FCC Test Report

Equipment	:	**7777-01XX**
Brand Name	:	**Orderman**
Model No.	:	**7777-01XX**
Marketing Name	:	**NCR Orderman7, NCR Orderman7 +**
FCC ID	:	**JEH-7777-01XX**
Standard	:	**47 CFR FCC Part 15.249**
Operating Band	:	**902 MHz – 928 MHz**
FCC Classification	:	**DXX**
Applicant	:	**NCR Corporation**
Address	:	2651 Satellite Blvd. Duluth, GA 30096 USA
Manufacturer	:	**Universal Global Scientific Industrial Co., Ltd.**
Address	:	141, Lane 351, Sec.1, Taiping Road, Tsaotuen, Nantou 54261, Taiwan

The product sample received on Nov. 5, 2014 and completely tested on Dec. 1, 2014. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Vic Hsiao / Supervisor

Testing Laboratory
1190

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Summary of Test Result

Conformance Test Specifications					
Report Clause	**Ref. Std. Clause**	**Description**	**Measured**	**Limit**	**Result**
1.2.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 0.4040020MHz 42.01 (Margin 15.76dB) - QP 37.02 (Margin 10.75dB) - AV	FCC 15.207	Complied
3.2	15.215(c)	Emission Bandwidth	0.785 MHz; fall in band	Information only	Complied
3.3	15.249(a)	Fundamental Emissions	[dBuV/m at 3m]: 92.38 (Margin 1.62dB) quasi peak	[dBuV/m at 3m]: quasi peak: 94	Complied
3.4	15.249 (a)/(d)	Transmitter Radiated Unwanted Emissions	[dBuV/m at 3m]:1810.900MHz 50.05 (Margin 3.95dB) - AV 51.95 (Margin 22.05dB) - PK	Harmonics: 54 dBuV/m@3m Other band: 50 dB or FCC 15.209, whichever is the lesser attenuation.	Complied

Revision History

Report No.	Version	Description	Issued Date
FR4N0432AF	Rev. 01	Initial issue of report	Dec. 15, 2014

1 General Description

1.1 Information

1.2 NCR Orderman7 Handheld Features

Feature	NCR Orderman7	NCR Orderman7+
Orderman radio network	✓	
Bluetooth	-	✓
Wireless LAN	-	✓
NFC	-	✓
125kHz RFID reader	-	✓
Magnetic strip reader (MSR)	-	
Barcode reader	-	
Camera	✓	
Ambient light sensor	✓	
Hardware buttons	✓	
Capacitive home buttons	✓	
Ambient light sensor	✓	
Vibration	✓	
LEDs	✓	
Intercom	✓	
Real time clock	✓	
Flashlight	✓	

1.2.1 RF General Information

RF General Information					
Frequency Range (MHz)	**Modulation**	**Ch. Frequency (MHz)**	**Channel Number**	**Fundamental Field Strength (dBuV/m)**	**Co-location**
902-928	2GFSK for Legacy	902.35, 903.7, 905.45	3	91.49	Yes
	4GFSK for OSR	902.4, 915, 927.6	3	92.38	Yes
Note 1: Field strength performed quasi peak level at 3m. Note 2: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (i.e., EUT has simultaneously co-transmitting that operating NFC+OSR+RFID+Wi-Fi and NFC+OSR+RFID+BT)					

1.2.2 Antenna Information

Antenna Category	
☐	Equipment placed on the market without antennas
☒	Integral antenna (antenna permanently attached)
☐	External antenna (dedicated antennas)

1.2.3 Type of EUT

Identify EUT	
EUT Serial Number	N/A
Presentation of Equipment	☒ Production ; ☐ Pre-Production ; ☐ Prototype
Type of EUT	
☒	Stand-alone
☐	Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: …
☐	Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: …
☐	Other:

1.2.4 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle	
☐ Operated normally mode for worst duty cycle	
☒ Operated test mode for worst duty cycle	
Test Signal Duty Cycle (x)	**Duty Cycle Correction Factor [dB] – (20 log x)**
☒ 100%	0
If worst duty < 100%, average emission = peak emission + 20 log x	

1.2.5 EUT Operational Condition

Supply Voltage	☐ AC mains	☒ DC	- -
Type of DC Source	☐ Internal DC supply	☒ External DC Service Station	☒ From Li-ion Battery

1.3 Accessories and Support Equipment

Accessories Information				
Li-ion Battery	Brand Name	NCR	Model Name	7777-0105-8801
	Power Rating	3.7V⎓ 3150mAh		
LCD Panel	Brand Name	LG Display	Model Name	LH500WX1-SD03
Camera	Brand Name	Ability	Model Name	BD56A555
WiFi Module	Brand Name	USI	Model Name	WM-BAN-BM-07_S
OSR Module	Brand Name	TI	Model Name	CC1125
RFID Module	Brand Name	Melexis	Model Name	MLX90109
NFC Module	Brand Name	NXP	Model Name	PN547

Reminder: Regarding to more detail and other information, please refer to user manual.

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Service Station (Provide by customer)	Orderman	7779-0201-8801	-
2	Debug Board (Provide by customer)	-	-	-
3	Adapter	Meanwell	GSM36U12-P5L	-

1.4 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR FCC Part 15
- ANSI C63.10-2009

1.5 Testing Location Information

Testing Location							
☒	HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.			
		TEL	:	886-3-327-3456	FAX	:	886-3-327-0973

Test Site Registration Number: FCC 636805			
Test Condition	**Test Site No.**	**Test Engineer**	**Test Environment**
AC Conduction	CO04-HY	Zeus	22°C / 52%
RF Conducted	TH01-HY	Ian	22.1°C / 61%
Radiated Emission	03CH03-HY	Allen	24°C / 57%

1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty		
Test Item		**Uncertainty**
AC power-line conducted emissions		±2.2 dB
Emission bandwidth, 20dB bandwidth		±1.4 %
RF output power, conducted		±0.6 dB
All emissions, radiated	9 – 150 kHz	±2.4 dB
	0.15 – 30 MHz	±2.2 dB
	30 – 1000 MHz	±2.5 dB
	1 – 18 GHz	±3.5 dB
	18 – 40 GHz	±3.8 dB
	40 – 200 GHz	N/A
Temperature		±0.8 °C
Humidity		±3 %
DC and low frequency voltages		±3 %
Time		±1.4 %
Duty Cycle		±1.4 %

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Modulation Used for Conformance Testing	
Test Mode	**Field Strength (dBuV/m at 3 m)**
Legacy-Transmit	91.49
OSR-Transmit	92.38

2.2 Test Channel Frequencies Configuration

Test Channel Frequencies Configuration	
Test Mode	**Test Channel Frequencies (MHz)**
Legacy-Transmit	902.35, 905.45
OSR-Transmit	902.4, 915, 927.6

2.3 The Worst Case Measurement Configuration

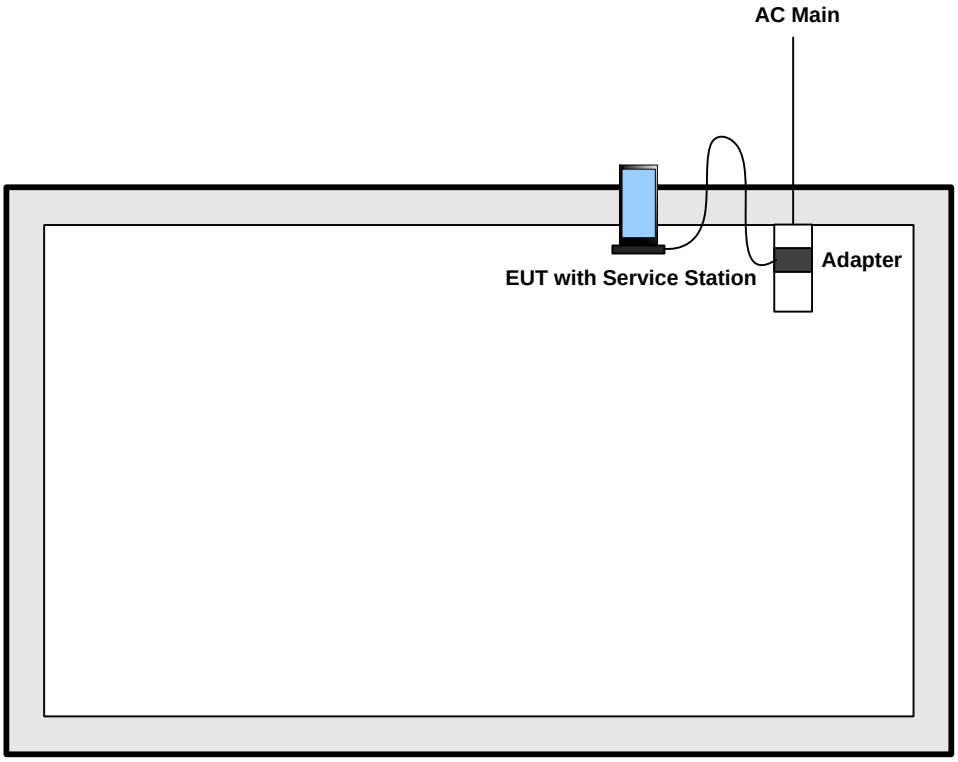
The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
	Operating Mode Description
	1. EUT with Service Station Charge Mode

The Worst Case Mode for Following Conformance Tests			
Tests Item			Emission Bandwidth, Fundamental Emissions, Radiated Unwanted Emissions
Test Condition			Radiated measurement
User Position			☐ EUT will be placed in fixed position.
X Plane	**Y Plane**	**Z Plane**	☐ EUT will be placed in mobile position and operating multiple positions.
			☒ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed three orthogonal planes. The worst planes is Y.
Operating Mode (Blow 1GHz)			Operating Mode Description
			1. EUT with Service Station Charge Mode
			2. EUT with AC power via Debug Board Transmitter
Operating Mode (Above 1GHz)			2. EUT with AC power via Debug Board Transmitter
Modulation Mode			Legacy-Transmit / OSR-Transmit

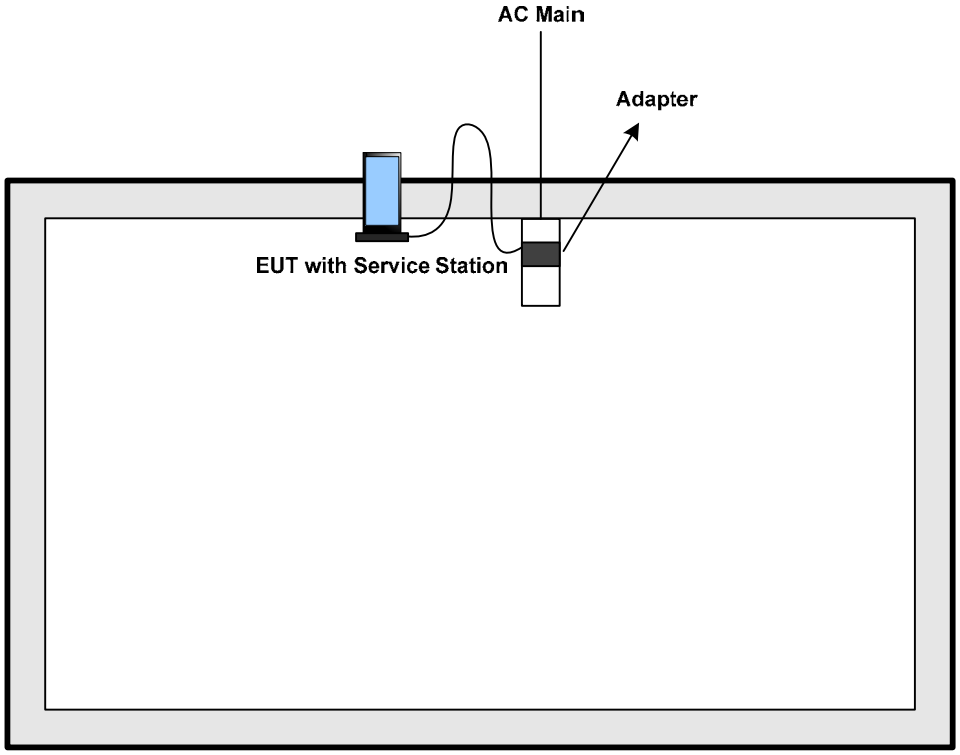
Note: The RF Function will be off when the EUT charge with Service Station.

2.4 Test Setup Diagram

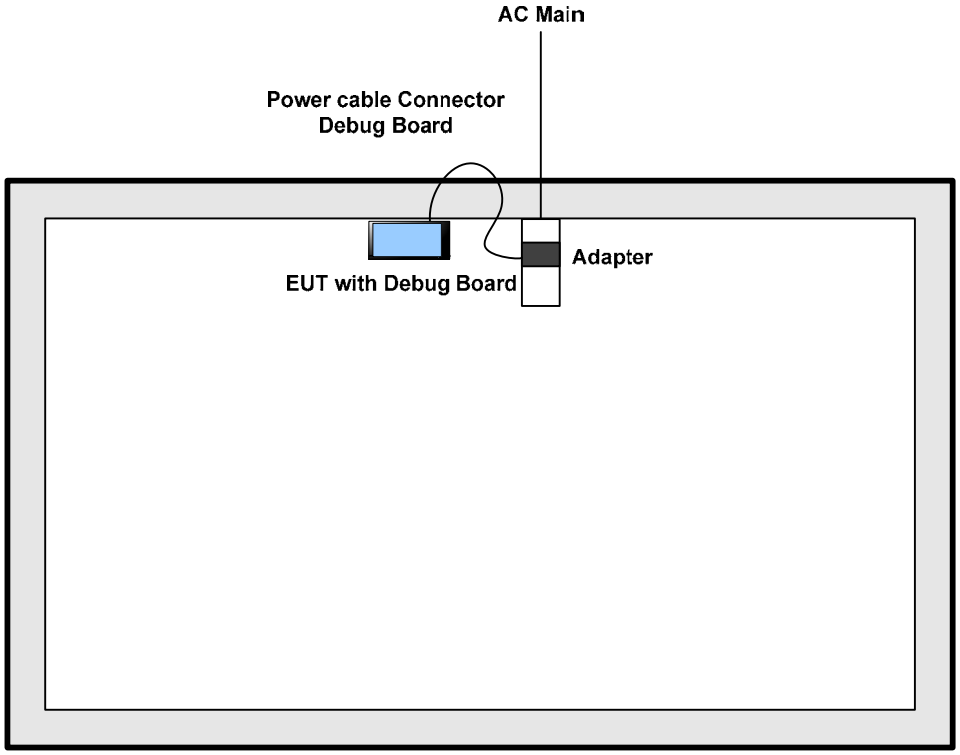
Test Setup Diagram - AC Line Conducted Emission Test (Operating Mode 1)



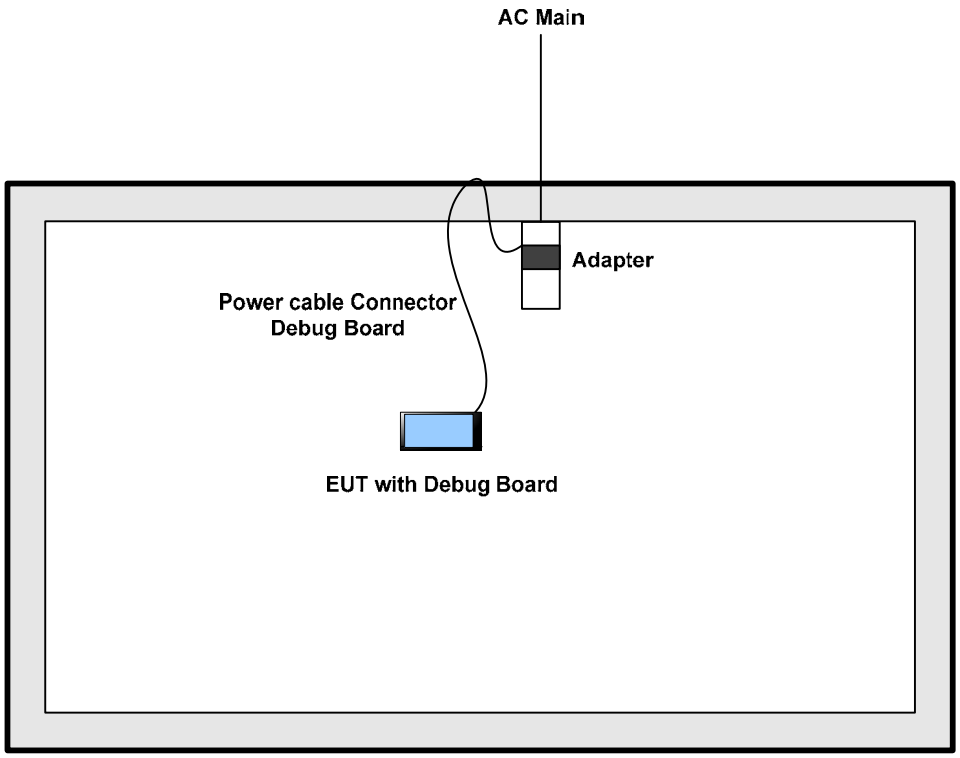
Test Setup Diagram - Radiated Test Below 1GHz (Operating Mode 1)



Test Setup Diagram - Radiated Test Below 1GHz (Operating Mode 2)



Test Setup Diagram - Radiated Test Above 1GHz (Operating Mode 2)



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

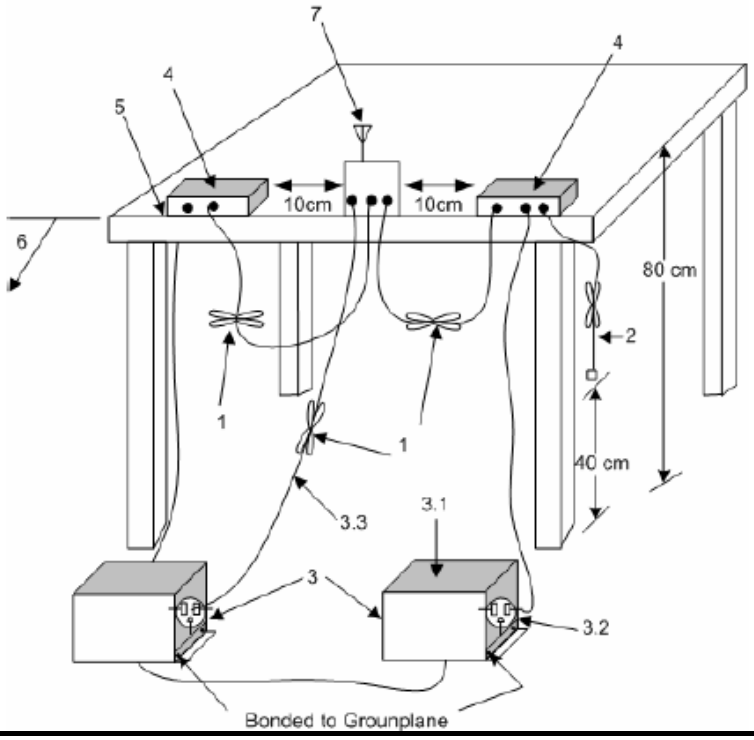
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions.

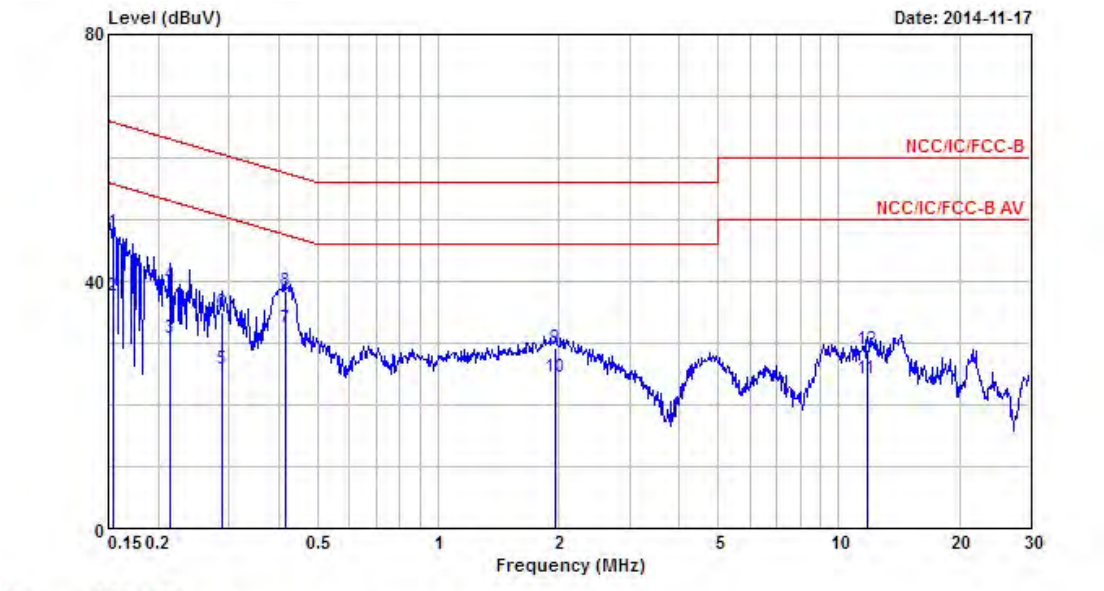
3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

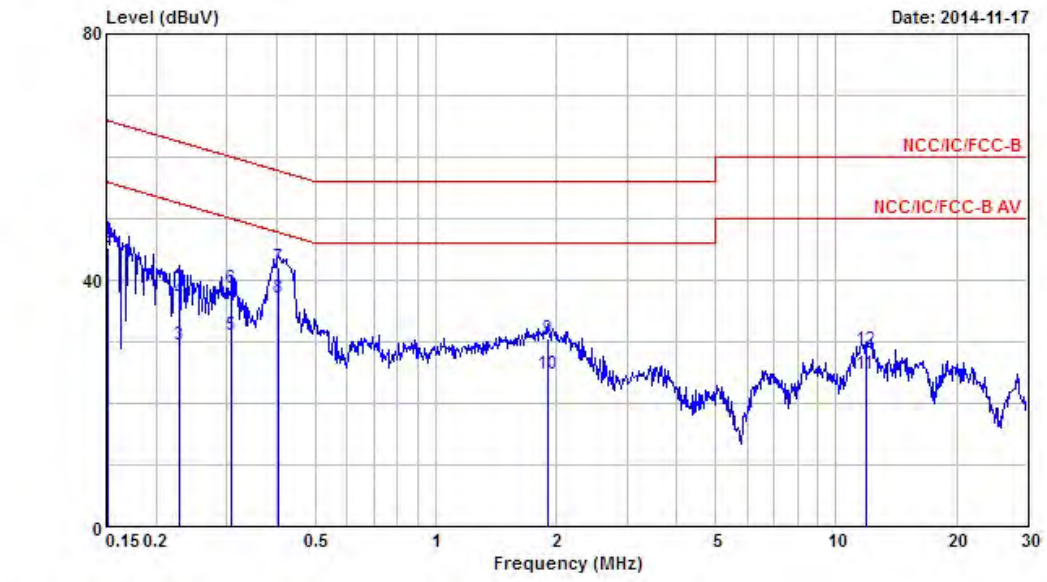
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	EUT with Service Station Charge Mode		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1548450	48.01	-17.73	65.74	47.64	0.02	0.35	QP
2	0.1548450	37.68	-18.06	55.74	37.31	0.02	0.35	Average
3	0.2139240	30.70	-22.35	53.05	30.17	0.02	0.51	Average
4	0.2139240	39.43	-23.62	63.05	38.90	0.02	0.51	QP
5	0.2878180	25.69	-24.90	50.59	25.11	0.03	0.55	Average
6	0.2878180	34.97	-25.62	60.59	34.39	0.03	0.55	QP
7	0.4148480	32.44	-15.11	47.55	31.80	0.03	0.61	Average
8	0.4148480	38.50	-19.05	57.55	37.86	0.03	0.61	QP
9	1.960	29.24	-26.76	56.00	28.38	0.06	0.80	QP
10	1.960	24.36	-21.64	46.00	23.50	0.06	0.80	Average
11	11.740	24.32	-25.68	50.00	23.30	0.22	0.80	Average
12	11.740	28.83	-31.17	60.00	27.81	0.22	0.80	QP

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Line
Operating Function	EUT with Service Station Charge Mode		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1515980	34.40	-21.51	55.91	34.03	0.03	0.34	Average
2	0.1515980	45.23	-20.68	65.91	44.86	0.03	0.34	QP
3	0.2279670	29.58	-22.94	52.52	29.03	0.03	0.52	Average
4	0.2279670	36.95	-25.57	62.52	36.40	0.03	0.52	QP
5	0.3083410	30.93	-19.09	50.02	30.34	0.03	0.56	Average
6	0.3083410	38.55	-21.47	60.02	37.96	0.03	0.56	QP
7	0.4040020	42.01	-15.76	57.77	41.38	0.03	0.60	QP
8	0.4040020	37.02	-10.75	47.77	36.39	0.03	0.60	Average
9	1.900	30.65	-25.35	56.00	29.78	0.07	0.80	QP
10	1.900	24.61	-21.39	46.00	23.74	0.07	0.80	Average
11	11.870	24.65	-25.35	50.00	23.63	0.22	0.80	Average
12	11.870	28.81	-31.19	60.00	27.79	0.22	0.80	QP

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

Emission Bandwidth Limit
☒ Emission bandwidth falls completely within authorized band.

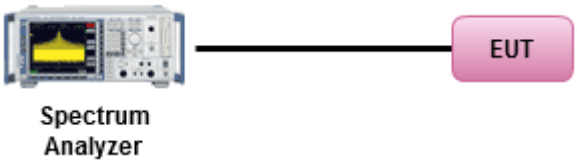
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10, clause 6.9.1 for 20 dB emission bandwidth and 99% occupied bandwidth measurement.

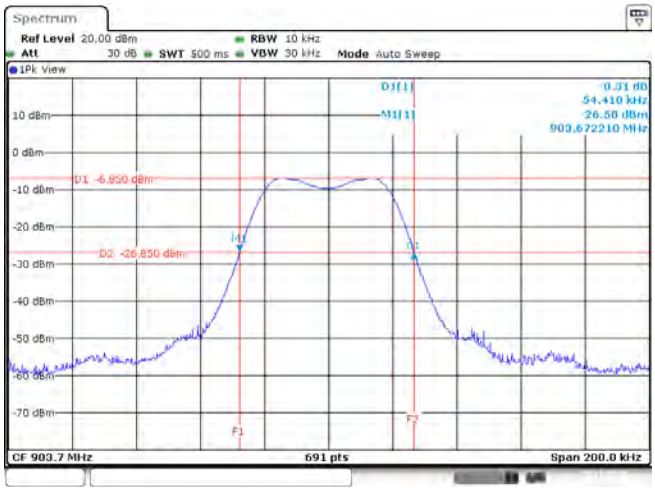
3.2.4 Test Setup

Emission Bandwidth


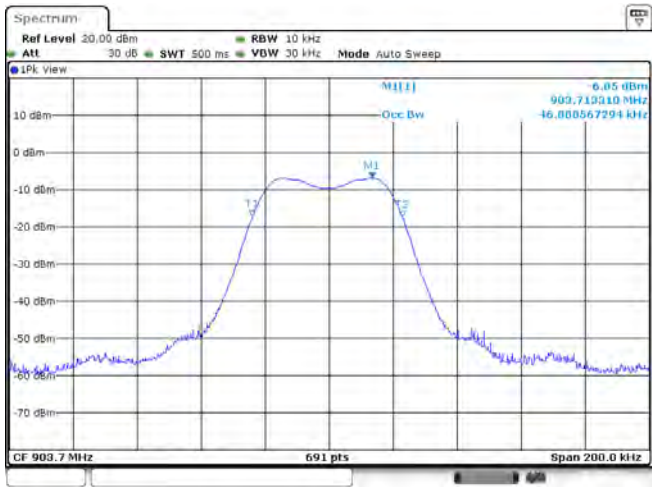
3.2.5 Test Result of Emission Bandwidth

Occupied Channel Bandwidth Result					
Modulation Mode	**Frequency (MHz)**	**20dB Bandwidth (kHz)**	**F_L at 20dB BW (MHz)**	**F_H at 20dB BW (MHz)**	**99% Bandwidth (kHz)**
Legacy-Transmit	902.35	0.0544	902.3222	-	0.0468
Legacy-Transmit	903.70	0.0544	-	-	0.0468
Legacy-Transmit	905.45	0.0541	-	905.4763	0.0468
Limit		**N/A**	**902**	**928**	**N/A**
Result		**Complied**			

Worst Emission 20dB Bandwidth Plots

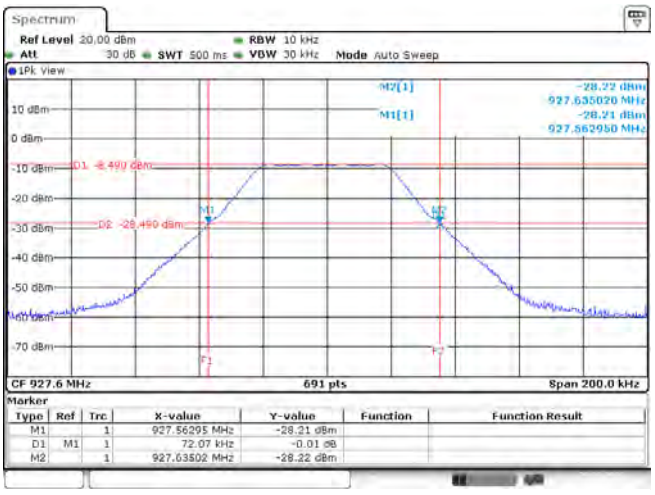


Worst Emission 99% Bandwidth Plots



Occupied Channel Bandwidth Result					
Modulation Mode	**Frequency (MHz)**	**20dB Bandwidth (kHz)**	**F_L at 20dB BW (MHz)**	**F_H at 20dB BW (MHz)**	**99% Bandwidth (kHz)**
OSR-Transmit	902.4	0.0720	902.3632	-	0.0578
OSR-Transmit	915.0	0.0720	-	-	0.0578
OSR-Transmit	927.6	0.0720	-	927.6350	0.0581
Limit		**N/A**	**902**	**928**	**N/A**
Result		**Complied**			

Worst Emission 20dB Bandwidth Plots



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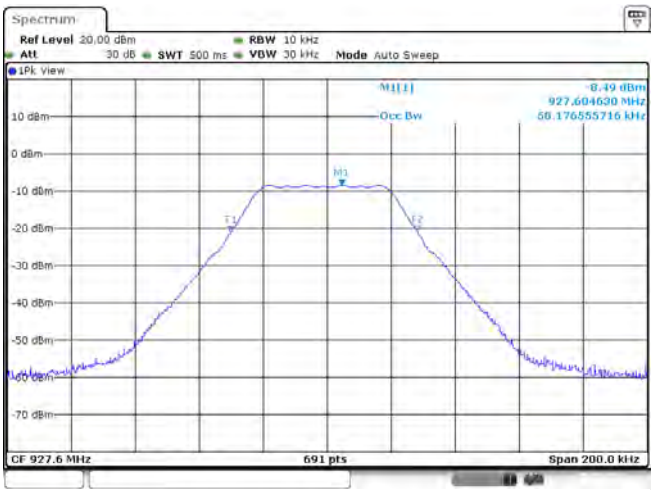
Worst Emission 99% Bandwidth Plots



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3.3 Fundamental Emissions

3.3.1 Fundamental Emissions Limit

Fundamental Emissions E-Field Strength Limit (3m)	
☒	902-928 MHz Band: 94 dBuV/m (quasi peak)
☐	2400-2483.5 MHz Band: 94 dBuV/m (average)
☐	5725-5785 MHz Band: 94 dBuV/m (average)

3.3.2 Measuring Instruments

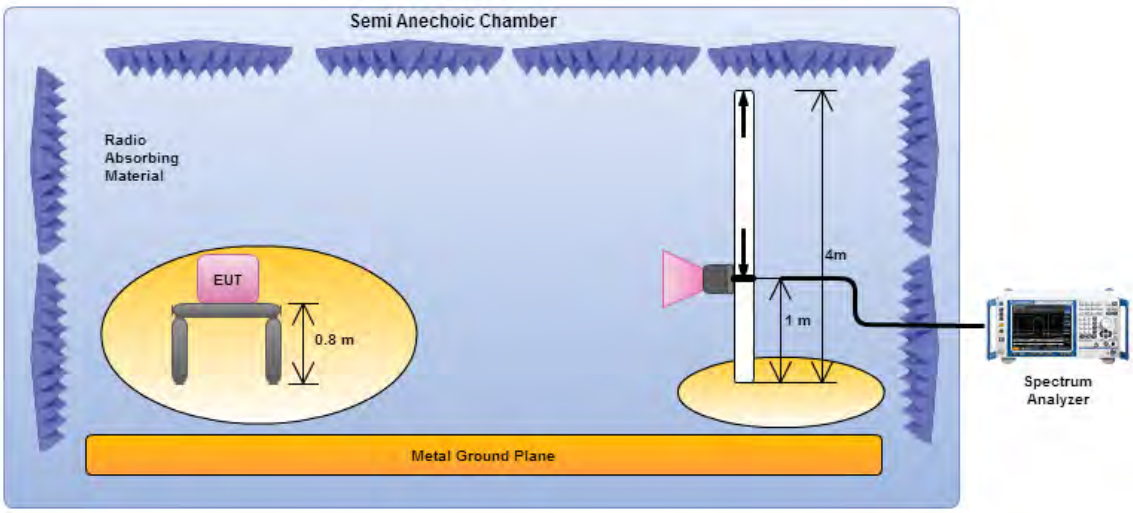
Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

☒	The average emission levels shall be measured in [duty cycle ≥ 100 or by duty cycle correction factor].	
☒	For the transmitter emissions shall be measured using following options below:	
	☒	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) – Duty cycle ≥ 100%.
	☐	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from 20log (dwell time/100 ms). Average emission = peak emission + 20 log (duty cycle).
	☒	Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.
☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions and test distance is 3m.	

3.3.4 Test Setup

Fundamental Emissions



3.3.5 Test Result of Fundamental Emissions

Field Strength of Fundamental Emissions Result					
Modulation Mode	**Frequency (MHz)**	**Fundamental (dBuV/m)@3m**	**Margin (dB)**	**Limit (dBuV/m)@3m**	**Type**
Legacy-Transmit	902.35	90.86	3.14	94	QP
Legacy-Transmit	905.45	91.49	2.51	94	QP
Result		**Complied**			
Note 1: Measurement worst emissions of receive antenna polarization: Horizontal					

Field Strength of Fundamental Emissions Result					
Modulation Mode	**Frequency (MHz)**	**Fundamental (dBuV/m)@3m**	**Margin (dB)**	**Limit (dBuV/m)@3m**	**Type**
OSR-Transmit	902.4	87.30	6.70	94	QP
OSR-Transmit	915.0	90.20	3.80	94	QP
OSR-Transmit	927.6	92.38	1.62	94	QP
Result		**Complied**			
Note 1: Measurement worst emissions of receive antenna polarization: Horizontal					

3.4 Transmitter Radiated Unwanted Emissions

3.4.1 Transmitter Radiated Unwanted Emissions Limit

Transmitter Radiated Unwanted Emissions Limit
Harmonics:
☒ 54 dBuV/m (average)
Other Unwanted Emissions:
☒ 50 dB below the level of the fundamental or FCC 15.209, whichever is the lesser attenuation.

3.4.2 Measuring Instruments

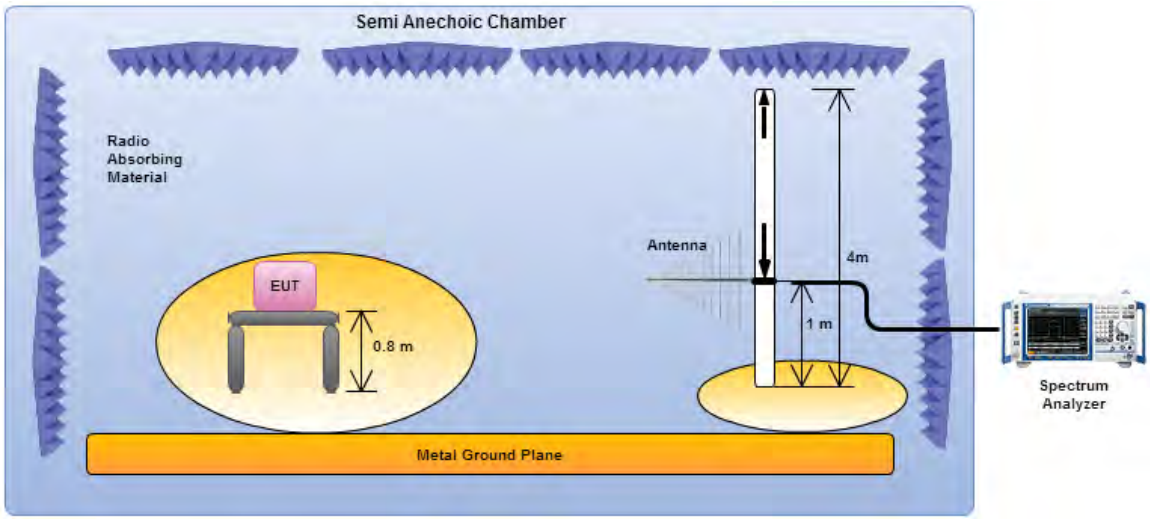
Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method – General Information	
☒	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
☒	The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
☒	Refer as ANSI C63.10, clause 6.9.2.2 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
☒	For the transmitter unwanted emissions shall be measured using following options below:
☒	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) – Duty cycle ≥ 100%.
☐	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from 20log (dwell time/100 ms). Average emission = peak emission + 20 log (duty cycle).
☒	Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit.
☒	For the transmitter bandedge emissions shall be measured using following options below:
☒	Refer as ANSI C63.10, clause 6.9.2 for band-edge testing.
☐	Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements.
☒	For radiated measurement.
☒	Refer as ANSI C63.10, clause 6.4 for radiated emissions below 30 MHz and test distance is 3m.
☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions 30 MHz to 1 GHz and test distance is 3m.
☒	Refer as ANSI C63.10, clause 6.6 for radiated emissions above 1 GHz and test distance is 3m.
☒	The any unwanted emissions level shall not exceed the fundamental emission level.
☒	All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

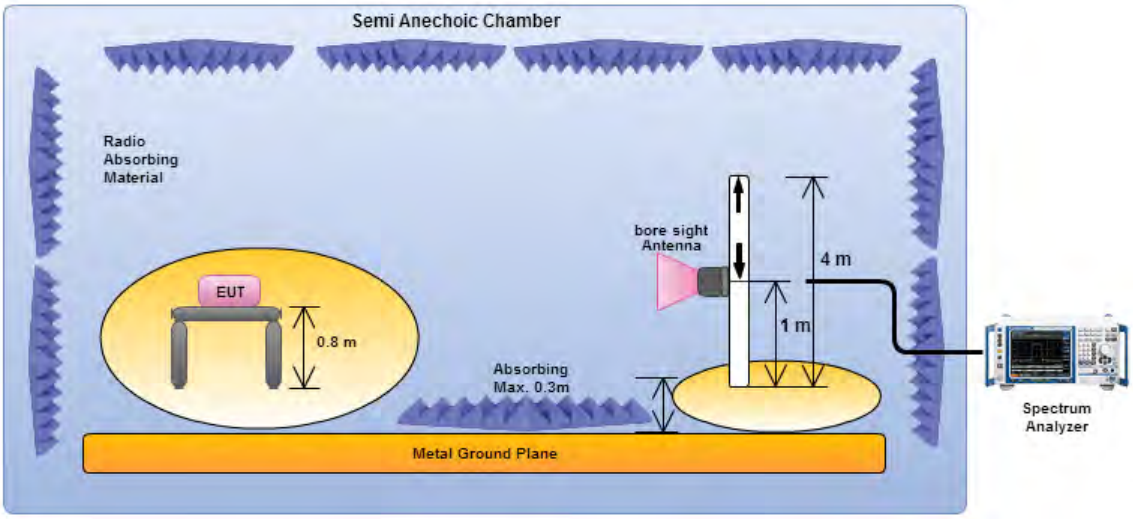
3.4.4 Test Setup

Transmitter Radiated Unwanted Emissions (below 1GHz)



Magnetic field tests shall be performed in the frequency range of 9 kHz to 30 MHz using a calibrated loop antenna. Electric field tests shall be performed in the frequency range of 30 MHz to 1000 MHz using a calibrated bi-log antenna.

Transmitter Radiated Unwanted Emissions (Above 1GHz)



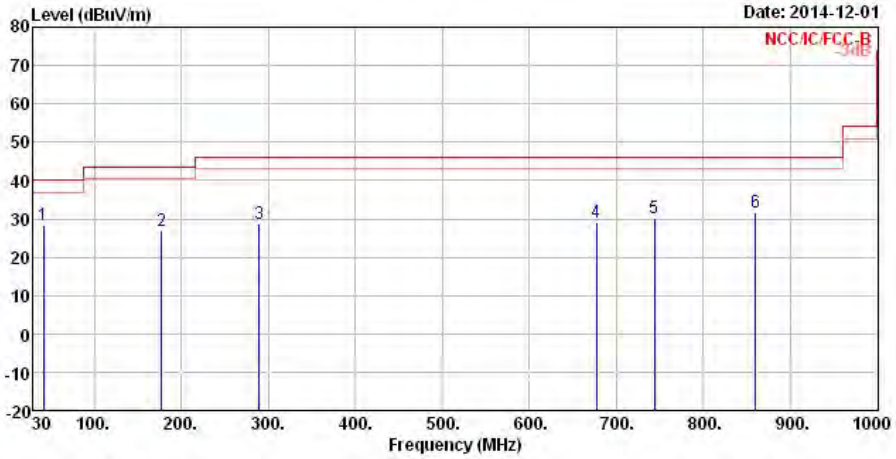
Electric field tests shall be performed in the frequency range of 1 GHz to 10th harmonic of highest fundamental frequency or 40 GHz using a calibrated horn antenna.

3.4.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.4.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

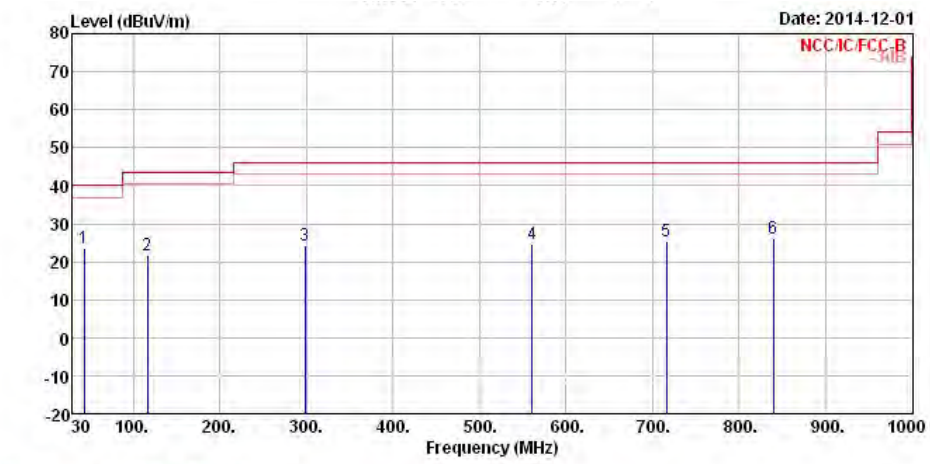
Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Operating Mode	1	**Polarization**	V
Operating Function	EUT with Service Station Charge Mode		



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	41.751	28.42	-11.58	40.00	42.76	11.95	1.04	27.33	Peak	---	---
2	177.568	26.75	-16.75	43.50	42.20	9.50	2.19	27.14	Peak	---	---
3	289.461	28.82	-17.18	46.00	39.68	13.03	2.84	26.73	Peak	---	---
4	677.346	29.11	-16.89	46.00	33.75	18.68	4.46	27.78	Peak	---	---
5	743.851	30.29	-15.71	46.00	33.80	19.56	4.65	27.72	Peak	---	---
6	859.761	31.58	-14.42	46.00	33.69	20.34	4.98	27.43	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

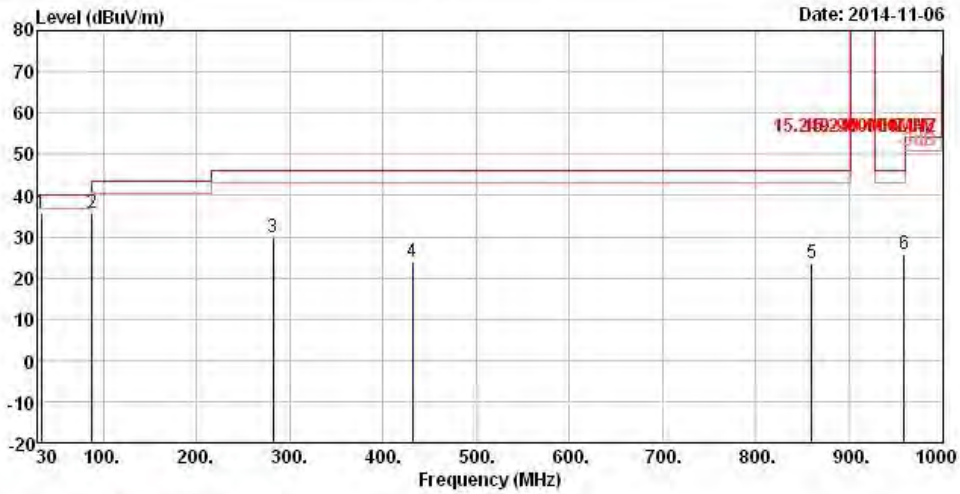
Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Operating Mode	1	**Polarization**	H
Operating Function	EUT with Service Station Charge Mode		



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	43.421	23.62	-16.38	40.00	39.08	10.82	1.06	27.34	Peak	---	---
2	116.253	21.69	-21.81	43.50	34.97	12.15	1.75	27.18	Peak	---	---
3	298.150	24.26	-21.74	46.00	34.87	13.19	2.89	26.69	Peak	---	---
4	561.238	24.75	-21.25	46.00	30.31	18.31	3.97	27.84	Peak	---	---
5	715.853	25.37	-20.63	46.00	29.44	19.10	4.59	27.76	Peak	---	---
6	839.457	26.12	-19.88	46.00	28.49	20.19	4.93	27.49	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

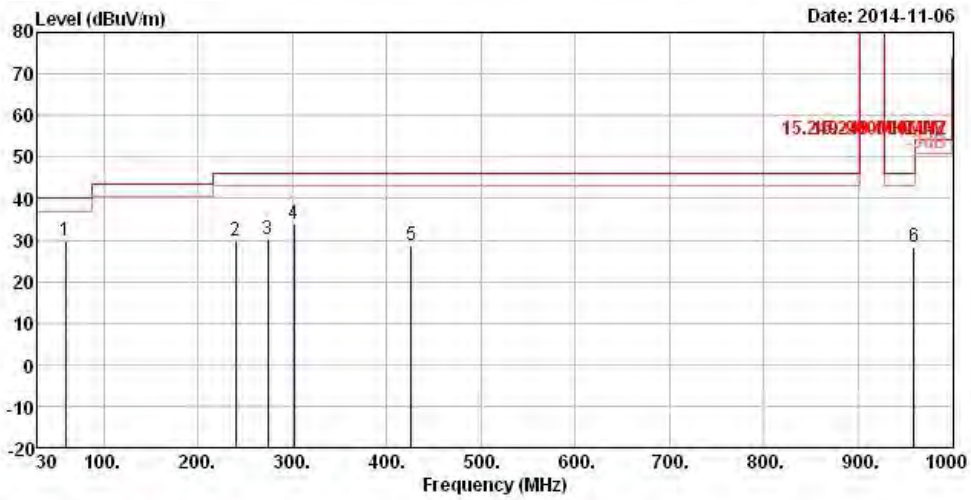
Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Operating Mode	2	**Polarization**	V
Operating Function	EUT with AC power via Debug Board Transmitter (Legacy)		



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	33.880	35.71	-4.29	40.00	45.40	16.67	0.92	27.28	QP	---	---
2	88.200	35.73	-7.77	43.50	52.85	8.58	1.53	27.23	Peak	---	---
3	282.200	29.90	-16.10	46.00	41.01	12.85	2.80	26.76	Peak	---	---
4	431.580	24.05	-21.95	46.00	31.81	16.32	3.44	27.52	Peak	---	---
5	860.320	23.66	-22.34	46.00	25.75	20.35	4.98	27.42	Peak	---	---
6	959.260	25.82	-20.18	46.00	26.59	21.24	5.36	27.37	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

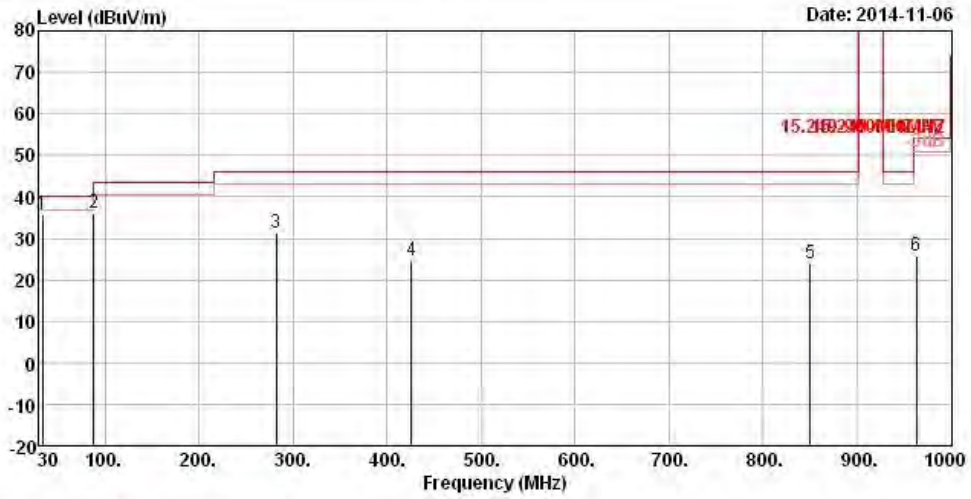
Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Operating Mode	2	**Polarization**	H
Operating Function	EUT with AC power via Debug Board Transmitter (Legacy)		



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	59.100	29.82	-10.18	40.00	49.09	6.93	1.24	27.44	Peak	---	---
2	239.520	29.78	-16.22	46.00	42.45	11.73	2.55	26.95	Peak	---	---
3	274.440	30.29	-15.71	46.00	41.44	12.90	2.75	26.80	Peak	---	---
4	301.600	33.71	-12.29	46.00	44.22	13.27	2.91	26.69	Peak	---	---
5	425.760	28.63	-17.37	46.00	36.30	16.39	3.42	27.48	Peak	---	---
6	959.260	28.38	-17.62	46.00	29.15	21.24	5.36	27.37	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

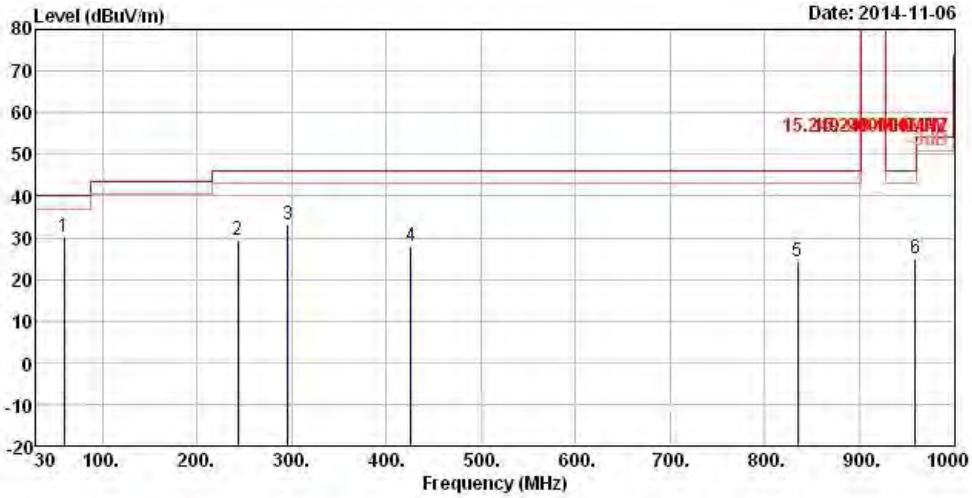
Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Operating Mode	2	**Polarization**	V
Operating Function	EUT with AC power via Debug Board Transmitter (OSR)		



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	33.880	35.56	-4.44	40.00	45.25	16.67	0.92	27.28	QP	---	---
2	88.200	36.12	-7.38	43.50	53.24	8.58	1.53	27.23	Peak	---	---
3	282.200	31.17	-14.83	46.00	42.28	12.85	2.80	26.76	Peak	---	---
4	425.760	24.55	-21.45	46.00	32.22	16.39	3.42	27.48	Peak	---	---
5	850.620	23.76	-22.24	46.00	25.99	20.29	4.94	27.46	Peak	---	---
6	963.140	25.77	-28.23	54.00	26.53	21.24	5.38	27.38	Peak	---	---

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Operating Mode	2	**Polarization**	H
Operating Function	EUT with AC power via Debug Board Transmitter (OSR)		

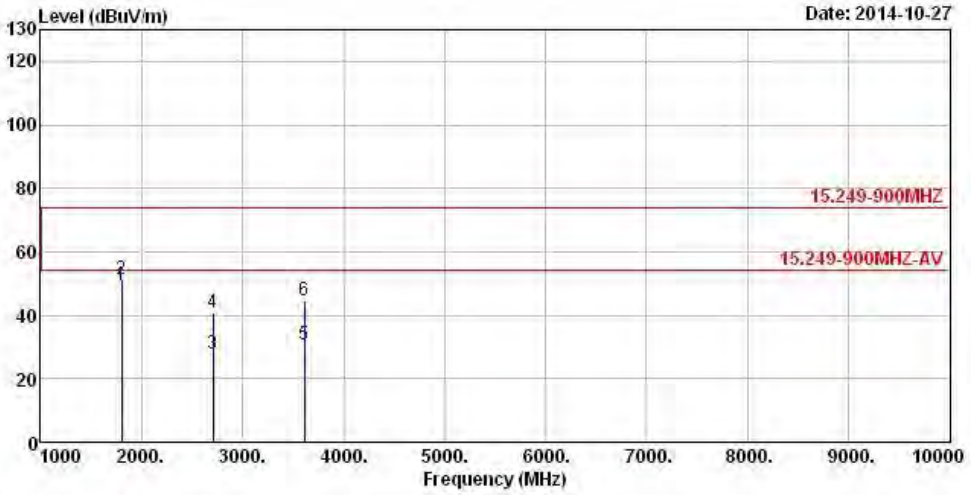


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	59.100	30.22	-9.78	40.00	49.49	6.93	1.24	27.44	Peak	---	---
2	243.400	29.45	-16.55	46.00	41.73	12.09	2.57	26.94	Peak	---	---
3	295.780	33.02	-12.98	46.00	43.68	13.16	2.88	26.70	Peak	---	---
4	425.760	28.08	-17.92	46.00	35.75	16.39	3.42	27.48	Peak	---	---
5	835.100	24.11	-21.89	46.00	26.52	20.17	4.93	27.51	Peak	---	---
6	959.260	25.12	-20.88	46.00	25.89	21.24	5.36	27.37	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

3.4.7 Transmitter Radiated Unwanted Emissions (Above 1GHz)

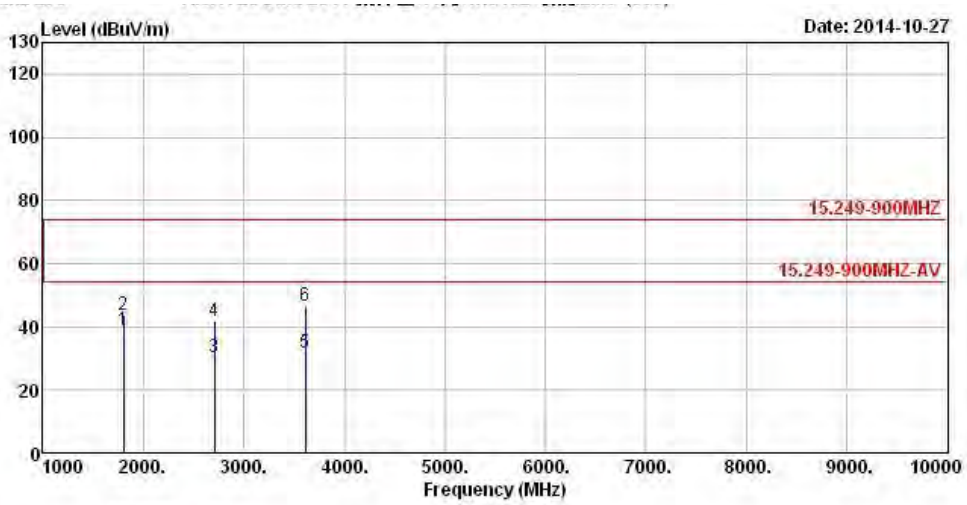
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	Legacy-Transmit	**Test Freq. (MHz)**	902.35	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1804.700	49.26	-4.74	54.00	51.64	26.74	3.58	32.70	Average	0	0
2	1804.700	51.29	-22.71	74.00	53.67	26.74	3.58	32.70	Peak	0	0
3	2707.500	27.85	-26.15	54.00	27.10	29.24	4.04	32.53	Average	0	0
4	2707.500	40.84	-33.16	74.00	40.09	29.24	4.04	32.53	Peak	0	0
5	3609.400	30.61	-23.39	54.00	26.68	31.61	4.85	32.53	Average	0	0
6	3609.400	44.80	-29.20	74.00	40.87	31.61	4.85	32.53	Peak	0	0

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).
Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

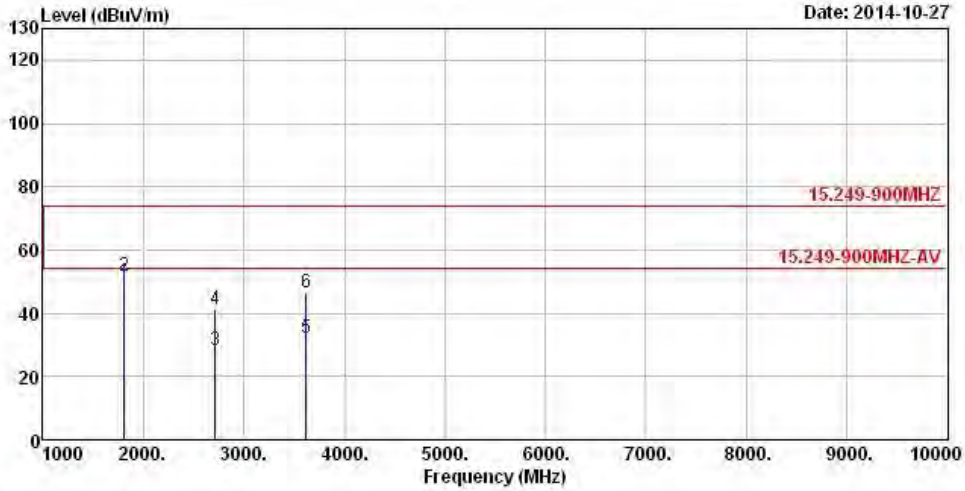
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	Legacy-Transmit	**Test Freq. (MHz)**	902.35	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1804.700	38.71	-15.29	54.00	41.09	26.74	3.58	32.70	Average	0	0
2	1804.700	43.57	-30.43	74.00	45.95	26.74	3.58	32.70	Peak	0	0
3	2707.500	30.13	-23.87	54.00	29.38	29.24	4.04	32.53	Average	0	0
4	2707.500	41.74	-32.26	74.00	40.99	29.24	4.04	32.53	Peak	0	0
5	3609.400	31.87	-22.13	54.00	27.94	31.61	4.85	32.53	Average	0	0
6	3609.400	46.58	-27.42	74.00	42.65	31.61	4.85	32.53	Peak	0	0

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).
Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

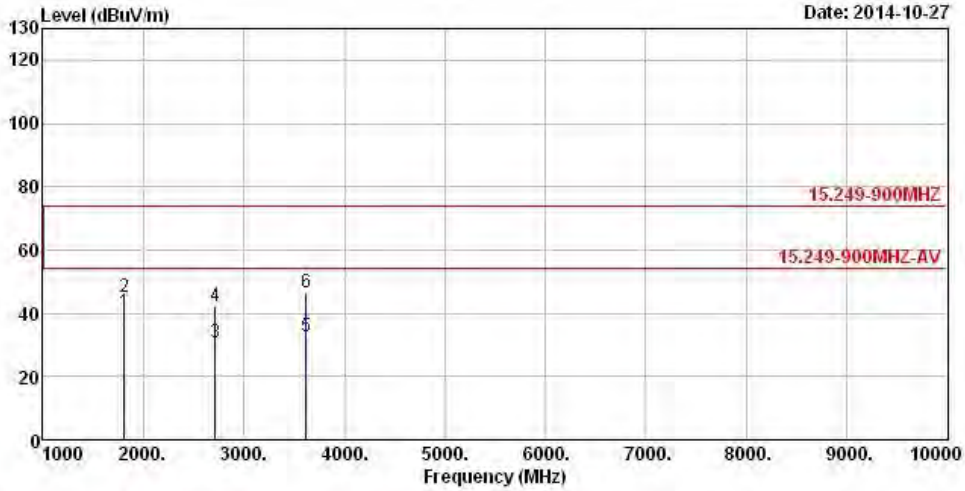
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	Legacy-Transmit	**Test Freq. (MHz)**	905.45	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1810.900	50.05	-3.95	54.00	52.35	26.82	3.58	32.70	Average	0	0
2	1810.900	51.95	-22.05	74.00	54.25	26.82	3.58	32.70	Peak	0	0
3	2716.350	28.31	-25.69	54.00	27.50	29.29	4.04	32.52	Average	0	0
4	2716.350	41.13	-32.87	74.00	40.32	29.29	4.04	32.52	Peak	0	0
5	3621.800	32.30	-21.70	54.00	28.32	31.66	4.85	32.53	Average	0	0
6	3621.800	46.54	-27.46	74.00	42.56	31.66	4.85	32.53	Peak	0	0

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).
Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

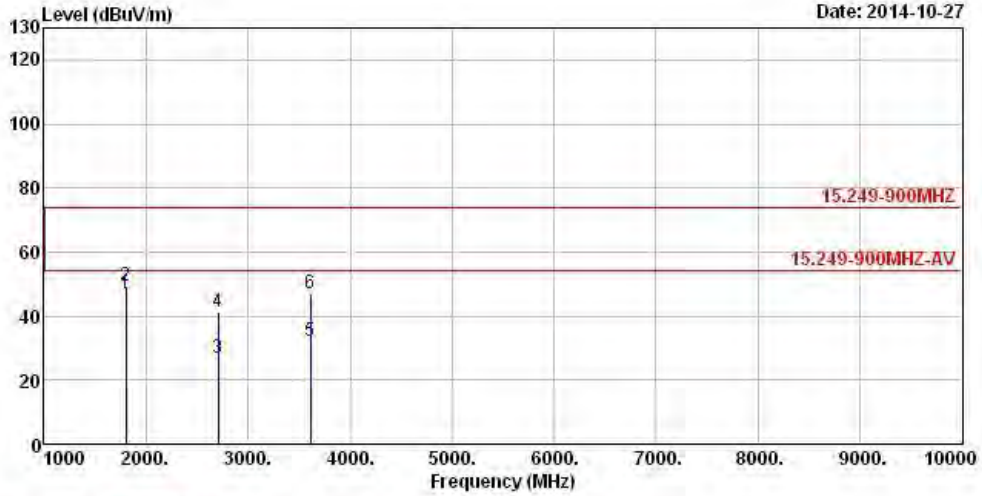
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	Legacy-Transmit	**Test Freq. (MHz)**	905.45	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1810.900	40.14	-13.86	54.00	42.44	26.82	3.58	32.70	Average	0	0
2	1810.900	45.05	-28.95	74.00	47.35	26.82	3.58	32.70	Peak	0	0
3	2716.350	30.69	-23.31	54.00	29.88	29.29	4.04	32.52	Average	0	0
4	2716.350	41.98	-32.02	74.00	41.17	29.29	4.04	32.52	Peak	0	0
5	3621.800	32.58	-21.42	54.00	28.60	31.66	4.85	32.53	Average	0	0
6	3621.800	46.45	-27.55	74.00	42.47	31.66	4.85	32.53	Peak	0	0

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).
Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

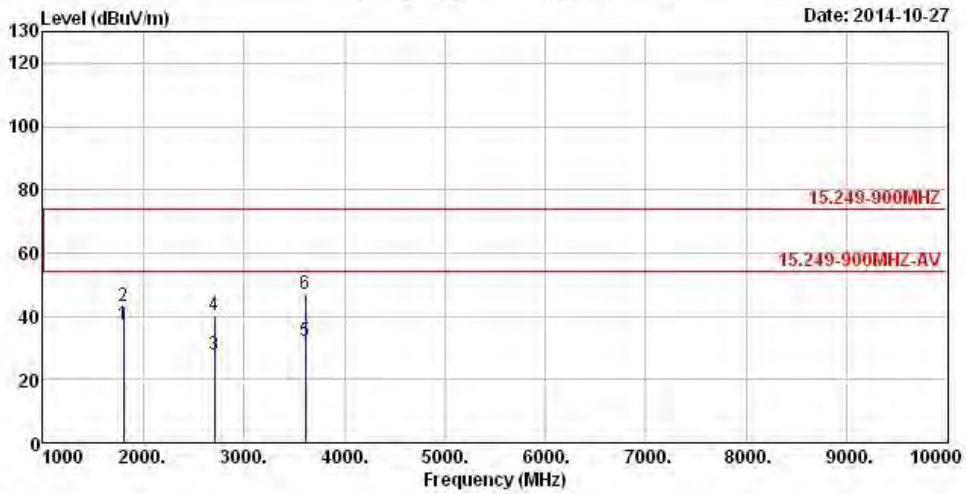
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	OSR-Transmit	**Test Freq. (MHz)**	902.4	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1804.800	47.23	-6.77	54.00	49.61	26.74	3.58	32.70	Average	0	0
2	1804.800	49.55	-24.45	74.00	51.93	26.74	3.58	32.70	Peak	0	0
3	2707.200	27.02	-26.98	54.00	26.27	29.24	4.04	32.53	Average	0	0
4	2707.200	41.30	-32.70	74.00	40.55	29.24	4.04	32.53	Peak	0	0
5	3609.600	31.93	-22.07	54.00	27.95	31.66	4.85	32.53	Average	0	0
6	3609.600	46.80	-27.20	74.00	42.82	31.66	4.85	32.53	Peak	0	0

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).
Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

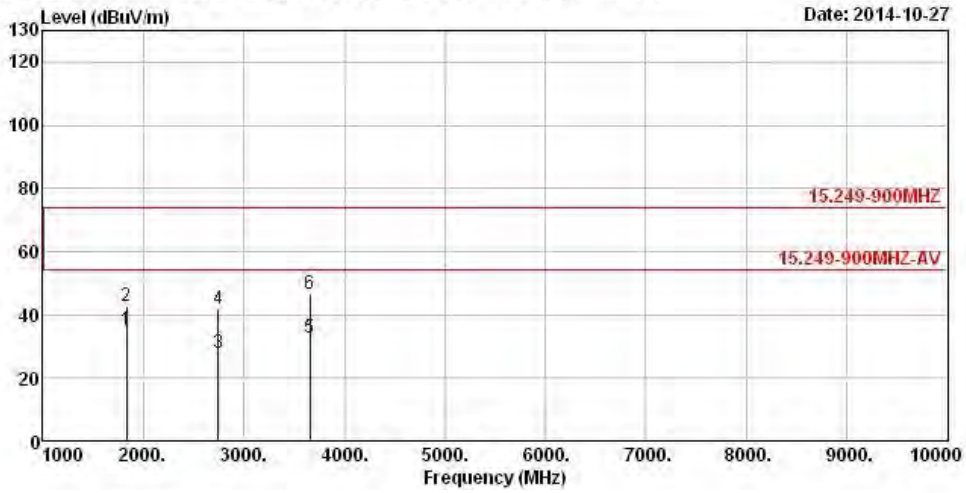
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	OSR-Transmit	**Test Freq. (MHz)**	902.4	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1804.800	37.64	-16.36	54.00	40.02	26.74	3.58	32.70	Average	0	0
2	1804.800	43.26	-30.74	74.00	45.64	26.74	3.58	32.70	Peak	0	0
3	2707.200	27.64	-26.36	54.00	26.89	29.24	4.04	32.53	Average	0	0
4	2707.200	40.36	-33.64	74.00	39.61	29.24	4.04	32.53	Peak	0	0
5	3609.600	32.15	-21.85	54.00	28.17	31.66	4.85	32.53	Average	0	0
6	3609.600	46.83	-27.17	74.00	42.85	31.66	4.85	32.53	Peak	0	0

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).
Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

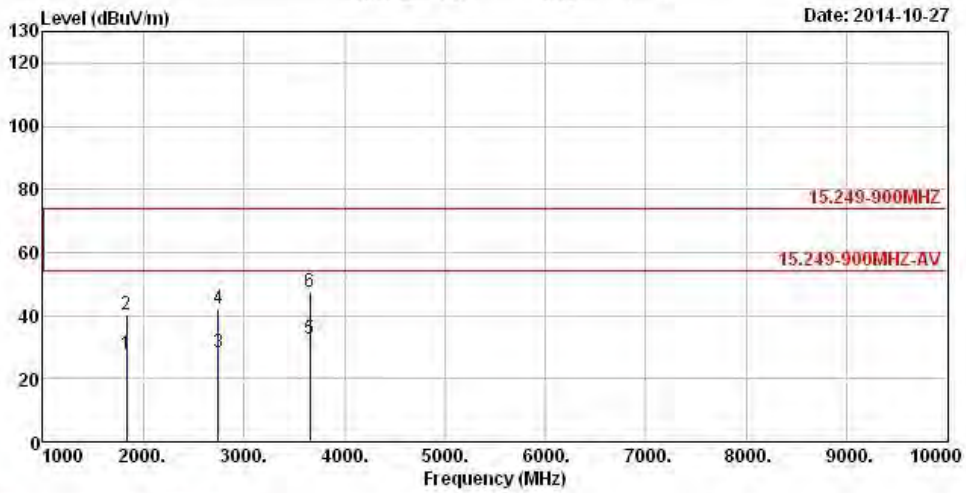
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	OSR-Transmit	**Test Freq. (MHz)**	915	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1830.000	35.15	-18.85	54.00	37.36	26.90	3.58	32.69	Average	0	0
2	1830.000	42.60	-31.40	74.00	44.81	26.90	3.58	32.69	Peak	0	0
3	2745.000	28.06	-25.94	54.00	27.13	29.40	4.05	32.52	Average	0	0
4	2745.000	41.90	-32.10	74.00	40.97	29.40	4.05	32.52	Peak	0	0
5	3660.000	32.80	-21.20	54.00	28.72	31.77	4.84	32.53	Average	0	0
6	3660.000	46.49	-27.51	74.00	42.41	31.77	4.84	32.53	Peak	0	0

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).
Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

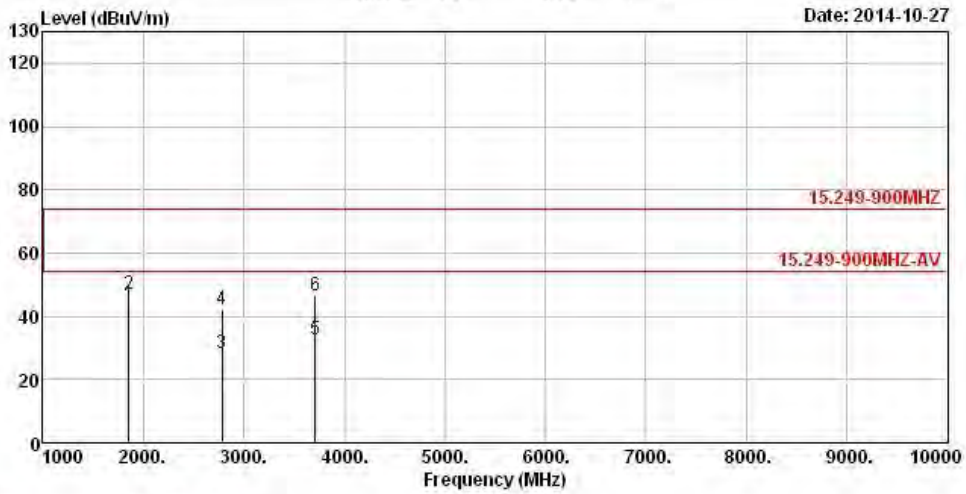
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	OSR-Transmit	**Test Freq. (MHz)**	915	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1830.000	27.61	-26.39	54.00	29.82	26.90	3.58	32.69	Average	0	0
2	1830.000	40.07	-33.93	74.00	42.28	26.90	3.58	32.69	Peak	0	0
3	2745.000	28.42	-25.58	54.00	27.49	29.40	4.05	32.52	Average	0	0
4	2745.000	41.98	-32.02	74.00	41.05	29.40	4.05	32.52	Peak	0	0
5	3660.000	32.50	-21.50	54.00	28.42	31.77	4.84	32.53	Average	0	0
6	3660.000	47.41	-26.59	74.00	43.33	31.77	4.84	32.53	Peak	0	0

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).
Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

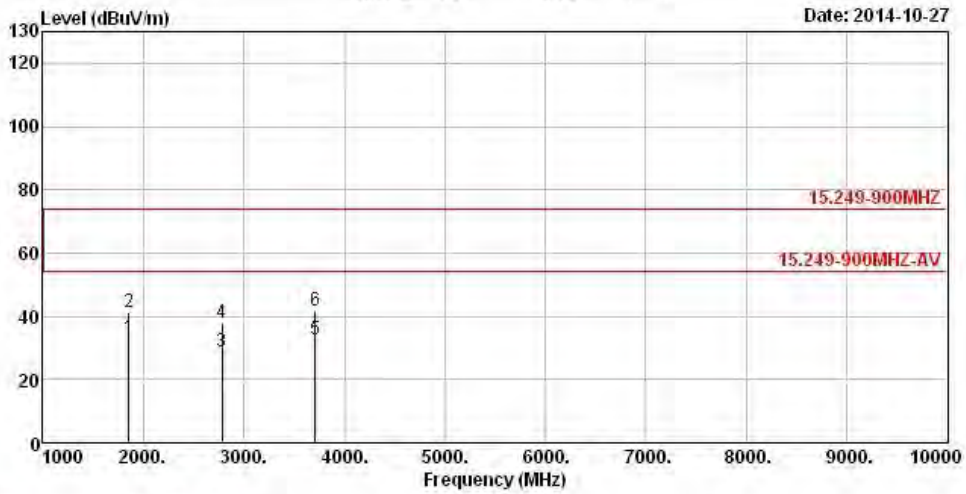
Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	OSR-Transmit	**Test Freq. (MHz)**	927.6	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1855.200	43.77	-10.23	54.00	45.82	26.98	3.64	32.67	Average	0	0
2	1855.200	47.18	-26.82	74.00	49.23	26.98	3.64	32.67	Peak	0	0
3	2782.800	28.39	-25.61	54.00	27.33	29.51	4.07	32.52	Average	0	0
4	2782.800	42.35	-31.65	74.00	41.29	29.51	4.07	32.52	Peak	0	0
5	3710.400	32.79	-21.21	54.00	28.58	31.92	4.83	32.54	Average	0	0
6	3710.400	46.38	-27.62	74.00	42.17	31.92	4.83	32.54	Peak	0	0

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).
Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

Transmitter Radiated Unwanted Emissions (Above 1GHz)					
Modulation Mode	OSR-Transmit	**Test Freq. (MHz)**	927.6	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	1855.200	33.23	-20.77	54.00	35.28	26.98	3.64	32.67	Average	0	0
2	1855.200	41.43	-32.57	74.00	43.48	26.98	3.64	32.67	Peak	0	0
3	2782.800	28.66	-25.34	54.00	27.60	29.51	4.07	32.52	Average	0	0
4	2782.800	37.80	-36.20	74.00	36.74	29.51	4.07	32.52	Peak	0	0
5	3710.400	32.38	-21.62	54.00	28.17	31.92	4.83	32.54	Average	0	0
6	3710.400	41.89	-32.11	74.00	37.68	31.92	4.83	32.54	Peak	0	0

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).
Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

3.4.8 Transmitter Radiated Bandedge Emissions

902-928 MHz Transmitter Radiated Bandedge Emissions									
Modulation Mode	**Test Freq. (MHz)**	**Measure Distance (m)**	**Freq. (MHz) PK**	**Level (dBuV/m) PK**	**Limit (dBuV/m) QPK**	**Freq. (MHz) AV**	**Level (dBuV/m) AV**	**Limit (dBuV/m) AV**	**Pol.**
Legacy-Transmit	902.35	3	902.00	42.11	46	-	-	-	H
Legacy-Transmit	905.45	3	932.32	37.96	46	-	-	-	H
OSR-Transmit	902.4	3	901.99	39.48	46	-	-	-	H
OSR-Transmit	915.0	3	931.48	38.11	46	-	-	-	H
OSR-Transmit	927.6	3	928.00	42.41	46	-	-	-	H
Note 1: Measurement worst emissions of receive antenna polarization.									

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz ~ 2.75GHz	Apr. 14. 2014	AC Conduction
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 22, 2014	AC Conduction
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	Oct. 31, 2014	AC Conduction
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	AC Conduction

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSV 40	101013	9KHz~40GHz	Jan. 25, 2014	RF Conducted
AC Power Source	G.W	APS-9102	EL920581	AC 0V ~ 300V	Jul. 15, 2014	RF Conducted
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Jul. 31, 2014	RF Conducted
RF Cable-2m	HUBER+SUHNER	SUCOFLEX_104	SN 345675/4	30MHz ~ 26.5GHz	Dec. 02, 2013	RF Conducted

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	Nov. 30, 2013 Nov. 29, 2014 (Update)	Radiation
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	May 05, 2014	Radiation
Amplifier	Agilent	8449B	3008A02120	1GHz ~ 26.5GHz	Sep. 01, 2014	Radiation
Spectrum	R&S	FSP40	100004	9kHz ~ 40GHz	Mar. 27, 2014	Radiation
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30MHz ~ 1GHz	Sep. 20, 2014	Radiation
Horn Antenna	ETS・LINDGREN	3115	6741	1GHz ~ 18GHz	Jun. 11, 2014	Radiation
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz ~ 40GHz	Jan. 10, 2014	Radiation
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	Nov. 16, 2013	Radiation
RF Cable-high	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz ~ 40GHz	Dec. 11, 2013	Radiation
Turn Table	EM Electronics	EM Electronics	060615	0 ~ 360 degree	N/A	Radiation
Antenna Mast	MF	MF-7802	MF780208179	1 ~ 4 m	N/A	Radiation

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	TESEQ	HLA 6120	31244	9kHz ~ 30MHz	Dec. 02, 2012	Radiation

Note: Calibration Interval of instruments listed above is two year.