

Report No.: SZEM181100004201

Page:

TEST REPORT

Application No.: SZEM1811000042CR

Applicant: SHENZHEN DBK ELECTRONICS CO., LTD

Address of Applicant: No.8 Qinghua Road, Zhu Village, Fucheng New Community, Guanlan

Street, Longhua District, Shenzhen City, Guangdong Province, China

Manufacturer: Dongguan DBK Energy Technology Co., Ltd

Address of Manufacturer: No.51 Zhangshen Middle Road, Xuzhen Community, Zhangmutou Town,

Dongguan City, Guangdong Province, China

Dongguan DBK Energy Technology Co., Ltd Factory:

No.51 Zhangshen Middle Road, Xuzhen Community, Zhangmutou Town, Address of Factory:

Dongguan City, Guangdong Province, China

Equipment Under Test (EUT):

EUT Name: Wireless Charging Mouse Pad

BWA19HO008 Model No.:

Trade mark: blackweb™

FCC ID: 2ARVRWC044 47 CFR Part 18 Standard(s):

Date of Receipt: 2018-11-28

2018-11-30 to 2018-12-11 **Date of Test:**

Date of Issue: 2018-12-20

Test Result: Pass*

EMC Laboratory Manager

Ceny. Ku



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^{*} In the configuration tested, the EUT complied with the standards specified above.



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	Revision Record							
Version	Version Chapter Date Modifier Remark							
01		2018-12-20		Original				

Authorized for issue by:		
	Ceo. 61	
	Leo Li /Project Engineer	
	EvicFu	
	Eric Fu /Reviewer	



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Test Summary

Radio Spectrum Matter Part								
Item	Standard	Method	Requirement	Result				
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 18	FCC OST/MP-5:1986	47 CFR Part 18.307	Pass				
Radiated Emissions (9kHz-30MHz)	47 CFR Part 18	FCC OST/MP-5:1986	47 CFR Part 18.305	Pass				



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General Information

Details of E.U.T.

Power supply:	DC 5V from USB port
	Input: DC 5V/2A Max
	Output: Wireless 5W(DC 5V/1A) Max
Cable:	USB cable: 100cm shielded
Antenna Type:	Loop Antenna
Modulation Type:	Load Modulation
Operation Frequency:	99.52kHz to 176.20kHz

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	LeTV	EQ-248CN	16041847014
iPhone 8	Apple	A1863	F4GVQ656JC6D
Laptop	Apple	A1708	REF. No.:SEA2400
USB Power Meter	Client Supply	N/A	N/A

4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	± 7.25 x 10 ⁻⁸
2	Duty cycle	± 0.37%
3	Occupied Bandwidth	± 3%
4	RF conducted power	± 0.75dB
5	RF power density	± 2.84dB
6	Conducted Spurious emissions	± 0.75dB
7	DE Dadiated newer	± 4.5dB (below 1GHz)
/	RF Radiated power	± 4.8dB (above 1GHz)
8	Dadiated Courieus emission toet	± 4.5dB (Below 1GHz)
0	Radiated Spurious emission test	± 4.8dB (Above 1GHz)
9	Temperature test	± 1 °C
10	Humidity test	± 3%
11	Supply voltages	± 1.5%
12	Time	± 3%



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4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

VCCI

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

FCC –Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

· Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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Equipment List

Conducted disturbance								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
Shielding Room	ChangZhou ZhongYu	GB-88	SEM001-06	2017-05-10	2020-05-09			
Measurement Software	AUDIX	e3 V5.4.1221d	N/A	N/A	N/A			
Coaxial Cable	SGS	N/A	SEM024-01	2018-07-12	2019-07-11			
LISN	Rohde & Schwarz	ENV216	SEM007-01	2018-09-25	2019-09-24			
LISN	ETS-LINDGREN	3816/2	SEM007-02	2018-04-02	2019-04-01			
EMI Test Receiver	Rohde & Schwarz	ESCI	SEM004-02	2018-04-02	2019-04-01			

Radiated emission								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEM001-03	2018-03-31	2021-03-30			
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A			
Coaxial Cable	SGS	N/A	SEM029-01	2018-07-12	2019-07-11			
EMI Test Receiver (9kHz-7GHz)	Rohde & Schwarz	ESR	SEM004-03	2018-04-02	2019-04-01			
Trilog-Broadband Antenna (30MHz-1GHz)	Schwarzbeck	VULB9168	SEM003-18	2016-06-29	2019-06-28			
Pre-amplifier	Sonoma Instrument Co	310N	SEM005-04	2018-04-13	2019-04-12			
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21			

General used equipment								
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date			
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2018-09-27	2019-09-26			
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2018-09-27	2019-09-26			
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2018-09-27	2019-09-26			
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2018-04-08	2019-04-07			



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6 **Radio Spectrum Matter Test Results**

6.1 Conducted disturbance

Test Requirement 47 CFR Part 18 Test Method: FCC OST/MP-5:1986

Limit:

	Conduct	Conducted limit (dBμV)			
Frequency of emission (MHz)	Quasi-peak	Average			
0.15-0.5	66 to 56*	56 to 46*			
0.5-5	56	46			
5-30	60	50			

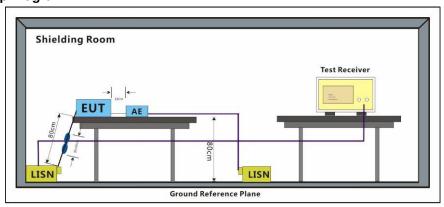
^{*}Decreases with the logarithm of the frequency.

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.9 °C Humidity: 62.4 % RH Atmospheric Pressure: 1020 mbar a:Charge mode_Keep the EUT charging.(Supply by the USB port of the adapter) Test mode: b:Charge mode Keep the EUT charging. (Supply by the USB port of the PC)

6.1.2 Test Setup Diagram



6.1.3 Measurement Procedure and Data



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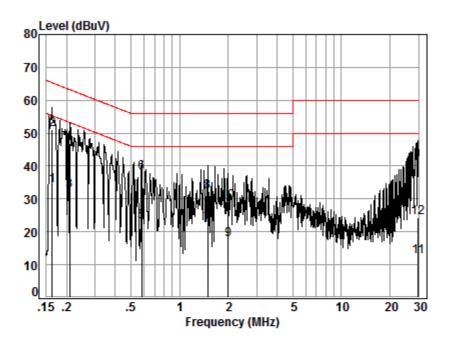
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Mode:a; Line:Live Line



Site : Shielding Room

Condition: Line Job No. : 00042CR

Test mode: a

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16	0.01	9.66	24.32	33.99	55.34	-21.35	Average
2	0.16	0.01	9.66	41.45	51.12	65.34	-14.22	QP
3	0.21	0.02	9.66	22.77	32.45	53.23	-20.78	Average
4	0.21	0.02	9.66	37.15	46.83	63.23	-16.40	QP
5	0.58	0.07	9.67	13.37	23.11	46.00	-22.89	Average
6	0.58	0.07	9.67	28.40	38.14	56.00	-17.86	QP
7	1.49	0.13	9.73	12.34	22.20	46.00	-23.80	Average
8	1.49	0.13	9.73	22.39	32.25	56.00	-23.75	QP
9	2.00	0.16	9.72	7.86	17.74	46.00	-28.26	Average
10	2.00	0.16	9.72	19.39	29.27	56.00	-26.73	QP
11	29.84	0.28	10.42	1.74	12.44	50.00	-37.56	Average
12	29.84	0.28	10.42	13.68	24.38	60.00	-35.62	QP



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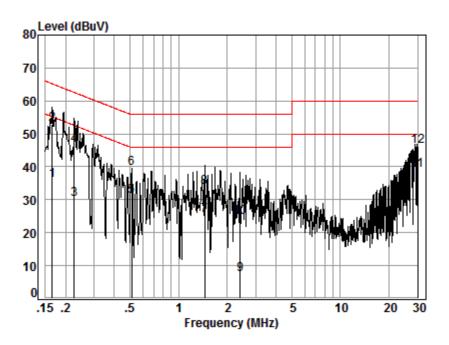
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Mode:a; Line:Neutral Line



: Shielding Room

Condition: Neutral Job No. : 00042CR

Test mode: a

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17	0.01	9.64	26.16	35.81	55.21	-19.40	Average
2	0.17	0.01	9.64	43.26	52.91	65.21	-12.30	QP
3	0.23	0.03	9.64	20.30	29.97	52.57	-22.60	Average
4	0.23	0.03	9.64	36.97	46.64	62.57	-15.93	QP
5	0.51	0.06	9.64	21.25	30.95	46.00	-15.05	Average
6	0.51	0.06	9.64	29.96	39.66	56.00	-16.34	QP
7	1.45	0.13	9.70	15.43	25.26	46.00	-20.74	Average
8	1.45	0.13	9.70	23.93	33.76	56.00	-22.24	QP
9	2.40	0.16	9.68	-2.54	7.30	46.00	-38.70	Average
10	2.40	0.16	9.68	14.73	24.57	56.00	-31.43	QP
11	30.00	0.28	10.45	28.09	38.82	50.00	-11.18	Average
12	30.00	0.28	10.45	35.47	46.20	60.00	-13.80	QP



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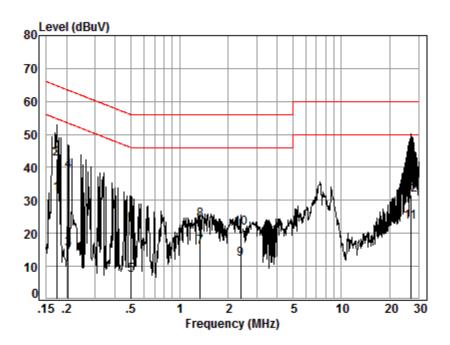
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Mode:b; Line:Live Line



: Shielding Room Site

Condition: Line Job No. : 00042CR

Test mode: b

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17	0.02	9.66	22.26	31.94	54.77	-22.83	Average
2	0.17	0.02	9.66	32.82	42.50	64.77	-22.27	QP
3	0.20	0.02	9.66	5.48	15.16	53.45	-38.29	Average
4	0.20	0.02	9.66	29.40	39.08	63.45	-24.37	QP
5	0.50	0.06	9.67	-2.57	7.16	46.00	-38.84	Average
6	0.50	0.06	9.67	13.41	23.14	56.00	-32.86	QP
7	1.34	0.12	9.73	6.03	15.88	46.00	-30.12	Average
8	1.34	0.12	9.73	14.07	23.92	56.00	-32.08	QP
9	2.38	0.16	9.71	2.36	12.23	46.00	-33.77	Average
10	2.38	0.16	9.71	11.60	21.47	56.00	-34.53	QP
11	26.84	0.27	10.32	12.83	23.42	50.00	-26.58	Average
12	26.84	0.27	10.32	21.15	31.74	60.00	-28.26	QP



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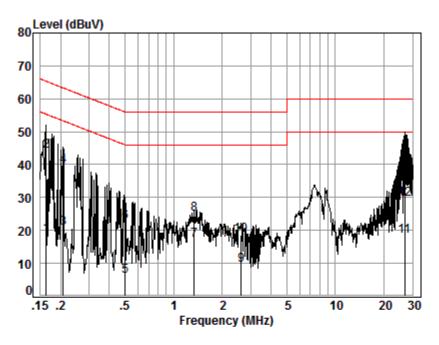
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Mode:b; Line:Neutral Line



Site : Shielding Room

Condition: Neutral Job No. : 00042CR

Test mode: b

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.16	0.01	9.64	8.92	18.57	55.30	-36.73	Average
2	0.16	0.01	9.64	34.42	44.07	65.30	-21.23	QP
3	0.21	0.02	9.64	11.15	20.81	53.32	-32.51	Average
4	0.21	0.02	9.64	29.79	39.45	63.32	-23.87	QP
5	0.50	0.06	9.64	-3.67	6.03	46.00	-39.97	Average
6	0.50	0.06	9.64	12.85	22.55	56.00	-33.45	QP
7	1.34	0.12	9.70	7.16	16.98	46.00	-29.02	Average
8	1.34	0.12	9.70	15.03	24.85	56.00	-31.15	QP
9	2.61	0.16	9.68	-0.35	9.49	46.00	-36.51	Average
10	2.61	0.16	9.68	8.75	18.59	56.00	-37.41	QP
11	26.84	0.27	10.35	7.68	18.30	50.00	-31.70	Average
12	26.84	0.27	10.35	18.84	29.46	60.00	-30.54	QP



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6.2 Radiated emission

Test Requirement: 47 CFR Part 18 Test Method: FCC OST/MP-5:1986

Test Distance:

Frequency Range: 9kHz-30MHz

(b) The field strength levels of emissions which lie outside the bands specified in §18.301, unless otherwise indicated, shall not exceed the following:

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)	Distance (meters)
Any type unless otherwise specified (miscellaneous)	Any ISM frequency	Below 500 500 or more	25 25 × SQRT(power/500)	300 ¹ 300
	Any non-ISM frequency	Below 500 500 or more	15 15 × SQRT(power/500)	300 ¹ 300
Industrial heaters and RF stabilized arc welders	On or below 5,725 MHz Above 5,725 MHz	Any Any	10 (²)	1,600 (²)
Medical diathermy	Any ISM frequency Any non-ISM frequency	Any Any	25 15	300 300
Ultrasonic	Below 490 kHz	Below 500 500 or more	2,400/F(kHz) 2,400/F(kHz) × SQRT (power/500)	300 ³ 300
	490 to 1,600 kHz Above 1,600 kHz		24,000/F(kHz) 15	30 30
Induction cooking ranges	Below 90 kHz On or above 90 kHz	Any Any	1,500 300	⁴ 30 ⁴ 30

¹Field strength may not exceed 10 μV/m at 1600 meters. Consumer equipment operating below 1000 MHz is not permitted the increase in field strength otherwise permitted here for power over 500 watts.

²Reduced to the greatest extent possible.

 3 Field strength may not exceed 10 μ V/m at 1600 meters. Consumer equipment is not permitted the increase in field strength otherwise permitted here for over 500 watts.

⁴Induction cooking ranges manufactured prior to February 1, 1980, shall be subject to the field strength limits for miscellaneous ISM equipment.

Remark:

1 This product belongs to non-ISM equipment, the field strength limit is 15uV/m at 300 meter distance.

2 Limit: 20log(15uV/m) +20log (300/3) =23.52+40=63.52dBuV/m at 3 meters distance



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6.2.1 E.U.T. Operation

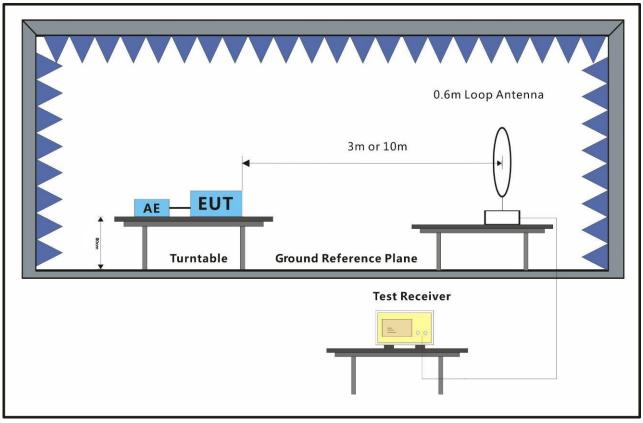
Operating Environment:

Temperature: 25 Humidity: 51 % RH Atmospheric Pressure: 1020 mbar

Test mode: a:Charge mode Keep the EUT charging. (Supply by the USB port of the adapter)

b:Charge mode_Keep the EUT charging.(Supply by the USB port of the PC)

6.2.2 Test Setup Diagram



6.2.3 Measurement Procedure and Data



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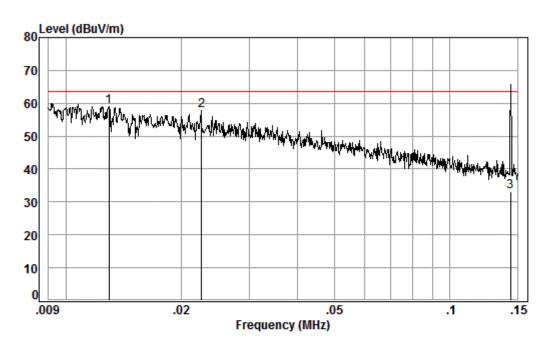
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a 0.009-0.15



Condition: 3m

Job No. : 00042CR

Test Mode: a

	Freq			Preamp Factor					Remark
_	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 pp	0.01	0.26	17.70	31.53	72.54	58.97	63.52	-4.55	Peak
2	0.02	0.20	14.66	31.84	74.64	57.66	63.52	-5.86	Peak
3 av	0.14	0.06	11.73	32.67	54.00	33.12	63.52	-30.40	Average



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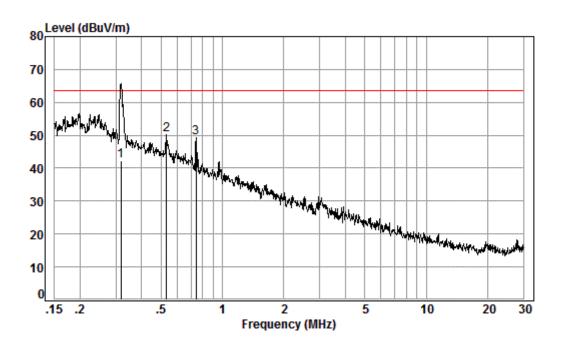
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a 0.15-30



Condition: 3m

Job No. : 00042CR

Test Mode: a

	Freq			Preamp Factor					Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 av	0.32	0.09	11.90	32.66	63.10	42.75	63.52	-20.77	Average
2 pp	0.53	0.12	11.75	32.66	70.92	50.13	63.52	-13.39	Peak
3	0.74	0.18	11.99	32.65	69.74	49.26	63.52	-14.26	Peak



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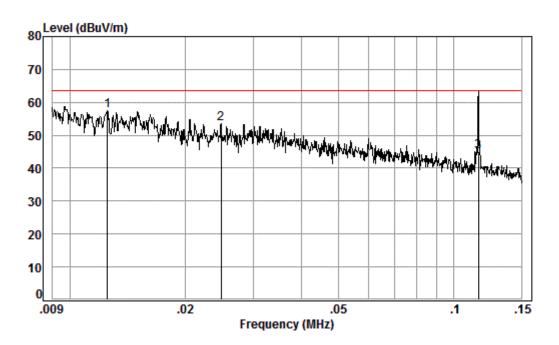
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b 0.009-0.15



Condition: 3m

Job No. : 00042CR

Test Mode: b

	Freq			Preamp Factor					Remark	
_	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		-
1 pp	0.01	0.27	17.91	31.52	70.98	57.64	63.52	-5.88	Peak	
2	0.02	0.19	14.39	31.90	70.88	53.56	63.52	-9.96	Peak	
3 av	0.12	0.06	11.89	32.68	65.60	44.87	63.52	-18.65	Average	



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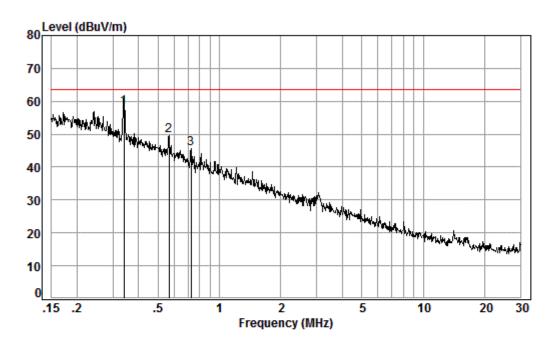
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b 0.15-30



Condition: 3m

Job No. : 00042CR

Test Mode: b

		Cable	Ant	Preamp	Read		Limit	0ver		
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1 pp	0.34	0 00	11 87	32.66	78 89	58 10	63 52	-5 /12	Peak	
2	0.57			32.66						
3				32.65						



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Photographs

Test Setup

Refer to Setup Photos

7.2 EUT Constructional Details (EUT Photos)

Refer to EUT external and internal photos

- End of the Report -



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