TEST REPORT

For

Tablet PC

In conformity with

FCC Part15 Subpart B (October 01, 2015)

Model: **F-04H**

Test Item: **Tablet PC**

Report No: **ERY1606J02R1**

Issue Date: **June 3, 2016**

Prepared for

FUJITSU CONNECTED TECHNOLOGIES LIMITED
1-1, Kamikodanaka 4-chome, Nakahara-ku,
Kawasaki, Kanagawa 211-8588, Japan
+81-44-874-0380

Prepared by

SGS RF Technologies Inc.
3-5-23, Kitayamata, Tsuzuki-ku, Yokohama
224-0021, JAPAN
Telephone: +81+(0)45- 550-3520
FAX: +81+(0)45- 592-7506

Table of Contents

History

Report No.	Issued date	Revision Contents	Issued by
ERY1606J02R1	June 02, 2016	Initial Issue	R. Kojima
ERY1606J03R1	June 03, 2016	Comments added to the Test setup photographs page (Clause 3)	R. Kojima

1 General information

1.1 *Product description*

Test item	: Tablet PC
Manufacturer	: FUJITSU CONNECTED TECHNOLOGIES LIMITED
Address	: 1-1, Kamikodanaka 4-chome, Nakahara-ku, Kawasaki, Kanagawa 211-8588, Japan
Model	: F-04H
Max. Internal Frequency	: 2.25GHz (Max)
Receipt date of EUT	: May 26, 2016
Tested Voltage	: DC 3.8V (Battery, 6000mAh)
Serial numbers	: 356399070027400
Hardware Version	: TR2-1-2
Software Version	: V01R024Ce

1.2 *Test(s) performed/ Summary of test result*

Applicable Standard(s)	: Part15 Subpart B (October 01, 2015)
Test method(s)	: ANSI C63.4: 2014
Test(s) started	: May 26, 2016
Test(s) completed	: May 26, 2016
Summary of test result	: Complied

Note: The above judgment is only based on the measurement data and it does not include the measurement uncertainty. Accordingly, the statement below is applied to the test result.
The EUT complies with the limit required in the standard in case that the margin is not less than the measurement uncertainty in the Laboratory.
Compliance of the EUT is more probable than non-compliance is case that the margin is less than the measurement uncertainty in the Laboratory.

Test engineer : R.Kojima
Engineer
EMC testing Department

Reviewer : K.Onishi
Manager
EMC testing Department

1.3 *Test facility*

The federal Communications Commission has reviewed the technical characteristics of the test facilities at SGS RF Technologies Inc., located in 472, Nippa-cho, Kohoku-ku, Yokohama, 223-0057, JAPAN, and has found these test facilities to be in compliance with the requirements of 47 CFR part 15, section 2.948.

The description of the test facilities has been filed under registration number 319924 at the Office of the Federal Communications Commission. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.
The list of all public test facilities is available on the Internet at http://www.fcc.gov.

Registered by Industry Canada (IC) The registered facility number is as follows;
Test site No. 1 (Semi anechoic chamber 3m): 6974A-1

Accredited by **National Voluntary Laboratory Accreditation Program** (NVLAP) for the emission tests stated in the scope of the certificate under Certificate Number 200780-0

This 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

NVLAP LAB CODE 200780-0

1.4 *Measurement uncertainty*

The treatment of uncertainty is based on the general matters on the definition of uncertainty in “Guide to the expression of uncertainty in measurement (GUM)” published by ISO. The Lab’s uncertainty is determined by referring UKAS Publication LAB34: 2002 “The Expression of Uncertainty in EMC Testing” and CISPR16-4-2: 2011 “Uncertainty in EMC Measurements”.
The uncertainty of the measurement result in the level of confidence of approximately 95% (k=2) is as follows;

AC Power line emission : ± 3.4 dB
Radiated emission (30MHz - 1000MHz) : ± 6.1 dB
Radiated emission (1000MHz - 11250MHz) : ± 4.6 dB

1.5 *Description of essencial requirements and test results*

An overview of test requirements, as laid out in FCC Part15 Subpart B are given below.

1.5.1 Test requirements (FCC Part15 Subpart B)

Test Description	Section in this report	Applicable	Result
Conducted emission (15.107) 0.15-30MHz	2.1	Yes	Passed
Radiated emission (15.109) 30-11.25GHz*	2.2	Yes	Passed

*The EUT operated on 2.25GHz MAX internal frequency.

1.5.2 Normal test conditions

Temperature : +15 degC to +35 degC
Relative humidity : 20 % to 75 %
Supply voltage : DC3.8V (Battery)

1.6 *Setup of equipment under test (EUT)*

1.6.1 Test configuration of EUT

Equipment(s) under test

	Item	Manufacture	Model No.	Serial No.	Remark
1	Tablet PC	FUJITSU CONNECTED TECHNOLOGIES LIMITED	F-04H	356399070027400	-

Ancillary equipment(s):

	Item	Manufacture	Model No.	Serial No.	Remark
2	Monitor display	PHILIPS	288P6LJEB1/11	AU5A1539003652	-
3	Earphones	Audio Technica	ATH-CKR3iS BL	-	-

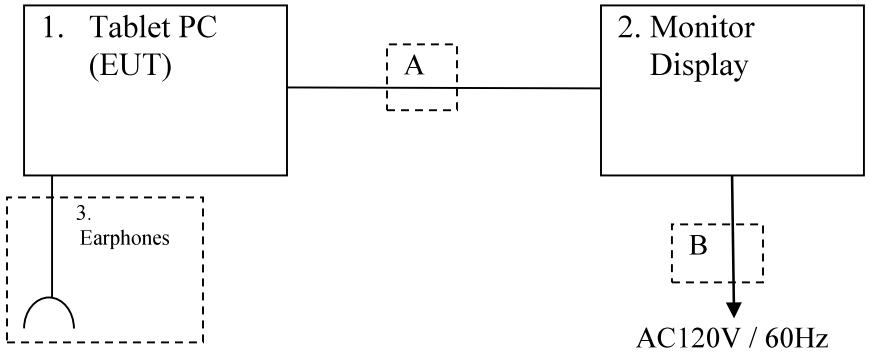
The following cables were used and connected to the E.U.T.

No	Cable Name	Length (m)	Shielded	Remarks
A	MHL cable (JVC)	1.0 / 3.0	Yes	-
B	AC power cable	2.0	No	-

1.6.2 Operating condition:

Continuous communication between Tablet PC and Monitor display by HML cable.
The test performed to 1m MHL cable and 3m MHL cable. (2 modes tested)

1.6.3 Setup diagram of tested system:



The EUT has 2 interface ports. (MHL port and 3.5mm Phone connector port)

1.7 *Equipment modifications*

No modifications have been made to the equipment in order to achieve compliance with the applicable standards described in clause 1.2.

1.8 *Deviation from the standard*

No deviations from the standards described in clause 1.2.

2 Test procedure and result

2.1 *AC power line conducted emissions*

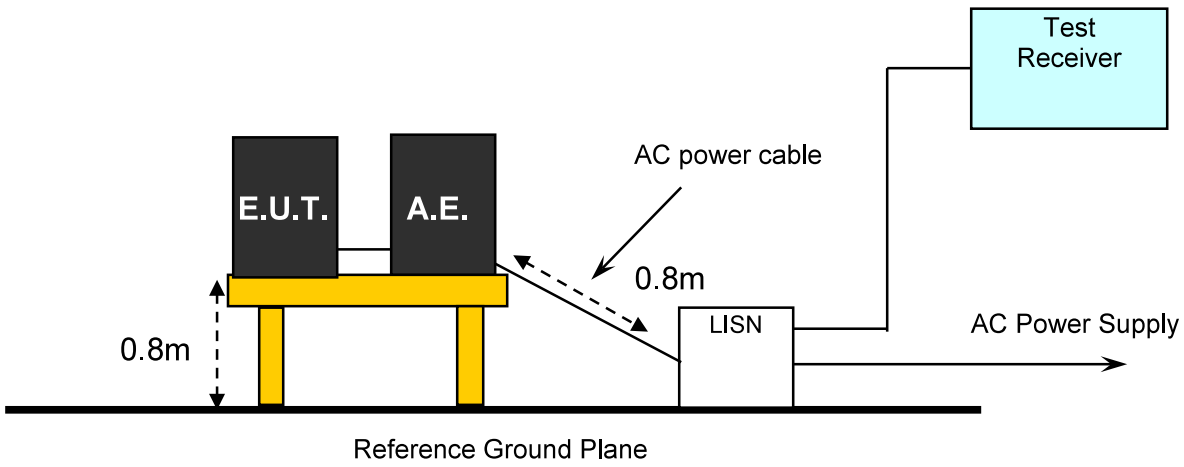
Reference Standard
Part15.107

Test Conditions

Date:	May 26, 2016
Ambient Temperature:	23 deg. C
Relative humidity:	54 %
Atmosphere:	1009 hPa
Test Voltage:	120V / 60Hz (Mains terminal of the Monitor Display)

Test Method
a) The EUT was running.
b) AC power is supplied to through LISN.
c) AC Power Line emission is measured by EMI receiver.
The disturbance voltage was measured using a LISN with a quasi-peak (QP) and average (AV) detector of receiver

Test Setup



Limit
(Class B personal computers and peripherals)

Frequency [MHz]	Limit QP [dBµV]	Limit AV [dBµV]
0.15 - 0.5	56-46	66-56
0.5 - 5	46	56
5 - 30	50	60

Test Results (1m MHL cable connected)

No.	Frequency [MHz]	QP Reading [dBµV]	AV Reading [dBµV]	C.Factor [dB]	QP Result [dBµV]	AV Result [dBµV]	QP Limit [dBµV]	AV Limit [dBµV]	QP Margin [dB]	AV Margin [dB]	Line
1	0.15934	47.3	32.2	10.2	57.5	42.4	65.5	55.5	8.0	13.1	Va
2	0.21759	36.1	30.3	10.1	46.2	40.4	62.9	52.9	16.7	12.5	Va
3	0.32641	28.1	24.0	10.0	38.1	34.0	59.5	49.5	21.4	15.5	Va
4	0.42511	27.5	22.7	10.0	37.5	32.7	57.3	47.3	19.8	14.6	Va
5	0.87008	26.9	21.7	10.0	36.9	31.7	56.0	46.0	19.1	14.3	Va
6	1.52199	31.2	24.1	10.0	41.2	34.1	56.0	46.0	14.8	11.9	Va
7	2.28539	31.2	22.9	10.0	41.2	32.9	56.0	46.0	14.8	13.1	Va
8	5.00000	30.3	20.8	10.1	40.4	30.9	56.0	46.0	15.6	15.1	Va
9	**0.15917**	**48.8**	**32.7**	**10.2**	**59.0**	**42.9**	**65.5**	**55.5**	**6.5**	**12.6**	**Vb**
10	0.21701	34.3	28.1	10.1	44.4	38.2	62.9	52.9	18.5	14.7	Vb
11	0.43470	32.5	26.7	10.0	42.5	36.7	57.2	47.2	14.7	10.5	Vb
12	0.54237	29.4	25.4	10.0	39.4	35.4	56.0	46.0	16.6	10.6	Vb
13	0.65300	28.7	23.5	10.0	38.7	33.5	56.0	46.0	17.3	12.5	Vb
14	0.75966	29.1	24.3	10.0	39.1	34.3	56.0	46.0	16.9	11.7	Vb

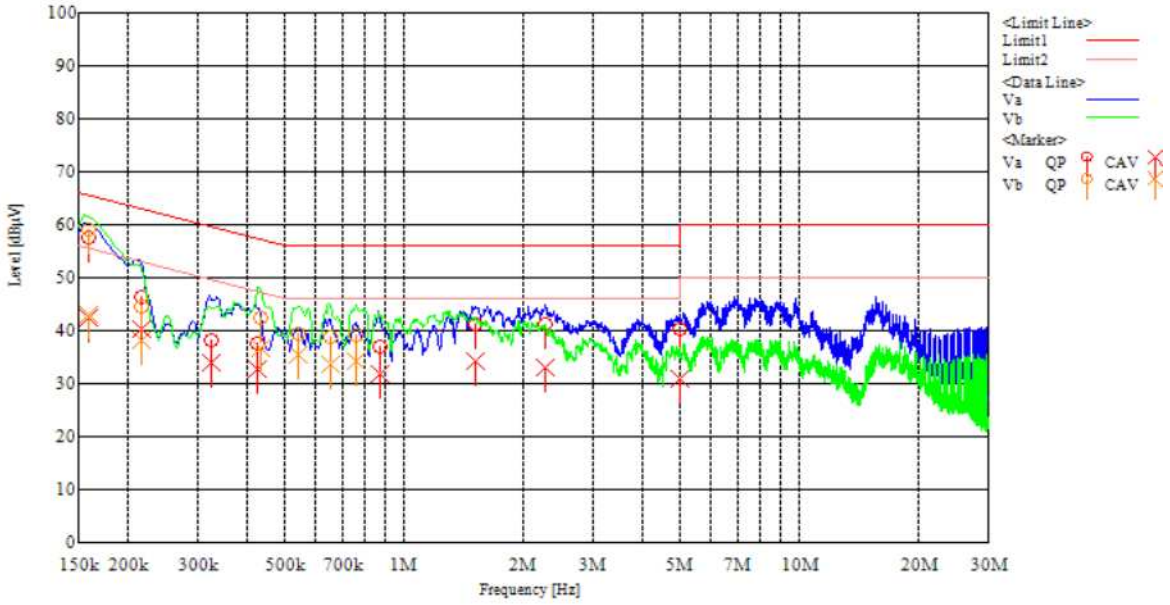
The Correction Factors and RESULT are calculated as followings.
Examples: 0.15917 MHz (QP): Reading (48.8dBuV) + C.F (10.2dB) = Result (59.0dBuV)
C.F = Cable Loss (dB) + LISN Factor (dB)

Test Results (3m MHL cable connected)

No.	Frequency [MHz]	QP Reading [dBµV]	AV Reading [dBµV]	C.Factor [dB]	QP Result [dBµV]	AV Result [dBµV]	QP Limit [dBµV]	AV Limit [dBµV]	QP Margin [dB]	AV Margin [dB]	Line
1	0.16122	47.1	32.9	10.2	57.3	43.1	65.4	55.4	8.1	12.3	Va
2	0.33367	29.9	25.7	10.0	39.9	35.7	59.4	49.4	19.5	13.7	Va
3	0.41683	26.3	23.4	10.0	36.3	33.4	57.5	47.5	21.2	14.1	Va
4	0.87532	27.2	21.6	10.0	37.2	31.6	56.0	46.0	18.8	14.4	Va
5	1.96076	29.0	21.2	10.0	39.0	31.2	56.0	46.0	17.0	14.8	Va
6	5.00000	28.7	19.2	10.1	38.8	29.3	56.0	46.0	17.2	16.7	Va
7	**0.16024**	**48.3**	**32.5**	**10.2**	**58.5**	**42.7**	**65.5**	**55.5**	**7.0**	**12.8**	**Vb**
8	0.21828	33.8	27.0	10.1	43.9	37.1	62.9	52.9	19.0	15.8	Vb
9	0.33442	29.9	25.3	10.0	39.9	35.3	59.3	49.3	19.4	14.0	Vb
10	0.43650	32.6	26.7	10.0	42.6	36.7	57.1	47.1	14.5	10.4	Vb
11	0.65430	28.6	23.7	10.0	38.6	33.7	56.0	46.0	17.4	12.3	Vb
12	1.30908	29.3	23.5	10.0	39.3	33.5	56.0	46.0	16.7	12.5	Vb

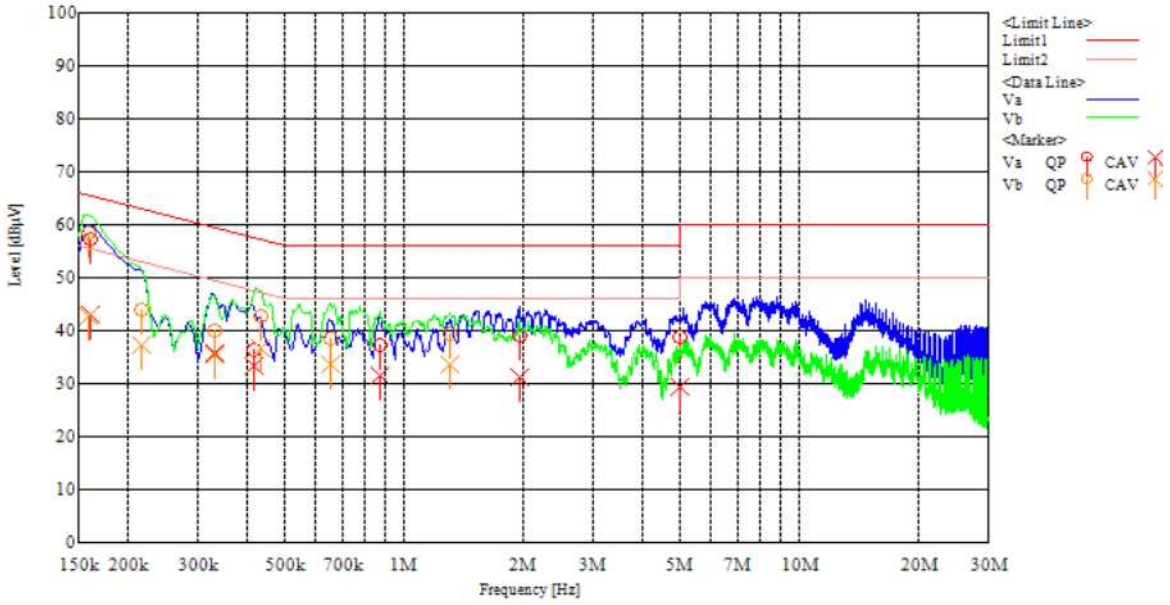
The Correction Factors and RESULT are calculated as followings.
Examples: 0.16024MHz (QP): Reading (48.3dBuV) + C.F (10.2dB) = Result (58.5dBuV)
C.F = Cable Loss (dB) + LISN Factor (dB)

Graphical Data
(1m MHL cable connected)



Limit 1: QP
Limit 2: AV

(3m MHL cable connected)



Limit 1: QP
Limit 2: AV

Test Equipment Used

RFT ID No.	Kind of Equipment and Precision	Manufacturer	Model No.	Serial Number	Calibration Date	Calibrated until
LN17	LISN	Kyoritsu	TNW-407F2	12-15-53	2016/3/17	2017/3/31
CL72	RF Cable for CE	RFT	-	-	2016/5/14	2017/5/31
TR10	Test Receiver (F/W : 2.26)	Rohde & Schwarz	ESR26	101313	2016/1/16	2017/1/31
SW19	EMI measurement software	SGSRFT	EMI (Ver. 3.6)	-	-	-

Final Result

The EUT met the requirements of the standard for this test

2.2 *Radiated Emissions*

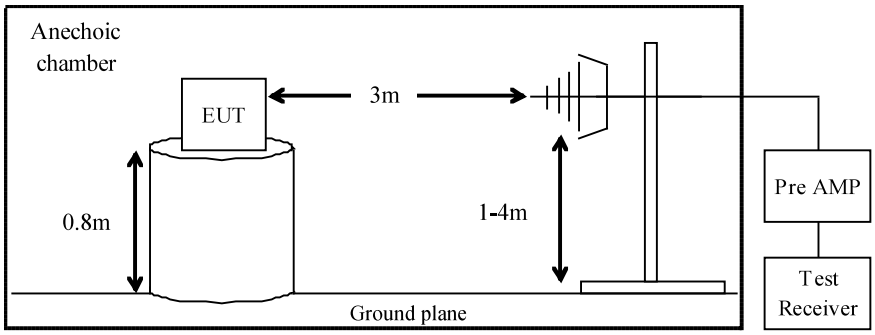
Reference Standard
Part15.109

Test Conditions
Date:	May 26, 2016
Ambient Temperature:	20 deg. C
Relative humidity:	69 %
Atmosphere:	1008 hPa

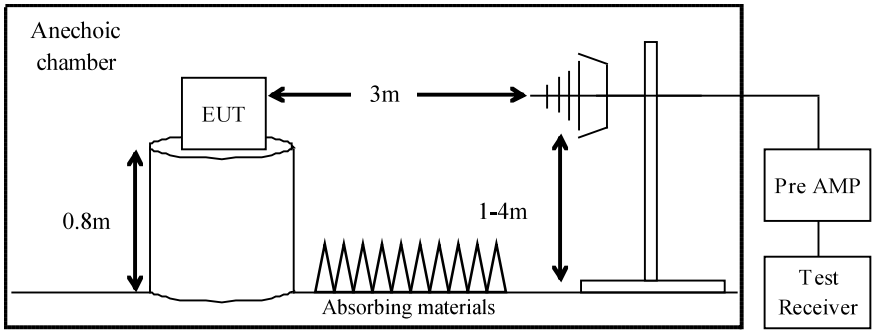
Test Method (30-1000MHz)
a) The EUT was running.
b) Radiated spurious emission is received by receive antenna.
c) Turn table is rotated 360deg.
d) Maximum level of each spurious is measured by test receiver.
e) RBW of test receiver is set to 120kHz for 30 - 1000MHz.
f) Level is measured with QP detect for 30 - 1000MHz.

Test Method (1-11.25GHz)
a) The EUT was running.
b) Radiated spurious emission is received by receive antenna.
c) Turn table is rotated 360deg.
d) Maximum level of each spurious is measured by test receiver.
e) RBW of test receiver is set to 1MHz for 1-11.25 GHz.
f) Level is measured with PK detect and AV detect for above 1GHz

Test Setup



30-1000MHz



1-11.25GHz

Limit
(Class B personal computers and peripherals)

Frequency [MHz]	Distance [m]	Field strength [dBµV/m] (QP)
30 - 88	3	40.0
88 - 216	3	43.5
216 - 960	3	46.0
above 960	3	53.9

Frequency [GHz]	Distance [m]	Field strength [dBµV/m] (AV)	Field strength [dBµV/m] (PK)
1 – 11.25	3	53.9	73.9

Test Results (30-1000MHz) (1m MHL cable connected)

No.	Frequency [MHz]	Reading [dBµV]	Antenna factor [dB/m]	Cable Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant. polarization
1	628.903	35.0	19.3	9.0	30.2	33.1	46.0	12.9	Hori.
2	816.751	38.3	20.7	9.2	30.0	38.2	46.0	7.8	Hori.
3	965.251	33.1	22.1	9.5	28.7	36.0	53.9	17.9	Hori.
4	**37.865**	**44.2**	**15.5**	**6.4**	**30.4**	**35.7**	**40.0**	**4.3**	**Vert.**
5	56.797	47.0	9.0	6.5	30.3	32.2	40.0	7.8	Vert.
6	74.250	47.0	6.2	6.6	30.3	29.5	40.0	10.5	Vert.
7	117.182	47.6	12.7	6.9	30.2	37.0	43.5	6.5	Vert.

Calculation method

Examples: 37.865 MHz: Reading (44.2dBuV) + Antenna Factor (15.5dB/m) + Cable loss (6.4dB) – Gain (30.4 dB) = Result (35.7 dBuV/m)

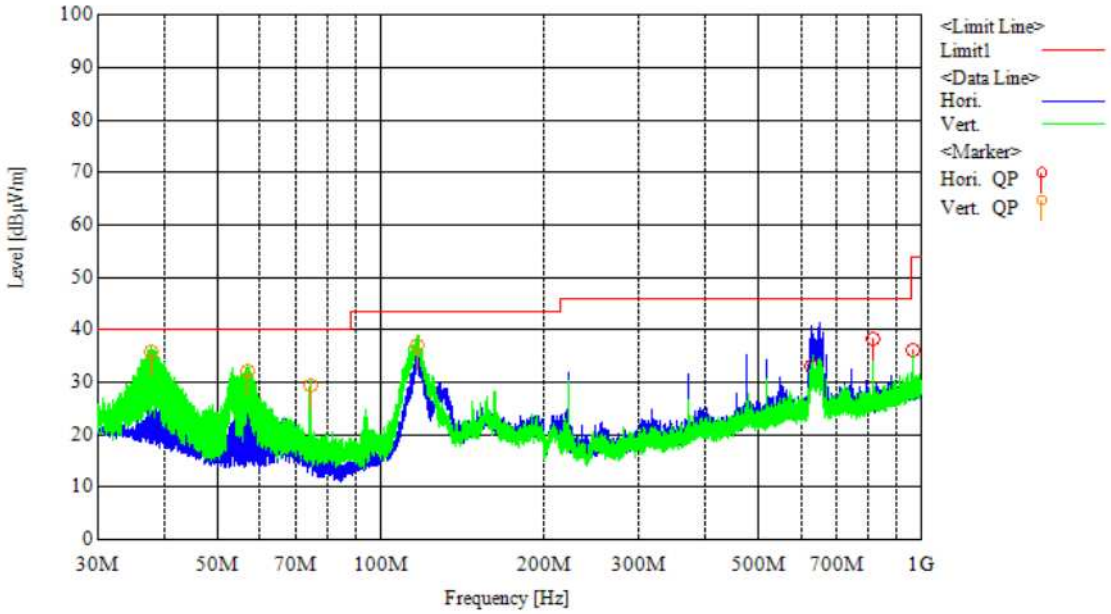
Test Results (30-1000MHz) (3m MHL cable connected)

No.	Frequency [MHz]	Reading [dBµV]	Antenna factor [dB/m]	Cable Loss [dB]	Gain [dB]	Result [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Ant. polarization
1	650.675	36.1	19.4	9.0	30.3	34.2	46.0	11.8	Hori.
2	816.751	40.4	20.7	9.2	30.0	40.3	46.0	5.7	Hori.
3	965.251	39.5	22.1	9.5	28.7	42.4	53.9	11.5	Hori.
4	33.959	41.0	17.0	6.3	30.4	33.9	40.0	6.1	Vert.
5	56.816	46.6	8.9	6.5	30.3	31.7	40.0	8.3	Vert.
6	**74.250**	**52.1**	**6.2**	**6.6**	**30.3**	**34.6**	**40.0**	**5.4**	**Vert.**
7	112.969	44.1	12.2	6.9	30.2	33.0	43.5	10.5	Vert.

Calculation method

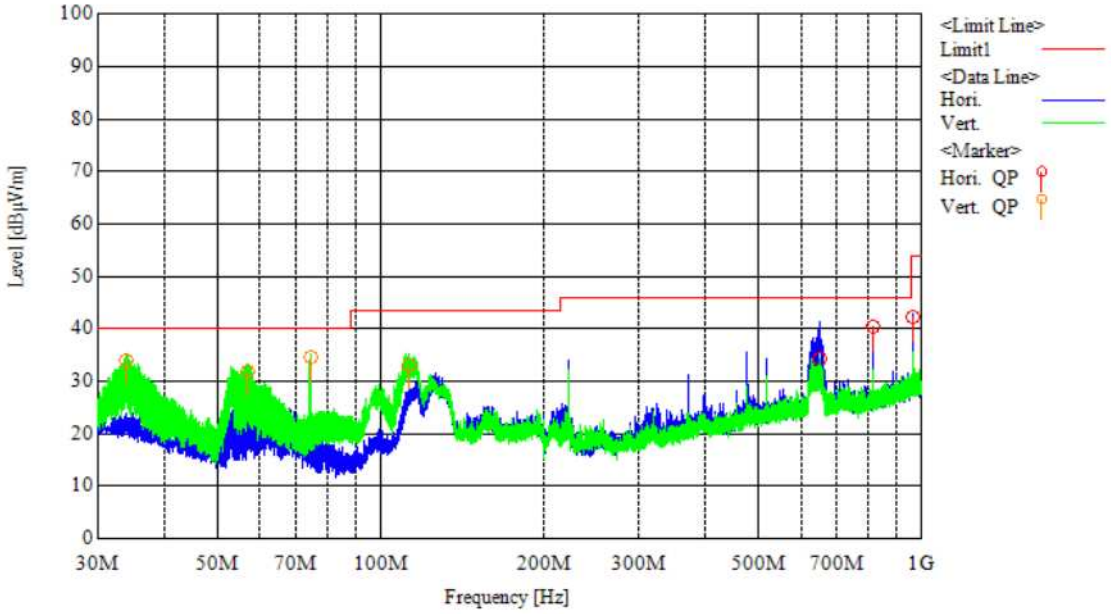
Examples: 74.250 MHz: Reading (52.1dBuV) + Antenna Factor (6.2dB/m) + Cable loss (6.6dB) – Gain (30.3 dB) = Result (34.6 dBuV/m)

Test chart (30-1000MHz)
(1m MHL cable connected)



Limit 1 = QP

(3m MHL cable connected)



Limit 1 = QP

Test Results
(1-11.25 GHz) (1m MHL cable connected)

No.	Frequency [MHz]	QP Reading [dBµV]	AV Reading [dBµV]	C.Factor [dB/m]	QP Result [dBµV/m]	AV Result [dBµV/m]	QP Limit [dBµV/m]	AV Limit [dBµV/m]	QP Margin [dB]	AV Margin [dB]	Ant.
1	2227.502	55.3	47.7	-2.4	52.9	45.3	73.9	53.9	21.0	8.6	Hori.
2	2885.626	56.7	39.3	0.0	56.7	39.3	73.9	53.9	17.2	14.6	Hori.
3	4455.004	52.2	42.0	4.0	56.2	46.0	73.9	53.9	17.7	7.9	Hori.
4	1188.001	52.4	37.4	-6.8	45.6	30.6	73.9	53.9	28.3	23.3	Vert.
5	2227.502	56.3	49.1	-2.4	53.9	46.7	73.9	53.9	20.0	7.2	Vert.
6	**4455.003**	**54.1**	**43.7**	**4.0**	**58.1**	**47.7**	**73.9**	**53.9**	**15.8**	**6.2**	**Vert.**

Calculation method

Examples: 4455.003 MHz (AV): Reading (43.7dBuV) + C.Factor (4.0dB/m) = Result (47.7 dBuV/m)

C.Factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Gain (dB)

(1-11.25 GHz) (3m MHL cable connected)

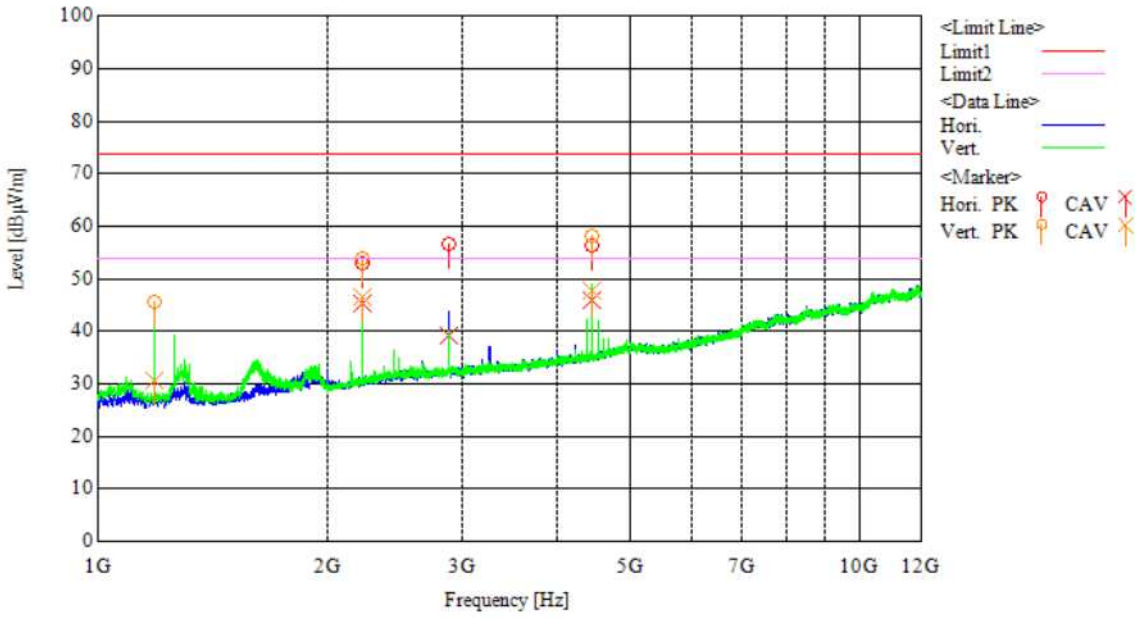
No.	Frequency [MHz]	QP Reading [dBµV]	AV Reading [dBµV]	C.Factor [dB/m]	QP Result [dBµV/m]	AV Result [dBµV/m]	QP Limit [dBµV/m]	AV Limit [dBµV/m]	QP Margin [dB]	AV Margin [dB]	Ant.
1	1039.508	49.5	35.0	-7.1	42.4	27.9	73.9	53.9	31.5	26.0	Hori.
2	2227.494	55.6	48.4	-2.4	53.2	46.0	73.9	53.9	20.7	7.9	Hori.
3	2884.716	56.8	38.5	0.0	56.8	38.5	73.9	53.9	17.1	15.4	Hori.
4	**2227.502**	**56.6**	**48.8**	**-2.4**	**54.2**	**46.4**	**73.9**	**53.9**	**19.7**	**7.5**	**Vert.**
5	2450.251	49.3	38.2	-1.2	48.1	37.0	73.9	53.9	25.8	16.9	Vert.
6	2891.450	56.7	39.5	0.0	56.7	39.5	73.9	53.9	17.2	14.4	Vert.

Calculation method

Examples: 2227.502 MHz (AV): Reading (48.8dBuV) + C.Factor (-2.4dB/m) = Result (46.4 dBuV/m)

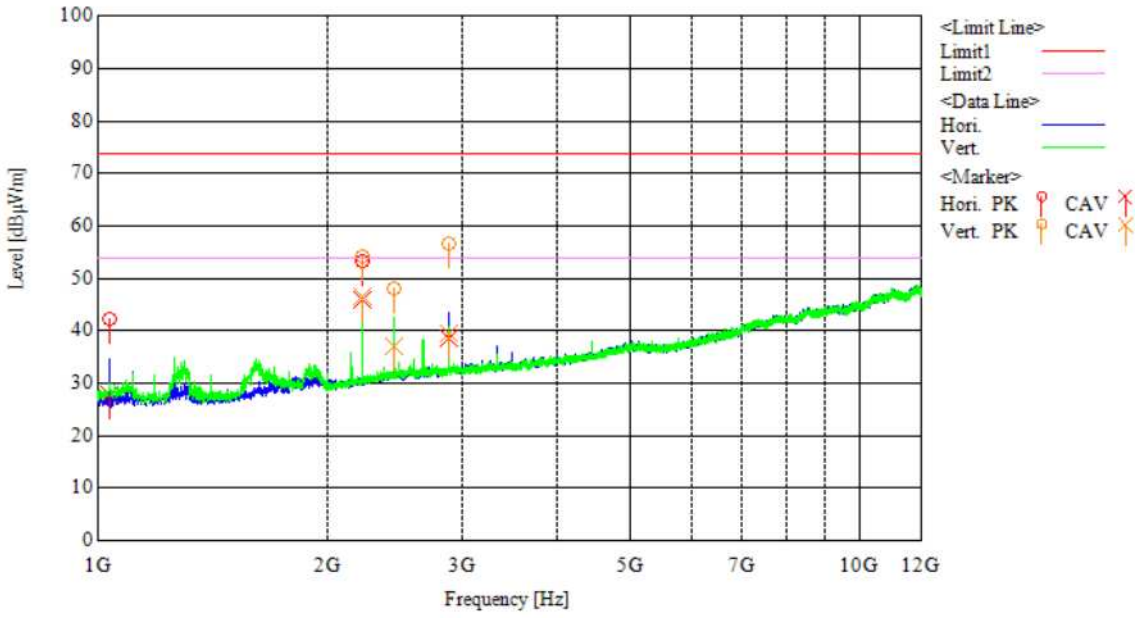
C.Factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Gain (dB)

Test chart (1-11.25 GHz)
(1m MHL cable connected)



Limit 1 = QP
Limit 2 = AV

(3m MHL cable connected)



Limit 1 = QP
Limit 2 = AV

Test Equipment Used

RFT ID No.	Kind of Equipment and Precision	Manufacturer	Model No.	Serial Number	Calibration Date	Calibrated until
AC11(EM)	Anechoic Chamber	TDK	-	-	2015/8/13	2016/8/31
AC11(EG)	Anechoic Chamber	TDK	-	-	2015/8/14	2016/8/31
BI01	Biconical Antenna	SCHWARZBECK	VHA9103 & BBA9106	2359	2016/3/23	2017/3/31
LA05	Logperiodic Antenna	SCHWARZBECK	VUSLP9111B	070	2016/3/22	2017/3/31
DH07	DRG Horn Antenna	A.H. Systems	SAS-571	1939	2015/2/9	2017/2/28
CL71	RF Cable for RE	RFT	-	-	2016/1/27	2017/1/31
CL35	RF Cable 2 m	Junkosha	MWX221	1502S020	2016/1/18	2017/1/31
CL36	RF Cable 2 m	Junkosha	MWX221	1502S021	2016/1/18	2017/1/31
CL37	RF Cable 8 m	Junkosha	MWX221	J12J102239-00	2016/3/4	2017/3/31
PR16	Pre. Amplifier (1-26G)	Agilent Technologies	8449B	3008A01538	2016/1/18	2017/1/31
PR21	Pre. Amplifier	Anritsu	MH648A	6200467119	2015/12/18	2016/12/31
TR10	Test Receiver (F/W : 2.26)	Rohde & Schwarz	ESR26	101313	2016/1/16	2017/1/31
SW19	EMI measurement software	RFT	EMI (Ver. 3.6)	-	-	-

Final Result

The EUT met the requirements of the standard for this test.