

FCC Test Report

Equipment : Cellular Base Station Gen2.0
Brand Name : MobileHelp
Model No. : CBS2-01
FCC ID : PXTCBS2-01
Standard : 47 CFR FCC Part 15.231
Operating Band : 433.92MHz
Operation : Manually operated within 5 sec
Applicant : MobileHelp
3701 FAU Blvd., Suite 300. Boca Raton FL, 33431
Manufacturer : Daviscomms (Malaysia) Sdn Bhd
Plot 18, Lorong Perusahaan Maju 1. Kawasan
Perusahaan Perai 4, 13600 Perai, Malaysia

The product sample received on Apr. 07, 2015 and completely tested on Apr. 10, 2015. We, aPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 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

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Summary of Test Result

Conformance Test Specifications					
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]:0.1703400MHz 33.82 (Margin 21.12dB) - AV 51.83 (Margin 13.11dB) - QP	FCC 15.207	Complied
3.2	15.231(c)	Emission Bandwidth	26.34 kHz	Fc(70~900MHz): BW ≤ fc x 0.25%	Complied
3.3	15.231(b)/(e)	Fundamental Emissions	[dBuV/m at 3m]: 69.66 (Margin 11.17dB) average	[dBuV/m at 3m]: average: 80.83	Complied
3.4	15.249(b)/(e)	Transmitter Radiated Unwanted Emissions	[dBuV/m at 3m]: 39.70MHz 33.21 (Margin 6.79dB) - PK	FCC 15.231 (b)/(e) or FCC 15.209, whichever limit permits higher field strength.	Complied
3.5	15.231(a)/(e)	Operation Restriction	Operated time and silent time are less than limits.	Manually operated within 5 sec	Complied

Revision History

[illegible]

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information				
Frequency Range (MHz)	Modulation	Ch. Frequency (MHz)	Channel Number	Fundamental Field Strength (dBuV/m)
433.92	ASK	433.92	1	69.66
Note 1: Field strength performed average level at 3m.				

1.1.2 Antenna Information

Antenna Category	
☒	Integral antenna (antenna permanently attached)
☐	External antenna (dedicated antennas) ; Unique antenna connector

1.1.3 Type of EUT

Identify EUT	
EUT Serial Number	N/A
HW Version / SW Version	R04 / 3.00
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:

1.1.4 EUT Operational Condition

Supply Voltage	☒ AC mains	☐ DC	
Type of DC Source	☐ Internal DC supply	☒ External adapter	☒ Battery

1.1.5 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

1.2 Accessories Information

Accessories Information				
AC Adapter 1	Brand Name	GEEHIGH TECHNOLOGY	Model Name	GH-053000W
	Power Rating	I/P: 100-240Vac, 0.8A; O/P: 5Vdc $\overline{\overline{=}}$ 3A		
	Power Cord	1.8 meter, non-shielded cable, w/o ferrite core		
AC Adapter 2	Brand Name	DONGGUAN DONGSONG ELECTRONIC	Model Name	DYS182-050300W-1
	Power Rating	I/P: 100-240Vac, 0.45A; O/P: 5Vdc $\overline{\overline{=}}$ 3A		
	Power Cord	1.8 meter, non-shielded cable, w/o ferrite core		
Li-ion Battery 1	Brand Name	Shinergy	Model Name	BAT-000010-0-0
	Power Rating	3.7 Vdc, 2500 mAh		
Li-ion Battery 2	Brand Name	Stark Energy	Model Name	STK804169
	Power Rating	3.7 Vdc, 2500 mAh		

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

1.3 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 C63.10-2013

1.4 Testing Location Information

Testing Location				
☒	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.		
		TEL : 886-3-327-3456 FAX : 886-3-327-0973		
Test Condition		Test Site No.	Test Engineer	Test Environment
AC Conduction		CO04-HY	Zeus	20°C / 52%
RF Conducted		TH01-HY	Shiming	24.3°C / 61.5%
Radiated Emission		03CH02-HY	Daniel	24.2°C / 53%

1.5 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		±2.3 dB
Emission bandwidth, 6dB bandwidth		±0.6 %
RF output power, conducted		±0.1 dB
Power density, conducted		±0.6 dB
Unwanted emissions, conducted	9 – 150 kHz	±0.4 dB
	0.15 – 30 MHz	±0.4 dB
	30 – 1000 MHz	±0.6 dB
	1 – 18 GHz	±0.5 dB
	18 – 40 GHz	±0.5 dB
	40 – 200 GHz	N/A
All emissions, radiated	9 – 150 kHz	±2.5 dB
	0.15 – 30 MHz	±2.3 dB
	30 – 1000 MHz	±2.6 dB
	1 – 18 GHz	±3.6 dB
	18 – 40 GHz	±3.8 dB
	40 – 200 GHz	N/A
Temperature		±0.8 °C
Humidity		±5 %
DC and low frequency voltages		±0.9%
Time		±1.4 %
Duty Cycle		±0.6 %

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)
ASK	69.66

2.2 Test Channel Frequencies Configuration

Test Channel Frequencies Configuration	
Test Mode	Test Channel Frequencies (MHz)
ASK	433.92

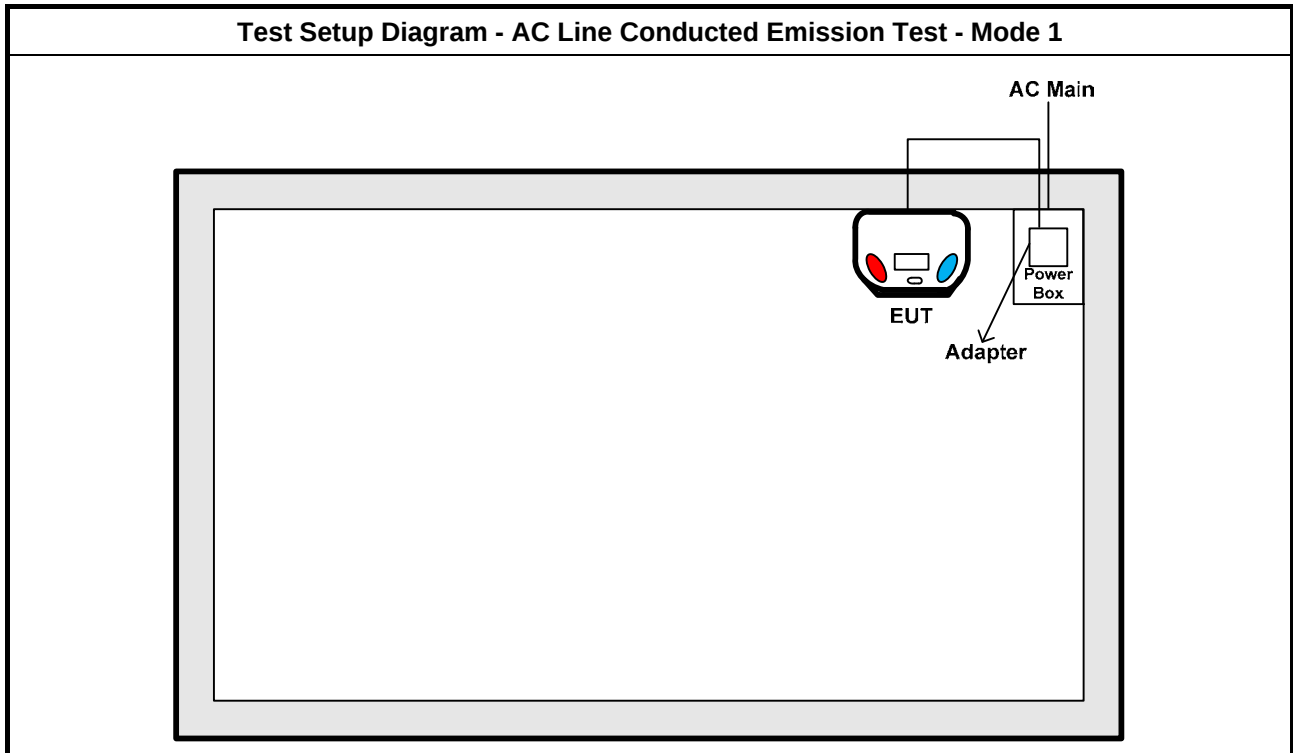
2.3 The Worst Case Measurement Configuration

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 (120Vac / 60Hz)
Operating Mode	Operation Mode Description
	1 Adapter (Geehigh) + Battery (Shinergy)
	2 Adapter (Dongguan Dongsong) + Battery (Stark Energy)
The operating mode 1 is the worst case and it was record in this test report.	

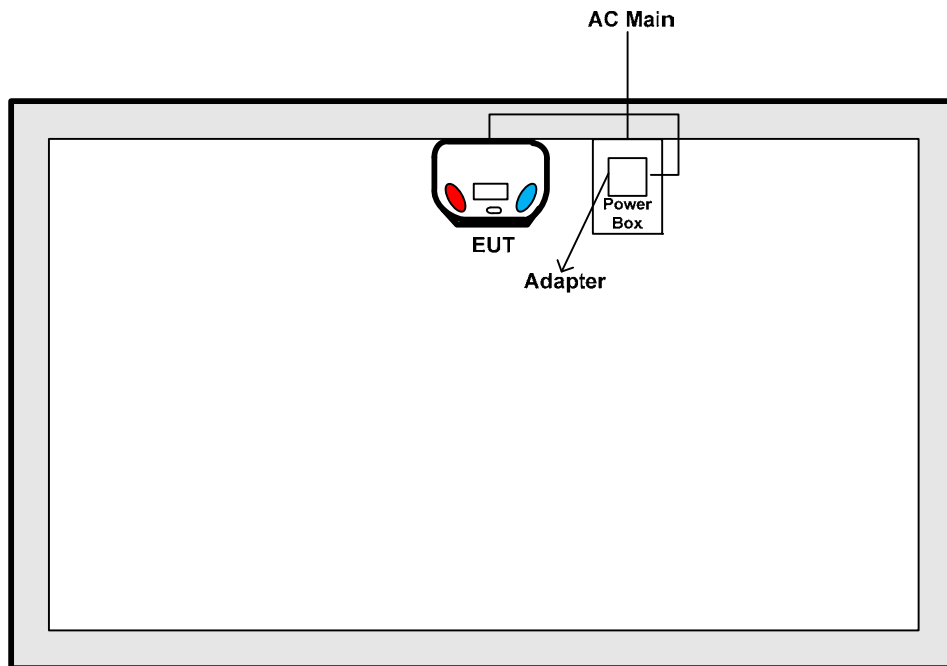
The Worst Case Mode for Following Conformance Tests	
Tests Item	Emission Bandwidth, Fundamental Emissions, Radiated Unwanted Emissions
Test Condition	Radiated measurement
User Position	☒ EUT will be placed in fixed position.
	☐ EUT will be placed in mobile position and operating multiple positions. EUT shall be performed two orthogonal planes.
	☐ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed three orthogonal planes.
Operating Mode	Operation Mode Description
	1 Adapter (Geehigh) + Battery (Shinergy)
	2 Adapter (Dongguan Dongsong) + Battery (Stark Energy)
The operating mode 1 is the worst case and it was record in this test report.	
Test Mode	ASK
Orthogonal Planes of EUT	X Plane
	
Worst Planes of EUT	V

The Worst Case Mode for Following Conformance Tests	
Tests Item	Operation Restriction (silent time and operated time)
Test Condition	Radiated measurement
Test Mode	Operated normally mode for worst duty cycle condition.

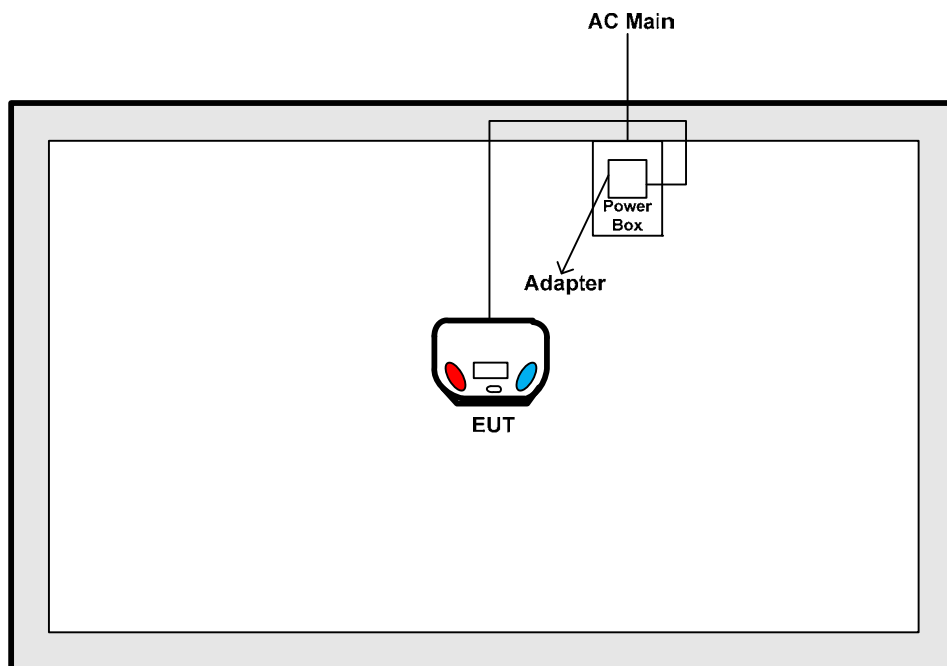
2.4 Test Setup Diagram



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



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



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.

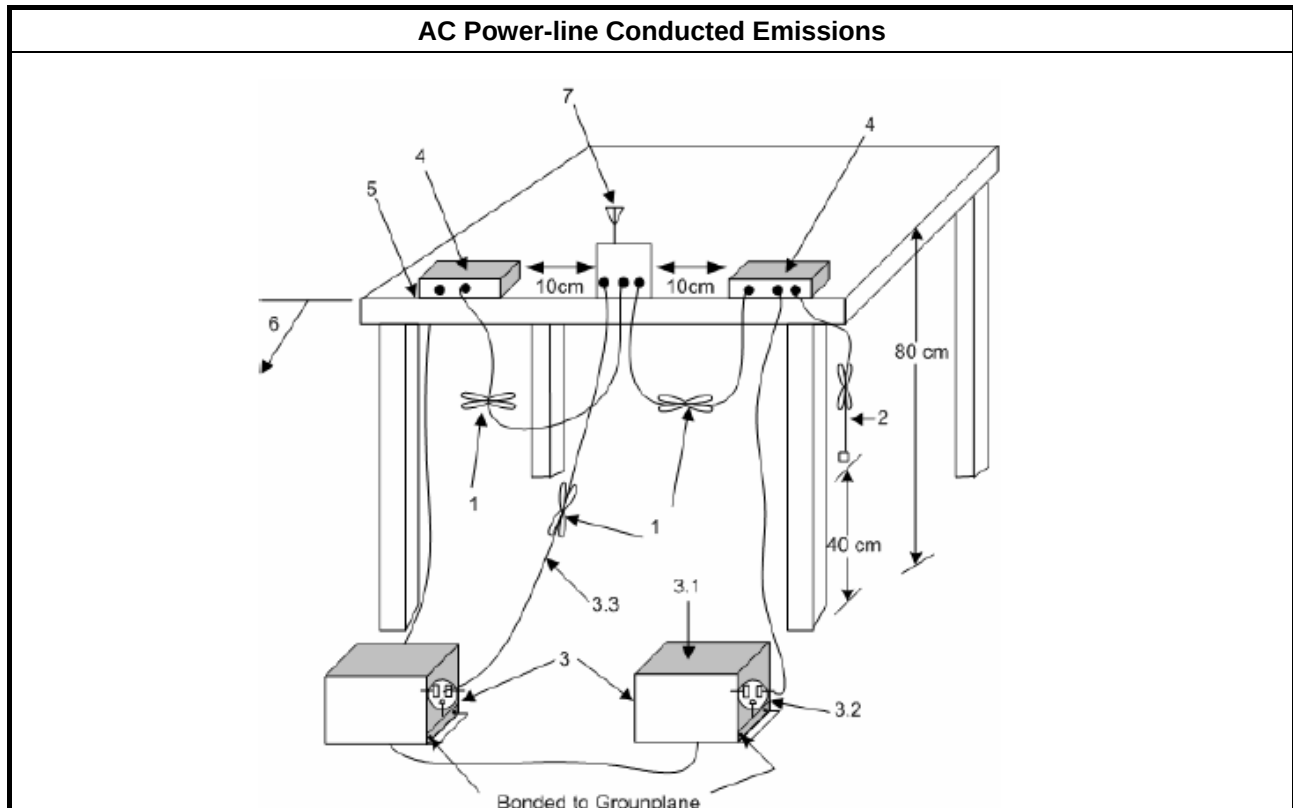
3.1.2 Measuring Instruments

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

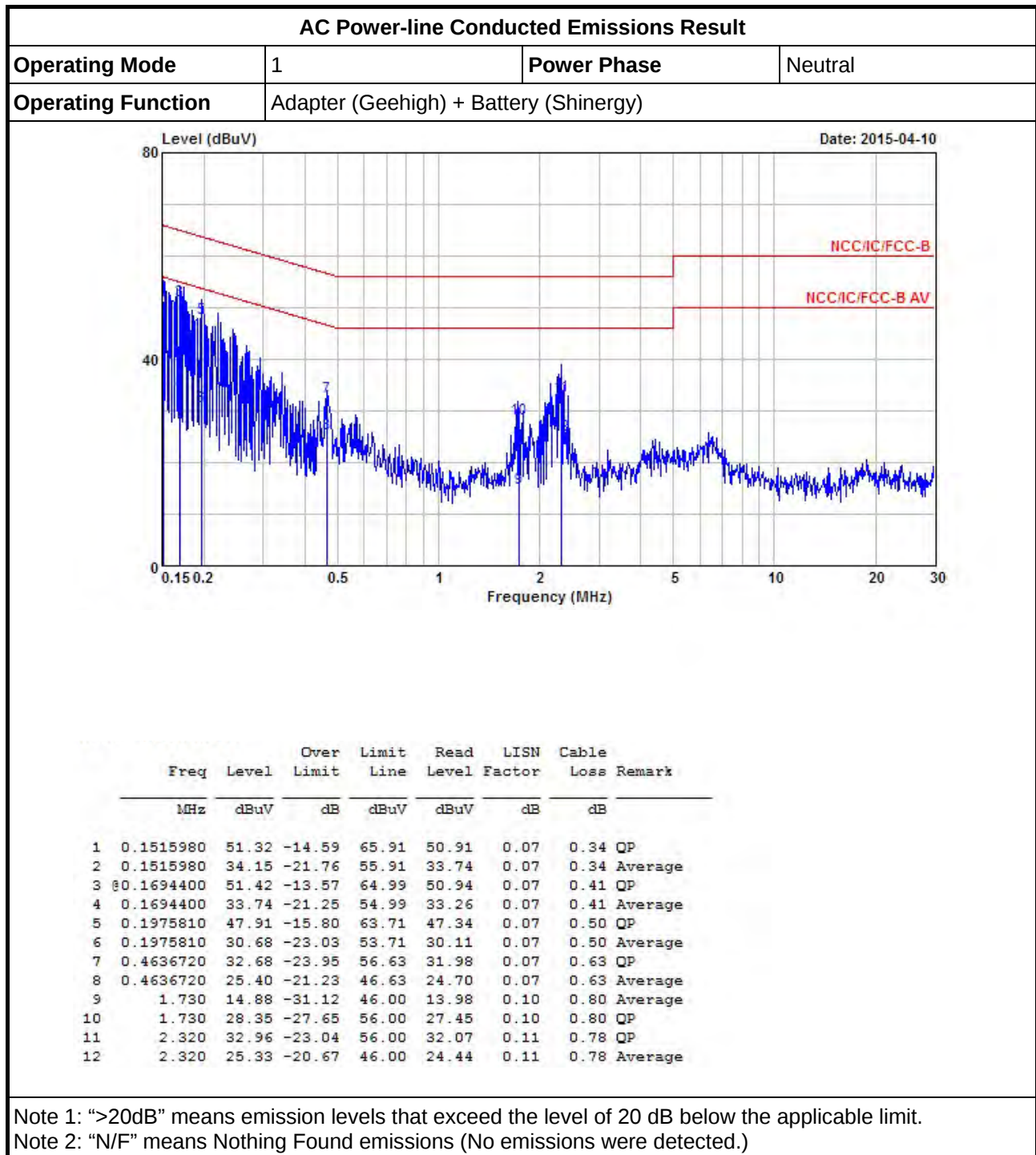
3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup

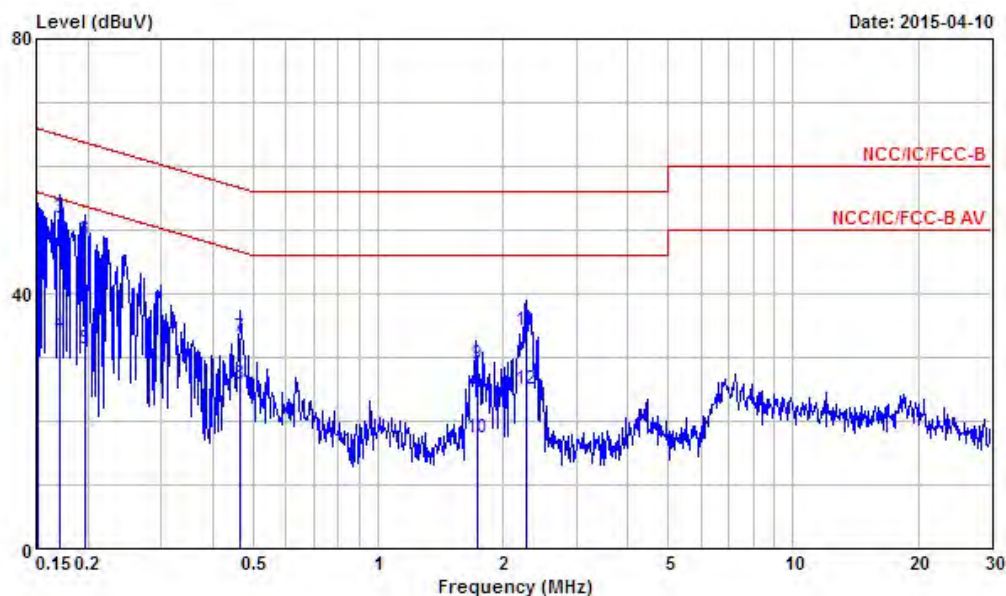


3.1.5 Test Result of AC Power-line Conducted Emissions



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Adapter (Geehigh) + Battery (Shinergy)		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1515980	51.44	-14.47	65.91	51.05	0.05	0.34	QP
2	0.1515980	34.18	-21.73	55.91	33.79	0.05	0.34	Average
3	0.1703400	51.83	-13.11	64.94	51.37	0.05	0.41	QP
4	0.1703400	33.82	-21.12	54.94	33.36	0.05	0.41	Average
5	0.1965370	31.35	-22.41	53.76	30.80	0.06	0.49	Average
6	0.1965370	48.52	-15.24	63.76	47.97	0.06	0.49	QP
7	0.4636720	33.08	-23.55	56.63	32.38	0.07	0.63	QP
8	0.4636720	25.76	-20.87	46.63	25.06	0.07	0.63	Average
9	1.730	28.90	-27.10	56.00	28.00	0.10	0.80	QP
10	1.730	17.42	-28.58	46.00	16.52	0.10	0.80	Average
11	2.270	34.30	-21.70	56.00	33.41	0.11	0.78	QP
12	2.270	25.13	-20.87	46.00	24.24	0.11	0.78	Average

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.
☒	Fc(70~900MHz): $BW \leq f_c \times 0.25\%$
☐	Fc(>900MHz): $BW \leq f_c \times 0.5\%$

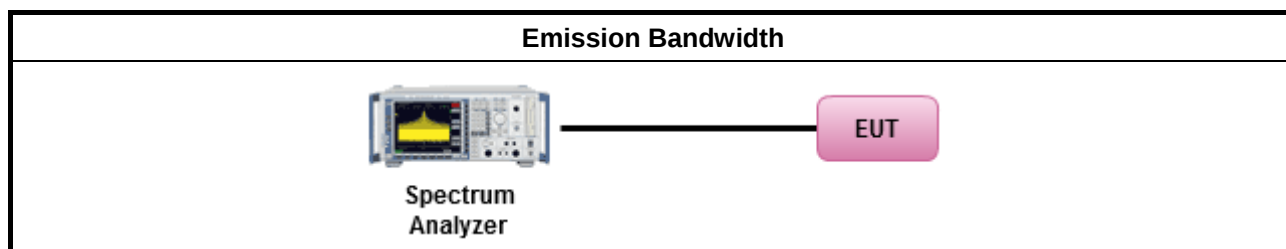
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

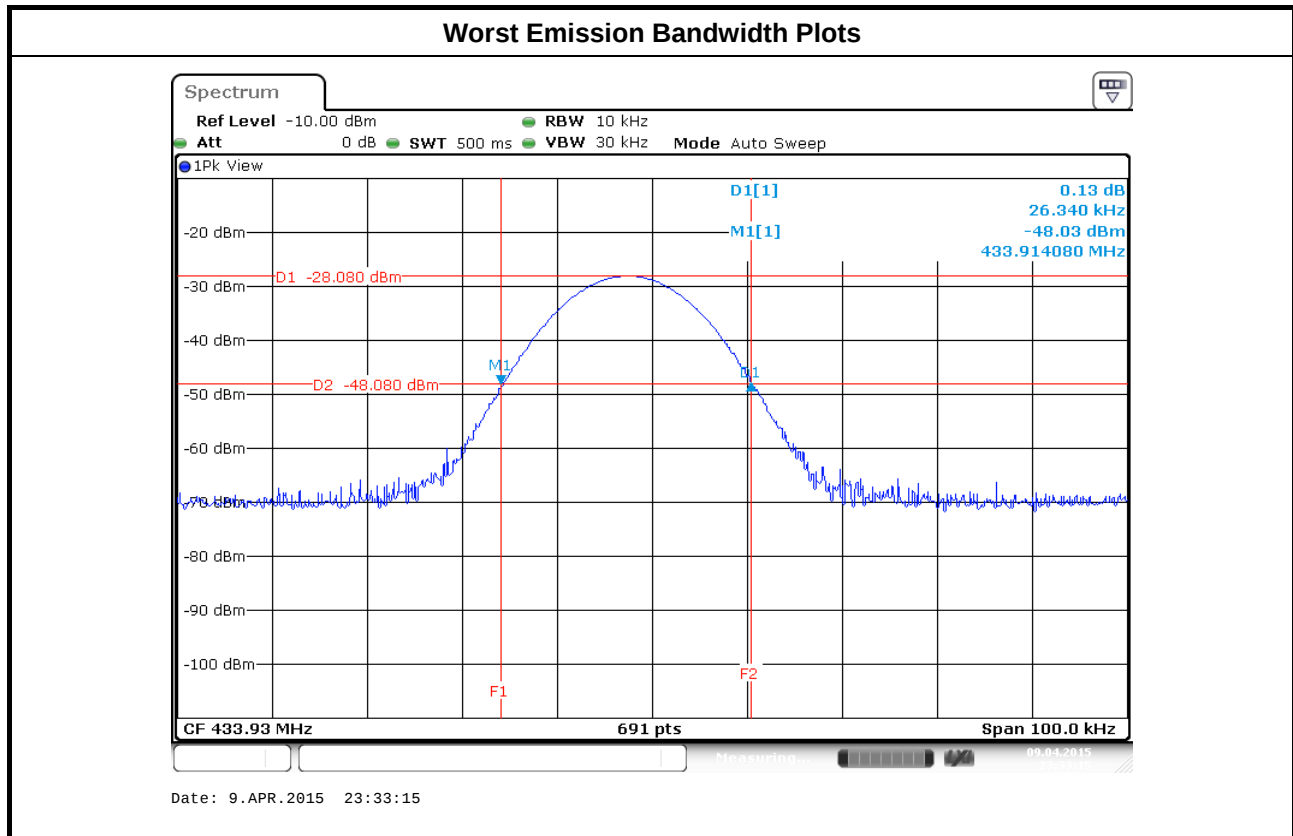
Test Method	
☒	Refer as ANSI C63.10, clause 6.9.2 for 20 dB emission bandwidth and 99% occupied bandwidth measurement.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Emission Bandwidth Result			
Modulation Mode	Frequency (MHz)	99% Bandwidth (kHz)	20dB BW (kHz)
ASK	433.92	22.57	26.34
Limit		N/A	1.08480
Result		Complied	



3.3 Fundamental Emissions

3.3.1 Fundamental Emissions Limit

For manually operated within 5 sec, activated automatically within 5 sec, periodic transmissions		
Frequency Band (MHz)	Fundamental Limit (uV/m) at 3m	Fundamental Limit (dBuV/m) at 3m
40.66-40.70	2250	67
70-130	1250	61.9
130-174	1250-3750(**)	61.9-71.5
174-260	3750	71.5
260-470	3750-12500(**)	71.5-81.9
Above 470	12500	81.9

****1.** Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:
 (1) for the band 130 - 174 MHz, $\mu\text{V/m}$ at 3 meters = $56.81818 \times (\text{operating frequency, MHz}) - 6136.3636$;
 (2) for the band 260 - 470 MHz, $\mu\text{V/m}$ at 3 meters = $41.6667 \times (\text{operating frequency, MHz}) - 7083.3333$.
 Based on the average value of the measured emissions.

For periodic transmissions (lower field strength)		
Frequency Band (MHz)	Fundamental Limit (uV/m) at 3m	Fundamental Limit (dBuV/m) at 3m
40.66-40.70	1000	60
70-130	500	54
130-174	500-1500(**)	54-63.5
174-260	1500	63.5
260-470	1500-5000(**)	63.5-74
Above 470	5000	74

**** 1.** Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:
 (1) for the band 130 - 174 MHz, $\mu\text{V/m}$ at 3 meters = $22.72727 \times (\text{operating frequency, MHz}) - 2454.545$;
 (2) for the band 260 - 470 MHz, $\mu\text{V/m}$ at 3 meters = $16.6667 \times (\text{operating frequency, MHz}) - 2833.3333$.
 Based on the average value of the measured emissions.

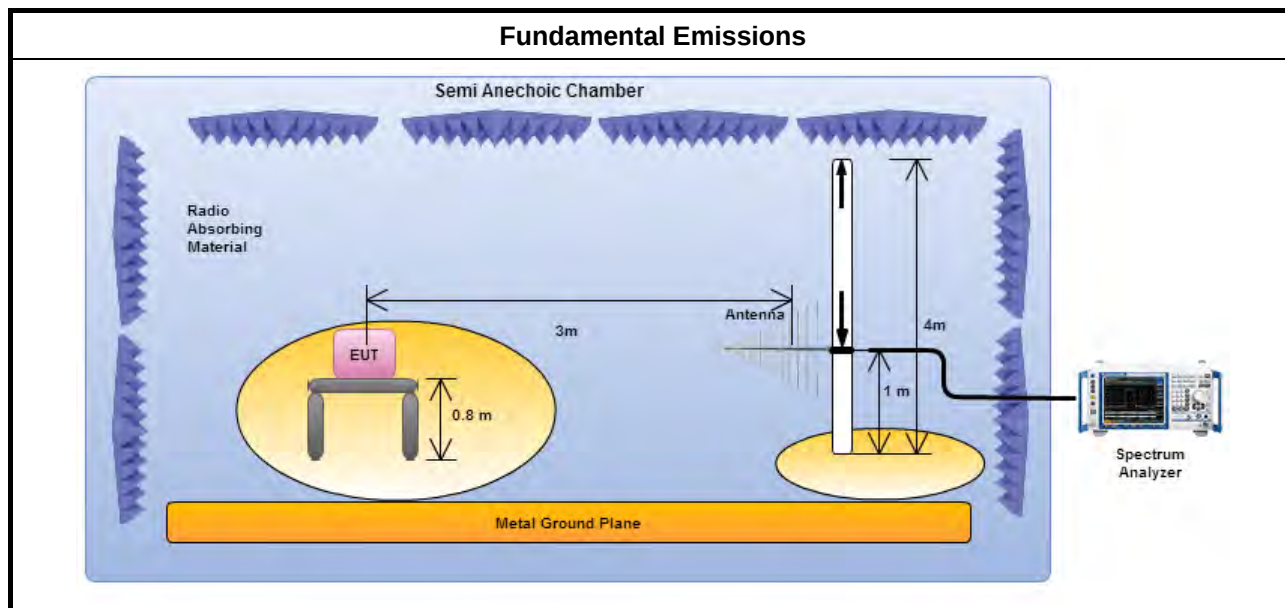
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

☒	For the transmitter emissions shall be measured using following options below:
☐	Refer as ANSI C63.10, clause 4.1.4.2.3 (Reduced VBW) – Duty cycle $\geq 100\%$.
☒	Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from $20\log(\text{dwell time}/100 \text{ ms})$. Average emission = peak emission + $20 \log(\text{duty cycle})$.
☒	Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
☒	For radiated measurement, refer as ANSI C63.10, clause 6.5 for radiated emissions

3.3.4 Test Setup



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
ASK	433.92	79.69	21.14	100.83	peak
ASK	433.92	69.66	11.17	80.83	average
Result		Complied			
Note 1: Measurement worst emissions of receive antenna polarization: Vertical.					
Note 2: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).					

3.4 Transmitter Radiated Unwanted Emissions

3.4.1 Transmitter Radiated Unwanted Emissions Limit

For manually operated within 5 sec, activated automatically within 5 sec, periodic transmissions		
Unwanted emissions limit follow this table or the general limits FCC 15.209, whichever limit permits higher field strength.		
Frequency Band (MHz)	Spurious Limit (uV/m) at 3m	Spurious Limit (dBuV/m) at 3m
40.66-40.70	225	47
70-130	125	41.9
130-174	125-375(**)	41.9-51.5
174-260	375	51.5
260-470	375-1250(**)	51.5-61.9
Above 470	1250	61.9
**1. Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows: (1) for the band 130 - 174 MHz, $\mu\text{V/m}$ at 3 meters = $56.81818 \times (\text{operating frequency, MHz}) - 6136.3636$; (2) for the band 260 - 470 MHz, $\mu\text{V/m}$ at 3 meters = $41.6667 \times (\text{operating frequency, MHz}) - 7083.3333$. Based on the average value of the measured emissions.		

For periodic transmissions (lower field strength)		
Unwanted emissions limit follow this table or the general limits FCC 15.209, whichever limit permits higher field strength.		
Frequency Band (MHz)	Spurious Limit (uV/m) at 3m	Spurious Limit (dBuV/m) at 3m
40.66-40.70	100	40
70-130	50	34
130-174	50-150(**)	34-43.5
174-260	150	43.5
260-470	150-500(**)	43.5-54
Above 470	500	54
** 1. Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows: (1) for the band 130 - 174 MHz, $\mu\text{V/m}$ at 3 meters = $22.72727 \times (\text{operating frequency, MHz}) - 2454.545$; (2) for the band 260 - 470 MHz, $\mu\text{V/m}$ at 3 meters = $16.6667 \times (\text{operating frequency, MHz}) - 2833.3333$. Based on the average value of the measured emissions.		

3.4.2 Measuring Instruments

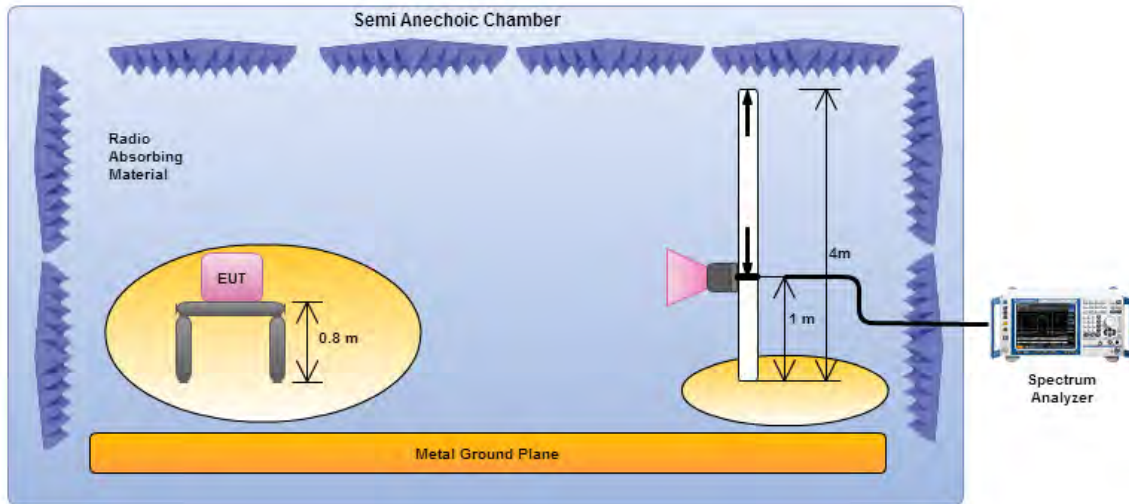
Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

Test Method – General Information	
☒	The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].
☒	Refer as ANSI C63.10, clause 6.10 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 4.1.4.2.3 (Reduced VBW) – Duty cycle $\geq$ 100%.
☒	Refer as ANSI C63.10, clause 4.1.4.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from $20\log(\text{dwell time}/100 \text{ ms})$. Average emission = peak emission + 20 log (duty cycle).
☒	Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak limit.
☒	For the transmitter bandedge emissions shall be measured using following options below:
☒	Refer as ANSI C63.10, clause 6.10 for band-edge testing.
☐	Refer as ANSI C63.10, clause 6.10.6.2 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.

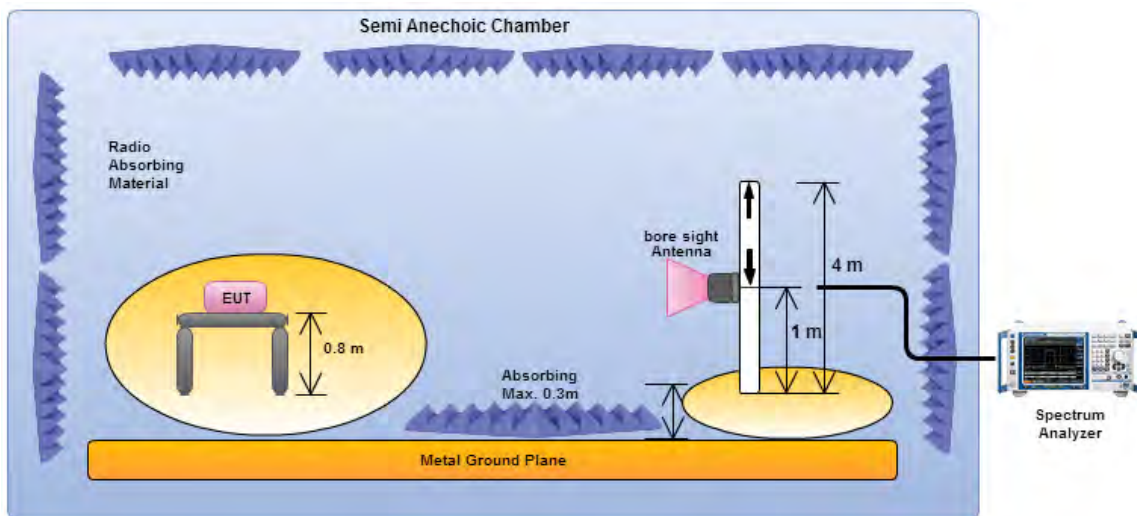
3.4.4 Test Setup

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)

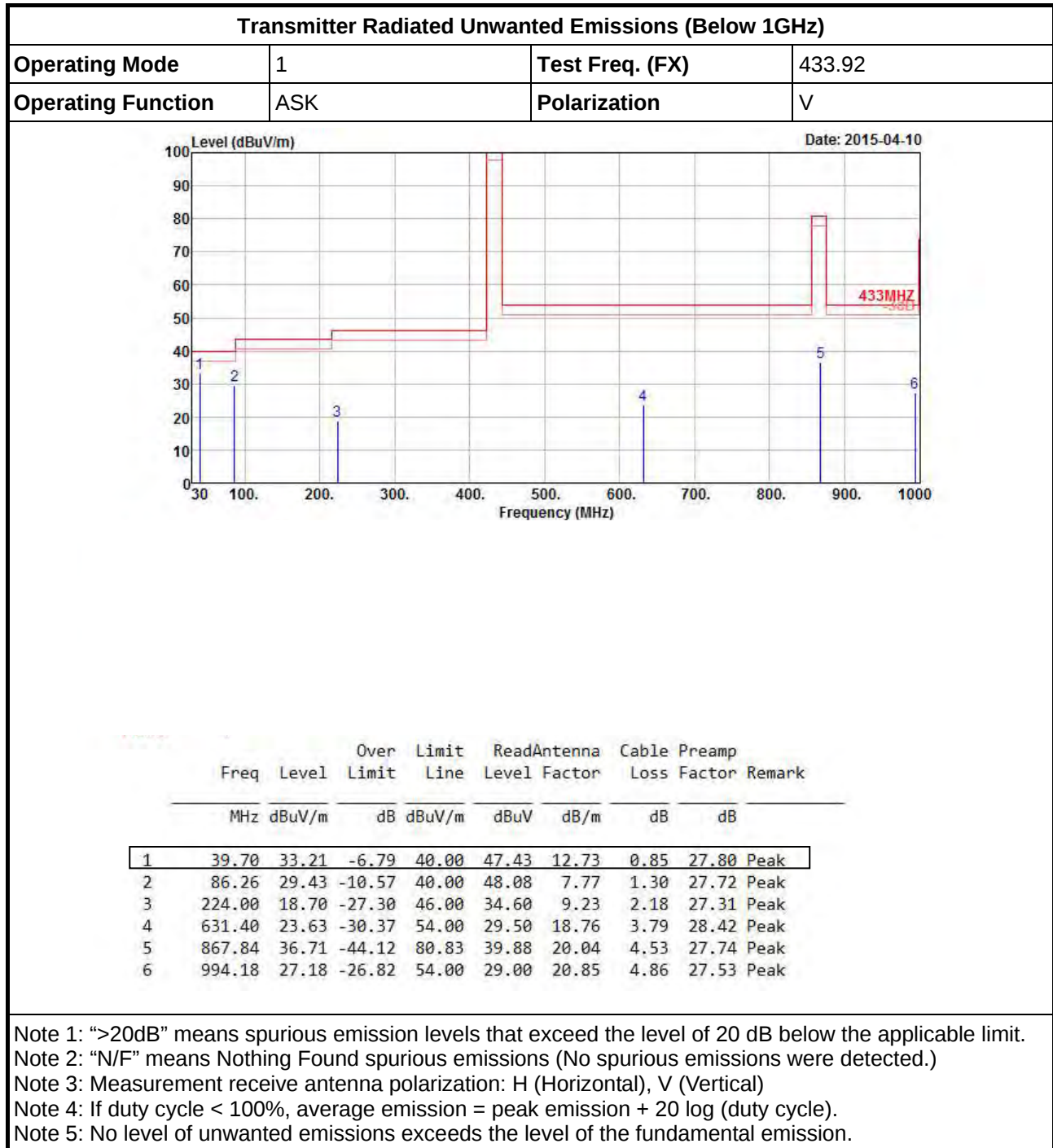


Electric field tests shall be performed in the frequency range of 1 GHz to 10th harmonic of highest fundamental frequency or 40 GHz using a calibrated horn antenna.

3.4.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

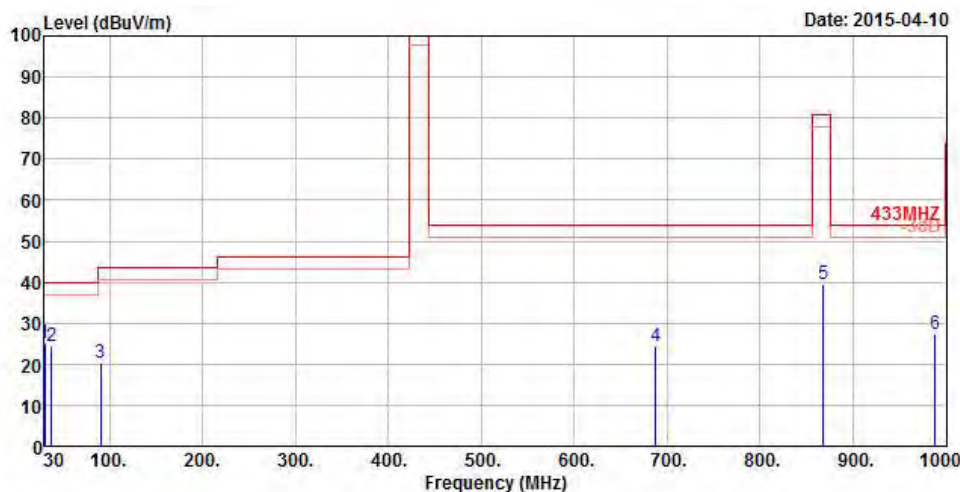
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.4.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)



Transmitter Radiated Unwanted Emissions (Below 1GHz)

Operating Mode	1	Test Freq. (FX)	433.92
Operating Function	ASK	Polarization	H



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor Remark
			dB	dBuV/m	dBuV	dB/m	dB	dB
1	30.00	25.14	-14.86	40.00	34.61	17.67	0.75	27.89 Peak
2	37.76	24.26	-15.74	40.00	37.27	13.97	0.83	27.81 Peak
3	90.14	20.44	-23.06	43.50	38.23	8.59	1.34	27.72 Peak
4	687.66	24.32	-29.68	54.00	30.13	18.54	3.97	28.32 Peak
5	867.84	39.49	-41.34	80.83	42.66	20.04	4.53	27.74 Peak
6	988.36	27.19	-26.81	54.00	29.07	20.81	4.84	27.53 Peak

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

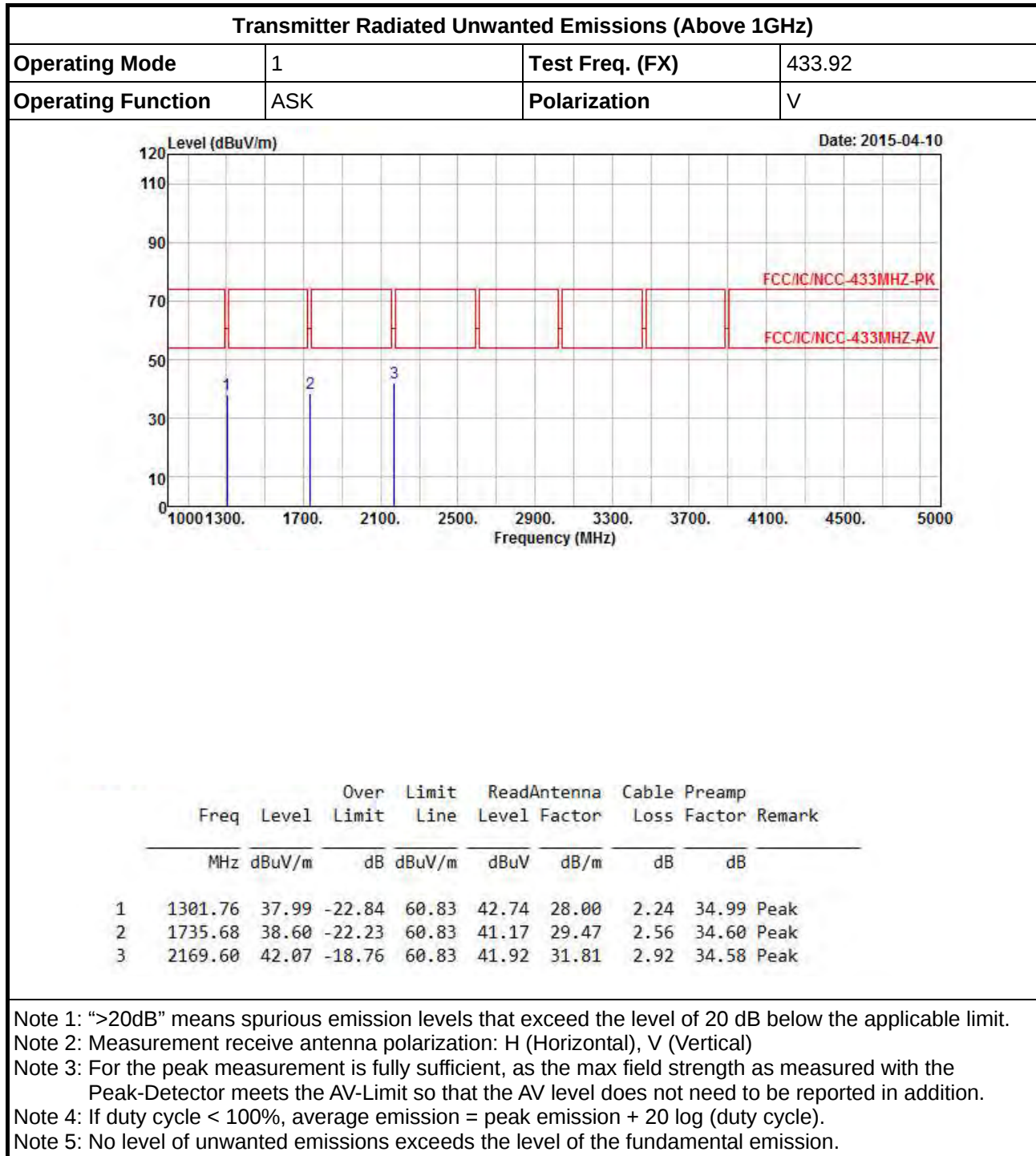
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

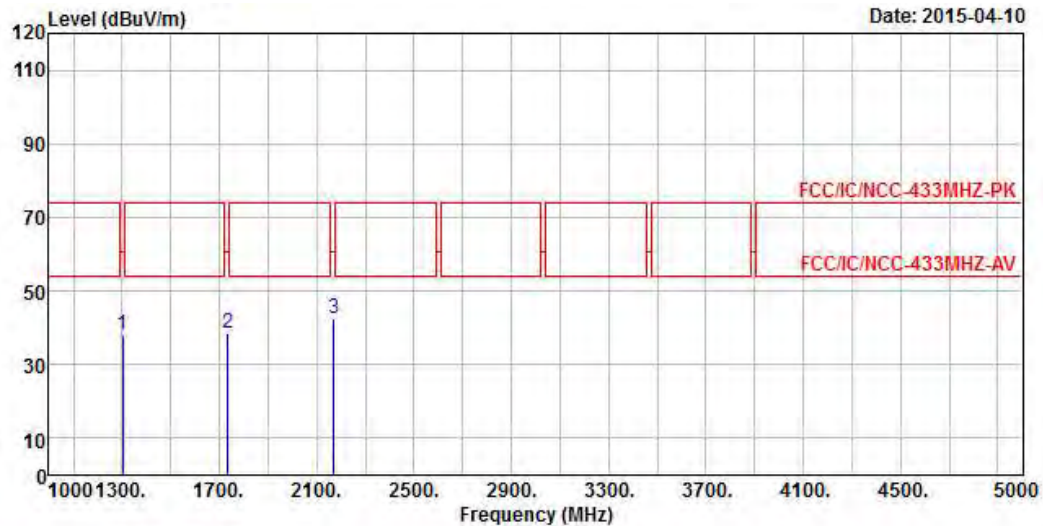
Note 5: No level of unwanted emissions exceeds the level of the fundamental emission.

3.4.7 Transmitter Radiated Unwanted Emissions (Above 1GHz)



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Operating Mode	1	Test Freq. (FX)	433.92
Operating Function	ASK	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB
1	1301.76	37.96	-22.87	60.83	42.71	28.00	2.24	34.99 Peak
2	1735.68	38.55	-22.28	60.83	41.12	29.47	2.56	34.60 Peak
3	2169.60	42.72	-18.11	60.83	42.57	31.81	2.92	34.58 Peak

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 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.

3.5 Operation Restriction

3.5.1 Operation Restriction Limit

Operation Restriction Limit	
☒	Manually operated: manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 sec of being released.
☐	Activated automatically: transmitter activated automatically shall cease transmission within 5 sec after activation.
☐	Periodic transmissions: permitted with total transmission time of 2 sec per hour or less.
☐	Periodic transmissions (lower field strength): each transmission is not greater than 1 sec and the silent period between transmissions is at least 30 times the duration of the transmission but in no case less than 10 sec.

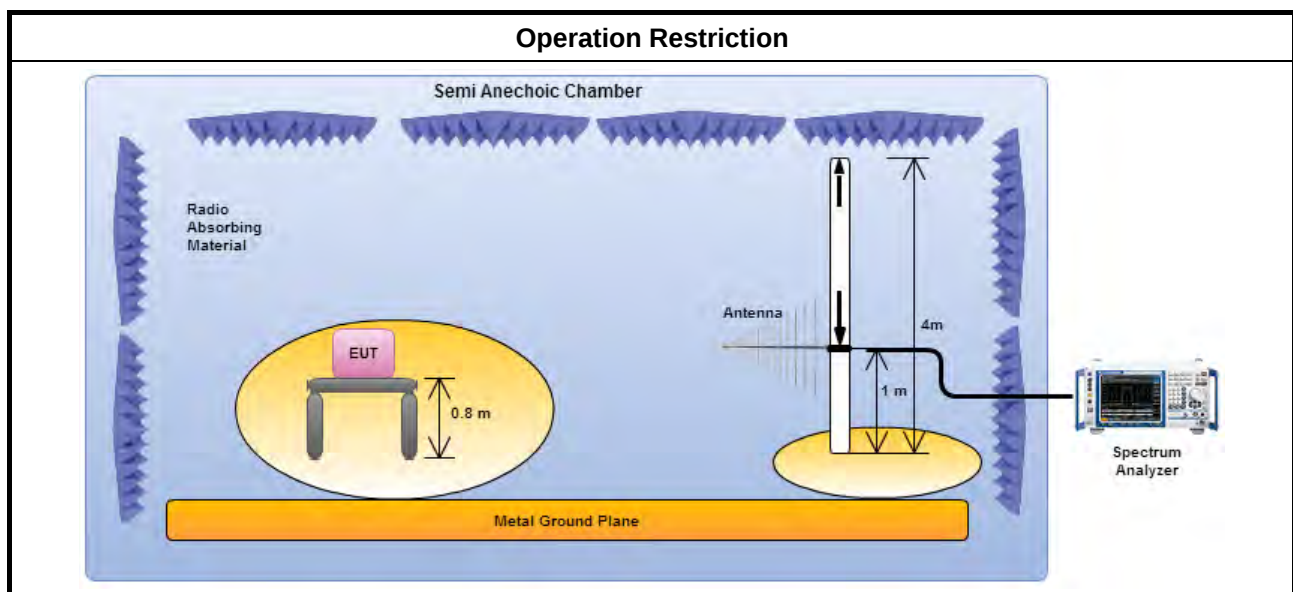
3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report. Activated automatically within 5 sec

3.5.3 Test Procedures

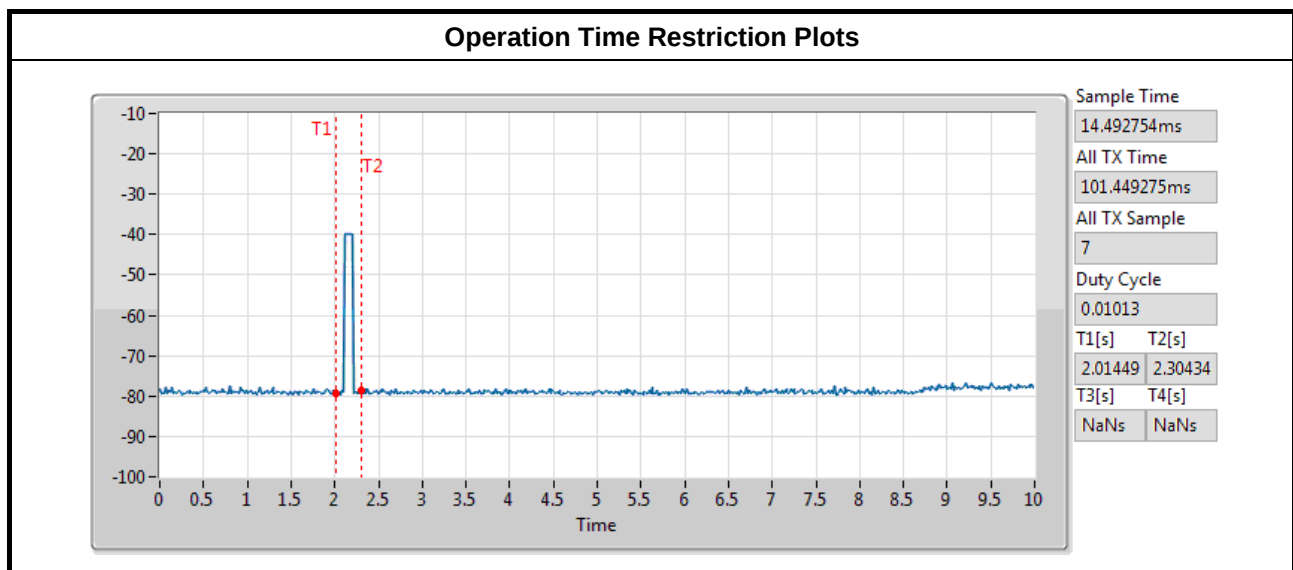
Test Method	
☒	Refer as ANSI C63.10, clause 7.4 for periodic operation measurement.

3.5.4 Test Setup



3.5.5 Test Result of Operation Restriction

Operation Restriction Limit	
☒	Manually operated: manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 sec of being released.
☐	Activated automatically: transmitter activated automatically shall cease transmission within 5 sec after activation.
☐	Periodic transmissions: permitted with total transmission time of 2 sec per hour or less.
☐	Periodic transmissions (lower field strength): each transmission is not greater than 1 sec and the silent period between transmissions is at least 30 times the duration of the transmission but in no case less than 10 sec.





4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSV 40	101500	9KHz~40GHz	Apr. 28, 2014	RF Conducted
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Jul. 31, 2014	RF Conducted
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	Jan. 29, 2015	RF Conducted
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	Jan. 29, 2015	RF Conducted

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

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, 2015	AC Conduction
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020 001	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	FSP40	100593	9kHz ~ 40GHz	Oct. 02, 2014	Radiation
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	May 11, 2014	Radiation
Amplifier	Agilent	8447D	2944A11149	100kHz ~ 1.3GHz	Jul. 22, 2014	Radiation
Amplifier	Agilent	8449B	3008A02373	1GHz ~ 26.5GHz	Aug. 28, 2014	Radiation
Horn Antenna	ETS-LINDGREN	3117	00091920	1GHz ~ 18GHz	Nov. 28, 2014	Radiation
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170614	18GHz ~ 40GHz	Dec. 29, 2014	Radiation
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	Nov. 08, 2014	Radiation
RF Cable-high	SUHNER	SUCOFLEX106	03CH02-HY	1GHz ~ 40GHz	Mar. 04, 2015	Radiation
Bilog Antenna	SCHAFFNER	CBL61128	2723	30MHz ~ 2GHz	Sep. 20, 2014	Radiation
Turn Table	Chaintek Instruments	3000	MF7802058	0~ 360 degree	N/A	Radiation
Antenna Mast	MF	MF7802	MF780208205	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	9 kHz~30 MHz	Feb. 02, 2015	Radiation

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