23	85.19	23.12	6.02	65.0	± 9.6 %
		Y	7.42	91.37	26.44		65.0	
		Z	10.58	92.51	26.91		65.0	
10227-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM)	X	7.55	82.84	21.72	6.02	65.0	± 9.6 %
		Y	6.51	87.87	24.49		65.0	
		Z	10.25	90.62	25.65		65.0	
10228-CAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK)	X	6.67	85.48	25.12	6.02	65.0	± 9.6 %
		Y	3.69	80.81	24.99		65.0	
		Z	6.44	87.27	27.13		65.0	
10229-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM)	X	7.78	84.18	22.69	6.02	65.0	± 9.6 %
		Y	6.69	89.39	25.70		65.0	
		Z	9.90	91.18	26.39		65.0	
10230-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM)	X	7.14	81.92	21.34	6.02	65.0	± 9.6 %
		Y	5.85	86.04	23.80		65.0	
		Z	9.54	89.32	25.15		65.0	
10231-CAB	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK)	X	6.36	84.50	24.69	6.02	65.0	± 9.6 %
		Y	3.53	79.82	24.51		65.0	
		Z	6.16	86.30	26.70		65.0	
10232-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM)	X	7.77	84.16	22.68	6.02	65.0	± 9.6 %
		Y	6.68	89.37	25.69		65.0	
		Z	9.88	91.16	26.38		65.0	
10233-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM)	X	7.13	81.90	21.33	6.02	65.0	± 9.6 %
		Y	5.83	85.99	23.79		65.0	
		Z	9.51	89.29	25.14		65.0	
10234-CAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK)	X	6.09	83.61	24.25	6.02	65.0	± 9.6 %
		Y	3.42	79.13	24.11		65.0	
		Z	5.93	85.47	26.28		65.0	
10235-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM)	X	7.78	84.19	22.69	6.02	65.0	± 9.6 %
		Y	6.68	89.41	25.71		65.0	
		Z	9.89	91.19	26.39		65.0	
10236-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM)	X	7.18	81.98	21.35	6.02	65.0	± 9.6 %
		Y	5.91	86.16	23.84		65.0	
		Z	9.62	89.44	25.16		65.0	
10237-CAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK)	X	6.36	84.53	24.70	6.02	65.0	± 9.6 %
		Y	3.52	79.81	24.52		65.0	
		Z	6.16	86.34	26.72		65.0	
10238-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM)	X	7.75	84.14	22.67	6.02	65.0	± 9.6 %
		Y	6.66	89.35	25.68		65.0	
		Z	9.86	91.13	26.37		65.0	

EX3DV4-- SN:3863

April 25, 2018

10239-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM)	X	7.11	81.87	21.32	6.02	65.0	± 9.6 %
		Y	5.81	85.95	23.78		65.0	
		Z	9.48	89.25	25.13		65.0	
10240-CAD	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK)	X	6.34	84.51	24.69	6.02	65.0	± 9.6 %
		Y	3.52	79.81	24.52		65.0	
		Z	6.14	86.30	26.70		65.0	
10241-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM)	X	7.98	81.00	24.33	6.98	65.0	± 9.6 %
		Y	6.14	81.54	25.53		65.0	
		Z	7.26	79.71	24.64		65.0	
10242-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM)	X	6.47	76.99	22.66	6.98	65.0	± 9.6 %
		Y	4.99	77.45	23.83		65.0	
		Z	6.91	78.72	24.15		65.0	
10243-CAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK)	X	5.40	74.34	22.44	6.98	65.0	± 9.6 %
		Y	4.21	73.63	23.07		65.0	
		Z	5.61	75.34	23.62		65.0	
10244-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	3.76	67.79	12.85	3.98	65.0	± 9.6 %
		Y	1.87	62.25	8.40		65.0	
		Z	4.41	71.62	16.01		65.0	
10245-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	3.71	67.43	12.64	3.98	65.0	± 9.6 %
		Y	1.87	62.05	8.24		65.0	
		Z	4.30	70.99	15.67		65.0	
10246-CAB	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	4.05	72.21	15.44	3.98	65.0	± 9.6 %
		Y	1.80	64.42	10.44		65.0	
		Z	3.80	73.10	16.90		65.0	
10247-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM)	X	4.44	71.15	15.84	3.98	65.0	± 9.6 %
		Y	2.54	65.63	11.89		65.0	
		Z	4.00	70.77	16.63		65.0	
10248-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM)	X	4.38	70.57	15.58	3.98	65.0	± 9.6 %
		Y	2.50	65.09	11.62		65.0	
		Z	4.00	70.27	16.39		65.0	
10249-CAD	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK)	X	6.22	78.94	19.39	3.98	65.0	± 9.6 %
		Y	3.43	72.93	16.18		65.0	
		Z	5.02	77.51	19.84		65.0	
10250-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM)	X	6.14	76.63	20.38	3.98	65.0	± 9.6 %
		Y	4.51	74.09	18.97		65.0	
		Z	5.00	73.95	19.97		65.0	
10251-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM)	X	5.56	73.72	18.77	3.98	65.0	± 9.6 %
		Y	3.95	70.70	16.95		65.0	
		Z	4.76	71.87	18.65		65.0	
10252-CAD	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK)	X	7.45	81.83	21.98	3.98	65.0	± 9.6 %
		Y	5.54	80.55	21.60		65.0	
		Z	5.55	78.23	21.33		65.0	
10253-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM)	X	5.77	73.44	19.25	3.98	65.0	± 9.6 %
		Y	4.37	71.25	18.16		65.0	
		Z	4.94	71.30	18.85		65.0	
10254-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM)	X	6.22	74.67	20.11	3.98	65.0	± 9.6 %
		Y	4.73	72.48	19.03		65.0	
		Z	5.27	72.27	19.61		65.0	

EX3DV4- SN:3863

April 25, 2018

10255-CAD	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK)	X	6.76	78.48	21.18	3.98	65.0	± 9.6 %
		Y	5.16	77.25	20.99		65.0	
		Z	5.37	75.38	20.49		65.0	
10256-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM)	X	2.78	64.16	9.93	3.98	65.0	± 9.6 %
		Y	1.36	60.00	5.83		65.0	
		Z	3.18	67.02	12.70		65.0	
10257-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM)	X	2.75	63.84	9.69	3.98	65.0	± 9.6 %
		Y	1.38	60.00	5.75		65.0	
		Z	3.11	66.43	12.31		65.0	
10258-CAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK)	X	2.69	66.45	11.77	3.98	65.0	± 9.6 %
		Y	1.25	60.72	7.00		65.0	
		Z	2.70	67.95	13.57		65.0	
10259-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM)	X	5.09	73.24	17.52	3.98	65.0	± 9.6 %
		Y	3.20	68.61	14.39		65.0	
		Z	4.40	72.05	17.89		65.0	
10260-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM)	X	5.09	72.94	17.39	3.98	65.0	± 9.6 %
		Y	3.20	68.30	14.22		65.0	
		Z	4.44	71.81	17.78		65.0	
10261-CAB	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK)	X	6.43	79.43	20.17	3.98	65.0	± 9.6 %
		Y	4.14	75.58	18.12		65.0	
		Z	5.00	77.05	20.16		65.0	
10262-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM)	X	6.11	76.51	20.31	3.98	65.0	± 9.6 %
		Y	4.48	73.95	18.88		65.0	
		Z	4.98	73.88	19.92		65.0	
10263-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM)	X	5.55	73.70	18.77	3.98	65.0	± 9.6 %
		Y	3.94	70.69	16.95		65.0	
		Z	4.76	71.84	18.64		65.0	
10264-CAD	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK)	X	7.33	81.55	21.85	3.98	65.0	± 9.6 %
		Y	5.45	80.22	21.44		65.0	
		Z	5.49	78.02	21.23		65.0	
10265-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM)	X	5.87	73.86	19.53	3.98	65.0	± 9.6 %
		Y	4.46	71.68	18.63		65.0	
		Z	5.02	71.71	19.09		65.0	
10266-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM)	X	6.39	75.29	20.53	3.98	65.0	± 9.6 %
		Y	4.89	73.18	19.70		65.0	
		Z	5.38	72.78	19.95		65.0	
10267-CAD	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK)	X	7.04	78.96	21.22	3.98	65.0	± 9.6 %
		Y	5.43	77.99	21.30		65.0	
		Z	5.60	75.97	20.54		65.0	
10268-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM)	X	6.56	74.07	20.20	3.98	65.0	± 9.6 %
		Y	5.15	72.08	19.58		65.0	
		Z	5.68	71.86	19.63		65.0	
10269-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM)	X	6.55	73.70	20.08	3.98	65.0	± 9.6 %
		Y	5.19	71.84	19.47		65.0	
		Z	5.68	71.51	19.52		65.0	
10270-CAD	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	6.77	76.24	20.42	3.98	65.0	± 9.6 %
		Y	5.40	75.25	20.50		65.0	
		Z	5.66	73.75	19.79		65.0	

EX3DV4- SN:3863

April 25, 2018

10274-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.10)	X	2.43	66.71	14.85	0.00	150.0	± 9.6 %
		Y	2.33	68.15	14.74		150.0	
		Z	2.38	65.72	14.40		150.0	
10275-CAB	UMTS-FDD (HSUPA, Subtest 5, 3GPP Rel8.4)	X	1.47	67.75	15.10	0.00	150.0	± 9.6 %
		Y	1.72	72.43	16.90		150.0	
		Z	1.36	65.94	13.97		150.0	
10277-CAA	PHS (QPSK)	X	1.92	60.08	5.51	9.03	50.0	± 9.6 %
		Y	1.38	58.77	3.99		50.0	
		Z	1.98	60.78	6.41		50.0	
10278-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.5)	X	3.08	65.19	10.55	9.03	50.0	± 9.6 %
		Y	2.17	61.96	7.67		50.0	
		Z	3.52	67.85	12.76		50.0	
10279-CAA	PHS (QPSK, BW 884MHz, Rolloff 0.38)	X	3.15	65.40	10.71	9.03	50.0	± 9.6 %
		Y	2.20	62.03	7.77		50.0	
		Z	3.61	68.12	12.94		50.0	
10290-AAB	CDMA2000, RC1, SQ55, Full Rate	X	0.92	64.86	10.52	0.00	150.0	± 9.6 %
		Y	0.39	60.00	5.42		150.0	
		Z	0.92	63.92	10.28		150.0	
10291-AAB	CDMA2000, RC3, SQ55, Full Rate	X	0.56	63.07	9.34	0.00	150.0	± 9.6 %
		Y	0.29	60.00	5.06		150.0	
		Z	0.54	61.87	8.78		150.0	
10292-AAB	CDMA2000, RC3, SQ32, Full Rate	X	0.78	67.26	11.80	0.00	150.0	± 9.6 %
		Y	0.28	60.00	5.38		150.0	
		Z	0.61	63.79	10.15		150.0	
10293-AAB	CDMA2000, RC3, SQ3, Full Rate	X	2.07	78.82	16.86	0.00	150.0	± 9.6 %
		Y	0.39	62.28	7.09		150.0	
		Z	0.82	67.12	12.27		150.0	
10295-AAB	CDMA2000, RC1, SQ3, 1/8th Rate 25 fr.	X	10.77	83.93	21.20	9.03	50.0	± 9.6 %
		Y	21.51	90.17	21.22		50.0	
		Z	9.58	84.17	22.47		50.0	
10297-AAC	LTE-FDD (SC-FDMA, 50% RB, 20 MHz, QPSK)	X	2.52	69.39	16.43	0.00	150.0	± 9.6 %
		Y	2.55	71.75	17.73		150.0	
		Z	2.42	68.12	15.58		150.0	
10298-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, QPSK)	X	1.11	64.88	11.35	0.00	150.0	± 9.6 %
		Y	0.56	60.19	6.52		150.0	
		Z	1.13	64.17	11.22		150.0	
10299-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM)	X	1.42	62.80	9.08	0.00	150.0	± 9.6 %
		Y	0.76	60.00	5.28		150.0	
		Z	1.91	65.84	11.56		150.0	
10300-AAC	LTE-FDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM)	X	1.21	60.93	7.40	0.00	150.0	± 9.6 %
		Y	0.73	60.00	4.72		150.0	
		Z	1.52	62.72	9.26		150.0	
10301-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC)	X	4.38	65.24	17.03	4.17	50.0	± 9.6 %
		Y	4.10	66.08	16.99		50.0	
		Z	4.53	65.17	17.06		50.0	
10302-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, QPSK, PUSC, 3 CTRL symbols)	X	4.87	65.87	17.74	4.96	50.0	± 9.6 %
		Y	4.52	66.36	17.57		50.0	
		Z	5.00	65.70	17.71		50.0	

Certificate No: EX3-3863_Apr18

Page 23 of 39

EX3DV4- SN:3863

April 25, 2018

10303-AAA	IEEE 802.16e WiMAX (31:15, 5ms, 10MHz, 64QAM, PUSC)	X	4.64	65.56	17.55	4.96	50.0	± 9.6 %
		Y	4.40	66.71	17.70		50.0	
		Z	4.76	65.34	17.52		50.0	
10304-AAA	IEEE 802.16e WiMAX (29:18, 5ms, 10MHz, 64QAM, PUSC)	X	4.47	65.53	17.12	4.17	50.0	± 9.6 %
		Y	4.17	66.24	17.01		50.0	
		Z	4.56	65.19	17.01		50.0	
10305-AAA	IEEE 802.16e WiMAX (31:15, 10ms, 10MHz, 64QAM, PUSC, 15 symbols)	X	4.18	67.59	18.77	6.02	35.0	± 9.6 %
		Y	3.89	67.96	17.61		35.0	
		Z	4.33	67.73	19.13		35.0	
10306-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 64QAM, PUSC, 18 symbols)	X	4.44	66.50	18.52	6.02	35.0	± 9.6 %
		Y	4.16	67.24	17.98		35.0	
		Z	4.60	66.59	18.78		35.0	
10307-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, PUSC, 18 symbols)	X	4.34	66.59	18.45	6.02	35.0	± 9.6 %
		Y	4.05	67.23	17.84		35.0	
		Z	4.50	66.72	18.72		35.0	
10308-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, PUSC)	X	4.32	66.82	18.60	6.02	35.0	± 9.6 %
		Y	4.06	67.54	18.06		35.0	
		Z	4.48	66.95	18.87		35.0	
10309-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, 16QAM, AMC 2x3, 18 symbols)	X	4.46	66.56	18.61	6.02	35.0	± 9.6 %
		Y	4.17	67.31	18.10		35.0	
		Z	4.64	66.74	18.90		35.0	
10310-AAA	IEEE 802.16e WiMAX (29:18, 10ms, 10MHz, QPSK, AMC 2x3, 18 symbols)	X	4.40	66.58	18.52	6.02	35.0	± 9.6 %
		Y	4.14	67.40	18.05		35.0	
		Z	4.55	66.67	18.76		35.0	
10311-AAC	LTE-FDD (SC-FDMA, 100% RB, 15 MHz, QPSK)	X	2.88	68.63	16.10	0.00	150.0	± 9.6 %
		Y	2.88	70.38	17.20		150.0	
		Z	2.77	67.46	15.32		150.0	
10313-AAA	iDEN 1:3	X	3.55	71.03	14.37	6.99	70.0	± 9.6 %
		Y	2.76	72.05	15.47		70.0	
		Z	2.49	69.17	14.17		70.0	
10314-AAA	iDEN 1:6	X	6.09	81.23	20.99	10.00	30.0	± 9.6 %
		Y	7.74	88.37	24.07		30.0	
		Z	3.89	76.29	19.81		30.0	
10315-AAB	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 96pc duty cycle)	X	1.04	63.85	14.96	0.17	150.0	± 9.6 %
		Y	1.05	65.58	16.18		150.0	
		Z	0.96	62.52	14.00		150.0	
10316-AAB	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 96pc duty cycle)	X	4.35	66.66	16.11	0.17	150.0	± 9.6 %
		Y	4.12	67.27	16.33		150.0	
		Z	4.39	66.31	15.96		150.0	
10317-AAC	IEEE 802.11a WiFi 5 GHz (OFDM, 6 Mbps, 96pc duty cycle)	X	4.35	66.66	16.11	0.17	150.0	± 9.6 %
		Y	4.12	67.27	16.33		150.0	
		Z	4.39	66.31	15.96		150.0	
10400-AAD	IEEE 802.11ac WiFi (20MHz, 64-QAM, 99pc duty cycle)	X	4.42	66.96	16.15	0.00	150.0	± 9.6 %
		Y	4.13	67.43	16.34		150.0	
		Z	4.47	66.60	15.95		150.0	
10401-AAD	IEEE 802.11ac WiFi (40MHz, 64-QAM, 99pc duty cycle)	X	5.08	66.77	16.17	0.00	150.0	± 9.6 %
		Y	5.02	67.75	16.71		150.0	
		Z	5.22	66.85	16.19		150.0	

EX3DV4-- SN:3863

April 25, 2018

10402-AAD	IEEE 802.11ac WiFi (80MHz, 64-QAM, 99pc duty cycle)	X	5.43	67.35	16.36	0.00	150.0	± 9.6 %
		Y	5.23	67.61	16.59		150.0	
		Z	5.46	67.09	16.19		150.0	
10403-AAB	CDMA2000 (1xEV-DO, Rev. 0)	X	0.92	64.86	10.52	0.00	115.0	± 9.6 %
		Y	0.39	60.00	5.42		115.0	
		Z	0.92	63.92	10.28		115.0	
10404-AAB	CDMA2000 (1xEV-DO, Rev. A)	X	0.92	64.86	10.52	0.00	115.0	± 9.6 %
		Y	0.39	60.00	5.42		115.0	
		Z	0.92	63.92	10.28		115.0	
10406-AAB	CDMA2000, RC3, SC32, SCH0, Full Rate	X	6.61	82.29	18.19	0.00	100.0	± 9.6 %
		Y	100.00	99.95	18.83		100.0	
		Z	45.79	108.43	26.26		100.0	
10410-AAD	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9, Subframe Conf=4)	X	3.30	74.41	15.15	3.23	80.0	± 9.6 %
		Y	16.11	98.20	22.53		80.0	
		Z	23.08	102.83	25.32		80.0	
10415-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 99pc duty cycle)	X	0.96	62.96	14.43	0.00	150.0	± 9.6 %
		Y	0.99	64.96	15.77		150.0	
		Z	0.90	61.91	13.52		150.0	
10416-AAA	IEEE 802.11g WiFi 2.4 GHz (ERP-OFDM, 6 Mbps, 99pc duty cycle)	X	4.32	66.73	16.13	0.00	150.0	± 9.6 %
		Y	4.11	67.43	16.39		150.0	
		Z	4.34	66.32	15.91		150.0	
10417-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 99pc duty cycle)	X	4.32	66.73	16.13	0.00	150.0	± 9.6 %
		Y	4.11	67.43	16.39		150.0	
		Z	4.34	66.32	15.91		150.0	
10418-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Long preamble)	X	4.31	66.93	16.18	0.00	150.0	± 9.6 %
		Y	4.10	67.66	16.50		150.0	
		Z	4.33	66.49	15.93		150.0	
10419-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 99pc duty cycle, Short preamble)	X	4.33	66.86	16.17	0.00	150.0	± 9.6 %
		Y	4.11	67.59	16.46		150.0	
		Z	4.35	66.43	15.93		150.0	
10422-AAB	IEEE 802.11n (HT Greenfield, 7.2 Mbps, BPSK)	X	4.43	66.84	16.18	0.00	150.0	± 9.6 %
		Y	4.21	67.51	16.45		150.0	
		Z	4.46	66.43	15.95		150.0	
10423-AAB	IEEE 802.11n (HT Greenfield, 43.3 Mbps, 16-QAM)	X	4.56	67.09	16.27	0.00	150.0	± 9.6 %
		Y	4.30	67.73	16.52		150.0	
		Z	4.61	66.71	16.06		150.0	
10424-AAB	IEEE 802.11n (HT Greenfield, 72.2 Mbps, 64-QAM)	X	4.49	67.05	16.24	0.00	150.0	± 9.6 %
		Y	4.23	67.65	16.49		150.0	
		Z	4.53	66.66	16.03		150.0	
10425-AAB	IEEE 802.11n (HT Greenfield, 15 Mbps, BPSK)	X	5.11	67.24	16.43	0.00	150.0	± 9.6 %
		Y	4.85	67.48	16.62		150.0	
		Z	5.16	66.98	16.26		150.0	
10426-AAB	IEEE 802.11n (HT Greenfield, 90 Mbps, 16-QAM)	X	5.13	67.32	16.47	0.00	150.0	± 9.6 %
		Y	4.90	67.67	16.71		150.0	
		Z	5.18	67.07	16.30		150.0	

EX3DV4- SN:3863

April 25, 2018

10427-AAB	IEEE 802.11n (HT Greenfield, 150 Mbps, 64-QAM)	X	5.10	67.11	16.36	0.00	150.0	± 9.6 %
		Y	4.87	67.47	16.61		150.0	
		Z	5.17	66.96	16.24		150.0	
10430-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1)	X	4.40	73.18	18.78	0.00	150.0	± 9.6 %
		Y	5.18	77.79	19.68		150.0	
		Z	4.07	70.86	17.81		150.0	
10431-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1)	X	3.93	67.31	16.00	0.00	150.0	± 9.6 %
		Y	3.67	68.21	16.08		150.0	
		Z	3.97	66.78	15.76		150.0	
10432-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1)	X	4.25	67.14	16.17	0.00	150.0	± 9.6 %
		Y	4.00	67.91	16.40		150.0	
		Z	4.29	66.70	15.93		150.0	
10433-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1)	X	4.51	67.08	16.27	0.00	150.0	± 9.6 %
		Y	4.26	67.71	16.52		150.0	
		Z	4.55	66.70	16.05		150.0	
10434-AAA	W-CDMA (BS Test Model 1, 64 DPCH)	X	4.57	74.23	18.62	0.00	150.0	± 9.6 %
		Y	4.96	77.01	18.39		150.0	
		Z	4.13	71.55	17.59		150.0	
10435-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.22	74.05	14.97	3.23	80.0	± 9.6 %
		Y	12.58	95.13	21.66		80.0	
		Z	20.50	101.13	24.83		80.0	
10447-AAB	LTE-FDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.16	67.07	14.83	0.00	150.0	± 9.6 %
		Y	2.72	66.94	13.70		150.0	
		Z	3.20	66.46	14.68		150.0	
10448-AAB	LTE-FDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	3.80	67.10	15.87	0.00	150.0	± 9.6 %
		Y	3.57	68.05	15.99		150.0	
		Z	3.82	66.56	15.62		150.0	
10449-AAB	LTE-FDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.09	66.98	16.07	0.00	150.0	± 9.6 %
		Y	3.88	67.77	16.33		150.0	
		Z	4.12	66.51	15.82		150.0	
10450-AAB	LTE-FDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.31	66.86	16.12	0.00	150.0	± 9.6 %
		Y	4.10	67.50	16.40		150.0	
		Z	4.33	66.45	15.89		150.0	
10451-AAA	W-CDMA (BS Test Model 1, 64 DPCH, Clipping 44%)	X	2.96	66.79	14.05	0.00	150.0	± 9.6 %
		Y	2.28	65.25	11.94		150.0	
		Z	3.03	66.33	14.05		150.0	
10456-AAB	IEEE 802.11ac WiFi (160MHz, 64-QAM, 99pc duty cycle)	X	6.03	67.73	16.57	0.00	150.0	± 9.6 %
		Y	6.14	68.84	17.23		150.0	
		Z	6.09	67.66	16.51		150.0	
10457-AAA	UMTS-FDD (DC-HSDPA)	X	3.67	65.47	15.85	0.00	150.0	± 9.6 %
		Y	3.57	66.44	16.21		150.0	
		Z	3.66	65.00	15.61		150.0	
10458-AAA	CDMA2000 (1xEV-DO, Rev. B, 2 carriers)	X	3.82	71.77	16.94	0.00	150.0	± 9.6 %
		Y	2.33	66.01	12.18		150.0	
		Z	3.66	70.24	16.55		150.0	
10459-AAA	CDMA2000 (1xEV-DO, Rev. B, 3 carriers)	X	5.04	70.06	18.38	0.00	150.0	± 9.6 %
		Y	4.33	69.08	16.37		150.0	
		Z	4.93	68.74	17.97		150.0	

EX3DV4-- SN:3863

April 25, 2018

10460-AAA	UMTS-FDD (WCDMA, AMR)	X	0.82	68.06	15.67	0.00	150.0	± 9.6 %
		Y	1.52	80.43	21.00		150.0	
		Z	0.70	65.12	13.61		150.0	
10461-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.71	68.46	13.76	3.29	80.0	± 9.6 %
		Y	18.73	104.14	25.37		80.0	
		Z	16.72	101.23	25.84		80.0	
10462-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.95	60.00	7.25	3.23	80.0	± 9.6 %
		Y	0.26	55.18	3.00		80.0	
		Z	1.02	61.47	8.87		80.0	
10463-AAA	LTE-TDD (SC-FDMA, 1 RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.96	60.00	6.79	3.23	80.0	± 9.6 %
		Y	3.83	65.07	6.10		80.0	
		Z	0.88	60.00	7.59		80.0	
10464-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.35	65.72	12.06	3.23	80.0	± 9.6 %
		Y	3.75	82.77	18.52		80.0	
		Z	9.51	92.26	22.65		80.0	
10465-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.95	60.00	7.20	3.23	80.0	± 9.6 %
		Y	0.25	55.06	2.87		80.0	
		Z	0.96	60.91	8.53		80.0	
10466-AAA	LTE-TDD (SC-FDMA, 1 RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.97	60.00	6.75	3.23	80.0	± 9.6 %
		Y	3.08	64.36	5.91		80.0	
		Z	0.88	60.00	7.54		80.0	
10467-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.38	66.05	12.23	3.23	80.0	± 9.6 %
		Y	4.97	86.13	19.58		80.0	
		Z	11.48	94.80	23.39		80.0	
10468-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.95	60.00	7.22	3.23	80.0	± 9.6 %
		Y	0.26	55.12	2.95		80.0	
		Z	0.97	61.07	8.63		80.0	
10469-AAC	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.96	60.00	6.75	3.23	80.0	± 9.6 %
		Y	3.73	65.04	6.11		80.0	
		Z	0.88	60.00	7.54		80.0	
10470-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.38	66.03	12.21	3.23	80.0	± 9.6 %
		Y	5.04	86.32	19.63		80.0	
		Z	11.56	94.91	23.42		80.0	
10471-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.95	60.00	7.21	3.23	80.0	± 9.6 %
		Y	0.25	55.11	2.92		80.0	
		Z	0.97	61.03	8.59		80.0	
10472-AAC	LTE-TDD (SC-FDMA, 1 RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.96	60.00	6.74	3.23	80.0	± 9.6 %
		Y	8.84	67.69	6.73		80.0	
		Z	0.88	60.00	7.53		80.0	
10473-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.37	66.01	12.20	3.23	80.0	± 9.6 %
		Y	4.94	86.08	19.55		80.0	
		Z	11.45	94.77	23.37		80.0	
10474-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.94	60.00	7.21	3.23	80.0	± 9.6 %
		Y	0.25	55.09	2.91		80.0	
		Z	0.96	61.01	8.58		80.0	
10475-AAC	LTE-TDD (SC-FDMA, 1 RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.96	60.00	6.74	3.23	80.0	± 9.6 %
		Y	5.48	65.71	6.11		80.0	
		Z	0.88	60.00	7.53		80.0	

Certificate No: EX3-3863_Apr18

Page 27 of 39

EX3DV4- SN:3863

April 25, 2018

10477-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	0.94	60.00	7.19	3.23	80.0	± 9.6 %
		Y	0.25	55.02	2.82		80.0	
		Z	0.95	60.87	8.49		80.0	
10478-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	0.96	60.00	6.73	3.23	80.0	± 9.6 %
		Y	0.28	53.97	1.35		80.0	
		Z	0.88	60.00	7.52		80.0	
10479-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.21	72.74	16.33	3.23	80.0	± 9.6 %
		Y	39.60	110.75	27.52		80.0	
		Z	6.66	84.68	21.96		80.0	
10480-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.08	64.62	11.24	3.23	80.0	± 9.6 %
		Y	1.03	61.93	8.80		80.0	
		Z	4.36	74.13	16.27		80.0	
10481-AAA	LTE-TDD (SC-FDMA, 50% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.78	62.75	10.02	3.23	80.0	± 9.6 %
		Y	0.84	60.00	7.33		80.0	
		Z	3.24	70.04	14.31		80.0	
10482-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.73	64.95	12.00	2.23	80.0	± 9.6 %
		Y	0.84	60.00	7.70		80.0	
		Z	1.75	65.57	13.09		80.0	
10483-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.61	61.02	9.13	2.23	80.0	± 9.6 %
		Y	1.09	60.00	6.49		80.0	
		Z	2.56	66.79	13.19		80.0	
10484-AAA	LTE-TDD (SC-FDMA, 50% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.61	60.82	9.02	2.23	80.0	± 9.6 %
		Y	1.11	60.00	6.48		80.0	
		Z	2.45	66.04	12.85		80.0	
10485-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.62	70.06	15.66	2.23	80.0	± 9.6 %
		Y	1.92	68.50	13.94		80.0	
		Z	2.29	68.71	15.73		80.0	
10486-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.37	65.68	13.03	2.23	80.0	± 9.6 %
		Y	1.24	60.58	8.96		80.0	
		Z	2.33	65.68	13.73		80.0	
10487-AAC	LTE-TDD (SC-FDMA, 50% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.37	65.34	12.86	2.23	80.0	± 9.6 %
		Y	1.24	60.28	8.75		80.0	
		Z	2.35	65.41	13.59		80.0	
10488-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.19	71.23	17.45	2.23	80.0	± 9.6 %
		Y	2.91	73.05	18.24		80.0	
		Z	2.77	69.32	17.00		80.0	
10489-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.21	68.38	16.16	2.23	80.0	± 9.6 %
		Y	2.80	68.89	15.94		80.0	
		Z	2.91	66.98	15.94		80.0	
10490-AAC	LTE-TDD (SC-FDMA, 50% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.28	68.24	16.11	2.23	80.0	± 9.6 %
		Y	2.81	68.47	15.72		80.0	
		Z	3.00	66.92	15.92		80.0	
10491-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.47	70.14	17.34	2.23	80.0	± 9.6 %
		Y	3.03	70.90	17.92		80.0	
		Z	3.12	68.57	16.90		80.0	
10492-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.59	67.96	16.53	2.23	80.0	± 9.6 %
		Y	3.13	68.26	16.56		80.0	
		Z	3.32	66.68	16.23		80.0	

EX3DV4- SN:3863

April 25, 2018

10493-AAC	LTE-TDD (SC-FDMA, 50% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.65	67.84	16.48	2.23	80.0	± 9.6 %
		Y	3.17	68.05	16.43		80.0	
		Z	3.39	66.61	16.21		80.0	
10494-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.72	71.32	17.72	2.23	80.0	± 9.6 %
		Y	3.26	72.17	18.50		80.0	
		Z	3.30	69.67	17.25		80.0	
10495-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.62	68.25	16.75	2.23	80.0	± 9.6 %
		Y	3.18	68.50	16.94		80.0	
		Z	3.33	66.95	16.42		80.0	
10496-AAC	LTE-TDD (SC-FDMA, 50% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.71	68.07	16.72	2.23	80.0	± 9.6 %
		Y	3.25	68.28	16.85		80.0	
		Z	3.43	66.81	16.39		80.0	
10497-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	1.07	60.00	8.19	2.23	80.0	± 9.6 %
		Y	0.87	60.00	5.66		80.0	
		Z	1.16	61.09	9.64		80.0	
10498-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	1.24	60.00	7.11	2.23	80.0	± 9.6 %
		Y	1.51	60.00	4.12		80.0	
		Z	1.24	60.00	7.97		80.0	
10499-AAA	LTE-TDD (SC-FDMA, 100% RB, 1.4 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	1.26	60.00	6.97	2.23	80.0	± 9.6 %
		Y	1.84	60.00	3.85		80.0	
		Z	1.26	60.00	7.82		80.0	
10500-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	2.86	70.59	16.41	2.23	80.0	± 9.6 %
		Y	2.47	71.37	16.06		80.0	
		Z	2.47	68.90	16.23		80.0	
10501-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	2.77	67.13	14.41	2.23	80.0	± 9.6 %
		Y	1.82	64.08	11.77		80.0	
		Z	2.61	66.45	14.70		80.0	
10502-AAA	LTE-TDD (SC-FDMA, 100% RB, 3 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	2.80	66.92	14.24	2.23	80.0	± 9.6 %
		Y	1.80	63.62	11.44		80.0	
		Z	2.65	66.33	14.58		80.0	
10503-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.15	71.01	17.34	2.23	80.0	± 9.6 %
		Y	2.85	72.73	18.09		80.0	
		Z	2.74	69.14	16.90		80.0	
10504-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.18	68.25	16.09	2.23	80.0	± 9.6 %
		Y	2.77	68.71	15.84		80.0	
		Z	2.89	66.89	15.87		80.0	
10505-AAC	LTE-TDD (SC-FDMA, 100% RB, 5 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.26	68.13	16.04	2.23	80.0	± 9.6 %
		Y	2.78	68.31	15.63		80.0	
		Z	2.99	66.83	15.86		80.0	
10506-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	3.68	71.16	17.64	2.23	80.0	± 9.6 %
		Y	3.23	71.98	18.40		80.0	
		Z	3.28	69.54	17.18		80.0	
10507-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.60	68.17	16.71	2.23	80.0	± 9.6 %
		Y	3.16	68.41	16.88		80.0	
		Z	3.32	66.89	16.38		80.0	

Certificate No: EX3-3863_Apr18

Page 29 of 39

EX3DV4- SN:3863

April 25, 2018

10508-AAC	LTE-TDD (SC-FDMA, 100% RB, 10 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	3.69	67.98	16.67	2.23	80.0	± 9.6 %
		Y	3.23	68.18	16.79		80.0	
		Z	3.42	66.74	16.35		80.0	
10509-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.09	70.27	17.38	2.23	80.0	± 9.6 %
		Y	3.57	70.54	17.94		80.0	
		Z	3.72	68.92	16.97		80.0	
10510-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	4.09	67.97	16.86	2.23	80.0	± 9.6 %
		Y	3.56	67.74	16.96		80.0	
		Z	3.82	66.86	16.53		80.0	
10511-AAC	LTE-TDD (SC-FDMA, 100% RB, 15 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.17	67.81	16.83	2.23	80.0	± 9.6 %
		Y	3.64	67.61	16.92		80.0	
		Z	3.90	66.70	16.51		80.0	
10512-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, QPSK, UL Subframe=2,3,4,7,8,9)	X	4.18	71.35	17.66	2.23	80.0	± 9.6 %
		Y	3.66	71.62	18.28		80.0	
		Z	3.77	69.95	17.25		80.0	
10513-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 16-QAM, UL Subframe=2,3,4,7,8,9)	X	3.98	68.10	16.91	2.23	80.0	± 9.6 %
		Y	3.47	67.78	17.03		80.0	
		Z	3.70	66.98	16.58		80.0	
10514-AAC	LTE-TDD (SC-FDMA, 100% RB, 20 MHz, 64-QAM, UL Subframe=2,3,4,7,8,9)	X	4.02	67.80	16.84	2.23	80.0	± 9.6 %
		Y	3.52	67.49	16.93		80.0	
		Z	3.75	66.69	16.51		80.0	
10515-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 99pc duty cycle)	X	0.92	63.12	14.48	0.00	150.0	± 9.6 %
		Y	0.96	65.32	15.94		150.0	
		Z	0.86	62.01	13.50		150.0	
10516-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 99pc duty cycle)	X	0.54	70.00	16.71	0.00	150.0	± 9.6 %
		Y	2.46	99.33	28.61		150.0	
		Z	0.41	65.69	13.40		150.0	
10517-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 99pc duty cycle)	X	0.76	64.84	14.98	0.00	150.0	± 9.6 %
		Y	0.86	68.98	17.56		150.0	
		Z	0.68	63.15	13.53		150.0	
10518-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 99pc duty cycle)	X	4.31	66.83	16.12	0.00	150.0	± 9.6 %
		Y	4.10	67.60	16.42		150.0	
		Z	4.33	66.40	15.88		150.0	
10519-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 99pc duty cycle)	X	4.45	66.99	16.21	0.00	150.0	± 9.6 %
		Y	4.21	67.71	16.48		150.0	
		Z	4.49	66.60	15.99		150.0	
10520-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 99pc duty cycle)	X	4.31	66.93	16.12	0.00	150.0	± 9.6 %
		Y	4.08	67.63	16.41		150.0	
		Z	4.35	66.53	15.90		150.0	
10521-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 99pc duty cycle)	X	4.24	66.89	16.10	0.00	150.0	± 9.6 %
		Y	4.01	67.52	16.35		150.0	
		Z	4.28	66.50	15.87		150.0	
10522-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 99pc duty cycle)	X	4.29	67.01	16.19	0.00	150.0	± 9.6 %
		Y	4.02	67.52	16.36		150.0	
		Z	4.34	66.64	15.98		150.0	

EX3DV4- SN:3863

April 25, 2018

10523-AAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 48 Mbps, 99pc duty cycle)	X	4.22	67.02	16.12	0.00	150.0	± 9.6 %
		Y	4.02	67.85	16.48		150.0	
		Z	4.24	66.53	15.84		150.0	
10524-AAB	IEEE 802.11a/n WiFi 5 GHz (OFDM, 54 Mbps, 99pc duty cycle)	X	4.25	66.98	16.19	0.00	150.0	± 9.6 %
		Y	4.00	67.65	16.47		150.0	
		Z	4.28	66.56	15.95		150.0	
10525-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 99pc duty cycle)	X	4.28	66.09	15.82	0.00	150.0	± 9.6 %
		Y	4.09	66.89	16.17		150.0	
		Z	4.29	65.63	15.56		150.0	
10526-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 99pc duty cycle)	X	4.40	66.37	15.93	0.00	150.0	± 9.6 %
		Y	4.16	67.06	16.24		150.0	
		Z	4.43	65.94	15.69		150.0	
10527-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 99pc duty cycle)	X	4.33	66.34	15.87	0.00	150.0	± 9.6 %
		Y	4.12	67.09	16.20		150.0	
		Z	4.36	65.89	15.62		150.0	
10528-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 99pc duty cycle)	X	4.35	66.35	15.90	0.00	150.0	± 9.6 %
		Y	4.12	67.05	16.21		150.0	
		Z	4.37	65.91	15.65		150.0	
10529-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 99pc duty cycle)	X	4.35	66.35	15.90	0.00	150.0	± 9.6 %
		Y	4.12	67.05	16.21		150.0	
		Z	4.37	65.91	15.65		150.0	
10531-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 99pc duty cycle)	X	4.31	66.37	15.88	0.00	150.0	± 9.6 %
		Y	4.07	67.03	16.17		150.0	
		Z	4.35	65.96	15.64		150.0	
10532-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 99pc duty cycle)	X	4.19	66.23	15.81	0.00	150.0	± 9.6 %
		Y	3.98	66.94	16.12		150.0	
		Z	4.22	65.81	15.56		150.0	
10533-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 99pc duty cycle)	X	4.35	66.43	15.91	0.00	150.0	± 9.6 %
		Y	4.13	67.21	16.24		150.0	
		Z	4.38	65.98	15.65		150.0	
10534-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 99pc duty cycle)	X	4.91	66.34	15.97	0.00	150.0	± 9.6 %
		Y	4.69	66.74	16.24		150.0	
		Z	4.94	66.04	15.77		150.0	
10535-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 99pc duty cycle)	X	4.95	66.47	16.03	0.00	150.0	± 9.6 %
		Y	4.71	66.81	16.28		150.0	
		Z	4.99	66.21	15.85		150.0	
10536-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 99pc duty cycle)	X	4.84	66.47	16.01	0.00	150.0	± 9.6 %
		Y	4.62	66.84	16.27		150.0	
		Z	4.87	66.16	15.80		150.0	
10537-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 99pc duty cycle)	X	4.90	66.47	16.01	0.00	150.0	± 9.6 %
		Y	4.71	66.93	16.32		150.0	
		Z	4.93	66.13	15.79		150.0	
10538-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 99pc duty cycle)	X	4.97	66.42	16.03	0.00	150.0	± 9.6 %
		Y	4.73	66.75	16.26		150.0	
		Z	5.00	66.13	15.84		150.0	
10540-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 99pc duty cycle)	X	4.90	66.38	16.03	0.00	150.0	± 9.6 %
		Y	4.67	66.70	16.26		150.0	
		Z	4.93	66.11	15.84		150.0	

Certificate No: EX3-3863_Apr18

Page 31 of 39

EX3DV4- SN:3863

April 25, 2018

10541-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 99pc duty cycle)	X	4.88	66.31	15.97	0.00	150.0	± 9.6 %
		Y	4.67	66.70	16.23		150.0	
		Z	4.91	66.01	15.77		150.0	
10542-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 99pc duty cycle)	X	5.04	66.41	16.04	0.00	150.0	± 9.6 %
		Y	4.80	66.76	16.28		150.0	
		Z	5.07	66.11	15.85		150.0	
10543-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 99pc duty cycle)	X	5.11	66.49	16.11	0.00	150.0	± 9.6 %
		Y	4.85	66.80	16.33		150.0	
		Z	5.14	66.14	15.89		150.0	
10544-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 99pc duty cycle)	X	5.25	66.42	15.96	0.00	150.0	± 9.6 %
		Y	5.07	66.65	16.18		150.0	
		Z	5.27	66.15	15.78		150.0	
10545-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 99pc duty cycle)	X	5.42	66.84	16.13	0.00	150.0	± 9.6 %
		Y	5.21	67.04	16.34		150.0	
		Z	5.45	66.80	15.96		150.0	
10546-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 99pc duty cycle)	X	5.28	66.54	15.99	0.00	150.0	± 9.6 %
		Y	5.09	66.74	16.19		150.0	
		Z	5.31	66.30	15.82		150.0	
10547-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 99pc duty cycle)	X	5.36	66.65	16.04	0.00	150.0	± 9.6 %
		Y	5.22	67.07	16.36		150.0	
		Z	5.39	66.38	15.86		150.0	
10548-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 99pc duty cycle)	X	5.50	67.24	16.31	0.00	150.0	± 9.6 %
		Y	5.18	67.11	16.36		150.0	
		Z	5.58	67.16	16.22		150.0	
10550-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 99pc duty cycle)	X	5.34	66.72	16.10	0.00	150.0	± 9.6 %
		Y	5.22	67.23	16.45		150.0	
		Z	5.36	66.42	15.90		150.0	
10551-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 99pc duty cycle)	X	5.28	66.50	15.95	0.00	150.0	± 9.6 %
		Y	5.06	66.66	16.14		150.0	
		Z	5.33	66.34	15.82		150.0	
10552-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 99pc duty cycle)	X	5.26	66.54	15.97	0.00	150.0	± 9.6 %
		Y	5.07	66.82	16.21		150.0	
		Z	5.27	66.23	15.76		150.0	
10553-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 99pc duty cycle)	X	5.31	66.48	15.97	0.00	150.0	± 9.6 %
		Y	5.11	66.71	16.17		150.0	
		Z	5.34	66.23	15.80		150.0	
10554-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 99pc duty cycle)	X	5.67	66.75	16.04	0.00	150.0	± 9.6 %
		Y	5.52	66.90	16.21		150.0	
		Z	5.69	66.52	15.88		150.0	
10555-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 99pc duty cycle)	X	5.76	66.97	16.13	0.00	150.0	± 9.6 %
		Y	5.58	67.06	16.29		150.0	
		Z	5.80	66.79	16.00		150.0	
10556-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 99pc duty cycle)	X	5.80	67.08	16.18	0.00	150.0	± 9.6 %
		Y	5.63	67.23	16.36		150.0	
		Z	5.83	66.86	16.03		150.0	
10557-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 99pc duty cycle)	X	5.76	66.95	16.13	0.00	150.0	± 9.6 %
		Y	5.57	67.06	16.29		150.0	
		Z	5.78	66.73	15.96		150.0	

EX3DV4- SN:3863

April 25, 2018

10558-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 99pc duty cycle)	X	5.77	67.00	16.18	0.00	150.0	± 9.6 %
		Y	5.54	66.98	16.27		150.0	
		Z	5.82	66.87	16.07		150.0	
10560-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 99pc duty cycle)	X	5.79	66.93	16.18	0.00	150.0	± 9.6 %
		Y	5.57	66.97	16.30		150.0	
		Z	5.82	66.74	16.04		150.0	
10561-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 99pc duty cycle)	X	5.72	66.92	16.20	0.00	150.0	± 9.6 %
		Y	5.51	66.95	16.32		150.0	
		Z	5.75	66.73	16.07		150.0	
10562-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 99pc duty cycle)	X	5.77	67.08	16.28	0.00	150.0	± 9.6 %
		Y	5.56	67.09	16.39		150.0	
		Z	5.83	66.98	16.19		150.0	
10563-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 99pc duty cycle)	X	5.87	67.06	16.24	0.00	150.0	± 9.6 %
		Y	5.77	67.47	16.55		150.0	
		Z	5.92	66.90	16.12		150.0	
10564-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 99pc duty cycle)	X	4.62	66.82	16.22	0.46	150.0	± 9.6 %
		Y	4.39	67.43	16.46		150.0	
		Z	4.66	66.47	16.04		150.0	
10565-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 99pc duty cycle)	X	4.82	67.25	16.56	0.46	150.0	± 9.6 %
		Y	4.56	67.87	16.81		150.0	
		Z	4.86	66.91	16.38		150.0	
10566-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 99pc duty cycle)	X	4.65	67.05	16.34	0.46	150.0	± 9.6 %
		Y	4.40	67.63	16.58		150.0	
		Z	4.70	66.72	16.17		150.0	
10567-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 99pc duty cycle)	X	4.70	67.52	16.78	0.46	150.0	± 9.6 %
		Y	4.46	68.13	17.04		150.0	
		Z	4.73	67.13	16.55		150.0	
10568-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 99pc duty cycle)	X	4.54	66.72	16.04	0.46	150.0	± 9.6 %
		Y	4.23	67.04	16.12		150.0	
		Z	4.60	66.47	15.91		150.0	
10569-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 99pc duty cycle)	X	4.69	67.76	16.91	0.46	150.0	± 9.6 %
		Y	4.48	68.53	17.28		150.0	
		Z	4.70	67.29	16.65		150.0	
10570-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 99pc duty cycle)	X	4.68	67.52	16.79	0.46	150.0	± 9.6 %
		Y	4.43	68.13	17.07		150.0	
		Z	4.72	67.10	16.55		150.0	
10571-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps, 90pc duty cycle)	X	1.13	64.43	15.18	0.46	130.0	± 9.6 %
		Y	1.09	65.61	16.13		130.0	
		Z	1.02	62.91	14.24		130.0	
10572-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 2 Mbps, 90pc duty cycle)	X	1.14	65.04	15.56	0.46	130.0	± 9.6 %
		Y	1.11	66.40	16.63		130.0	
		Z	1.02	63.36	14.54		130.0	
10573-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 5.5 Mbps, 90pc duty cycle)	X	2.01	84.38	21.80	0.46	130.0	± 9.6 %
		Y	35.15	138.74	38.20		130.0	
		Z	0.86	72.57	16.97		130.0	
10574-AAA	IEEE 802.11b WiFi 2.4 GHz (DSSS, 11 Mbps, 90pc duty cycle)	X	1.29	71.29	18.68	0.46	130.0	± 9.6 %
		Y	1.41	75.83	21.40		130.0	
		Z	1.02	67.46	16.65		130.0	

Certificate No: EX3-3863_Apr18

Page 33 of 39

EX3DV4- SN:3863

April 25, 2018

10575-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 6 Mbps, 90pc duty cycle)	X	4.40	66.56	16.20	0.46	130.0	± 9.6 %
		Y	4.16	67.14	16.39		130.0	
		Z	4.44	66.24	16.07		130.0	
10576-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 9 Mbps, 90pc duty cycle)	X	4.43	66.78	16.30	0.46	130.0	± 9.6 %
		Y	4.20	67.45	16.55		130.0	
		Z	4.46	66.42	16.14		130.0	
10577-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 12 Mbps, 90pc duty cycle)	X	4.59	67.02	16.46	0.46	130.0	± 9.6 %
		Y	4.33	67.64	16.68		130.0	
		Z	4.64	66.69	16.31		130.0	
10578-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 18 Mbps, 90pc duty cycle)	X	4.50	67.20	16.59	0.46	130.0	± 9.6 %
		Y	4.26	67.87	16.85		130.0	
		Z	4.54	66.83	16.41		130.0	
10579-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 24 Mbps, 90pc duty cycle)	X	4.24	66.27	15.75	0.46	130.0	± 9.6 %
		Y	3.96	66.67	15.85		130.0	
		Z	4.30	66.02	15.65		130.0	
10580-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 36 Mbps, 90pc duty cycle)	X	4.27	66.31	15.76	0.46	130.0	± 9.6 %
		Y	3.95	66.55	15.77		130.0	
		Z	4.34	66.08	15.68		130.0	
10581-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 48 Mbps, 90pc duty cycle)	X	4.41	67.27	16.55	0.46	130.0	± 9.6 %
		Y	4.19	68.04	16.88		130.0	
		Z	4.44	66.86	16.35		130.0	
10582-AAA	IEEE 802.11g WiFi 2.4 GHz (DSSS-OFDM, 54 Mbps, 90pc duty cycle)	X	4.16	66.00	15.50	0.46	130.0	± 9.6 %
		Y	3.86	66.35	15.58		130.0	
		Z	4.23	65.78	15.42		130.0	
10583-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 6 Mbps, 90pc duty cycle)	X	4.40	66.56	16.20	0.46	130.0	± 9.6 %
		Y	4.16	67.14	16.39		130.0	
		Z	4.44	66.24	16.07		130.0	
10584-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 9 Mbps, 90pc duty cycle)	X	4.43	66.78	16.30	0.46	130.0	± 9.6 %
		Y	4.20	67.45	16.55		130.0	
		Z	4.46	66.42	16.14		130.0	
10585-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 12 Mbps, 90pc duty cycle)	X	4.59	67.02	16.46	0.46	130.0	± 9.6 %
		Y	4.33	67.64	16.68		130.0	
		Z	4.64	66.69	16.31		130.0	
10586-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 18 Mbps, 90pc duty cycle)	X	4.50	67.20	16.59	0.46	130.0	± 9.6 %
		Y	4.26	67.87	16.85		130.0	
		Z	4.54	66.83	16.41		130.0	
10587-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 24 Mbps, 90pc duty cycle)	X	4.24	66.27	15.75	0.46	130.0	± 9.6 %
		Y	3.96	66.67	15.85		130.0	
		Z	4.30	66.02	15.65		130.0	
10588-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 36 Mbps, 90pc duty cycle)	X	4.27	66.31	15.76	0.46	130.0	± 9.6 %
		Y	3.95	66.55	15.77		130.0	
		Z	4.34	66.08	15.68		130.0	
10589-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 48 Mbps, 90pc duty cycle)	X	4.41	67.27	16.55	0.46	130.0	± 9.6 %
		Y	4.19	68.04	16.88		130.0	
		Z	4.44	66.86	16.35		130.0	
10590-AAB	IEEE 802.11a/h WiFi 5 GHz (OFDM, 54 Mbps, 90pc duty cycle)	X	4.16	66.00	15.50	0.46	130.0	± 9.6 %
		Y	3.86	66.35	15.58		130.0	
		Z	4.23	65.78	15.42		130.0	

EX3DV4- SN:3863

April 25, 2018

10591-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS0, 90pc duty cycle)	X	4.56	66.67	16.34	0.46	130.0	± 9.6 %
		Y	4.32	67.28	16.57		130.0	
		Z	4.59	66.33	16.20		130.0	
10592-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS1, 90pc duty cycle)	X	4.67	66.95	16.47	0.46	130.0	± 9.6 %
		Y	4.40	67.50	16.68		130.0	
		Z	4.73	66.64	16.33		130.0	
10593-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS2, 90pc duty cycle)	X	4.59	66.81	16.31	0.46	130.0	± 9.6 %
		Y	4.33	67.38	16.52		130.0	
		Z	4.64	66.52	16.18		130.0	
10594-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS3, 90pc duty cycle)	X	4.65	67.01	16.49	0.46	130.0	± 9.6 %
		Y	4.38	67.56	16.71		130.0	
		Z	4.70	66.70	16.35		130.0	
10595-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS4, 90pc duty cycle)	X	4.61	66.98	16.39	0.46	130.0	± 9.6 %
		Y	4.34	67.53	16.61		130.0	
		Z	4.66	66.65	16.24		130.0	
10596-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS5, 90pc duty cycle)	X	4.54	66.93	16.37	0.46	130.0	± 9.6 %
		Y	4.25	67.39	16.55		130.0	
		Z	4.60	66.62	16.23		130.0	
10597-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS6, 90pc duty cycle)	X	4.49	66.79	16.22	0.46	130.0	± 9.6 %
		Y	4.22	67.27	16.39		130.0	
		Z	4.55	66.50	16.09		130.0	
10598-AAB	IEEE 802.11n (HT Mixed, 20MHz, MCS7, 90pc duty cycle)	X	4.49	67.08	16.53	0.46	130.0	± 9.6 %
		Y	4.26	67.70	16.78		130.0	
		Z	4.53	66.74	16.37		130.0	
10599-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS0, 90pc duty cycle)	X	5.23	67.11	16.59	0.46	130.0	± 9.6 %
		Y	5.12	67.88	17.03		130.0	
		Z	5.27	66.86	16.46		130.0	
10600-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS1, 90pc duty cycle)	X	5.32	67.43	16.72	0.46	130.0	± 9.6 %
		Y	5.06	67.70	16.91		130.0	
		Z	5.40	67.28	16.64		130.0	
10601-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS2, 90pc duty cycle)	X	5.23	67.24	16.64	0.46	130.0	± 9.6 %
		Y	5.01	67.64	16.90		130.0	
		Z	5.29	67.02	16.53		130.0	
10602-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS3, 90pc duty cycle)	X	5.32	67.24	16.55	0.46	130.0	± 9.6 %
		Y	5.04	67.46	16.72		130.0	
		Z	5.42	67.18	16.53		130.0	
10603-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS4, 90pc duty cycle)	X	5.39	67.57	16.87	0.46	130.0	± 9.6 %
		Y	5.05	67.60	16.95		130.0	
		Z	5.48	67.46	16.80		130.0	
10604-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS5, 90pc duty cycle)	X	5.28	67.19	16.65	0.46	130.0	± 9.6 %
		Y	5.00	67.36	16.79		130.0	
		Z	5.37	67.14	16.62		130.0	
10605-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS6, 90pc duty cycle)	X	5.31	67.30	16.70	0.46	130.0	± 9.6 %
		Y	5.01	67.43	16.83		130.0	
		Z	5.39	67.19	16.65		130.0	
10606-AAB	IEEE 802.11n (HT Mixed, 40MHz, MCS7, 90pc duty cycle)	X	5.10	66.73	16.26	0.46	130.0	± 9.6 %
		Y	4.93	67.27	16.59		130.0	
		Z	5.13	66.48	16.14		130.0	

Certificate No: EX3-3863_Apr18

Page 35 of 39

EX3DV4- SN:3863

April 25, 2018

10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.40	66.00	15.99	0.46	130.0	± 9.6 %
		Y	4.19	66.71	16.28		130.0	
		Z	4.43	65.63	15.81		130.0	
10608-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	4.54	66.32	16.13	0.46	130.0	± 9.6 %
		Y	4.28	66.94	16.39		130.0	
		Z	4.59	65.99	15.97		130.0	
10609-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.43	66.14	15.93	0.46	130.0	± 9.6 %
		Y	4.18	66.77	16.19		130.0	
		Z	4.48	65.81	15.78		130.0	
10610-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.48	66.33	16.12	0.46	130.0	± 9.6 %
		Y	4.24	66.96	16.39		130.0	
		Z	4.53	65.98	15.95		130.0	
10611-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.40	66.11	15.95	0.46	130.0	± 9.6 %
		Y	4.14	66.70	16.20		130.0	
		Z	4.44	65.77	15.79		130.0	
10612-AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.38	66.21	15.97	0.46	130.0	± 9.6 %
		Y	4.09	66.68	16.16		130.0	
		Z	4.44	65.90	15.83		130.0	
10613-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.37	66.02	15.81	0.46	130.0	± 9.6 %
		Y	4.10	66.52	16.00		130.0	
		Z	4.44	65.75	15.68		130.0	
10614-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.36	66.31	16.11	0.46	130.0	± 9.6 %
		Y	4.12	66.94	16.38		130.0	
		Z	4.40	65.96	15.94		130.0	
10615-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.38	65.89	15.68	0.46	130.0	± 9.6 %
		Y	4.11	66.48	15.90		130.0	
		Z	4.44	65.60	15.55		130.0	
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.04	66.30	16.17	0.46	130.0	± 9.6 %
		Y	4.81	66.63	16.40		130.0	
		Z	5.08	66.07	16.04		130.0	
10617-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.07	66.41	16.20	0.46	130.0	± 9.6 %
		Y	4.82	66.67	16.40		130.0	
		Z	5.15	66.26	16.12		130.0	
10618-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	4.99	66.49	16.26	0.46	130.0	± 9.6 %
		Y	4.75	66.78	16.48		130.0	
		Z	5.04	66.28	16.14		130.0	
10619-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.01	66.29	16.09	0.46	130.0	± 9.6 %
		Y	4.79	66.70	16.36		130.0	
		Z	5.05	66.06	15.96		130.0	
10620-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.07	66.29	16.14	0.46	130.0	± 9.6 %
		Y	4.80	66.49	16.29		130.0	
		Z	5.13	66.09	16.03		130.0	
10621-AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.09	66.45	16.35	0.46	130.0	± 9.6 %
		Y	4.85	66.75	16.57		130.0	
		Z	5.15	66.25	16.23		130.0	
10622-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.08	66.53	16.39	0.46	130.0	± 9.6 %
		Y	4.83	66.78	16.59		130.0	
		Z	5.14	66.36	16.28		130.0	

EX3DV4- SN:3863

April 25, 2018

10623-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	4.96	66.05	15.99	0.46	130.0	± 9.6 %
		Y	4.74	66.39	16.22		130.0	
		Z	5.02	65.88	15.90		130.0	
10624-AAB	IEEE 802.11ac WiFi (40MHz, MCS8, 90pc duty cycle)	X	5.16	66.32	16.20	0.46	130.0	± 9.6 %
		Y	4.91	66.60	16.40		130.0	
		Z	5.22	66.13	16.10		130.0	
10625-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.25	66.46	16.34	0.46	130.0	± 9.6 %
		Y	5.01	66.87	16.61		130.0	
		Z	5.43	66.66	16.42		130.0	
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.37	66.32	16.13	0.46	130.0	± 9.6 %
		Y	5.18	66.52	16.32		130.0	
		Z	5.41	66.14	16.02		130.0	
10627-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.59	66.90	16.39	0.46	130.0	± 9.6 %
		Y	5.36	67.08	16.58		130.0	
		Z	5.64	66.75	16.30		130.0	
10628-AAB	IEEE 802.11ac WiFi (80MHz, MCS2, 90pc duty cycle)	X	5.36	66.27	16.00	0.46	130.0	± 9.6 %
		Y	5.15	66.43	16.17		130.0	
		Z	5.41	66.15	15.92		130.0	
10629-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.46	66.45	16.08	0.46	130.0	± 9.6 %
		Y	5.33	66.94	16.43		130.0	
		Z	5.50	66.26	15.98		130.0	
10630-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	5.68	67.33	16.53	0.46	130.0	± 9.6 %
		Y	5.30	67.01	16.48		130.0	
		Z	5.83	67.48	16.58		130.0	
10631-AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	5.68	67.46	16.80	0.46	130.0	± 9.6 %
		Y	5.39	67.46	16.91		130.0	
		Z	5.77	67.39	16.74		130.0	
10632-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.60	67.13	16.65	0.46	130.0	± 9.6 %
		Y	5.50	67.73	17.05		130.0	
		Z	5.63	66.87	16.50		130.0	
10633-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.39	66.38	16.10	0.46	130.0	± 9.6 %
		Y	5.16	66.54	16.27		130.0	
		Z	5.48	66.37	16.07		130.0	
10634-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.42	66.59	16.25	0.46	130.0	± 9.6 %
		Y	5.22	66.83	16.48		130.0	
		Z	5.46	66.38	16.13		130.0	
10635-AAB	IEEE 802.11ac WiFi (80MHz, MCS9, 90pc duty cycle)	X	5.26	65.75	15.53	0.46	130.0	± 9.6 %
		Y	5.03	65.88	15.68		130.0	
		Z	5.33	65.66	15.49		130.0	
10636-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	5.80	66.66	16.21	0.46	130.0	± 9.6 %
		Y	5.64	66.80	16.37		130.0	
		Z	5.84	66.53	16.13		130.0	
10637-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	5.91	66.96	16.34	0.46	130.0	± 9.6 %
		Y	5.72	67.05	16.49		130.0	
		Z	5.98	66.89	16.30		130.0	
10638-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	5.94	67.02	16.35	0.46	130.0	± 9.6 %
		Y	5.77	67.21	16.55		130.0	
		Z	5.98	66.86	16.26		130.0	

EX3DV4- SN:3863

April 25, 2018

10639-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	5.90	66.90	16.34	0.46	130.0	± 9.6 %
		Y	5.70	66.99	16.48		130.0	
		Z	5.95	66.78	16.26		130.0	
10640-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	5.85	66.77	16.21	0.46	130.0	± 9.6 %
		Y	5.60	66.70	16.28		130.0	
		Z	5.94	66.77	16.19		130.0	
10641-AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	5.95	66.85	16.27	0.46	130.0	± 9.6 %
		Y	5.73	66.88	16.38		130.0	
		Z	6.01	66.77	16.22		130.0	
10642-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	5.98	67.10	16.57	0.46	130.0	± 9.6 %
		Y	5.76	67.11	16.68		130.0	
		Z	6.04	66.98	16.50		130.0	
10643-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	5.82	66.74	16.27	0.46	130.0	± 9.6 %
		Y	5.59	66.71	16.35		130.0	
		Z	5.88	66.67	16.23		130.0	
10644-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	5.88	66.93	16.39	0.46	130.0	± 9.6 %
		Y	5.65	66.92	16.48		130.0	
		Z	5.97	66.96	16.39		130.0	
10645-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.00	66.98	16.38	0.46	130.0	± 9.6 %
		Y	5.89	67.36	16.67		130.0	
		Z	6.11	67.04	16.40		130.0	
10646-AAD	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	10.64	95.54	31.22	9.30	60.0	± 9.6 %
		Y	4.79	84.10	28.76		60.0	
		Z	10.44	97.20	33.10		60.0	
10647-AAC	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	9.38	93.52	30.68	9.30	60.0	± 9.6 %
		Y	4.24	81.79	27.97		60.0	
		Z	9.23	95.05	32.51		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.45	60.96	7.58	0.00	150.0	± 9.6 %
		Y	0.27	60.00	4.46		150.0	
		Z	0.46	60.51	7.45		150.0	
10652-AAB	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	3.44	66.86	15.90	2.23	80.0	± 9.6 %
		Y	3.11	67.55	15.78		80.0	
		Z	3.23	65.63	15.61		80.0	
10653-AAB	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	4.00	66.30	16.33	2.23	80.0	± 9.6 %
		Y	3.63	66.57	16.36		80.0	
		Z	3.80	65.27	16.02		80.0	
10654-AAB	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.02	65.95	16.40	2.23	80.0	± 9.6 %
		Y	3.68	66.02	16.44		80.0	
		Z	3.82	64.96	16.07		80.0	
10655-AAB	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.10	65.87	16.44	2.23	80.0	± 9.6 %
		Y	3.77	65.78	16.47		80.0	
		Z	3.89	64.93	16.12		80.0	
10658-AAA	Pulse Waveform (200Hz, 10%)	X	3.96	69.40	12.41	10.00	50.0	± 9.6 %
		Y	3.54	66.64	11.84		50.0	
		Z	6.60	76.50	15.95		50.0	
10659-AAA	Pulse Waveform (200Hz, 20%)	X	3.35	69.24	11.38	6.99	60.0	± 9.6 %
		Y	2.54	68.41	10.67		60.0	
		Z	15.62	86.85	17.81		60.0	

EX3DV4- SN:3863

April 25, 2018

10660-AAA	Pulse Waveform (200Hz, 40%)	X	3.13	70.75	10.92	3.98	80.0	± 9.6 %
		Y	2.65	71.33	10.38		80.0	
		Z	100.00	100.70	18.97		80.0	
10661-AAA	Pulse Waveform (200Hz, 60%)	X	3.01	72.21	10.50	2.22	100.0	± 9.6 %
		Y	0.47	62.70	6.02		100.0	
		Z	0.86	65.62	7.78		100.0	
10662-AAA	Pulse Waveform (200Hz, 80%)	X	0.23	60.01	4.55	0.97	120.0	± 9.6 %
		Y	0.53	60.44	2.25		120.0	
		Z	0.27	60.00	2.59		120.0	

² Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.