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

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

Telephone: +86 (0) 755 2601 2053
Fax: +86 (0) 755 2671 0594
Email: ee.shenzhen@sgs.com

FCC REPORT

Application No:	SZEM1603001580CR
Applicant:	Mattel Asia pacific Sourcing limited
Manufacturer:	Mattel Asia pacific Sourcing limited
Factory:	Mattel Electronics Dongguan
Product Name:	Fisher-Price ® Think & Learn Smart Scan Word Dash
Model No.(EUT):	DKT59
Trade Mark:	MATTEL
FCC ID:	PIYDKT59-16A3T
Standards:	47 CFR Part 15, Subpart C (2015)
Date of Receipt:	2016-03-22
Date of Test:	2016-03-29
Date of Issue:	2016-04-21
Test Result:	**PASS ***

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

Authorized Signature:

Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
00		2016-04-21		Original

Authorized for issue by:				
Tested By		Peter Geng **(Peter Geng) /Project Engineer**		2016-03-29 **Date**
Prepared By		Joyce Shi **(Joyce Shi) /Clerk**		2016-04-21 **Date**
Checked By		Eric Fu **(Eric Fu) /Reviewer**		2016-04-21 **Date**

3 Test Summary

Test Item	Test Requirement	Test method	Result
Radiated Spurious Emissions	47 CFR Part 15, Subpart C Section 15.201/15.209	ANSI C63.10 2013	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.247 (a)(1)	ANSI C63.10 (2013)	PASS

4 Contents

5 General Information

5.1 Client Information

Applicant:	Mattel Asia pacific Sourcing limited
Address of Applicant:	13/F, south Tower, World Finance Ctr., Harboour city, Tsim Shat Tsui, Kowloon, Hong Kong
Manufacturer:	Mattel Asia pacific Sourcing limited
Address of Manufacturer:	13/F, south Tower, World Finance Ctr., Harboour city, Tsim Shat Tsui, Kowloon, Hong Kong
Factory:	Mattel Electronics Dongguan
Address of Factory:	Long Yan Management Area Humen Town Dongguan City

5.2 General Description of EUT

Product Name:	Fisher-Price ® Think & Learn Smart Scan Word Dash
Model No.:	DKT59
Trade Mark:	MATTEL
Operation Frequency:	130KHz
Modulation Type:	AM
Occupied Bandwidth:	1.298kHz
Antenna Type and Gain	Loop antenna/ 0dBi
Battery	4.5V DC (3 x 1.5V “AAA” Size Battery)

5.3 Test Environment

Operating Environment:	
Temperature:	25.0 °C
Humidity:	55% RH
Atmospheric Pressure:	1025mbar

5.4 Description of Support Units

The EUT has been tested independent unit.

5.5 Test Location

All tests were performed at:

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

5.6 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 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

• **Industry Canada (IC)**

The 10m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-3.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

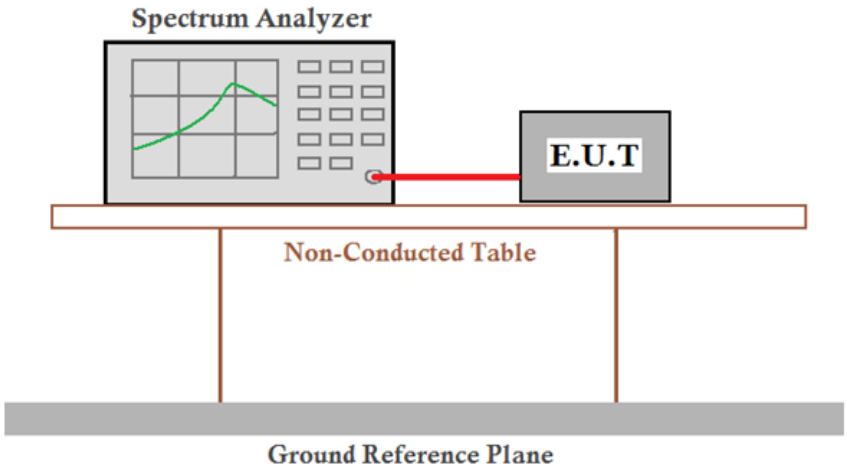
None.

5.10 Equipment List

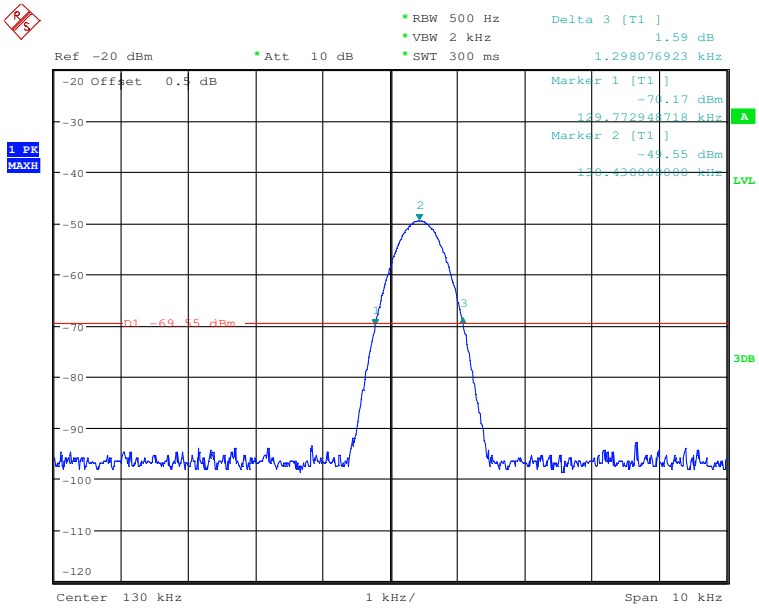
RE in Chamber						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. date (yyyy-mm-dd)**	**Cal.Due date (yyyy-mm-dd)**
1	10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEL0303	2015-08-01	2016-08-01
2	EMI Test Receiver (9k-3GHz)	Rohde & Schwarz	ESCI	SEL0175	2015-05-13	2016-05-13
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0288	2015-05-13	2016-05-13
5	Coaxial cable	SGS	N/A	SEL0275	2015-05-13	2016-05-13
6	Coaxial cable	SGS	N/A	SEL0274	2015-05-13	2016-05-13
8	Trilog-Broadband Antenna(30M-1GHz)	Schwarzbeck	VULB9168	SEM003-17	2016-01-26	2017-01-26
9	Pre-amplifier	Sonoma Instrument Co	310N	SEL0298	2015-05-13	2016-05-13
10	Loop Antenna	ETS-LINDGREN	6502	SEL0802	2015-08-14	2016-08-14

6 Test results and Measurement Data

6.1 20dB Occupy Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.215
Test Method:	ANSI C63.10:2013
Test Setup:	
Limit:	NA
Exploratory Test Mode:	Transmitting mode
Final Test Mode:	Transmitting mode
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

Test Data



6.2 Radiated Spurious Emission

6.2.1 Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.209 and 15.201
Test Method:	ANSI C63.10 2013
Test Site:	Measurement Distance: 10m (Semi-Anechoic Chamber)

Receiver Setup:

Frequency	Detector	RBW	VBW	Remark
0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak

Limit:

Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
1.705MHz-30MHz	30	-	-	30
30MHz-88MHz	100	40.0	Quasi-peak	3
88MHz-216MHz	150	43.5	Quasi-peak	3
216MHz-960MHz	200	46.0	Quasi-peak	3
960MHz-1GHz	500	54.0	Quasi-peak	3

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

Test Setup:	

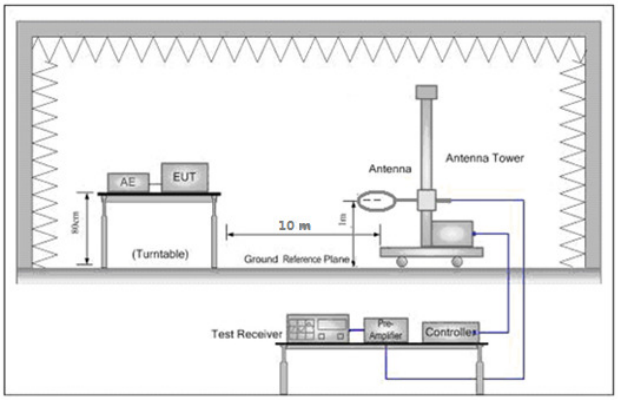


Figure 1. Below 30MHz

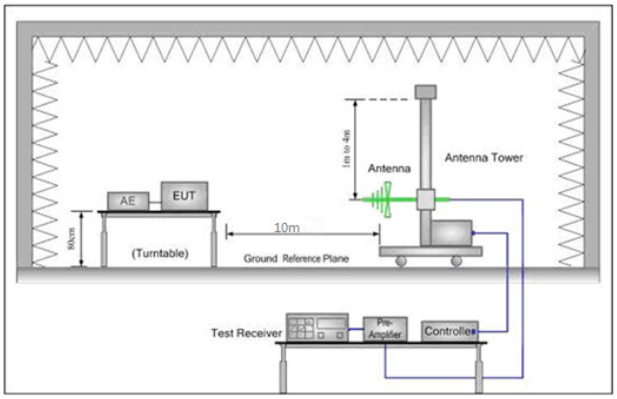
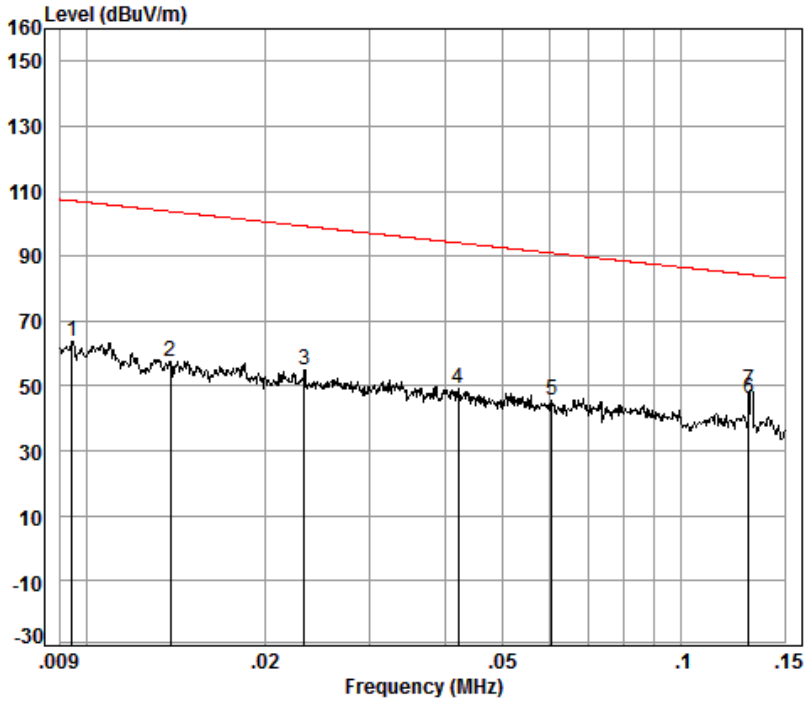


Figure 2. 30MHz to 1GHz

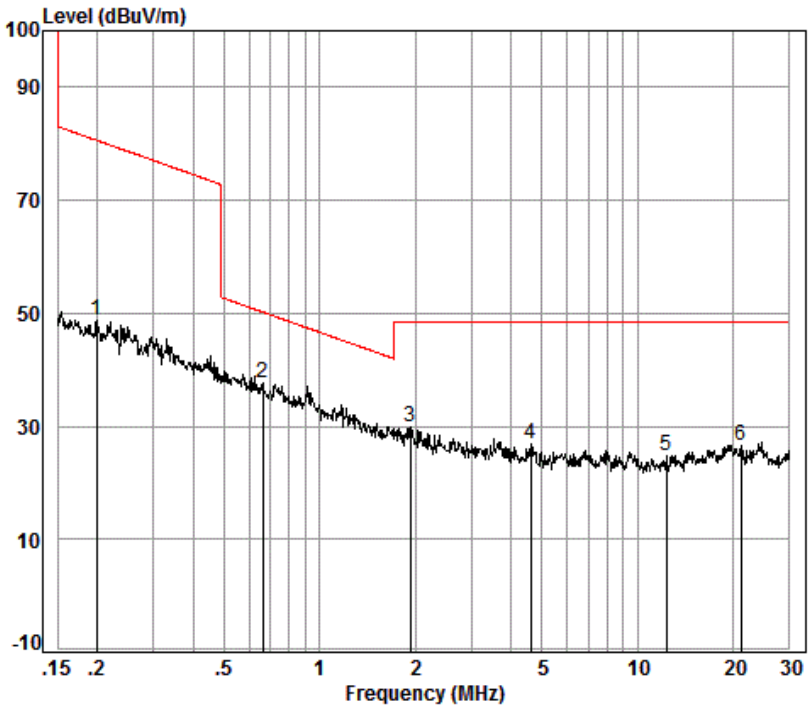
Test Procedure:	a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at 10 meters semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. g. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. h. Repeat above procedures until all frequencies measured was complete.
Exploratory Test Mode:	Keep transmitting
Final Test Mode:	Keep transmitting
Instruments Used:	Refer to section 5.10 for details.
Test Results:	Pass

Radiated Emission below 1GHz		
Below 30MHz		
Test mode:	Transmitting mode	Horizontal



Condition: 10m
Job No. : 1580CR
Test Mode: TX
: H

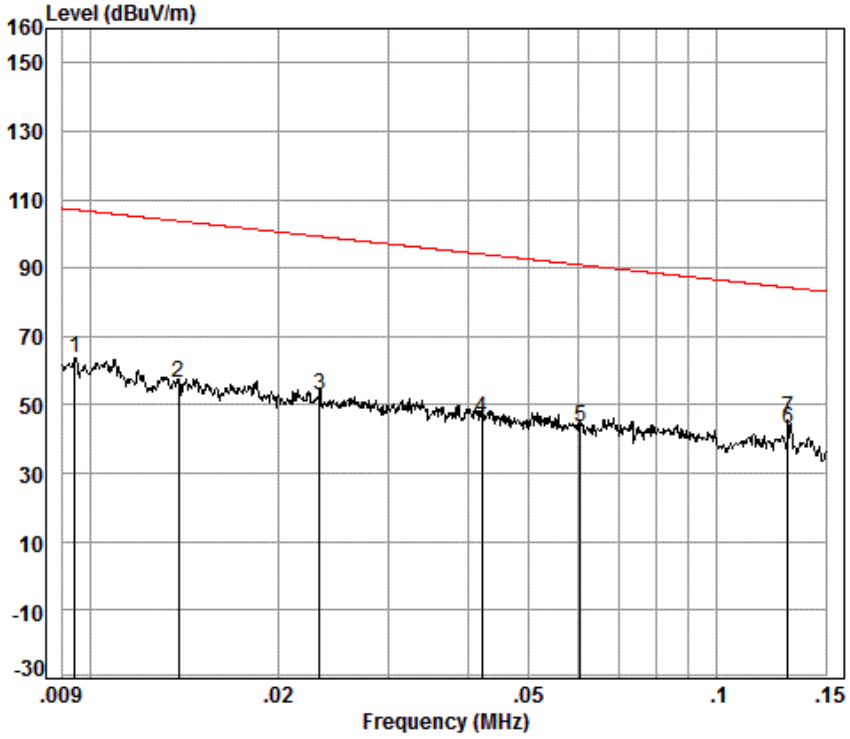
	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	0.01	0.29	19.66	0.00	43.88	63.83	107.06	-43.23
2	0.01	0.26	17.28	0.00	40.14	57.68	103.76	-46.08
3	0.02	0.20	14.58	0.00	40.00	54.78	99.27	-44.49
4	0.04	0.14	12.88	0.00	36.11	49.13	94.09	-44.96
5	0.06	0.10	12.26	0.00	33.14	45.50	90.94	-45.44
6 av	0.13	0.06	11.81	0.00	34.43	46.30	84.32	-38.02
7 pp	0.13	0.06	11.81	0.00	36.66	48.53	84.32	-35.79



Condition: 10m
Job No. : 1580CR
Test Mode: TX
: H

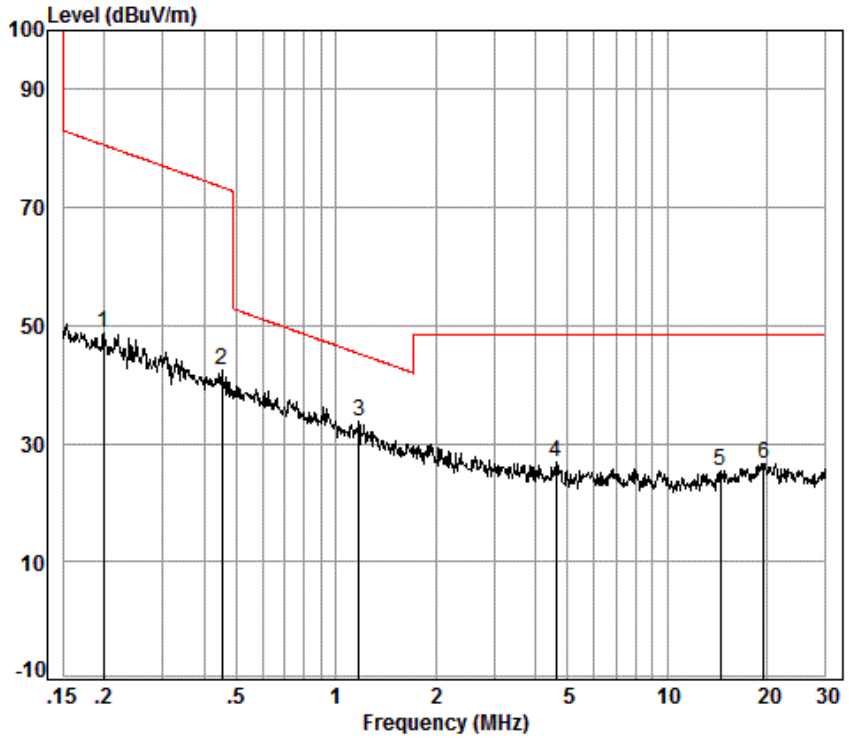
	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	0.20	0.08	12.80	0.00	35.94	48.82	80.64	-31.82
2 pp	0.66	0.16	12.57	0.00	24.87	37.60	50.16	-12.56
3	1.93	0.33	12.52	0.00	16.96	29.81	48.50	-18.69
4	4.60	0.42	11.38	0.00	14.95	26.75	48.50	-21.75
5	12.32	0.55	10.45	0.00	13.87	24.87	48.50	-23.63
6	21.15	0.69	10.60	0.00	15.15	26.44	48.50	-22.06

Radiated Emission below 1GHz		
Below 30MHz		
Test mode:	Transmitting mode	Vertical



Condition: 10m
Job No. : 1580CR
Test Mode: TX
: V

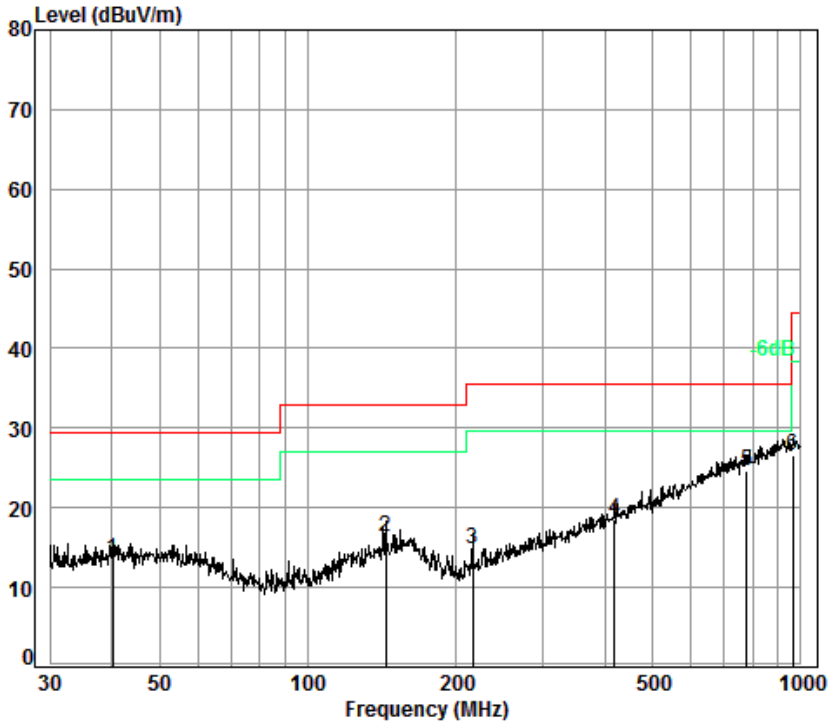
	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	0.01	0.29	19.66	0.00	43.88	63.83	107.06	-43.23
2	0.01	0.26	17.28	0.00	39.14	56.68	103.76	-47.08
3	0.02	0.20	14.58	0.00	38.00	52.78	99.27	-46.49
4	0.04	0.14	12.88	0.00	33.11	46.13	94.09	-47.96
5	0.06	0.10	12.26	0.00	31.14	43.50	90.94	-47.44
6 av	0.13	0.06	11.81	0.00	31.10	42.97	84.32	-41.35
7 pp	0.13	0.06	11.81	0.00	34.20	46.07	84.32	-38.25



Condition: 10m
Job No. : 1580CR
Test Mode: TX
: V

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	0.20	0.08	12.80	0.00	35.94	48.82	80.64	-31.82
2	0.45	0.11	12.54	0.00	29.71	42.36	73.46	-31.10
3 pp	1.17	0.26	12.73	0.00	20.69	33.68	45.25	-11.57
4	4.60	0.42	11.38	0.00	14.95	26.75	48.50	-21.75
5	14.44	0.59	10.33	0.00	14.44	25.36	48.50	-23.14
6	19.53	0.67	10.76	0.00	15.15	26.58	48.50	-21.92

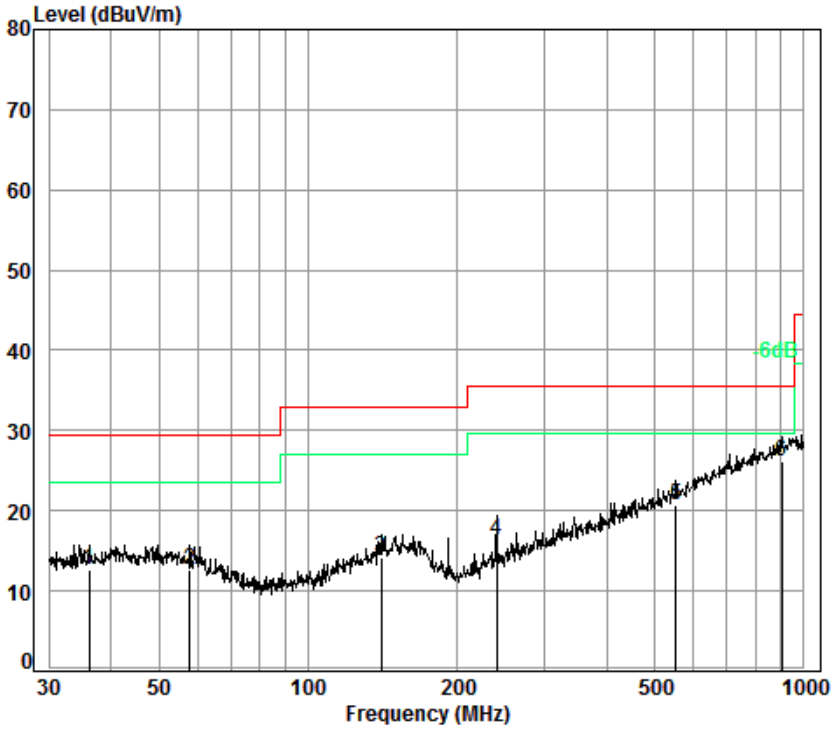
30MHz~1GHz (QP)		
Test mode:	Transmitting mode	Vertical



Condition: 10m Vertical
Job No. : 1580CR
Test Mode: a

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	40.28	6.80	13.30	32.99	26.50	13.61	29.50	-15.89
2	143.83	7.42	13.01	32.75	28.65	16.33	33.00	-16.67
3	216.02	7.68	9.91	32.68	29.88	14.79	35.60	-20.81
4	419.11	8.35	15.39	32.60	27.39	18.53	35.60	-17.07
5 pp	776.88	9.24	21.07	32.60	26.84	24.55	35.60	-11.05
6	962.16	9.60	22.77	32.50	26.80	26.67	44.40	-17.73

Test mode:	Transmitting mode	Horizontal



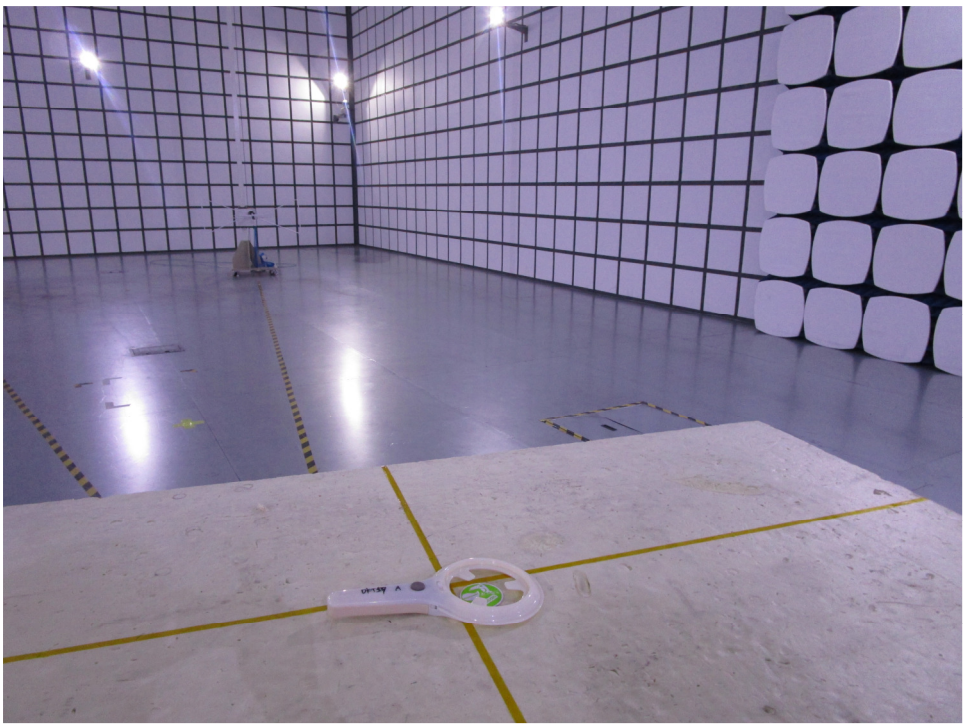
Condition: 10m Horizontal
Job No. : 1580CR
Test Mode: a

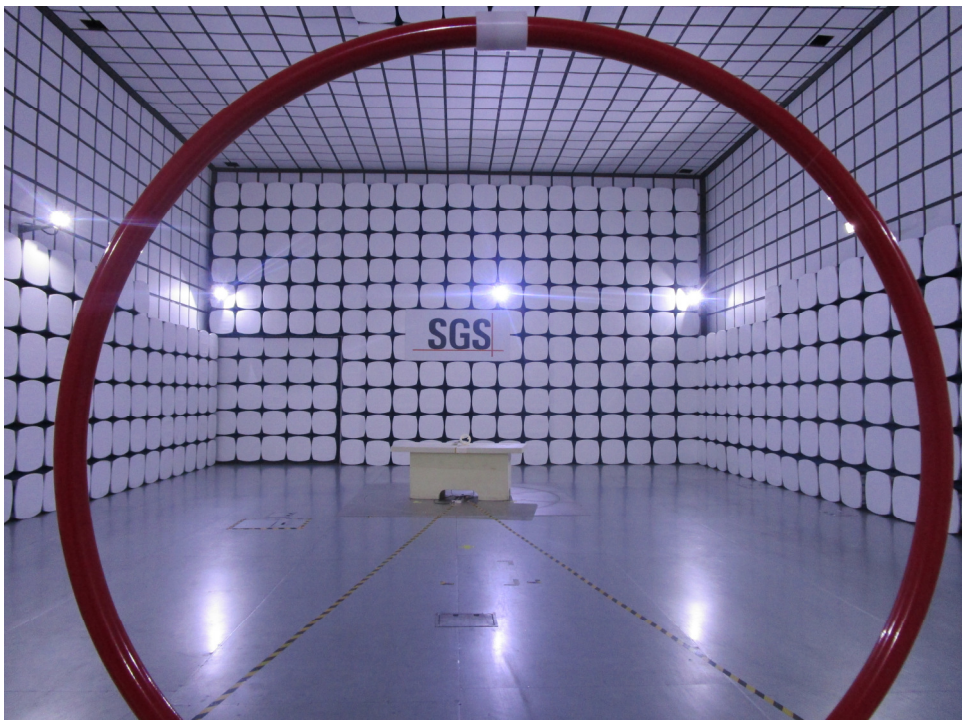
	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	36.13	7.30	12.80	32.80	25.45	12.75	29.50	-16.75
2	57.80	7.40	12.16	32.80	25.98	12.74	29.50	-16.76
3	140.34	8.39	12.78	32.80	25.71	14.08	33.00	-18.92
4	239.99	8.86	11.07	32.80	29.30	16.43	35.60	-19.17
5	552.88	10.21	17.78	32.86	25.59	20.72	35.60	-14.88
6 pp	903.31	11.83	22.27	32.60	24.69	26.19	35.60	-9.41

7 Photographs - EUT Test Setup

Test model No.: DKT59

7.1 Radiated Emission





8 Photographs - EUT Constructional Details