



Produkte Products

Prüfbericht - Nr.: Test Report No.:	19660359 001		Seite 1 von 41 Page 1 of 41
Auftraggeber: Client:	American Megatrends Kumaran Nagar, Sem Off. Old Mahabalipura Chennai-600119, India	ım Road	,
Gegenstand der Prüfung: Test item:	Wireless Vital Monito	r	
Bezeichnung: Identification:	VA06	Serien-Nr.: Serial No.	Engineering Sample
Wareneingangs-Nr.: Receipt No.:	1803279621	Eingangsdatum: Date of receipt:	11.12.2017
Prüfort: Testing location:	Refer Page 5 of 41 fo	r Test site details	
Prüfgrundlage: Test specification:	FCC Part 15 Subpart ANSI C63.10-2013	C 15.247	
Prüfergebnis: Test Result:		entspricht oben genan the test specification(s)	nter Prüfgrundlage(n).
Prüflaboratorium: Testing Laboratory:	TÜV Rheinland (India 82/A, 3rd Main, West V Hosur Road, Bangalore	Ving, Electronic City Pha	ase 1
	FCC Test Site Registra		
geprüft / tested by:		kontrolliert / reviewed	d by:
05.01.2018 Girish Kumar G Engineer Name/Stellung Date Name/Position		04.02.2018 Saibaba Assistant I Datum Name/Ste Date Name/Pos	Manager Ecultation Ellung Unterschrift
Sonstiges /Other Aspects:	FCC ID : 2AFV6-AMI-B		oliginaturo
F(ail) = ent N/A = nic	spricht Prüfgrundlage spricht nicht Prüfgrundlage ht anwendbar ht getestet	I I	P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested

This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.

TÜV Rheinland India Pvt. Ltd. 82/A, 3rd Main, West Wing Electronic City Phase 1, Hosur Road, Bangalore-560100, IndiaTel.: +9180 6723 3500 · Fax: +9180 6723 3542 · Web: https://www.tuv.com

Produkte www.tuv.com
Products



 Prüfbericht - Nr.:
 19660359 001
 Seite 2 von 41

 Page 2 of 41

TEST SUMMARY

Section	Test item	Result	Remarks
15.247 (b) (3)	Maximum Peak Conducted Output Power	Pass	
15.247 (a) (2)	6 dB / DTS Bandwidth	Pass	
15.247 (e)	Maximum Power Spectral Density		
15.247 (d)	Emissions in non – restricted band	Pass	-
15.247 (a)(1)	Conducted Spurious Emissions	Pass	
15.247 (d) / (15.209 & 15.205)	Restricted bands of Emissions and Restricted Bands of Operation.	PASS	
15.207	Conducted emission on A.C power lines	Pass	

DOCUMENT HISTORY:

Version	Remarks
1.0	Issued for FCC Part 15 Subpart C

Products

Produkte

www.tuv.com



Prüfbericht - Nr.:	400000000	Seite 3 von 41
Test Report No.:	19660359 001	Page 3 of 41

Table of Contents

1	GENERAL REMARKS	4
	Complimentary Materials	4
2	TEST SITES	5
	Testing Facilities	5
	List of Test and Measurement Instruments	5
3	GENERAL PRODUCT INFORMATION	6
	Product Function and Intended Use	6
	Ratings and System Details	6
	Measurement Uncertainty:	7
	Antenna Details	7
T	EST SET-UP AND OPERATION MODE	8
	Principle of Configuration Selection	8
	Test Operation and Test Software	8
	Special Accessories and Auxiliary Equipment	8
	Countermeasures to achieve EMC Compliance	8
	Test modes – data rates and modulations	8
	List of frequencies	9
4	TEST METHODOLOGY	10
	Radiated Emission Test	10
	4.1.1 Test Setup Configuration	10
5	TEST RESULTS	13
	Maximum Peak Conducted Output Power	13
	Maximum Power Spectral Density	16
	DTS Bandwidth	19
	Emissions in non-restricted frequency bands	22
	Conducted Spurious Emission	25
	Restricted bands of Emissions & Restricted Bands of Operation	28
	Conducted Emission Test on A.C. Power Line	
6	LIST OF TABLES	41
7	LIST OF FIGURES	41

Produkte www.tuv.com
Products



Prüfbericht - Nr.:	400000000	Seite 4 von 41
Test Report No.:	19660359 001	Page 4 of 41

1 GENERAL REMARKS

Complimentary Materials

All attachments are integral part of this test report. This applies especially to the following appendix:

APPENDIX 1: TEST SETUP PHOTOS

APPENDIX 2: EUT EXTERNAL PHOTOS

APPENDIX 3: EUT INTERNAL PHOTOS

APPENDIX 4: FCC LABEL AND LABEL LOCATION

APPENDIX 5: BLOCK DIAGRAM

APPENDIX 6: SPECIFICATION OF EUT

APPENDIX 7: SCHEMATIC DIAGRAM

APPENDIX 8: BILL OF MATERIAL

APPENDIX 9: USER MANUAL

APPENDIX 10: SAR EXCLUSION CALCULATION

Produkte www.tuv.com
Products



 Prüfbericht - Nr.:
 19660359 001
 Seite 5 von 41

 Page 5 of 41

2 TEST SITES

Testing Facilities

TUV Rheinland (India) Private Limited 108, Beside ISBR Business School, Electronic city Phase I Bangalore - 560 100.

List of Test and Measurement Instruments

Table 1: List of test and measurement instruments

Equipment	Manufacturer	Model Name	Serial Number	Calibration Due Date	Periodicity	Used for Test Items
Spectrum Analyser	Agilent Technologies	E4407B	US41192772	13.02.2018	Yearly	Antenna - Port Measurements
EMI Test Receiver	Rohde & Schwarz	ESU 40	100288	24-10-2018	Yearly	
Active loop antenna	Frankonia	LAX-10	LAX-10-800	13-04-2018	Yearly	
Biconical Antenna	Schwarzbeck mess-elektronik	VHBB-9124 / BBA-9106	9124-656	09-01-18	Yearly	
Log-Periodic Antenna	Schwarzbeck mess-elektronik	VUSLP- 9111B	9111B-111	10-01-18	Yearly	Radiated Spurious Emission
Broadband Horn Antenna	Frankonia	HAX-18	HAX18-802	16-03-2018	Yearly	
Emission Horn Antenna	ETS Lindgren	116706	00107323	22-06-2018	Yearly	
Semi Anechoic Chamber	Frankonia	-	-	-	-	
EMI Test Receiver	Rohde & Schwarz	ESR7	101133	16.01.2018	Yearly	Conducted Emission on
Two Line V- Network (LISN)	Rohde & Schwarz	ENV216	100022	05.09.2018	Yearly	AC Power Lines

Produkte www.tuv.com
Products



Prüfbericht - Nr.:	40000000	Seite 6 von 41
Test Report No.:	19660359 001	Page 6 of 41

3 GENERAL PRODUCT INFORMATION

Product Function and Intended Use

B.O.L.T is a Non Invasive medical gadget with NiBP (Non-invasive Blood Pressure), SpO2 (Pulse Oximeter) Infrared Thermometer (IRT) and Gluchobin combined into a small form factor device which gets controlled from a mobile device. B.O.L.T is a cloud enabled solution. With B.O.L.T your health vitals can be stored in your personal health cloud. For B.O.L.T to be in your hands, all you need is any leading mobile device that operates with the compatible Operating System. It is used to measure the vital signs like Blood Pressure, Body temperature, Blood oxygen saturation level & Blood glucose, hemoglobin, cholesterol levels.

Ratings and System Details

Table 2: Ratings and System Details

Operating Frequency Range	2400 MHz – 2483.5 MHz
Radio Protocol	Bluetooth Low Energy
Verified RF Power	-3.794 dBm
Channel Spacing	2 MHz
Modulation	GFSK
Number of antennas	1
Antenna type and gain	Chip antenna & 0.5 dBi
Supply Voltage to Product	5VDC from Power adaptor
Environmental conditions	Storage Condition: 10°C to 55°C Operational conditions : 16°C to 35°C

Produkte www.tuv.com
Products



Prüfbericht - Nr.:	4000000	Seite 7 von 41
Test Report No.:	19660359 001	Page 7 of 41

Measurement Uncertainty:

Table 3: Measurement Uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±1.5 dB
Power Spectral Density, conducted	±3 dB
Unwanted Emissions, conducted	±3 dB
All emissions, radiated	±6 dB
Temperature	±3 ℃
Supply Voltages	±3 %
Time	±5 %

Antenna Details

Table 4: Antenna Details

Make	Johanson Technology , Inc
Model	P/N 2450AT18A100
Antenna Gain	0.5 dBi
Туре	Chip
Data Sheet	https://www.johansontechnology.c om/datasheets/antennas/2450AT 18A100.pdf

Produkte www.tuv.com
Products



Prüfbericht - Nr.:	400000	Seite 8 von 41
Test Report No.:	19660359 001	Page 8 of 41

TEST SET-UP AND OPERATION MODE

Principle of Configuration Selection

Transmission was enabled with highest possible duty cycle transmission on low, mid and high channel.

Test Operation and Test Software

Testing software was used to enable the continuous transmission on low/mid/high channels on the EUT for the tests in this report.

Special Accessories and Auxiliary Equipment

- None

Countermeasures to achieve EMC Compliance

None

Test modes – data rates and modulations

For Radiated spurious emissions, the tests were performed for all data rates and only worst case results are reported in this report.

Produkte www.tuv.com
Products



 Prüfbericht - Nr.:
 19660359 001
 Seite 9 von 41

 Page 9 of 41

List of frequencies

Table 5: List of Center Frequiences

Frequency Band (MHz)	Channel No.	Channel Frequency (MHz)
	0	2402
	1	2404
	2	2406
	3	2408
	:	:
	:	:
2400 – 2483.5	18	2438
(2MHz Bandwidth)	19	2440
BT LE	20	2437
	:	:
	:	:
	36	2474
	37	2476
	38	2478
	39	2480

Produkte www.tuv.com
Products



Prüfbericht - Nr.:		Seite 10 von 41
Test Report No.:	19660359 001	Page 10 of 41

4 TEST METHODOLOGY

Radiated Emission Test

The radiated emission measurement was performed according to the procedures in ANSI C63.10-2013. The equipment under test (EUT) was placed at the middle of the 80 cm high turntable for below 1 GHz & 1.5 m height for above 1 GHz measurement, and the EUT is 3 meters far from the measuring antenna. The turntable was rotated 360° for obtaining the maximum emission. The height of the measuring antennas was scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained. The measurement above 1000 MHz was performed by horn antenna, The measurement below 30 MHz was performed by loop antenna, Measurement from 30 MHz to 200 MHz was performed by Baloon and Biconical Antenna, and mesurement from 200 MHz to 1 GHz was performed by Log-Periodic Antenna.

The EUT was rotated around the X-, Y-, and Z-Axis and the results from worst case axis are recorded.

4.1.1 Test Setup Configuration

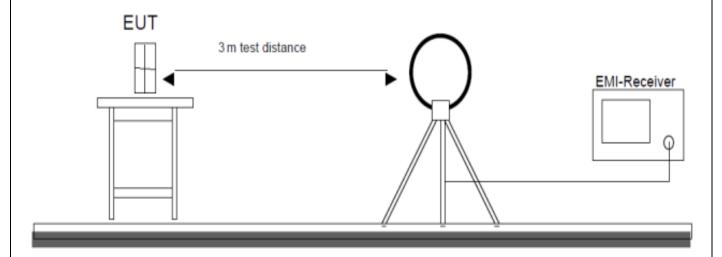


Figure 1: Frequency Range 9 kHz- 30 MHz

Produkte <u>www.tuv.com</u>



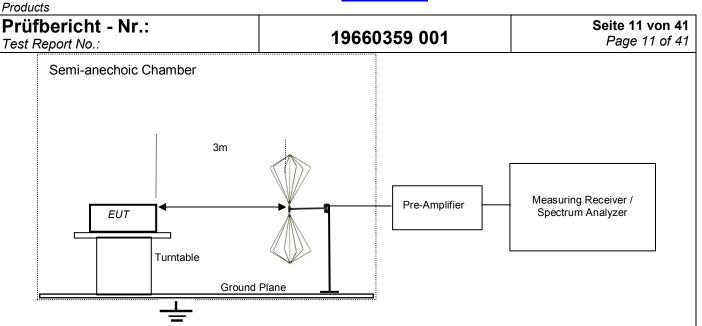


Figure 2: Frequency Range 30 MHz - 200 MHz

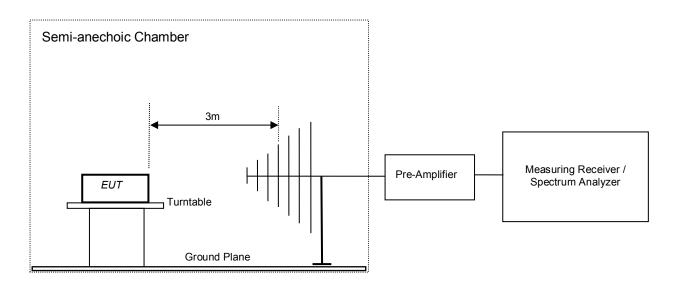


Figure 3: Frequency Range 200 MHz - 1GHz



Prüfbericht - Nr.:

Test Report No.:

19660359 001

Seite 12 von 41
Page 12 of 41

Semi-anechoic

Semi-anechoic

Pre-Amplifier

Measuring Receiver / Spectrum Analyzer

Figure 4: Frequency Range above 1 GHz



 Prüfbericht - Nr.:
 19660359 001
 Seite 13 von 41

 Page 13 of 41

5 TEST RESULTS

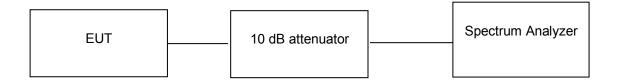
Maximum Peak Conducted Output Power

Result

Test Specification FCC part 15 Subpart C 15.247 (b)(3)

Measurement Bandwidth 1 MHz
Detector Peak

Requirement ≤ 1 W (30 dBm)



Test results:

Note: Measurements were made as per section 9.1.1 in KDB 558074 D01 DTS Meas Guidance v04.

10 dB attenuator + 0.8 Cable loss = 10.8 dB offset is considered in below result

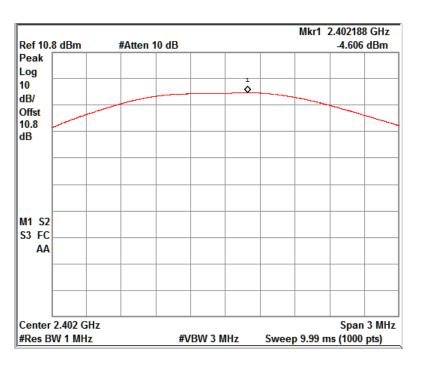
Table 6: Maximum peak conducted output power verified Test Results

Channel Frequency (MHz)	Output power (dBm)	Limit (dBm)
2402	-4.606	30
2440	-3.982	30
2480	-3.794	30

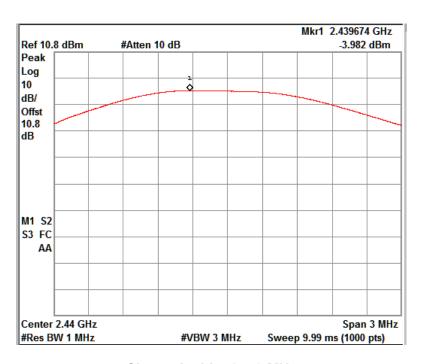
TÜVRheinland®

 Prüfbericht - Nr.:
 19660359 001
 Seite 14 von 41

 Page 14 of 41



Channel low - 2402 MHz



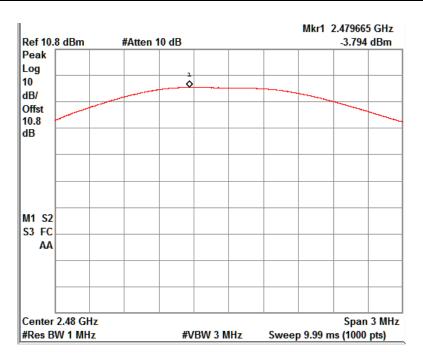
Channel mid - 2440 MHz

Produkte www.tuv.com
Products



 Prüfbericht - Nr.:
 19660359 001
 Seite 15 von 41

 Page 15 of 41



Channel high - 2480 MHz

Products

Produkte

www.tuv.com



Prüfbericht - Nr.:	19660359 001	Seite 16 von 41
Test Report No.:	19660359 001	Page 16 of 41

Maximum Power Spectral Density

Result **Pass**

Test Specification FCC Part 15 Subpart C Section 15.247 (e)

Detector Function Peak

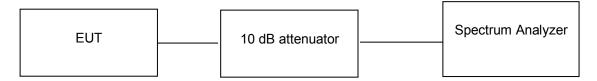
Port of testing Antenna port

Requirement For digitally modulated systems, the power spectral density

conducted from the intentional radiator to the antenna shall not be

greater than 8 dBm.

Test Method:



Test results:

Note: Measurements were made as per section 10.2 in KDB 558074 D01 DTS Meas Guidance v04.

10 dB attenuator + 0.8 Cable loss = 10.8 dB offset is considered in below result

Table 7: Maximum power spectral density verified Test Results

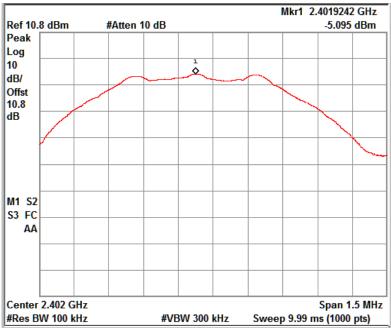
Channel Frequency (MHz)	Total PSD (dBm)	Limit (dBm)	Margin (dB)
2402.00	-5.095	8.00	-13.095
2440.00	-4.367	8.00	-12.367
2480.00	-4.29	8.00	-12.29

Produkte www.tuv.com

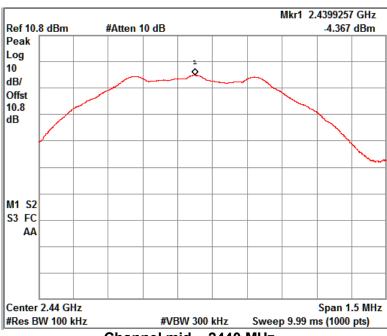
Products



Prüfbericht - Nr.: Seite 17 von 41 19660359 001 Page 17 of 41 Test Report No.:



Channel low - 2402 MHz



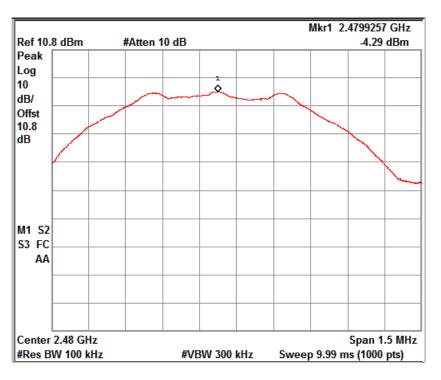
Channel mid - 2440 MHz

Produkte www.tuv.com
Products



 Prüfbericht - Nr.:
 19660359 001
 Seite 18 von 41

 Page 18 of 41



Channel high - 2480 MHz

Produkte www.tuv.com
Products



Prüfbericht - Nr.:		Seite 19 von 41
Test Report No.:	19660359 001	Page 19 of 41

DTS Bandwidth

Result

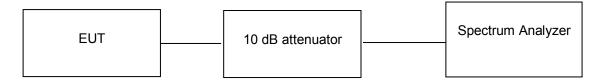
Test Specification FCC part 15 Subpart C Section 15.247 (a)(2)

Detector Peak

Port of testing Antenna Port

Requirement The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Method:



Test results:

Note: Measurements were made as per section 8.1, 8.2 in KDB 558074 D01 DTS Meas Guidance v04.

10 dB attenuator + 0.8 Cable loss = 10.8 dB offset is considered in below result

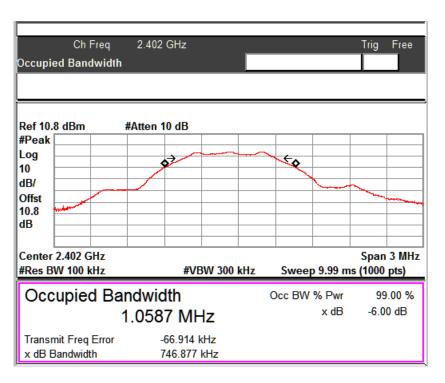
Table 8: DTS Bandwidth verified Test Results

Channel Frequency (MHz)	6 dB Bandwidth (kHz)	99% OBW (MHz)
2402.00	746.87	1.0562
2440.00	740.07	1.0583
2480.00	747.88	1.0562

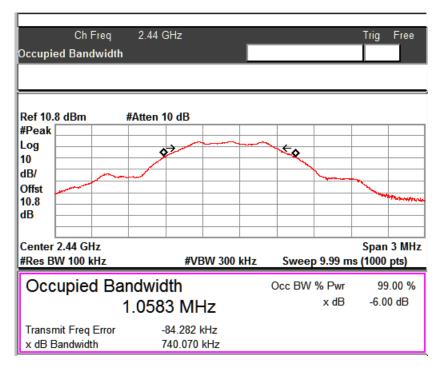


 Prüfbericht - Nr.:
 19660359 001
 Seite 20 von 41

 Page 20 of 41



Channel low - 2402 MHz



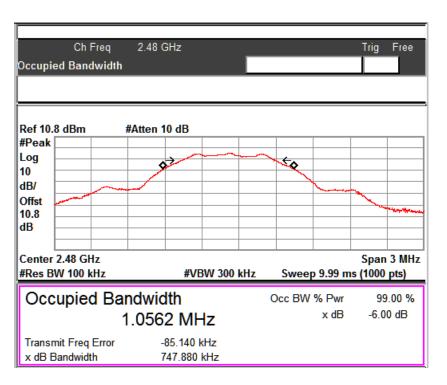
Channel mid - 2440 MHz

Produkte www.tuv.com
Products



 Prüfbericht - Nr.:
 19660359 001
 Seite 21 von 41

 Page 21 of 41



Channel high - 2480 MHz



 Prüfbericht - Nr.:
 19660359 001
 Seite 22 von 41

 Page 22 of 41

Emissions in non-restricted frequency bands

Result

Test Specification FCC Part 15 Subpart C Section 15.247 (d)

Detector Function Peak

Port of testing Antenna port

Requirement In any 100kHz bandwidth outside the frequency band in which the

spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance

with the peak conducted power limits.

Test Method:



Test results:

Note: Measurements were made as per section 11.2, 11.3 in KDB 558074 D01 DTS Meas Guidance v04.

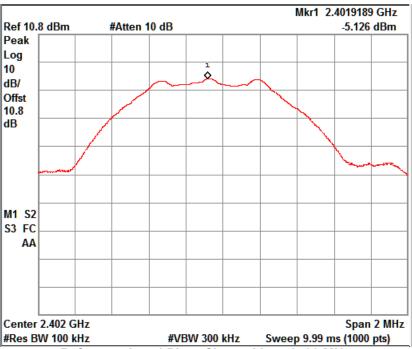
10 dB attenuator + 0.8 Cable loss = 10.8 dB offset is considered in below result

Table 9 : Verified Test Results of Emissions in non-restricted frequency bands

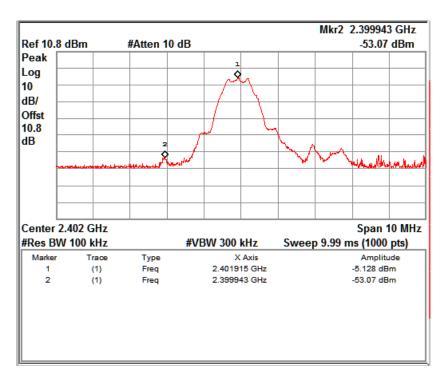
_Channel	Value at Ba	and Edge	Reference	Band Edge	Limit (dB)
Frequency (MHz)	Frequency (MHz)	Value A (dBm)	PSD Value B (dBm)	Value A~B (dB)	
2402	2400	-69.29	-19.52	-49.77	-20.00
2480	2483.50	-72.04	-14.72	-57.32	-20.00



Prüfbericht - Nr.: Seite 23 von 41 19660359 001 Page 23 of 41 Test Report No.:



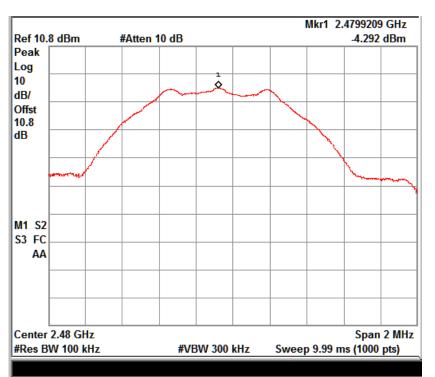
Reference Level Plot - Channel low 2402 MHz



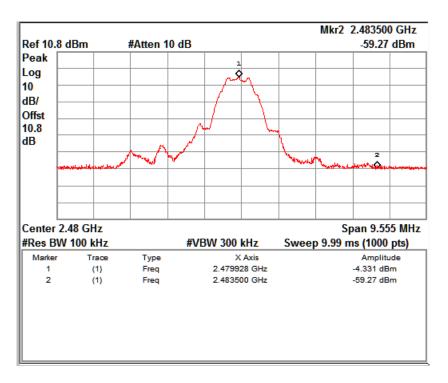
Channel low - 2402 MHz



Prüfbericht - Nr.: Seite 24 von 41 19660359 001 Page 24 of 41 Test Report No.:



Reference Level Plot - Channel high - 2480 MHz



Channel high - 2480 MHz

Produkte www.tuv.com
Products



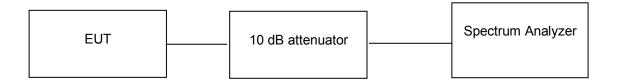
 Prüfbericht - Nr.:
 19660359 001
 Seite 25 von 41

 Page 25 of 41
 Page 25 of 41

Conducted Spurious Emission Result

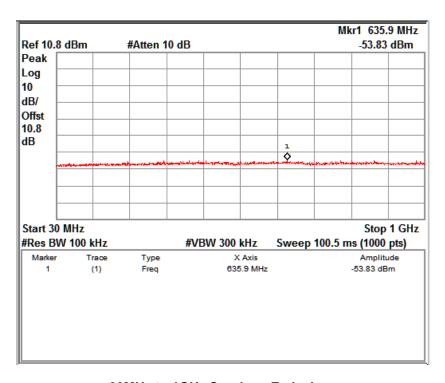
Pass

Test Method:



10 dB attenuator + 0.8 Cable loss = 10.8 dB offset is considered in below result

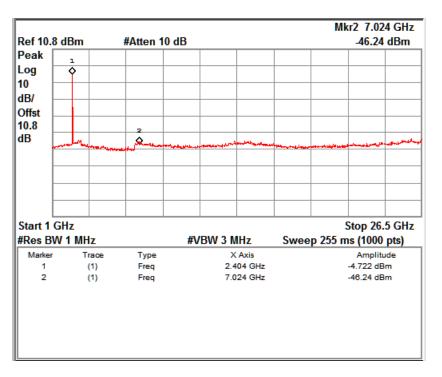
Test results:



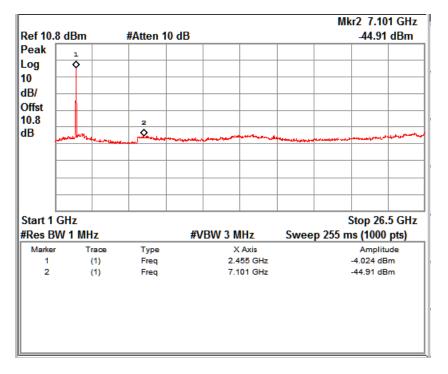
30MHz to 1GHz Spurious Emissions



Prüfbericht - Nr.: Seite 26 von 41 19660359 001 Page 26 of 41 Test Report No.:



Channel Frequency 2402 MHz



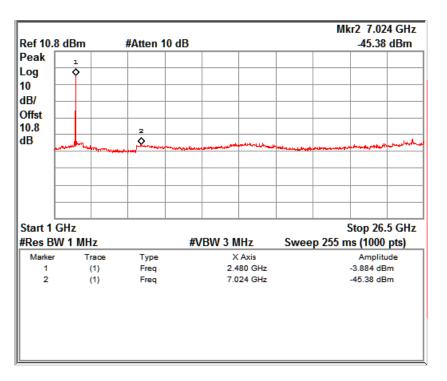
Channel Frequency 2440 MHz

Produkte www.tuv.com
Products



 Prüfbericht - Nr.:
 19660359 001
 Seite 27 von 41

 Page 27 of 41



Channel Frequency 2480 MHz

Products

Produkte www.tuv.com



 Prüfbericht - Nr.:
 19660359 001
 Seite 28 von 41

 Page 28 of 41

Restricted bands of Emissions & Restricted Bands of Operation Result

Pass

Test Specification FCC part 15 Subpart C Section 15.247 (d) / (15.209 & 15.205)

Test Method ANSI C 63.10 - 2013
Measurement Location Semi Anechoic Chamber

Measuring Distance 3 m

Detector QP for frequency below 1 GHz, average for frequency above 1 GHz

Requirement As per the limits mentioned in the below table

Table 10: Transmitter limits for Radiated emission of Section 15.209

Frequency (MHz)	Field strength (μV/m) Field strength (dBμV/m)		Distance of Measurement (m)
0.009 - 0.490	2400/F(kHz)	48.50 – 13.80	300*
0.490 – 1.705	24000/F(kHz)	33.80 – 23.00	30*
1.705 -30	30	29.54	30*
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Remark: * The limit shows in the table above of frequency range $0.009-0.490,\,0.490-1.705$ MHz and 1.705-30MHz is at 300 meter, 30 meter and 30 meter range respectively, which corresponds to $128.51-93.80,\,73.80-62.96$ and 69.54 dB μ V/m at 3m range by extrapolation calculation and the measurement of loop antenna.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

Test Conditions:

5 VDC from Power adaptor

Environmental conditions:

Temperature: +24.5 °C RH: 61.9 %

Post 16

Produkte
Products
www.tuv.com



Prüfbericht - Nr.:	40000000	Seite 29 von 41
Test Report No.:	19660359 001	Page 29 of 41

Test results:

No emissions found in frequency 9 kHz to 30 MHz

Test results for frequencies in the range 30 MHz - 200 MHz

Adapter 1 with Battery 1 combination

Polarization	Frequency (MHz)	Measured value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
V	30.09	33	40	-7.00
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	123.02	34.37	43.5	-09.13
ш	30.87	32.42	40	-07.58
Н	124.28	32.77	43.5	-10.73

Adapter 1 with Battery 2 combination

Polarization	Frequency (MHz)	Measured value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
V	38.84	27.82	40	-12.18
	123	35.77	43.5	-07.73
н	35.45	22	40	-18.00
	124.29	35.06	43.5	-08.44

Adapter 2 with Battery 1 combination

Polarization	Frequency (MHz)	Measured value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
V	33.21	27.76	40	-12.24
'	123	35.88	43.5	-07.62
н	34.11	21.23	40	-18.77
П	124.29	35.18	43.5	-08.32

Adapter 2 with Battery 2 combination

Polarization	Frequency (MHz)	Measured value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
V	36.25	26.92	40	-13.08
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	123	35.91	43.5	-07.59
Н	30.62	23.77	40	-16.23
П	123	34.74	43.5	-08.76

Products

Produkte www.tuv.com



 Prüfbericht - Nr.:
 19660359 001
 Seite 30 von 41

 Page 30 of 41

Test results for frequencies in the range 200 MHz to 1 GHz

Adapter 1 with Battery 1 combination

Polarization	Frequency (MHz)	Measured value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
V	684.84	39.2	46	-6.8
V	802.7	40.41	46	-5.59
ш	600.74	36.83	46	-9.17
Н	762.93	40.81	46	-5.19

Adapter 1 with Battery 2 combination

Polarization	Frequency (MHz)	Measured value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
V	270.16	27.6	46	-18.4
V	797.76	40.67	46	-5.33
н	239.92	30.86	46	-15.14
	795.04	41.81	46	-4.19

Adapter 2 with Battery 1 combination

Polarization	Frequency (MHz)	Measured value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
V	203.65	34.73	43.5	-8.77
V	779.51	40.72	46	-5.28
н	207.51	41.35	43.5	-2.00
	824.23	40.75	46	-5.25

Adapter 2 with Battery 2 combination

Polarization	Frequency (MHz)	Measured value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
V	203.68	34.77	43.5	-8.73
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	779.52	40.75	46	-5.25
н	207.52	41.38	43.5	-2.12
	824.24	40.77	46	-5.23



 Prüfbericht - Nr.:
 19660359 001
 Seite 31 von 41

 Page 31 of 41

Test results for frequencies in the range 1 GHz - 26.5 GHz

Table 11: Restricted bands of emission verified Test Results

Channel	Polarization	Frequency (MHz)	Measure Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
		2390(Pk)	38.27	74	-35.73
		2390(Av)	25.91	54	-28.09
	V	2402(Pk)	76.11	*	-
	V	2402(Av)	72.03	*	-
		4804(Pk)	50.73	74	-23.27
1		4804(Av)	38.49	54	-15.51
Low		2390(Pk)	37.58	74	-36.42
		2390(Av)	25.85	54	-28.15
		2402(Pk)	79.86	*	-
	н	2402(Av)	75.31	*	-
	4804(Pk)	49.51	74	-24.49	
		4804(Av)	37.14	54	-16.86
		2440(Pk)	80.74	*	-
	V	2440(Av)	76.82	*	-
V	4880(Pk)	52.99	74	-21.01	
	4880(Av)	40.36	54	-13.64	
Mid		2440(Pk)	83.96	*	-
IVIIG	lid	2440(Av)	80.17	*	-
Н	П	4880(Pk)	50.64	74	-23.36
		4880(Av)	38.32	54	-15.68
		2483.5(Pk)	39.81	74	-34.19
		2483.5(Av)	27.51	54	-26.49
	V	2480(Pk)	80.97	*	-
	V	2480(Av)	77.16	*	-
		4960(Pk)	52.31	74	-21.69
طيمنا		4960(Av)	40.32	54	-13.68
High		2483.5(Pk)	39.83	74	-34.17
		2483.5(Av)	27.56	54	-26.44
		2480(Pk)	84.49	*	-
	Н	2480(Av)	80.65	*	-
		4960(Pk)	50.22	74	-23.78
		4960(Av)	38.42	54	-15.58

Produkte www.tuv.com
Products



 Prüfbericht - Nr.:
 19660359 001
 Seite 32 von 41

 Page 32 of 41

Conducted Emission Test on A.C. Power Line

Result Pass

Test Specification : FCC Part 15 Section 15.207

Test Method : ANSI C63.10-2013 Testing Location : Screened room

Measurement Bandwidth: 9kHz

Frequency Range : 150kHz – 30MHz Supply Voltage : 120VAC,60Hz

Limit of section 15.207

Frequency of emission	QP Limit	AV Limit
(MHz)	(dBµV)	(dBµV/m)
0.15 - 0.5	66 – 56*	56 – 46*
0.5 - 5	56	46
5 – 30	60	50

^{*} Decreases with the logarithm of the frequency

Produkte www.tuv.com
Products

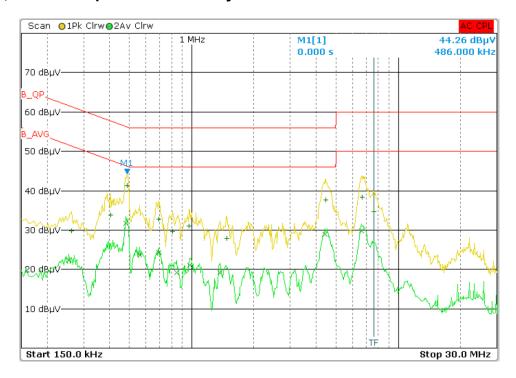


 Prüfbericht - Nr.:
 19660359 001
 Seite 33 von 41

 Page 33 of 41

Test Result: LINE Graphs and Tables

110v AC , 60Hz - Adapter 1 with Battery 1 combination



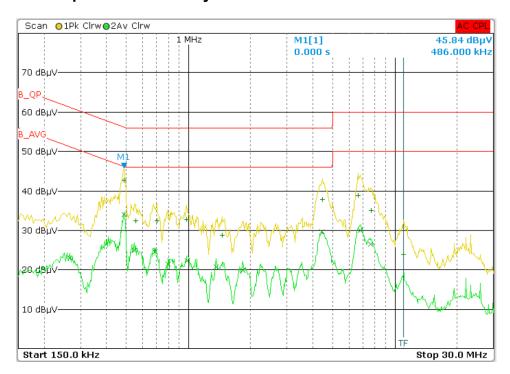
Line Graph

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	262.00 kHz	29.73	61.25	-31.52
Quasi Peak	406.00 kHz	33.81	57.52	-23.71
Quasi Peak	486.00 kHz	41.36	55.99	-14.63
Quasi Peak	694.00 kHz	32.77	56.00	-23.23
Quasi Peak	810.00 kHz	29.7	56.00	-26.3
Quasi Peak	974.00 kHz	30.94	56.00	-25.06
Quasi Peak	1.478 MHz	27.91	56.00	-28.09
Quasi Peak	4.442 MHz	37.58	56.00	-18.42
Quasi Peak	6.670 MHz	38.27	60.00	-21.73
Quasi Peak	7.622 MHz	34.72	60.00	-25.28
Average	254.00 kHz	22.25	51.51	-29.26
Average	482.00 kHz	31.75	46.06	-14.31
Average	558.00 kHz	23.71	46.00	-22.29
Average	694.00 kHz	24.14	46.00	-21.86
Average	846.00 kHz	19.11	46.00	-26.89
Average	982.00 kHz	21.11	46.00	-24.89
Average	1.370 MHz	19.12	46.00	-26.88
Average	4.438 MHz	28.91	46.00	-17.09
Average	6.650 MHz	29.76	50.00	-20.24



Prüfbericht - Nr.: Seite 34 von 41 19660359 001 Page 34 of 41 Test Report No.:

110v AC, 60Hz - Adapter 1 with Battery 2 combination



Line Graph

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	486.00 kHz	42.72	55.99	-13.27
Quasi Peak	554.00 kHz	32.40	56	-23.6
Quasi Peak	702.00 kHz	32.36	56	-23.64
Quasi Peak	982.00 kHz	32.83	56	-23.17
Quasi Peak	1.45 MHz	28.69	56	-27.31
Quasi Peak	4.44 MHz	37.85	56	-18.15
Quasi Peak	6.61 MHz	38.82	60	-21.18
Quasi Peak	7.68 MHz	34.95	60	-25.05
Quasi Peak	10.97 MHz	23.87	60	-36.13
Average	266.00 kHz	23.00	51.12	-28.12
Average	486.00 kHz	33.92	45.99	-12.07
Average	546.00 kHz	24.93	46	-21.07
Average	690.00 kHz	24.59	46	-21.41
Average	690.00 kHz	24.56	46	-21.44
Average	794.00 kHz	21.38	46	-24.62
Average	990.00 kHz	22.25	46	-23.75
Average	1.36 MHz	20.80	46	-25.2
Average	1.83 MHz	19.95	46	-26.05
Average	4.43 MHz	29.64	46	-16.36
Average	6.78 MHz	30.04	50	-19.96
Average	7.63 MHz	26.44	50	-23.56

Products

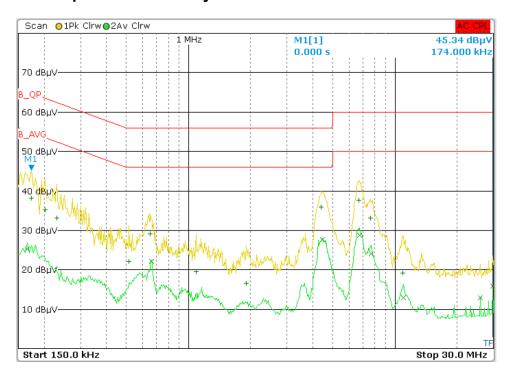
Produkte <u>www.tuv.com</u>



 Prüfbericht - Nr.:
 19660359 001
 Seite 35 von 41

 Test Report No.:
 Page 35 of 41

110v AC, 60Hz - Adapter 2 with Battery 1 combination



Line Graph

Detector	Frequency	Level	Limit	Margin
		(dBµV)	(dBµV)	(dB)
Quasi Peak	174.00 kHz	38.14	64.73	-26.59
Quasi Peak	202.00 kHz	35.25	63.46	-28.21
Quasi Peak	230.00 kHz	33.15	62.36	-29.21
Quasi Peak	514.00 kHz	22.08	56.00	-33.92
Quasi Peak	654.00 kHz	29.03	56.00	-26.97
Quasi Peak	1.09 MHz	19.52	56.00	-36.48
Quasi Peak	1.90 MHz	16.60	56.00	-39.4
Quasi Peak	4.39 MHz	35.82	56.00	-20.18
Quasi Peak	6.70 MHz	37.56	60.00	-22.44
Quasi Peak	7.60 MHz	33.20	60.00	-26.8
Quasi Peak	10.90 MHz	19.21	60.00	-40.79
Average	166.00 kHz	25.29	55.13	-29.84
Average	662.00 kHz	22.12	46.00	-23.88
Average	4.46 MHz	27.71	46.00	-18.29
Average	6.75 MHz	28.69	50.00	-21.31
Average	7.65 MHz	24.00	50.00	-26.00
Average	10.96 MHz	12.93	50.00	-37.07
Average	25.88 MHz	12.88	50.00	-37.12
Average	29.77 MHz	15.81	50.00	-34.19

Products

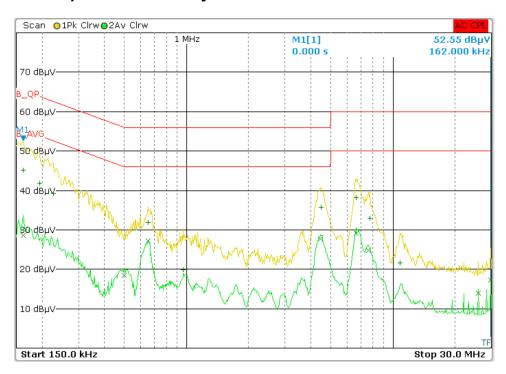
Produkte <u>www.tuv.com</u>

TÜVRheinland®

 Prüfbericht - Nr.:
 19660359 001
 Seite 36 von 41

 Page 36 of 41

110v AC, 60Hz - Adapter 2 with Battery 2 combination



Line Graph

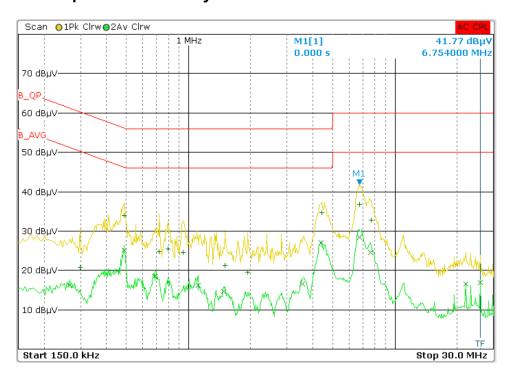
Detector	Frequency	Level	Limit	Margin
		(dBµV)	(dBµV)	(dB)
Quasi Peak	162.00 kHz	45.08	65.34	-20.26
Quasi Peak	194.00 kHz	41.91	63.81	-21.9
Quasi Peak	226.00 kHz	39.26	62.51	-23.25
Quasi Peak	650.00 kHz	31.95	56.00	-24.05
Quasi Peak	962.00 kHz	19.82	56.00	-36.18
Quasi Peak	4.48 MHz	35.67	56.00	-20.33
Quasi Peak	6.63 MHz	38.18	60.00	-21.82
Quasi Peak	7.73 MHz	32.91	60.00	-27.09
Quasi Peak	10.87 MHz	21.56	60.00	-38.44
Average	162.00 kHz	28.67	55.34	-26.67
Average	498.00 kHz	18.56	45.78	-27.22
Average	650.00 kHz	27.11	46.00	-18.89
Average	4.44 MHz	27.74	46.00	-18.26
Average	6.65 MHz	29.08	50.00	-20.92
Average	7.63 MHz	24.77	50.00	-25.23
Average	29.76 MHz	17.29	50.00	-32.71
Average	25.88 MHz	13.99	50.00	-36.01



Prüfbericht - Nr.: Seite 37 von 41 19660359 001 Page 37 of 41 Test Report No.:

NEUTRAL Graphs and Tables

110v AC , 60Hz - Adapter 1 with Battery 1 combination



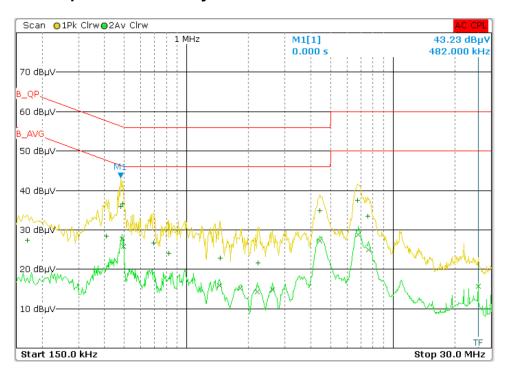
Neutral Graph

Detector	Frequency	Level	Limit	Margin
		(dBµV) (dBµV	(dBµV)	(dB)
Quasi Peak	298.00 kHz	20.76	60.15	-39.39
Quasi Peak	486.00 kHz	34.06	55.99	-21.93
Quasi Peak	722.00 kHz	24.8	56.00	-31.2
Quasi Peak	794.00 kHz	25.43	56.00	-30.57
Quasi Peak	942.00 kHz	24.63	56.00	-31.37
Quasi Peak	1.502 MHz	21.21	56.00	-34.79
Quasi Peak	1.93 MHz	19.53	56.00	-36.47
Quasi Peak	4.42 MHz	34.65	56.00	-21.35
Quasi Peak	6.75 MHz	36.78	60.00	-23.22
Quasi Peak	7.68 MHz	32.77	60.00	-27.23
Average	266.00 kHz	16.26	51.12	-34.86
Average	486.00 kHz	25.16	45.99	-20.83
Average	690.00 kHz	18.54	46.00	-27.46
Average	1.11 MHz	16.19	46.00	-29.81
Average	1.48 MHz	14.63	46.00	-31.37
Average	3.56 MHz	16.49	46.00	-29.51
Average	4.39 MHz	27.09	46.00	-18.91
Average	6.73 MHz	28.37	50.00	-21.63
Average	7.63 MHz	24.61	50.00	-25.39
Average	25.88 MHz	16.93	50.00	-33.07
Average	22.00 MHz	16.52	50.00	-33.48



Prüfbericht - Nr.: Seite 38 von 41 19660359 001 Page 38 of 41 Test Report No.:

110v AC, 60Hz - Adapter 1 with Battery 2 combination



Neutral Graph

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	170.00 kHz	27.43	64.93	-37.5
Quasi Peak	410.00 kHz	28.49	57.44	-28.95
Quasi Peak	482.00 kHz	35.97	56.06	-20.09
Quasi Peak	490.00 kHz	36.56	55.92	-19.36
Quasi Peak	694.00 kHz	26.74	56.00	-29.26
Quasi Peak	822.00 kHz	24.08	56.00	-31.92
Quasi Peak	1.45 MHz	15.90	56.00	-40.1
Quasi Peak	2.22 MHz	21.69	56.00	-34.31
Quasi Peak	4.41 MHz	34.82	56.00	-21.18
Quasi Peak	6.75 MHz	37.44	60.00	-22.56
Quasi Peak	7.55 MHz	33.48	60.00	-26.52
Average	486.00 kHz	27.64	45.99	-18.35
Average	494.00 kHz	25.73	45.85	-20.12
Average	1.44 MHz	15.90	46.00	-30.1
Average	1.82 MHz	15.25	46.00	-30.75
Average	2.21 MHz	14.35	46.00	-31.65
Average	2.61 MHz	14.90	46.00	-31.1
Average	4.43 MHz	27.15	46.00	-18.85
Average	6.81 MHz	28.77	50.00	-21.23
Average	7.64 MHz	24.99	50.00	-25.01
Average	25.89 MHz	15.60	50.00	-34.4

Products

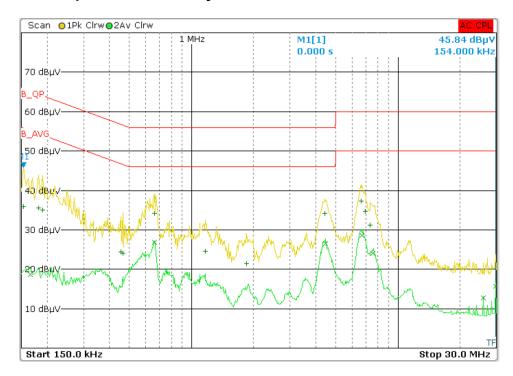
Produkte www.tuv.com



 Prüfbericht - Nr.:
 19660359 001
 Seite 39 von 41

 Page 39 of 41

110v AC, 60Hz - Adapter 2 with Battery 1 combination



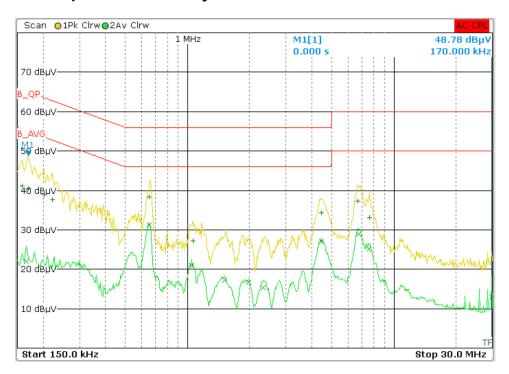
Neutral Graph

Detector	_	Level	Limit	Margin
	Frequency	(dBµV)	(dBµV)	(dB)
Quasi Peak	154.00 kHz	35.91	65.77	-29.86
Quasi Peak	182.00 kHz	35.50	64.35	-28.85
Quasi Peak	190.00 kHz	35.00	63.98	-28.98
Quasi Peak	454.00 kHz	24.39	56.57	-32.18
Quasi Peak	466.00 kHz	24.02	56.35	-32.33
Quasi Peak	662.00 kHz	34.22	56.00	-21.78
Quasi Peak	1.16 MHz	24.58	56.00	-31.42
Quasi Peak	1.84 MHz	21.49	56.00	-34.51
Quasi Peak	4.43 MHz	34.12	56.00	-21.88
Quasi Peak	6.61 MHz	37.37	60.00	-22.63
Quasi Peak	6.94 MHz	34.69	60.00	-25.31
Quasi Peak	7.35 MHz	31.17	60.00	-28.83
Average	166.00 kHz	18.57	55.13	-36.56
Average	662.00 kHz	26.84	46.00	-19.16
Average	4.44 MHz	26.54	46.00	-19.46
Average	6.67 MHz	28.57	50.00	-21.43
Average	7.53 MHz	24.01	50.00	-25.99
Average	25.88 MHz	12.74	50.00	-37.26
Average	29.77 MHz	15.66	50.00	-34.34



Prüfbericht - Nr.: Seite 40 von 41 19660359 001 Page 40 of 41 Test Report No.:

110v AC , 60Hz - Adapter 2 with Battery 2 combination



Neutral Graph

Detector	Frequency	Level (dBµV)	Limit (dBµV)	Margin (dB)
Quasi Peak	158.00 kHz	41.16	65.55	-24.39
Quasi Peak	170.00 kHz	40.40	64.93	-24.53
Quasi Peak	202.00 kHz	38.88	63.46	-24.58
Quasi Peak	222.00 kHz	37.65	62.66	-25.01
Quasi Peak	654.00 kHz	38.43	56.00	-17.57
Quasi Peak	1.06 MHz	27.19	56.00	-28.81
Quasi Peak	4.45 MHz	34.28	56.00	-21.72
Quasi Peak	6.71 MHz	37.26	60.00	-22.74
Quasi Peak	7.63 MHz	33.19	60.00	-26.81
Average	166.00 kHz	21.88	55.13	-33.25
Average	654.00 kHz	31.23	46.00	-14.77
Average	1.05 MHz	20.94	46.00	-25.06
Average	1.51 MHz	17.30	46.00	-28.7
Average	1.98 MHz	16.71	46.00	-29.29
Average	2.31 MHz	15.28	46.00	-30.72
Average	4.44 MHz	26.95	46.00	-19.05
Average	6.75 MHz	28.89	50.00	-21.11
Average	7.57 MHz	25.05	50.00	-24.95
Average	29.76 MHz	12.90	50.00	-37.1



 Prüfbericht - Nr.:
 19660359 001
 Seite 41 von 41

 Page 41 of 41
 Page 41 of 41

6 LIST OF TABLES

Table 1: List of test and measurement instruments	5
Table 2: Ratings and System Details	6
Table 3: Measurement Uncertainty	7
Table 4 : Antenna Details	7
Table 5: List of Center Frequiences	9
Table 6: Maximum peak conducted output power verified Test Results	13
Table 7: Maximum power spectral density verified Test Results	16
Table 8 : DTS Bandwidth verified Test Results	19
Table 9: Verified Test Results of Emissions in non-restricted frequency bands	22
Table 10: Transmitter limits for Radiated emission of Section 15.209	28
Table 11: Restricted bands of emission verified Test Results	31

7 LIST OF FIGURES

Figure 1: Frequency Range 9 kHz- 30 MHz	. 10
Figure 2: Frequency Range 30 MHz – 200 MHz	. 11
Figure 3: Frequency Range 200 MHz - 1GHz	
Figure 4: Frequency Range above 1 GHz	

END OF TEST REPORT