

STC Test Report

Date : 2015-08-06
No. : HM169934

Page 1 of 33

Applicant: Gatekeeper System (HK) Ltd.
Unit 2305, Level 23, Tower 2, Metroplaza, No. 223 Hing Fong
Road, Kwai Fong, N.T., Hong Kong

Manufacturer: Gatekeeper System (HK) Ltd.
Unit 2305, Level 23, Tower 2, Metroplaza, No. 223 Hing Fong
Road, Kwai Fong, N.T., Hong Kong

Description of Sample(s):

Product:	PermissionManager
Brand Name:	Gatekeeper Systems
Model Number:	D-9670
FCC ID:	W3Z-D9670

Date Sample(s) Received: 2015-07-08

Date Tested: 2015-07-31 to 2015-11-06

Investigation Requested: Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2014 and ANSI C63.10:2013 for FCC Certification.

Conclusion(s): The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remark(s): ---


Dr. LEE Kam Chuen
Authorized Signatory
ElectroMagnetic Compatibility Department
For and on behalf of
The Hong Kong Standards and Testing Centre Ltd.

The Hong Kong Standards and Testing Centre Limited
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STC Test Report

Date : 2015-08-06
No. : HM169934

Page 2 of 33

CONTENT:

Cover	Page 1 of 33
Content	Page 2 of 33

1.0 General Details

1.1 Equipment Under Test [EUT] Description of EUT operation	Page 3 of 33
1.2 Description of EUT Operation	
1.3 Date of Order	Page 3 of 33
1.4 Submitted Sample	Page 3 of 33
1.5 Test Duration	Page 3 of 33
1.6 Country of Origin	Page 3 of 33

2.0 Technical Details

2.1 Investigations Requested	Page 4 of 33
2.2 Test Standards and Results Summary	Page 4 of 33

3.0 Test Results

3.1 Emission	Page 5-29 of 33
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Appendix A

List of Measurement Equipment	Page 30 of 33
-------------------------------	---------------

Appendix B

Photographs	Page 31-33 of 33
-------------	------------------

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STC Test Report

Date : 2015-08-06
No. : HM169934

Page 3 of 33

1.0 General Details

1.1 Equipment Under Test [EUT] Description of Sample(s)

Product: PermissionManager
Manufacturer: Gatekeeper System (HK) Ltd.
Unit 2305, Level 23, Tower 2, Metroplaza, No. 223 Hing Fong Road,
Kwai Fong, N.T., Hong Kong
Brand Name: Gatekeeper Systems
Model Number: D-9670
Rating: 3.3Vd.c. (Powered by DC power supply at connector block pin 1)
The AC/DC Adaptor used for the tests was a "Winstar" adaptor: Two pins
(Live / Neutral) only adaptor, Model Number: NA-12, Input: 100-120/220-
240Va.c., Output: 3-15Vd.c. 1200mA max.

1.2 Description of EUT Operation

The Equipment Under Test (EUT) is a PermissionManager of Gatekeeper System (HK) Ltd., it is two 2.4GHz transceivers and it is used to send commands to and receive data from the Gatekeeper Systems wheels, The RF signal was modulated by IC.
The Announce mode transmissions were modulated with 500K MSK (Minimum Shift Keying), the Data mode transmissions (data request and data acknowledge) were modulated with 500K MSK (Minimum Shift Keying) while data received from the wheel was modulated with 20K FSK (Frequency Shift Keying).
Antenna 1 (The announce radio) and Antenna 2 (The data radio) will not send out the announce radio commands with the same channel at the same time.

1.3 Date of Order

2015-07-08

1.4 Submitted Sample(s):

1 Sample

1.5 Test Duration

2015-07-31 to 2015-11-06

1.6 Country of Origin

China

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STC Test Report

Date : 2015-08-06
No. : HM169934

Page 4 of 33

2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2014 Regulations and ANSI C63.10:2013 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary				
Test Condition	Test Requirement	Test Method	Class / Severity	
			Pass	Fail
Field Strength of Fundamental & Harmonics Emissions	FCC 47CFR 15.249	ANSI C63.10:2013	N/A	<input checked="" type="checkbox"/> <input type="checkbox"/>
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.10:2013	N/A	<input checked="" type="checkbox"/> <input type="checkbox"/>
Conducted Emissions	FCC 47CFR 15.207	ANSI C63.10:2013	N/A	<input checked="" type="checkbox"/> <input type="checkbox"/>

Note: N/A - Not Applicable

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STC Test Report

Date : 2015-08-06
No. : HM169934

Page 5 of 33

3.0 Test Results

3.1 Emission

3.1.1 Field Strength of Fundamental & Harmonics Emissions

Test Requirement: FCC 47CFR 15.249
Test Method: ANSI C63.10:2013
Test Date: 2015-07-31
Mode of Operation: On Mode

Test Method:

The sample was placed 0.8m above the ground plane on a standard radiated emission test site. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. In the frequency range of 9kHz to 30MHz, The center of the loop antenna shall be 1 meter above the ground and rotated loop axis for maximum reading. The emissions worst-case are shown in Test Results of the following pages.

Remark: 3 orthogonal axis apply to hand-held device only.

*: Semi-anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

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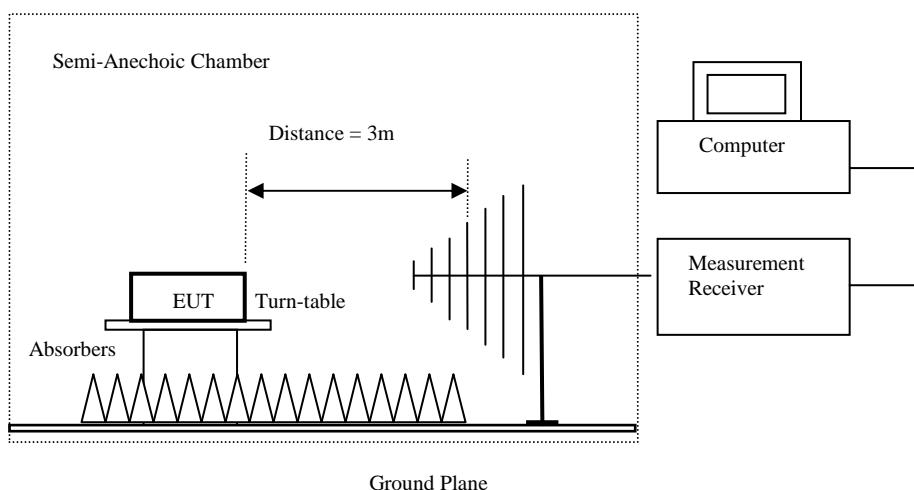
No. : HM169934

Page 6 of 33

Spectrum Analyzer Setting:

9KHz – 30MHz (Pk & Av)	RBW: 10kHz VBW: 30kHz Sweep: Auto Span: Fully capture the emissions being measured Trace: Max. hold
30MHz – 1GHz (QP)	RBW: 120kHz VBW: 120kHz Sweep: Auto Span: Fully capture the emissions being measured Trace: Max. hold
Above 1GHz (Pk & Av)	RBW: 3MHz VBW: 3MHz Sweep: Auto Span: Fully capture the emissions being measured Trace: Max. hold

Test Setup:



Absorbers placed on top of the ground plane are for measurements above 1000MHz only.

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STC Test Report

Date : 2015-08-06

No. : HM169934

Page 7 of 33

Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Fundamental frequency [MHz]	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

Result of On mode (Antenna 1 - Channel 7), (Above 1GHz): Pass

Field Strength of Fundamental and Harmonics Emissions						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2403.2	56.6	29.7	86.3	20,653.8	500,000	Horizontal
* 4806.9	13.2	32.1	45.3	184.1	5,000	Horizontal
7209.7	5.3	34.8	40.1	101.2	5,000	Horizontal
9612.8					5,000	Horizontal
* 12016.0					5,000	Horizontal
14419.2					5,000	Horizontal
16822.4					5,000	Horizontal
* 19225.6					5,000	Horizontal
21628.8					5,000	Horizontal
24032.0					5,000	Horizontal

Emissions detected are more than
20 dB below the FCC Limits

Field Strength of Fundamental and Harmonics Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2403.2	42.4	29.7	72.1	4,027.2	50,000	Horizontal
* 4806.9	-2.0	32.1	30.1	32.0	500	Horizontal
7209.7	0.8	34.8	35.6	60.3	500	Horizontal
9612.8					500	Horizontal
* 12016.0					500	Horizontal
14419.2					500	Horizontal
16822.4					500	Horizontal
* 19225.6					500	Horizontal
21628.8					500	Horizontal
24032.0					500	Horizontal

Emissions detected are more than
20 dB below the FCC Limits

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STC Test Report

Date : 2015-08-06

No. : HM169934

Page 8 of 33

Result of On mode (Antenna 1 - Channel 128), (Above 1GHz): Pass

Field Strength of Fundamental and Harmonics Emissions						
Peak Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dB μ V/m	dB μ V/m	dB μ V/m	μ V/m	μ V/m	
2441.2	56.6	29.7	86.3	20,653.8	500,000	Horizontal
* 4882.5	0.9	32.4	33.3	46.2	5,000	Horizontal
* 7323.7	7.0	35.1	42.1	127.4	5,000	Horizontal
9764.9					5,000	Horizontal
* 12206.1					5,000	Horizontal
14647.3					5,000	Horizontal
17088.5					5,000	Horizontal
* 19529.8					5,000	Horizontal
21971.0					5,000	Horizontal
24412.2					5,000	Horizontal

Emissions detected are more than
20 dB below the FCC Limits

Field Strength of Fundamental and Harmonics Emissions						
Average Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dB μ V/m	dB μ V/m	dB μ V/m	μ V/m	μ V/m	
2441.2	39.4	29.7	69.1	2,851.0	50,000	Horizontal
* 4882.5	-0.2	32.4	32.2	40.7	500	Horizontal
* 7323.7	-0.2	35.1	34.9	55.6	500	Horizontal
9764.9					500	Horizontal
* 12206.1					500	Horizontal
14647.3					500	Horizontal
17088.5					500	Horizontal
* 19529.8					500	Horizontal
21971.0					500	Horizontal
24412.2					500	Horizontal

Emissions detected are more than
20 dB below the FCC Limits

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STC Test Report

Date : 2015-08-06

No. : HM169934

Page 9 of 33

Result of On mode (Antenna 1 - Channel 239), (Above 1GHz): Pass

Field Strength of Fundamental and Harmonics Emissions						
Peak Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dB μ V/m	dB μ V/m	dB μ V/m	μ V/m	μ V/m	
2476.1	57.4	29.7	87.1	22,646.4	500,000	Horizontal
* 4952.8	14.1	32.5	46.6	213.8	5,000	Horizontal
* 7429.1	6.2	35.5	41.7	121.6	5,000	Horizontal
9904.4					5,000	Horizontal
* 12380.5					5,000	Horizontal
14856.5					5,000	Horizontal
17332.6					5,000	Horizontal
* 19808.7					5,000	Horizontal
22284.8					5,000	Horizontal
24760.9					5,000	Horizontal

Emissions detected are more than
20 dB below the FCC Limits

Field Strength of Fundamental and Harmonics Emissions						
Average Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dB μ V/m	dB μ V/m	dB μ V/m	μ V/m	μ V/m	
2476.1	43.6	29.7	73.3	4,623.8	50,000	Horizontal
* 4952.8	0.4	32.5	32.9	44.2	500	Horizontal
* 7429.1	-2.4	35.5	33.1	45.2	500	Horizontal
9904.4					500	Horizontal
* 12380.5					500	Horizontal
14856.5					500	Horizontal
17332.6					500	Horizontal
* 19808.7					500	Horizontal
22284.8					500	Horizontal
24760.9					500	Horizontal

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STC Test Report

Date : 2015-08-06

No. : HM169934

Page 10 of 33

Result of On mode (Antenna 2 - Channel 7), (Above 1GHz): Pass

Field Strength of Fundamental and Harmonics Emissions						
Peak Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dB μ V/m	dB μ V/m	dB μ V/m	μ V/m	μ V/m	
2403.2	60.6	29.7	90.3	32,734.1	500,000	Horizontal
* 4806.1	18.2	32.1	50.3	327.3	5,000	Horizontal
7209.3	7.3	34.8	42.1	127.4	5,000	Horizontal
9612.8					5,000	Horizontal
* 12016.0					5,000	Horizontal
14419.2					5,000	Horizontal
16822.4					5,000	Horizontal
* 19225.6					5,000	Horizontal
21628.8					5,000	Horizontal
24032.0					5,000	Horizontal

Emissions detected are more than
20 dB below the FCC Limits

Field Strength of Fundamental and Harmonics Emissions						
Average Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dB μ V/m	dB μ V/m	dB μ V/m	μ V/m	μ V/m	
2403.2	43.2	29.7	72.9	4,415.7	50,000	Horizontal
* 4806.1	6.5	32.1	38.6	85.1	500	Horizontal
7209.3	-2.2	34.8	32.6	42.7	500	Horizontal
9612.8					500	Horizontal
* 12016.0					500	Horizontal
14419.2					500	Horizontal
16822.4					500	Horizontal
* 19225.6					500	Horizontal
21628.8					500	Horizontal
24032.0					500	Horizontal

Emissions detected are more than
20 dB below the FCC Limits

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STC Test Report

Date : 2015-08-06

No. : HM169934

Page 11 of 33

Result of On mode (Antenna 2 - Channel 128), (Above 1GHz): Pass

Field Strength of Fundamental and Harmonics Emissions						
Peak Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dB μ V/m	dB μ V/m	dB μ V/m	μ V/m	μ V/m	
2441.2	60.9	29.7	90.6	33,884.4	500,000	Horizontal
* 4882.5	19.8	32.4	52.2	407.4	5,000	Horizontal
* 7323.7	6.6	35.1	41.7	121.6	5,000	Horizontal
9764.9					5,000	Horizontal
* 12206.1					5,000	Horizontal
14647.3					5,000	Horizontal
17088.5					5,000	Horizontal
* 19529.8					5,000	Horizontal
21971.0					5,000	Horizontal
24412.2					5,000	Horizontal

Emissions detected are more than
20 dB below the FCC Limits

Field Strength of Fundamental and Harmonics Emissions						
Average Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dB μ V/m	dB μ V/m	dB μ V/m	μ V/m	μ V/m	
2441.2	43.0	29.7	72.7	4,315.2	50,000	Horizontal
* 4882.5	8.9	32.4	41.3	116.1	500	Horizontal
* 7323.7	-3.2	35.1	31.9	39.4	500	Horizontal
9764.9					500	Horizontal
* 12206.1					500	Horizontal
14647.3					500	Horizontal
17088.5					500	Horizontal
* 19529.8					500	Horizontal
21971.0					500	Horizontal
24412.2					500	Horizontal

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STC Test Report

Date : 2015-08-06

No. : HM169934

Page 12 of 33

Result of On mode (Antenna 2 - Channel 239), (Above 1GHz): Pass

Field Strength of Fundamental and Harmonics Emissions						
Peak Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dB μ V/m	dB μ V/m	dB μ V/m	μ V/m	μ V/m	
2476.1	60.4	29.7	90.1	31,989.0	500,000	Horizontal
* 4952.2	18.7	32.5	51.2	363.1	5,000	Horizontal
* 7428.3	6.6	35.5	42.1	127.4	5,000	Horizontal
9904.4					5,000	Horizontal
* 12380.5					5,000	Horizontal
14856.5					5,000	Horizontal
17332.6					5,000	Horizontal
* 19808.7					5,000	Horizontal
22284.8					5,000	Horizontal
24760.9					5,000	Horizontal

Emissions detected are more than
20 dB below the FCC Limits

Field Strength of Fundamental and Harmonics Emissions						
Average Value						
Frequency	Measured Level @3m	Correction Factor	Field Strength	Field Strength	Limit @3m	E-Field Polarity
MHz	dB μ V/m	dB μ V/m	dB μ V/m	μ V/m	μ V/m	
2476.1	43.4	29.7	73.1	4,518.6	50,000	Horizontal
* 4952.2	7.2	32.5	39.7	96.6	500	Horizontal
* 7428.3	-1.2	35.5	34.3	51.9	500	Horizontal
9904.4					500	Horizontal
* 12380.5					500	Horizontal
14856.5					500	Horizontal
17332.6					500	Horizontal
* 19808.7					500	Horizontal
22284.8					500	Horizontal
24760.9					500	Horizontal

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

*: Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Calculated measurement uncertainty	:	9kHz to 30MHz	2.4dB
		30MHz to 1GHz	4.9dB
		1GHz to 6GHz	4.02dB
		6GHz to 18GHz	4.03dB

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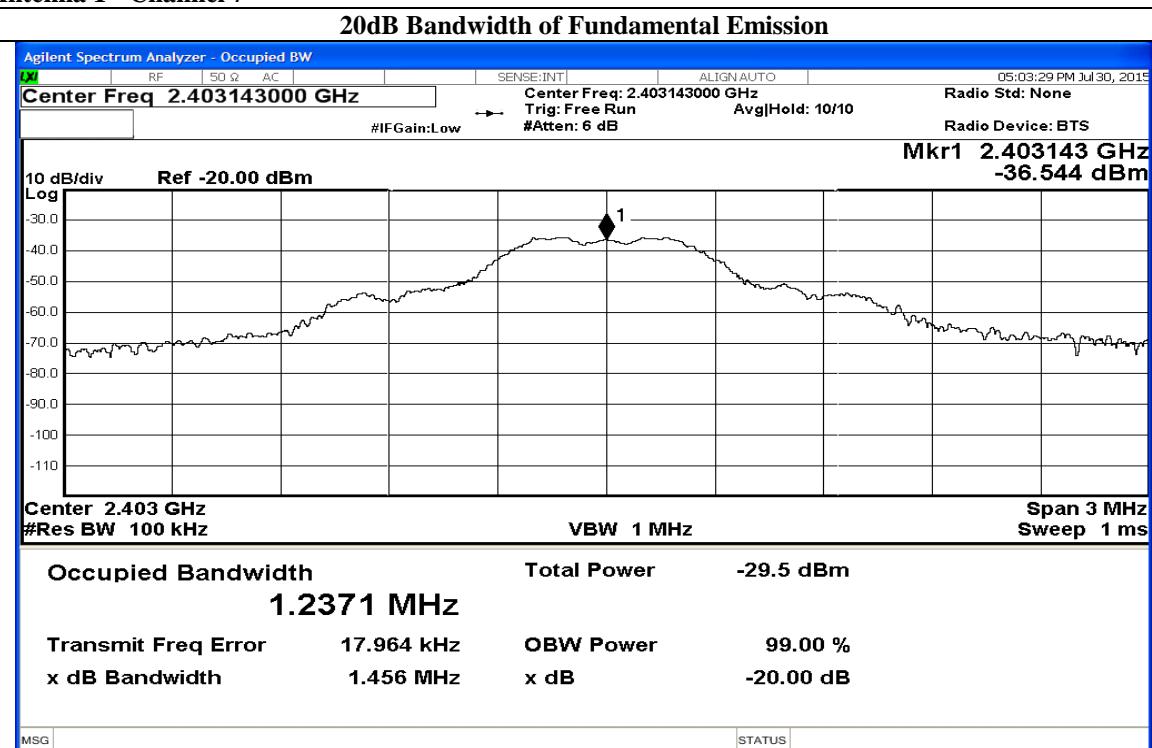
Date : 2015-08-06
No. : HM169934

Page 13 of 33

Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [MHz]
2403.2	1.456

Antenna 1 - Channel 7



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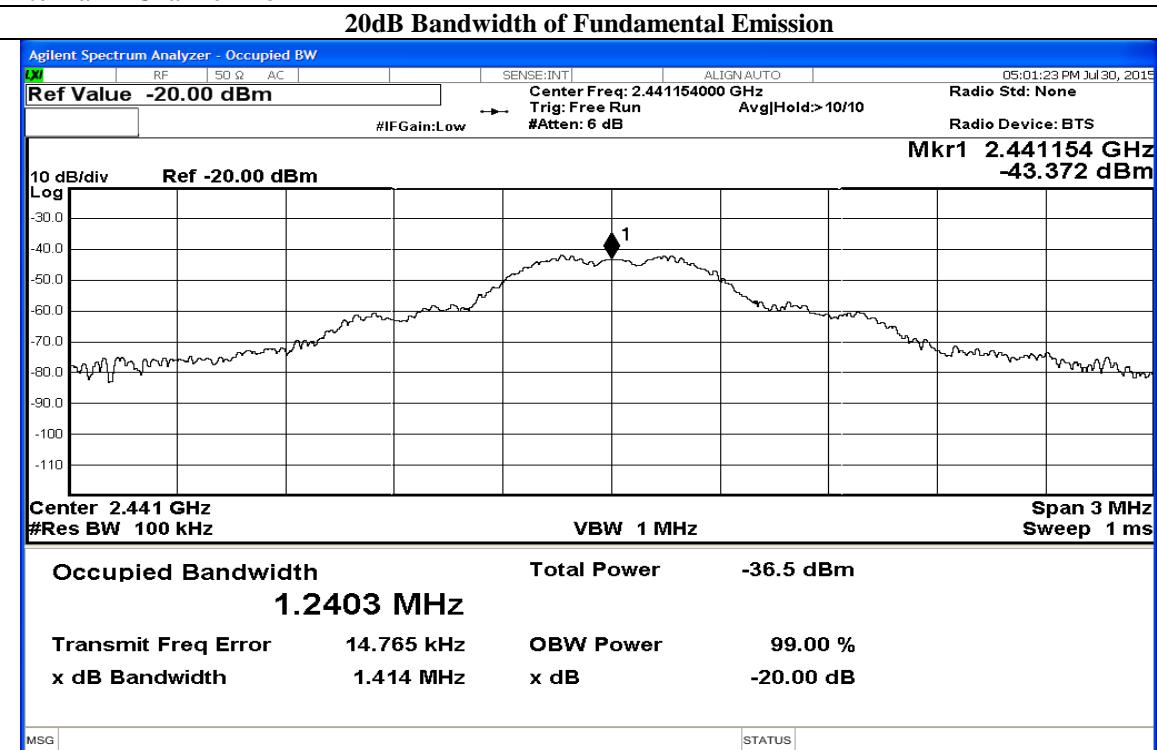
STC Test Report

Date : 2015-08-06
 No. : HM169934

Page 14 of 33

Frequency Range [MHz]	20dB Bandwidth [MHz]
2441.22	1.414

Antenna 1 - Channel 128



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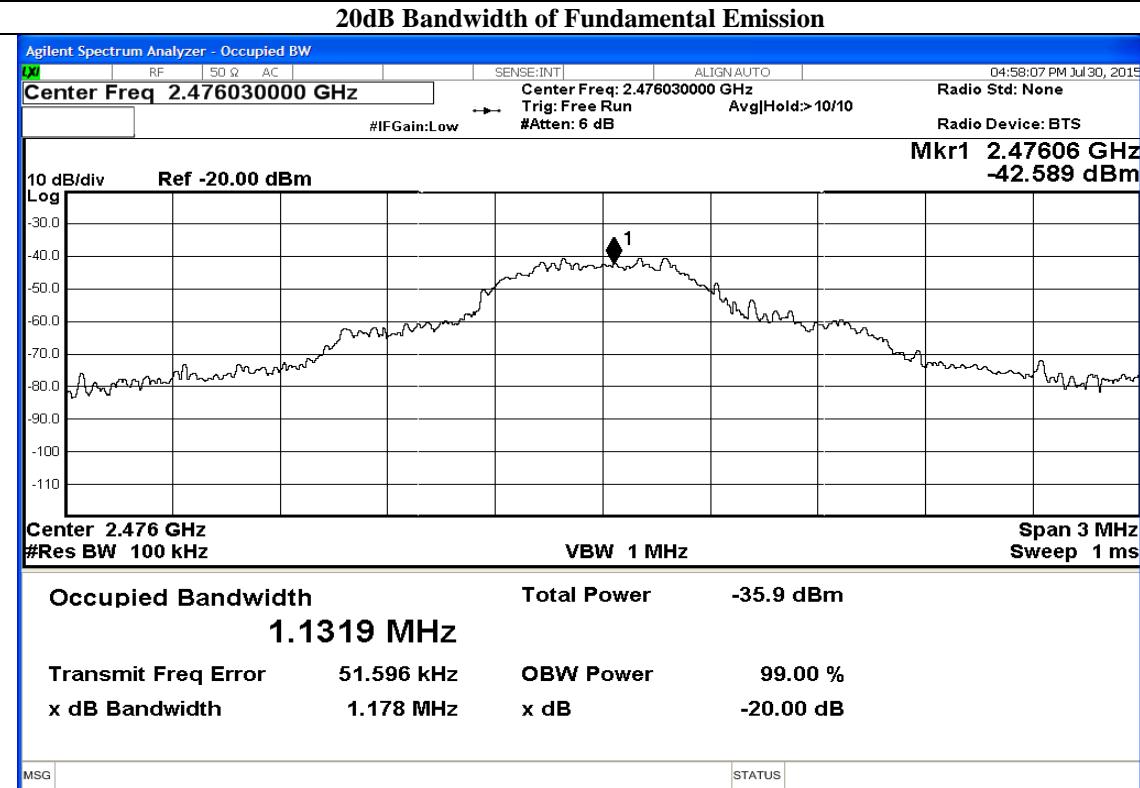
Date : 2015-08-06

No. : HM169934

Page 15 of 33

Frequency Range [MHz]	20dB Bandwidth [MHz]
2476.09	1.178

Antenna 1 - Channel 239



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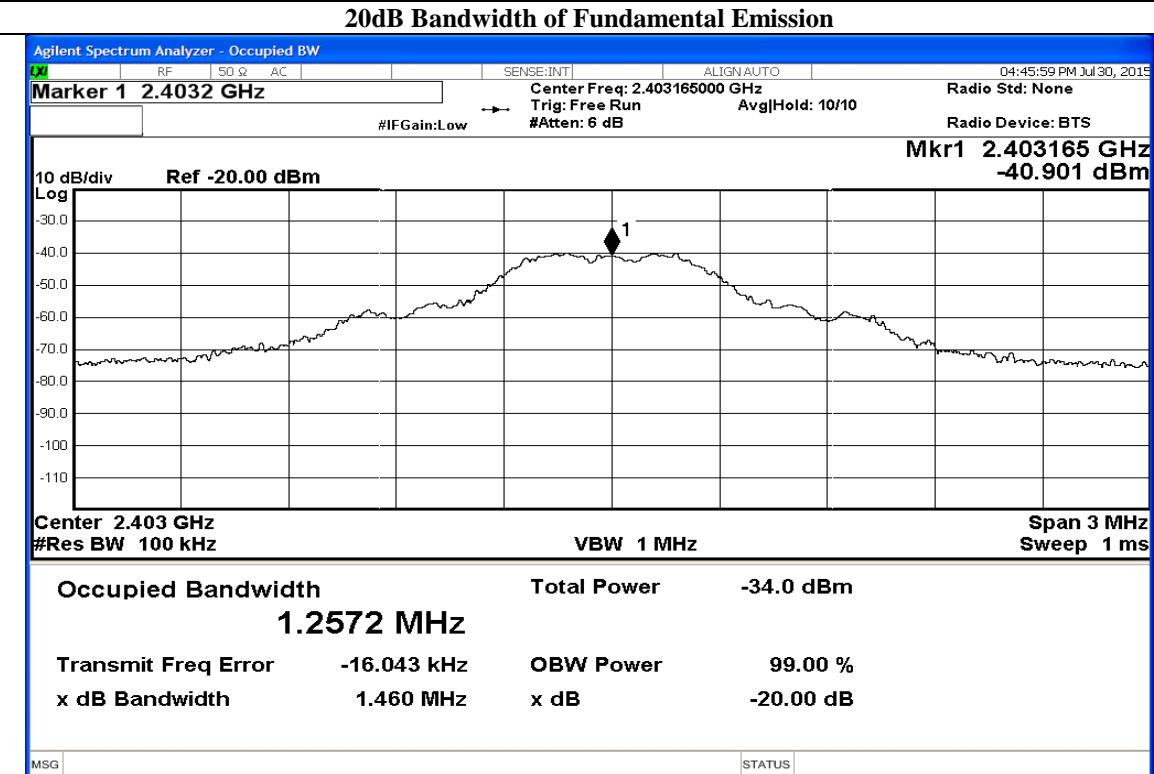
Date : 2015-08-06

No. : HM169934

Page 16 of 33

Frequency Range [MHz]	20dB Bandwidth [MHz]
2403.2	1.46

Antenna 2 - Channel 7



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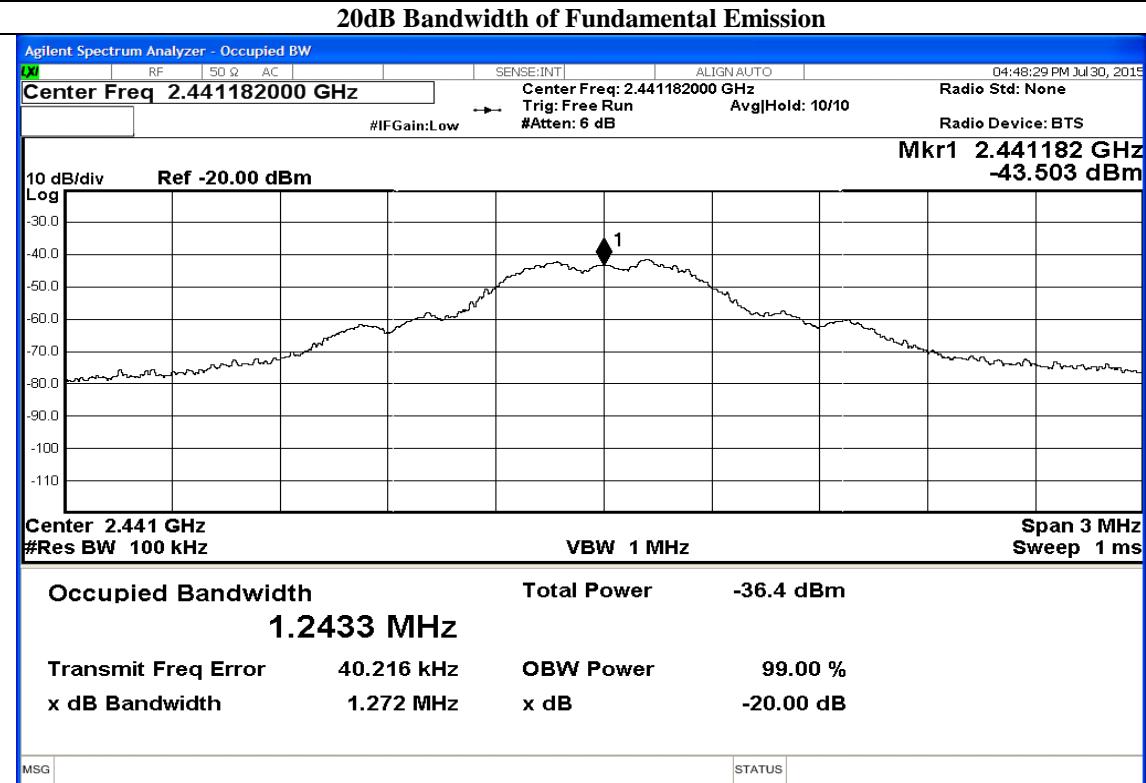
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No. : HM169934

Page 17 of 33

Frequency Range [MHz]	20dB Bandwidth [MHz]
2441.22	1.272

Antenna 2 - Channel 128



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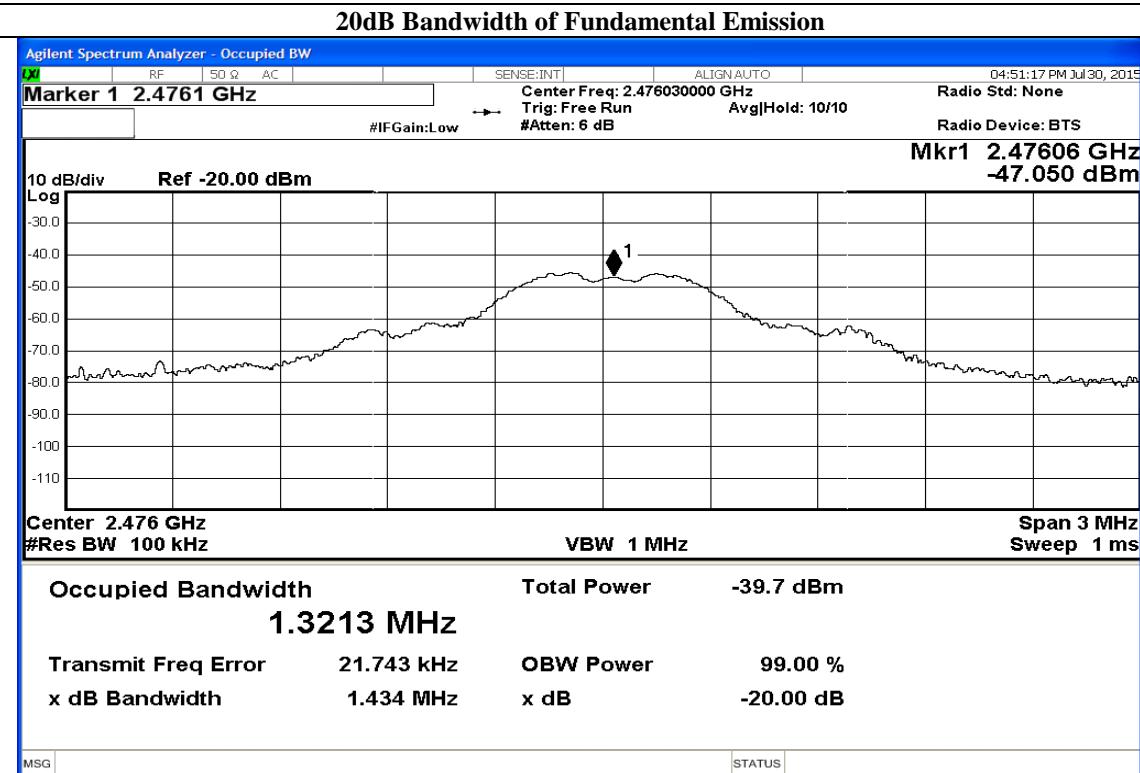
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No. : HM169934

Page 18 of 33

Frequency Range [MHz]	20dB Bandwidth [MHz]
2476.06	1.434

Antenna 2 - Channel 239



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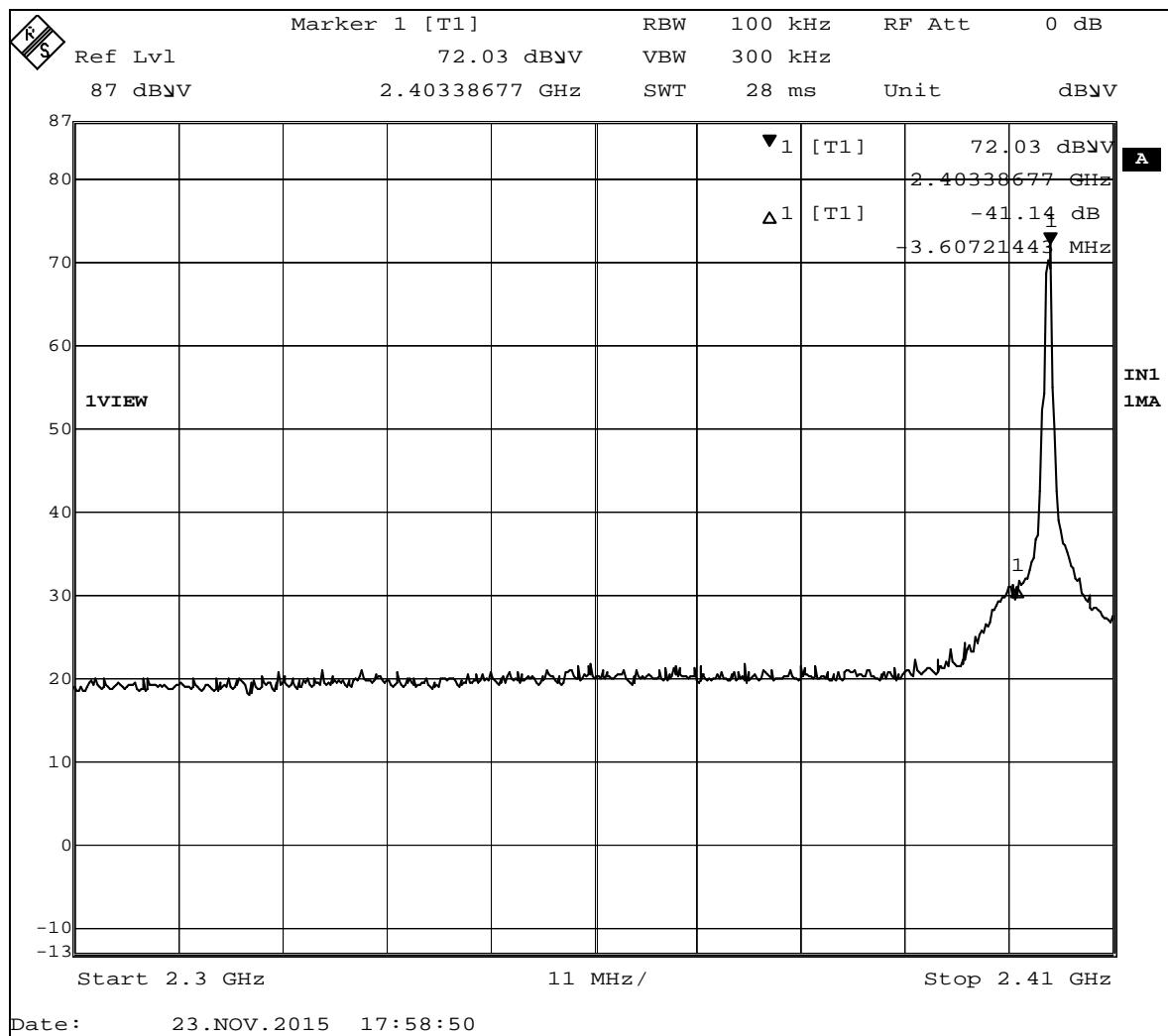
No. : HM169934

Page 19 of 33

Band Edge Measurement:

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
Antenna 1 – Lowest Fundamental	41.1

41.1dB Level Reduction at Lower Band Edge



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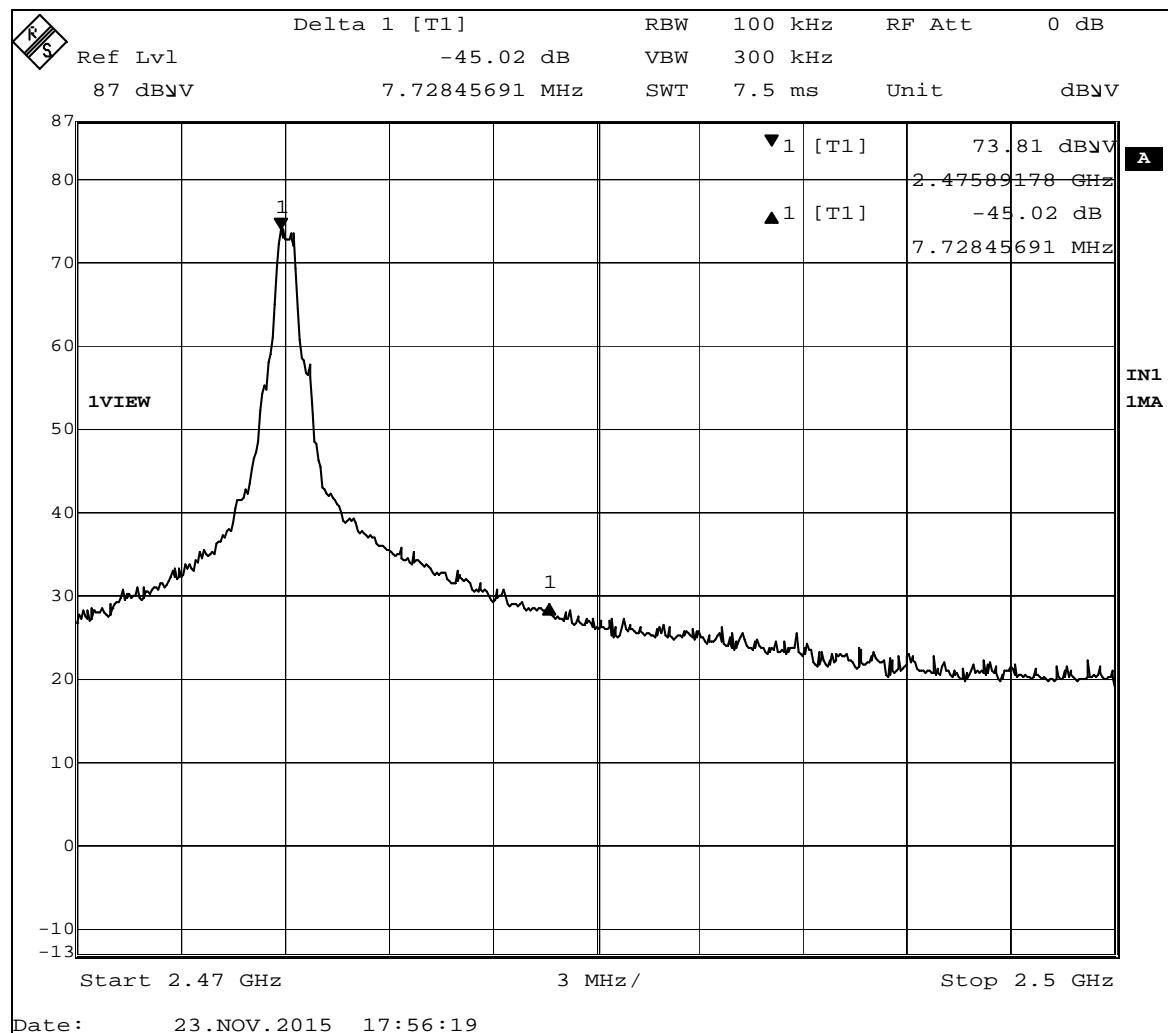
No. : HM169934

Page 20 of 33

Band Edge Measurement:

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
Antenna 1 – Highest Fundamental	45.0

45.0dB Level Reduction at Upper Band Edge



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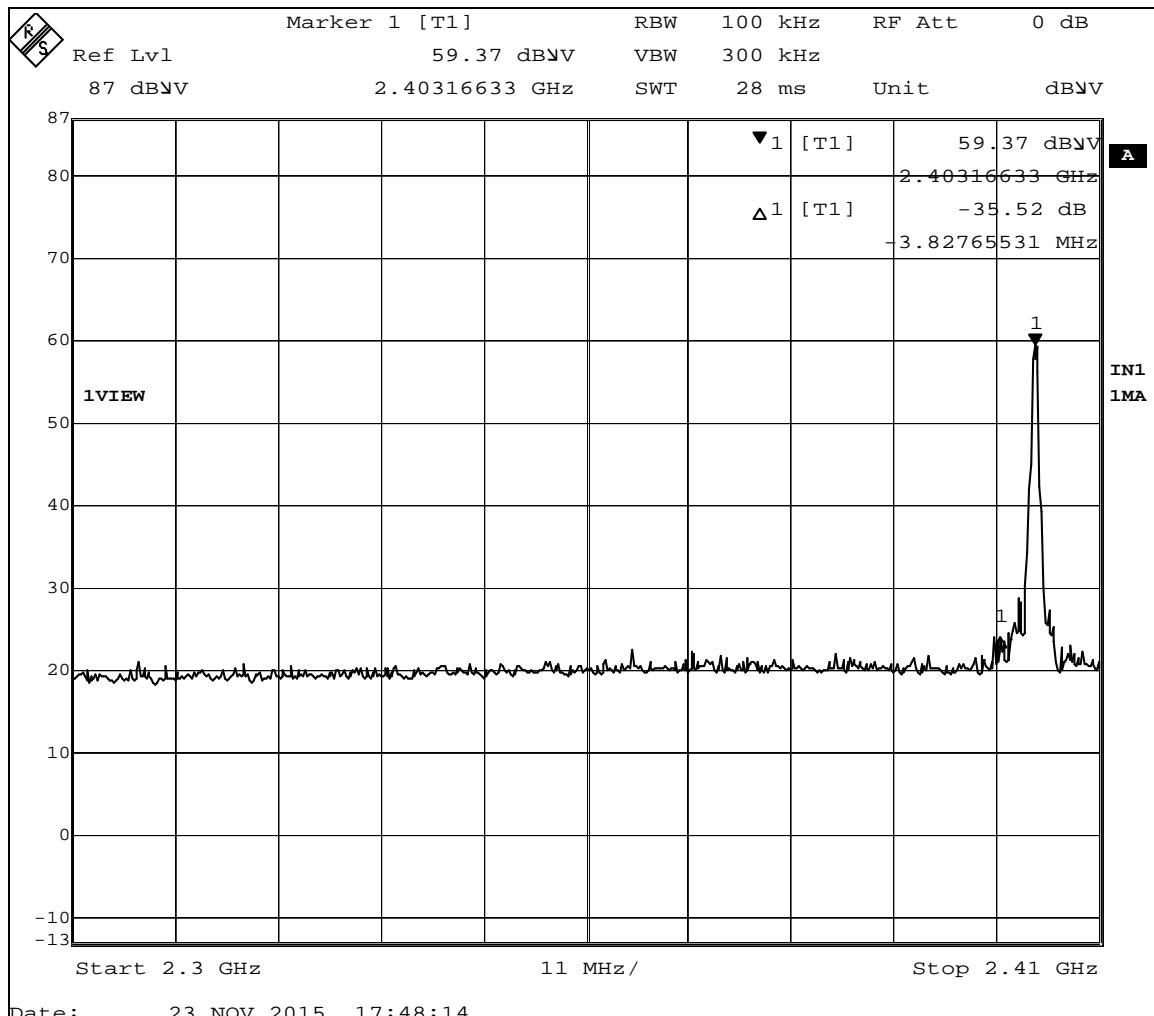
No. : HM169934

Page 21 of 33

Band Edge Measurement:

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
Antenna 2 – Lowest Fundamental	35.5

35.5dB Level Reduction at Lower Band Edge



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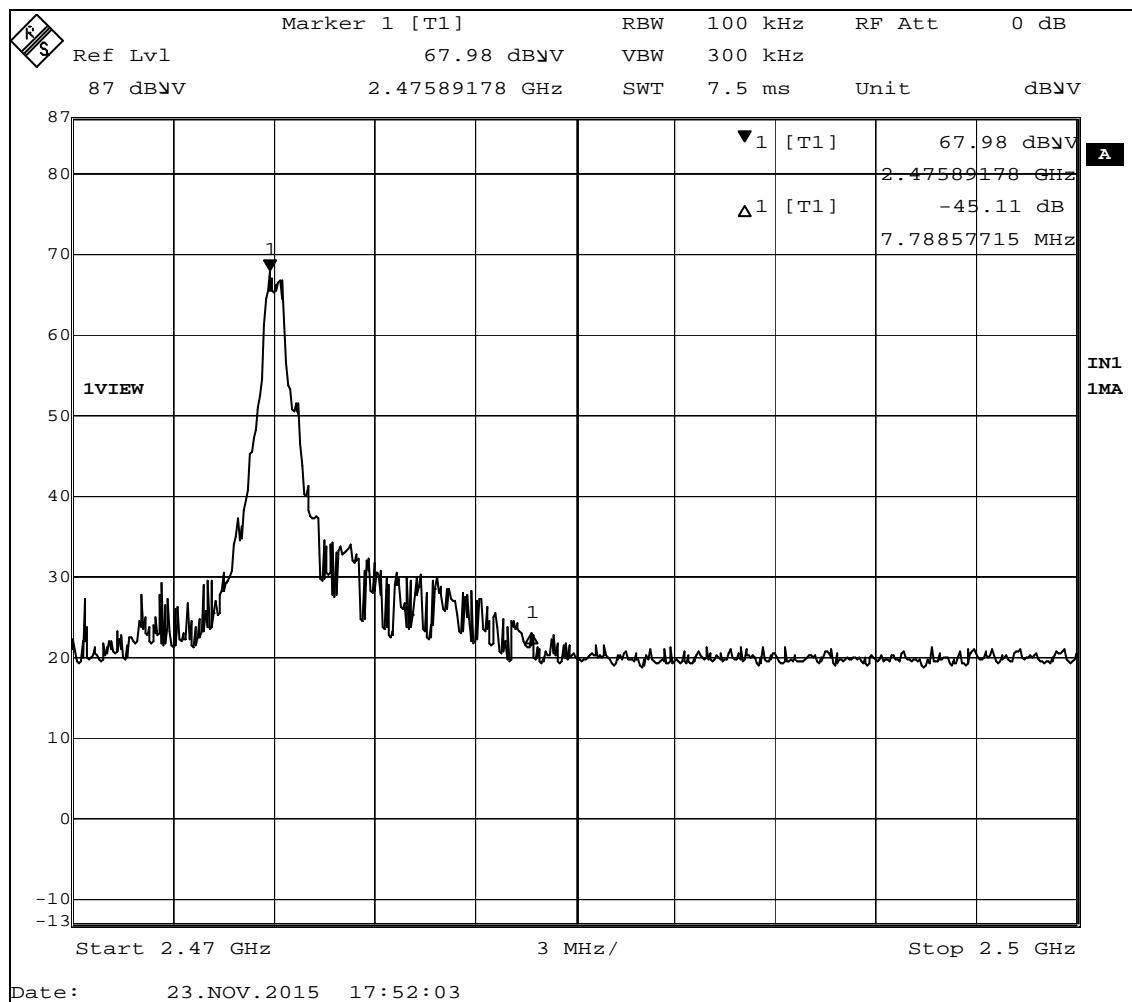
No. : HM169934

Page 22 of 33

Band Edge Measurement:

Frequency Range [MHz]	Radiated Emission Attenuated below the Fundamental [dB]
Antenna 2 – Highest Fundamental	45.1

45.1dB Level Reduction at Upper Band Edge



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Date : 2015-08-06

No. : HM169934

Page 23 of 33

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μ V/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Result of On mode (Antenna 1), (9kHz – 30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

Result of On mode (Antenna 1), (30MHz – 1GHz): PASS

Field Strength of Spurious Emissions Quasi-Peak						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
61.3	0.5	8.6	9.1	40.0	30.9	Horizontal
133.5	0.3	10.2	10.5	43.5	33.0	Horizontal
243.5	0.2	15.5	15.7	46.0	30.3	Horizontal
337.9	0.8	18.6	19.4	46.0	26.6	Horizontal
481.3	0.6	22.6	23.2	46.0	22.8	Horizontal
613.8	0.7	26.0	26.7	46.0	19.3	Horizontal

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No. : HM169934

Page 24 of 33

Result of On mode (Antenna 2), (9kHz – 30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

Result of On mode (Antenna 2), (30MHz – 1GHz): PASS

Field Strength of Spurious Emissions Quasi-Peak						
Frequency MHz	Measured Level @3m dB μ V	Correction Factor dB/m	Field Strength dB μ V/m	Limit @3m dB μ V/m	Margin dB μ V/m	E-Field Polarity
64.3	0.4	8.6	9.0	40.0	31.0	Horizontal
143.5	0.8	10.5	11.3	43.5	32.2	Horizontal
228.4	0.6	14.8	15.4	46.0	30.6	Horizontal
343.2	0.5	18.7	19.2	46.0	26.8	Horizontal
477.6	0.3	22.5	22.8	46.0	23.2	Horizontal
651.2	0.5	26.7	27.2	46.0	18.8	Horizontal

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty	:	30MHz to 1GHz	4.9dB
		1GHz to 6GHz	4.02dB
		6GHz to 18GHz	4.03dB

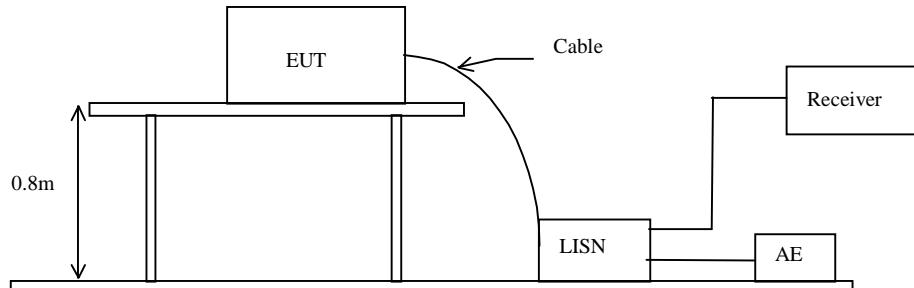
3.1.3 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement: FCC 47CFR 15.207
Test Method: ANSI C63.4:2009
Test Date: 2015-11-05
Mode of Operation: On mode
Test Voltage: 120V a.c., 60Hz

Test Method:

The test was performed in accordance with ANSI C63.4: 2009, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Test Setup:





STC Test Report

Date : 2015-08-06

No. : HM169934

Page 26 of 33

Limit for Conducted Emissions (FCC 47 CFR 15.207):

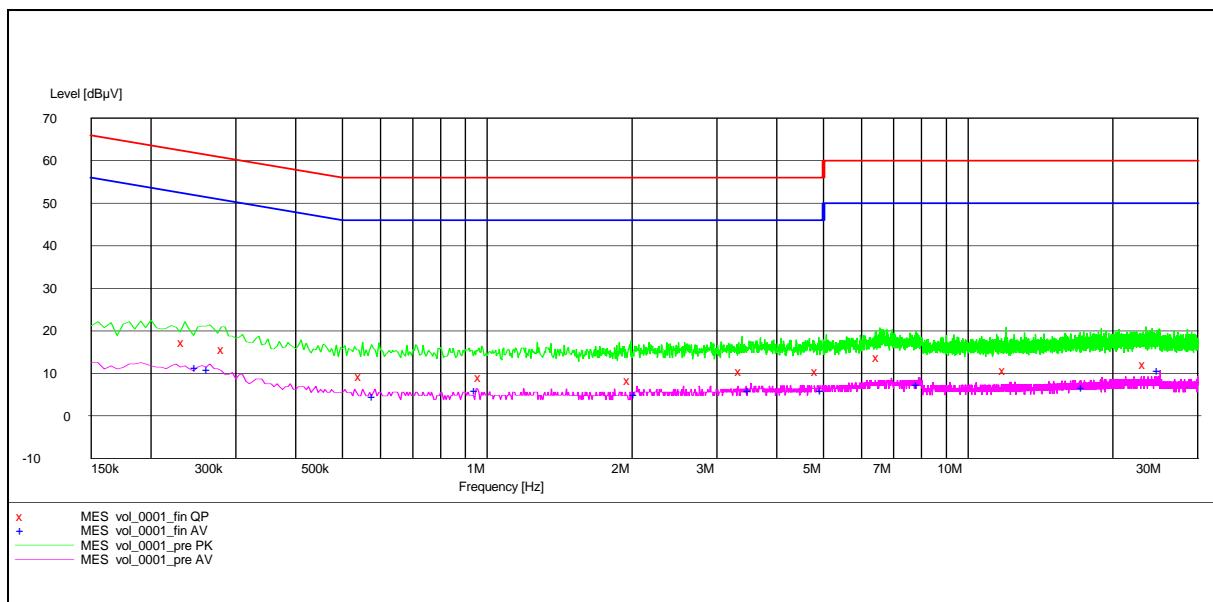
Frequency Range [MHz]	Quasi-Peak Limits [dB μ V]	Average [dB μ V]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak and Average) in the following diagram.

Results of On mode: PASS

Please refer to the following diagram for individual results.



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Date : 2015-08-06

No. : HM169934

Page 27 of 33

Results of On mode - Live: PASS

Conductor Live or Neutral	Frequency MHz	Quasi-peak		Average	
		Level dB μ V	Limit dB μ V	Level dB μ V	Limit dB μ V
Live	0.235	17.3	62.0	-*-	-*-
Live	0.250	-*-	-*-	11.4	52.0
Live	0.265	-*-	-*-	11.0	51.0
Live	0.285	15.7	61.0	-*-	-*-
Live	0.550	9.3	56.0	-*-	-*-
Live	0.585	-*-	-*-	4.6	46.0
Live	0.955	-*-	-*-	5.9	46.0
Live	0.975	8.9	56.0	-*-	-*-
Live	1.990	8.3	56.0	-*-	-*-
Live	2.045	-*-	-*-	5.1	46.0
Live	3.385	10.3	56.0	-*-	-*-
Live	3.525	-*-	-*-	6.0	10.3
Live	4.890	10.4	56.0	-*-	-*-
Live	5.000	-*-	-*-	6.1	46.0
Live	6.550	13.8	60.0	-*-	-*-
Live	7.935	-*-	-*-	7.5	50.0
Live	11.985	10.6	60.0	-*-	-*-
Live	17.465	-*-	-*-	6.6	50.0
Live	23.475	12.1	60.0	-*-	-*-
Live	25.060	-*-	-*-	10.7	50.0

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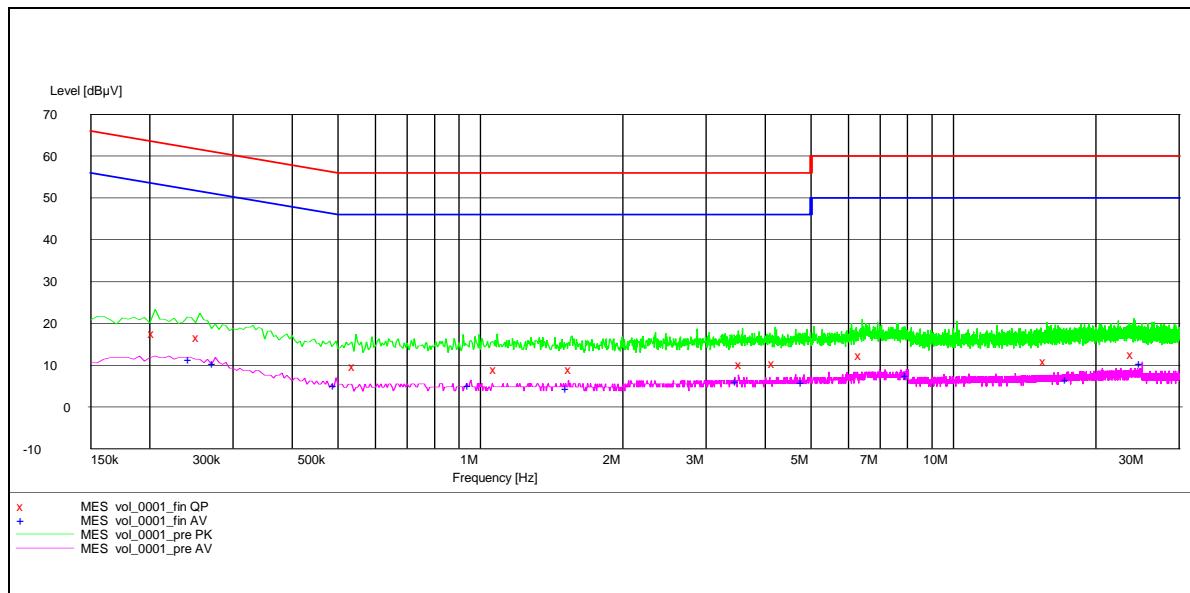
Date : 2015-08-06

No. : HM169934

Page 28 of 33

Results of On mode - Neutral: PASS

Please refer to the following diagram for individual results.



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Date : 2015-08-06

No. : HM169934

Page 29 of 33

Results of On mode - Neutral: PASS

Conductor Live or Neutral	Frequency MHz	Quasi-peak		Average	
		Level dB μ V	Limit dB μ V	Level dB μ V	Limit dB μ V
Neutral	0.205	17.6	63.0	-*-	-*-
Neutral	0.245	-*-	-*-	11.4	52.0
Neutral	0.255	16.6	62.0	-*-	-*-
Neutral	0.275	-*-	-*-	10.6	51.0
Neutral	0.495	-*-	-*-	5.2	46.0
Neutral	0.545	9.8	56.0	-*-	-*-
Neutral	0.955	-*-	-*-	5.3	46.0
Neutral	1.085	8.9	56.0	-*-	-*-
Neutral	1.535	-*-	-*-	4.4	46.0
Neutral	1.560	8.9	56.0	-*-	-*-
Neutral	3.510	-*-	-*-	6.0	46.0
Neutral	3.580	10.3	56.0	-*-	-*-
Neutral	4.200	10.4	56.0	-*-	-*-
Neutral	4.830	-*-	-*-	5.9	46.0
Neutral	6.415	12.4	60.0	-*-	-*-
Neutral	8.010	-*-	-*-	7.6	50.0
Neutral	15.745	10.9	60.0	-*-	-*-
Neutral	17.490	-*-	-*-	6.7	50.0
Neutral	24.045	12.5	60.0	-*-	-*-
Neutral	25.060	-*-	-*-	10.6	50.0

Remarks:

Calculated measurement uncertainty (0.15MHz – 30MHz): 3.2dB

-*- Emission(s) that is far below the corresponding limit line.

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Date : 2015-08-06

No. : HM169934

Page 30 of 33

Appendix A

LIST OF MEASUREMENT EQUIPMENT

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM299	DOUBLE-RIDGED WAVEGUIDE HORN ANTENNA	ETS-LINDGREN	3115	00114120	2014/01/15	2016/01/25
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-LINDGREN	FACT-3	--	2014/09/29	2015/09/29
EM320	BICONILOG ANTENNA	ETS-LINDGREN	3142D	00094856	2014/08/06	2016/08/06
EM229	EMI TEST RECEIVER	R&S	ESIB40	100248	2015/06/01	2016/06/01
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	2014/01/15	2016/01/15
EM527	MICROWAVE FREQUENCY CABLE	SUHNER	SUCOFLEX 102	24514	2013/08/26	2016/08/26
EM528	MICROWAVE FREQUENCY CABLE	SUHNER	SUCOFLEX 102	24515	2013/08/26	2016/08/26
EM529	MICROWAVE FREQUENCY CABLE	SUHNER	SUCOFLEX 104	238296	2014/07/24	2016/07/24
EM530	MICROWAVE FREQUENCY CABLE	SUHNER	SUCOFLEX 102	24970	2013/08/26	2016/08/26

Line Conducted

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM232	LISN	SCHAFFNER	NNB41	04/100082	2014/12/08	2015/12/08
EM179	IMPULSE LIMITER	ROHDE & SCHWARZ	ESH3-Z2	357-8810.52/54	2015/01/14	2016/01/14
EM154	SHIELDING ROOM	SIEMENS MATSUSHITA COMPONENTS	N/A	803-740-057-99A	2012/02/03	2017/02/03

Remarks:

CM Corrective Maintenance

N/A Not Applicable or Not Available

TBD To Be Determined

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STC Test Report

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No. : HM169934

Page 31 of 33

Appendix B

Photographs of EUT

Front View of the product



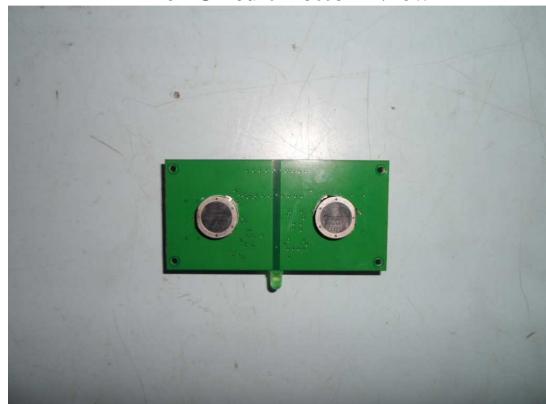
Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



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Page 32 of 33

No. : HM169934

Photographs of EUT

Measurement of Radiated Emission Test Set Up



Measurement of Radiated Emission Test Set Up



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No. : HM169934

Page 33 of 33

Photographs of EUT

Measurement of Conducted Emission Test Set Up



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