

Report No. : FR272029



RADIO TEST REPORT

FCC ID	: DC9WSOPMW
Equipment	: Microwave Module
Brand Name	: OPTEX
Model Name	: WS-OPMW-WL X5
Applicant	: Optex Co Ltd 5-8-12, Ogoto Otsu-Shi, Shiga-Ken, Japan 520-0101
Manufacturer	: Optex Co Ltd 5-8-12, Ogoto Otsu-Shi, Shiga-Ken, Japan 520-0101
Standard	: 47 CFR FCC Part 15.245

The product was received on Jul. 21, 2022, and testing was started from Jul. 23, 2022 and completed on Aug. 01, 2022. We, Sporton International Inc. Hsinchu Laboratory, 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 variant report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

MAAN

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)

TEL : 886-3-656-9065 FAX : 886-3-656-9085 Report Template No.: CB-A8_1 Ver1.3 Page Number: 1 of 33Issued Date: Aug. 11, 2022Report Version: 01

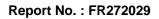




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Appendix A. Test Photos

Photographs of EUT v01



History of this test report

Report No.	Version	Description	Issued Date
FR272029	01	Initial issue of report	Aug. 11, 2022

Page Number: 3 of 33Issued Date: Aug. 11, 2022Report Version: 01



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.207	AC Power Conducted Emissions	PASS	-
3.2	15.245(b)	Field Strength of Fundamental	PASS	-
3.3	15.245(b)	Transmitter Spurious Emissions	PASS	-
3.4	15.203	Antenna Requirements	PASS	-

Declaration of Conformity:

 The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results.

2. The measurement uncertainty please refer to report "Measurement Uncertainty".

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sam Chen

Report Producer: Jessie Wei



1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information				
Frequency Range 10.5 - 10.55 GHz				
Operation Frequency	10525 MHz			
Channel Number	nnel Number 1			
Modulation	CW			
Antenna Antenna Type: Printed Antenna (Without any antenna connector)				
	Antenna Gain: 7.5dBi			

Note: The above information was declared by manufacturer.

1.1.2 Field Strength of Fundamental

Field Strength of Fundamental							
Applicable power levels:	□ Conducted □ EIRP ⊠ Field Strength at 3m						
		ł	Highest se	etting (P _{high}):	(dBuV/m)		
Frequency	Power		Data	Average	Peak	Average	Peak
	Setting	Modulation	Rate	Average Level	Level	Level	Level
	Setting		(Mb/s)	Levei	Levei	Limit	Limit
10525 MHz	N/A	CW	N/A	80.61	107.55	128	148

1.1.3 EUT Operational Condition

EUT Power Type	From host system		

Note: The above information was declared by manufacturer.

1.1.4 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR231133

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
	1. AC Power Conducted Emissions
Adding a host systems model names: FLX-P-DT-X5	2. Field Strength of Fundamental
	3. Transmitter Spurious Emissions



1.2 Applicable Standards

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

- ANSI C63.10-2013
- 47 CFR FCC Part 15.245

The following reference test guidance is not within the scope of accreditation of TAF.

• FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location Information				
Test Lab. : Sporton International Inc. Hsinchu Laboratory				
Hsinchu	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)			
(TAF: 3787)	TEL: 886-3-656-9065 FAX: 886-3-656-9085			
	Test site Designation No. TW3787 with FCC.			
Conformity Assessment Body Identifier (CABID) TW3787 with ISED.				

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
Radiated below 1GHz	03CH05-CB	Eason Chen	23.8~24.9 / 55~58	Jul. 23, 2022
Radiated above 1GHz	03CH05-CB	Eason Chen	24.4~25.5 / 55~58	Jul. 23, 2022~ Jul. 26, 2022
AC Conduction	CO01-CB	Dean Chang	23~24 / 61~62	Aug. 01, 2022

1.4 Measurement Uncertainty

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	5.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	5.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.7 dB	Confidence levels of 95%



2 Test Configuration of Equipment under Test

2.1 Parameters of Test Software Setting

Software Setting			
Test Frequencies10525 MHz			
Software Setting	Default		

2.2 Conformance Tests and Related Test Frequencies

Test	Test Frequencies	Mode
AC Power Conducted Emissions	10525 MHz	Normal Link
Test Voltage: 120Vac / 60Hz		Normai Link
Field Strength of Fundamental	10525 MHz	СТХ
Transmitter Spurious Emissions Below 1GHz	10525 MHz	Normal Link
Transmitter Spurious Emissions 1GHz~40GHz	10525 MHz	СТХ

Note: For Conducted Emission test:

Mode 1. Normal link - EUT

For Radiated Emission below 1GHz test:

Mode 1. Normal link - EUT in Z axis

Mode 2. Normal link - EUT in Y axis

Mode 3. Normal link - EUT in X axis

Mode 2 generated the worst test result, so it was recorded in this report.

For Radiated Emission above 1GHz test:

The EUT was performed at Y axis and Z axis position, and the worst case was found at Y axis. So the measurement will follow this same test configuration.

Mode 1. CTX - EUT in Y axis



2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

2.4 Accessories

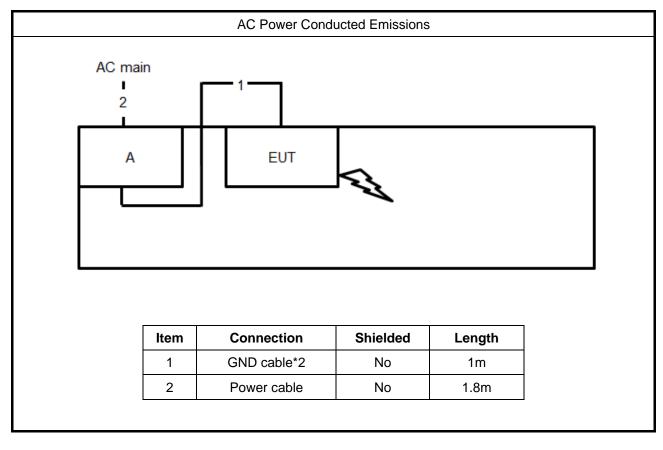
N/A

2.5 Support Equipment

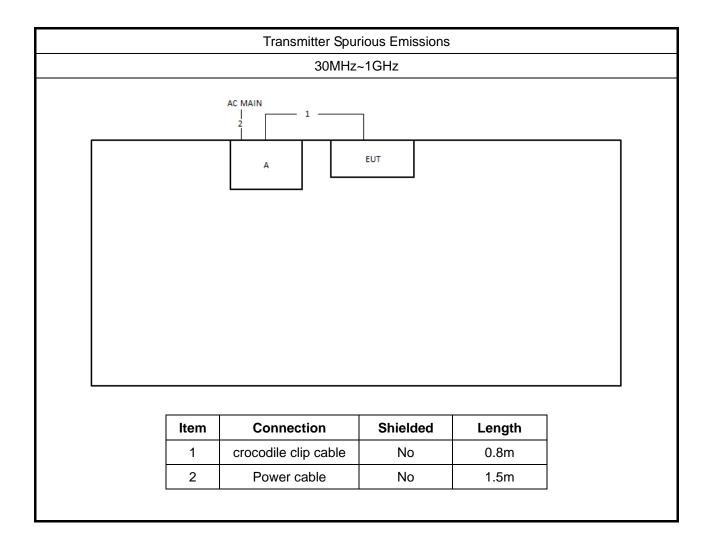
		Support Equ	ipment	
No.	Equipment	Brand Name	Model Name	FCC ID
А	Power Supply	Advanced	LPS-305	N/A



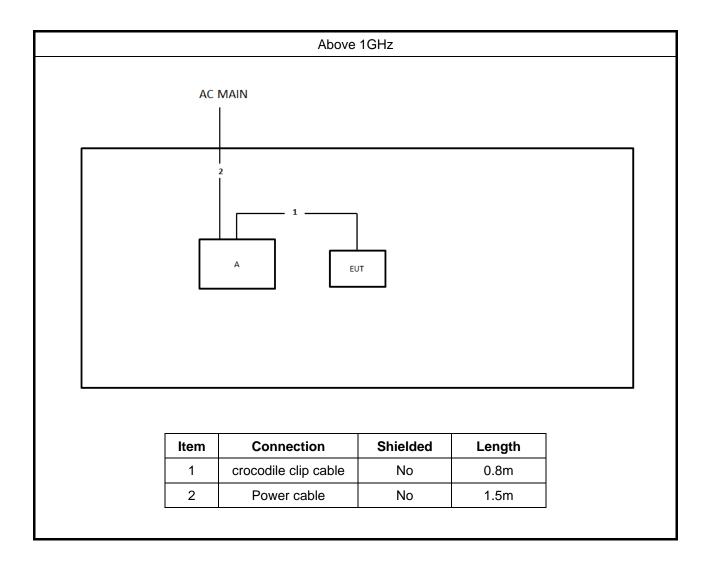
2.6 EUT Setups













3 Transmitter Test Result

3.1 AC Power Conducted Emissions

3.1.1 Limit of AC Power Conducted Emissions

AC Power C	onducted 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: * Decreases with the logarithm of the fre	quency.	

3.1.2 Measuring Instruments

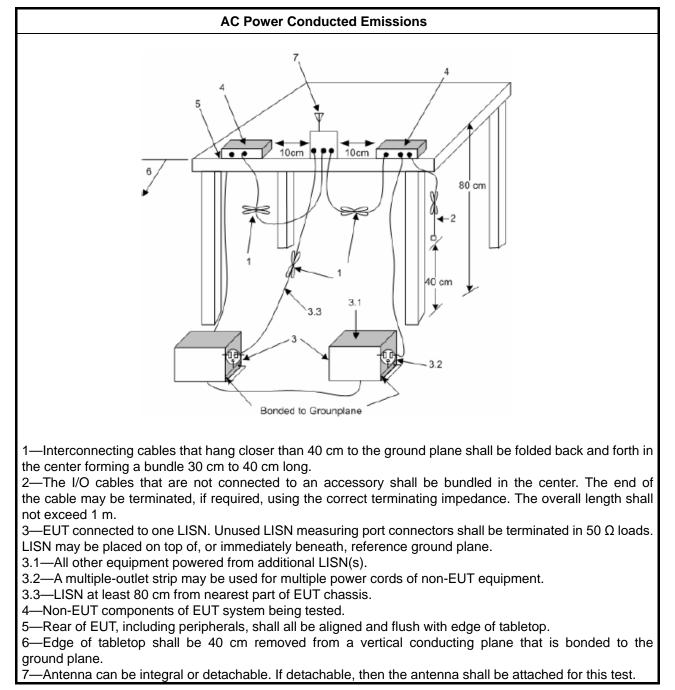
Refer a measuring instruments list in this test report.

3.1.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013, clause 6.2.



3.1.4 Test Setup



3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- a. Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level
- b. Margin = -Limit + Level



3.1.6 **Test Result of AC Power Conducted Emissions**

Test Co	nditions: see ANSI C63.10, clause 5.11
Test Set	tup: see ANSI C63.10, clause 6.2.3
Note 1:	If equipment having different channel plan and nominal channel bandwidth modes, the
	measurements are uninfluenced by different channel plan and nominal channel bandwidth modes,
	may not need to be repeated for all modes. If equipment having different transmit operating
	modes, the measurements are uninfluenced by different transmit operating modes, may not
	need to be repeated for all the operating modes. Similar, if the equipment supports different
	modulations and/or data rates, the measurements described in ANSI C63.10, clause 5.12 may not
	need to be repeated for all these modulations and data rates. Simple comparison of engineering
	test across all operating modes, modulations and data rates may need to be performed to define
	the worse case combination to be used for the conformance testing.
Note 2:	">20dB" means the tables in this clause should only list values of spurious emissions that
	exceed the level of 20 dB below the applicable limit, see ANSI C63.4, clause 10.1.8.1.



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150k	Freq	Level	Limit			Condition	Comment	Raw	LISN		AT		3014	
	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin	Factor	Condition	Comment		LISN	CL	AT (dB)		30 ¹ M	
150k	Freq (Hz) 185k	Level (dBuV) 44.95	Limit (dBuV) 64.20			Condition	Comment -	Raw (dBuV) 34.96	LISN (dB) 0.06		AT (dB) 9.89		30 ¹ M	
150k	(Hz)	(dBuV)	(dBuV)	Margin (dB)	Factor (dB)			(dBuV)	(dB)	CL (dB)	(dB)		30 ¹ M	
150k Type QP	(Hz) 186k	(dBuV) 44.95	(dBuV) 64.20	Margin (dB) -19.25	Factor (dB) 9.99	Line	-	(dBuV) 34.96	(dB) 0.06	CL (dB) 0.04	(dB) 9.89			
150k Type QP AV	(Hz) 186k 186k	(dBuV) 44.95 32.48	(dBuV) 64.20 54.20	Margin (dB) -19.25 -21.72	Factor (dB) 9.99 9.99	Line Line	-	(dBuV) 34.96 22.49	(dB) 0.06 0.06	CL (dB) 0.04 0.04	(dB) 9.89 9.89			
Type QP AV QP	(Hz) 186k 186k 217.5k	(dBuV) 44.95 32.48 49.50	(dBuV) 64.20 54.20 62.92	Margin (dB) -19.25 -21.72 -13.42	Factor (dB) 9.99 9.99 9.99	Line Line Line	-	(dBuV) 34.96 22.49 39.51	(dB) 0.06 0.06 0.06 0.06 0.06	CL (dB) 0.04 0.04 0.04	(dB) 9.89 9.89 9.89 9.89			
Type QP AV QP AV QP AV QP	(Hz) 186k 186k 217.5k 217.5k 249k 249k	(dBuV) 44.95 32.48 49.50 40.85 37.65 27.55	(dBuV) 64.20 54.20 62.92 52.92 61.79 51.79	Margin (dB) -19.25 -21.72 -13.42 -12.07 -24.14 -24.24	Factor (dB) 9.99 9.99 9.99 9.99 10.00 10.00	Line Line Line Line	- - -	(dBuV) 34.96 22.49 39.51 30.86 27.65 17.55	(dB) 0.06 0.06 0.06 0.06 0.06 0.06	CL (dB) 0.04 0.04 0.04 0.05 0.05	(dB) 9.89 9.89 9.89 9.89 9.89 9.89 9.89			
Type QP AV QP AV QP AV QP	(Hz) 186k 186k 217.5k 217.5k 249k 249k 249k 1.851M	(dBuV) 44.95 32.48 49.50 40.85 37.65 27.55 20.57	(dBuV) 64.20 54.20 62.92 52.92 61.79 51.79 56.00	Margin (dB) -19.25 -21.72 -13.42 -12.07 -24.14 -24.14 -24.24 -35.43	Factor (dB) 9.99 9.99 9.99 10.00 10.00 10.06	Line Line Line Line Line Line Line	- - - -	(dBuV) 34.96 22.49 39.51 30.86 27.65 17.55 10.51	(dB) 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.0	CL (dB) 0.04 0.04 0.04 0.05 0.05 0.05	(dB) 9.89 9.89 9.89 9.89 9.89 9.89 9.89 9.8			
Type QP AV QP AV QP AV QP AV QP AV	(Hz) 186k 186k 217.5k 217.5k 249k 249k 1.851M 1.851M	(dBuV) 44.95 32.48 49.50 40.85 37.65 27.55 20.57 13.88	(dBuV) 64.20 54.20 62.92 52.92 61.79 51.79 56.00 46.00	Margin (dB) -19.25 -21.72 -13.42 -12.07 -24.14 -24.24 -35.43 -32.12	Factor (dB) 9,99 9,99 9,99 9,99 10,00 10,00 10,06	Line Line Line Line Line Line Line Line	- - - - -	(dBuV) 34.96 22.49 39.51 30.86 27.65 17.55 10.51 3.82	(dB) 0.06 0.06 0.06 0.06 0.06 0.06 0.06 0.0	CL (dB) 0.04 0.04 0.05 0.05 0.08	(dB) 9.89 9.89 9.89 9.89 9.89 9.89 9.89 9.8			
Type QP AV QP AV QP AV QP AV QP AV QP	(Hz) 186k 186k 217.5k 247.5k 249k 249k 1.851M 1.851M 6.675M	(dBuV) 44.95 32.48 49.50 40.85 37.65 27.55 20.57 13.88 17.96	(dBuV) 64.20 54.20 62.92 52.92 61.79 51.79 56.00 46.00 60.00	Margin (dB) -19.25 -21.72 -13.42 -12.07 -24.14 -24.24 -35.43 -32.12 -42.04	Factor (dB) 9.99 9.99 9.99 10.00 10.00 10.06 10.06 10.21	Line Line Line Line Line Line Line Line	- - - - - - -	(dBuV) 34.96 22.49 39.51 30.86 27.65 17.55 10.51 3.82 7.75	(dB) 0.06 0.06 0.06 0.06 0.06 0.06 0.09 0.09	CL (dB) 0.04 0.04 0.05 0.05 0.08 0.08 0.13	(dB) 9.89 9.89 9.89 9.89 9.89 9.89 9.89 9.8			
Type QP AV QP AV QP AV QP AV QP AV QP AV QP	(Hz) 186k 186k 217.5k 249k 249k 249k 1.851M 1.851M 6.675M	(dBuV) 44.95 32.48 49.50 40.85 37.65 27.55 20.57 13.88 17.96 11.24	(dBuV) 64.20 54.20 62.92 52.92 61.79 51.79 56.00 46.00 60.00 50.00	Margin (dB) -19.25 -21.72 -13.42 -12.07 -24.14 -24.24 -35.43 -32.12 -42.04 -38.76	Factor (dB) 9.99 9.99 9.99 10.00 10.00 10.06 10.21 10.21	Line Line Line Line Line Line Line Line	- - - - - - - - - - -	(dBuV) 34.96 22.49 39.51 30.86 27.65 17.55 10.51 3.82 7.75 1.03	(dB) 0.06 0.06 0.06 0.06 0.06 0.06 0.09 0.09	CL (dB) 0.04 0.04 0.04 0.04 0.05 0.05 0.08 0.08 0.08 0.13 0.13	(dB) 9.89 9.89 9.89 9.89 9.89 9.89 9.89 9.8			
Type QP AV QP AV QP AV QP AV QP AV QP	(Hz) 186k 186k 217.5k 249k 249k 1.851M 1.851M 6.675M	(dBuV) 44.95 32.48 49.50 40.85 37.65 27.55 20.57 13.88 17.96	(dBuV) 64.20 54.20 62.92 52.92 61.79 51.79 56.00 46.00 60.00	Margin (dB) -19.25 -21.72 -13.42 -12.07 -24.14 -24.24 -35.43 -32.12 -42.04	Factor (dB) 9.99 9.99 9.99 10.00 10.00 10.06 10.06 10.21	Line Line Line Line Line Line Line Line	- - - - - - - - - - - - - - -	(dBuV) 34.96 22.49 39.51 30.86 27.65 17.55 10.51 3.82 7.75	(dB) 0.06 0.06 0.06 0.06 0.06 0.06 0.09 0.09	CL (dB) 0.04 0.04 0.05 0.05 0.08 0.08 0.13	(dB) 9.89 9.89 9.89 9.89 9.89 9.89 9.89 9.8			



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Туре	Freq (Hz)	(dBuV)	(dBuV)	Margin (dB)	Factor (dB)			(dBuV)	(dB)	CL (dB)	(dB)			
150k Type QP	Freq (Hz) 258k	(dBuV) 48.25	(dBuV) 61.49	Margin (dB) -13.24	Factor (dB) 10.01	Neutral	-	(dBuV) 38.24	(dB) 0.07	CL (dB) 0.05	(dB) 9.89			
Type QP AV	Freq (H2) 258k 258k	(dBuV) 48.25 35.81	(dBuV) 61.49 51.49	Margin (dB) -13.24 -15.68	Factor (dB) 10.01 10.01	Neutral Neutral		(dBuV) 38.24 25.80	(dB) 0.07 0.07	CL (dB) 0.05 0.05	(dB) 9.89 9.89			
150k Type QP	Freq (Hz) 258k	(dBuV) 48.25	(dBuV) 61.49	Margin (dB) -13.24	Factor (dB) 10.01	Neutral	-	(dBuV) 38.24	(dB) 0.07	CL (dB) 0.05	(dB) 9.89			
Type QP AV QP	Freq (Hz) 258k 258k 433.5k	(dBuV) 48.25 35.81 26.05	(dBuV) 61.49 51.49 57.19	Margin (dB) -13.24 -15.68 -31.14	Factor (dB) 10.01 10.01 10.02	Neutral Neutral Neutral	-	(dBuV) 38.24 25.80 16.03	(dB) 0.07 0.07 0.07	CL (dB) 0.05 0.05 0.06	(dB) 9.89 9.89 9.89 9.89			
Type QP AV QP AV	Freq (Hz) 258k 258k 433.5k 433.5k	(dBuV) 48.25 35.81 26.05 19.12	(dBuV) 61.49 51.49 57.19 47.19	Margin (dB) -13.24 -15.68 -31.14 -28.07	Factor (dB) 10.01 10.02 10.02	Neutral Neutral Neutral Neutral	- - -	(dBuV) 38.24 25.80 16.03 9.10	(dB) 0.07 0.07 0.07 0.07	CL (dB) 0.05 0.05 0.06 0.06	(dB) 9.89 9.89 9.89 9.89 9.89			
Type QP AV QP AV QP	Freq (Hz) 258k 433.5k 433.5k 793.5k	(dBuV) 48.25 35.81 26.05 19.12 23.35	(dBuV) 61.49 51.49 57.19 47.19 56.00	Margin (dB) -13.24 -15.68 -31.14 -28.07 -32.65	Factor (dB) 10.01 10.02 10.02 10.02	Neutral Neutral Neutral Neutral Neutral	- - - -	(dBuV) 38.24 25.80 16.03 9.10 13.33	(dB) 0.07 0.07 0.07 0.07 0.07 0.08	CL (dB) 0.05 0.05 0.06 0.06 0.05	(dB) 9.89 9.89 9.89 9.89 9.89 9.89			
Type QP AV QP AV QP AV	Freq (Hz) 258k 258k 433.5k 433.5k 793.5k 793.5k	(dBuV) 48.25 35.81 26.05 19.12 23.35 16.66	(dBuV) 61.49 51.49 57.19 47.19 56.00 46.00	Margin (dB) -13.24 -15.68 -31.14 -28.07 -32.65 -29.34	Factor (dB) 10.01 10.02 10.02 10.02	Neutral Neutral Neutral Neutral Neutral Neutral	- - - - -	(dBuV) 38.24 25.80 16.03 9.10 13.33 6.64	(dB) 0.07 0.07 0.07 0.07 0.07 0.08 0.08	CL (dB) 0.05 0.06 0.06 0.06 0.05 0.05	(dB) 9.89 9.89 9.89 9.89 9.89 9.89 9.89 9.8			
Type QP AV QP AV QP AV QP AV QP	Freq (Hz) 258k 258k 433.5k 433.5k 433.5k 793.5k 793.5k 1.518M 1.518M 6.518M	(dBuV) 48.25 35.81 26.05 19.12 23.35 16.66 20.88	(dBuV) 61.49 51.49 57.19 47.19 56.00 46.00 56.00 46.00 60.00	Margin (dB) -13.24 -15.68 -31.14 -28.07 -32.65 -29.34 -35.12 -35.12 -31.76 -42.23	Factor (dB) 10.01 10.02 10.02 10.02 10.05 10.05 10.22	Neutral Neutral Neutral Neutral Neutral Neutral Neutral	- - - - -	(dBuV) 38.24 25.80 16.03 9.10 13.33 6.64 10.83 4.19 7.55	(dB) 0.07 0.07 0.07 0.08 0.08 0.08 0.09 0.09 0.19	CL (dB) 0.05 0.06 0.06 0.06 0.05 0.05 0.05 0.07 0.07 0.13	(dB) 9.89 9.89 9.89 9.89 9.89 9.89 9.89 9.8			
Type QP AV QP AV QP AV QP AV QP AV QP AV	Freq (Hz) 258k 258k 433.5k 433.5k 793.5k 1.518M 1.518M 6.518M 6.518M	(dBuV) 48.25 35.81 26.05 19.12 23.35 16.66 20.88 14.24 17.77 11.04	(dBuV) 61.49 51.49 57.19 47.19 56.00 46.00 56.00 46.00 60.00 50.00	Margin (dB) -13.24 -15.68 -31.14 -28.07 -32.65 -29.34 -35.12 -31.76 -42.23 -38.96	Factor (dB) 10.01 10.02 10.02 10.02 10.02 10.02 10.05 10.22 10.22	Neutral Neutral Neutral Neutral Neutral Neutral Neutral Neutral Neutral Neutral	- - - - - - - - - - - - - -	(dBuV) 38.24 25.80 16.03 9.10 13.33 6.64 10.83 4.19 7.55 0.82	(dB) 0.07 0.07 0.07 0.08 0.08 0.08 0.09 0.09 0.09 0.19 0.19	CL (dB) 0.05 0.06 0.06 0.06 0.05 0.05 0.07 0.07 0.07 0.13 0.13	(dB) 9.89 9.89 9.89 9.89 9.89 9.89 9.89 9.8			
Type QP AV QP AV QP AV QP AV QP AV QP	Freq (Hz) 258k 258k 433.5k 433.5k 433.5k 793.5k 793.5k 1.518M 1.518M 6.518M	(dBuV) 48.25 35.81 26.05 19.12 23.35 16.66 20.88 14.24 17.77	(dBuV) 61.49 51.49 57.19 47.19 56.00 46.00 56.00 46.00 60.00	Margin (dB) -13.24 -15.68 -31.14 -28.07 -32.65 -29.34 -35.12 -35.12 -31.76 -42.23	Factor (dB) 10.01 10.02 10.02 10.02 10.05 10.05 10.22	Neutral Neutral Neutral Neutral Neutral Neutral Neutral Neutral Neutral	- - - - - - - - - - - - - - - - - - -	(dBuV) 38.24 25.80 16.03 9.10 13.33 6.64 10.83 4.19 7.55	(dB) 0.07 0.07 0.07 0.08 0.08 0.08 0.09 0.09 0.19	CL (dB) 0.05 0.06 0.06 0.06 0.05 0.05 0.05 0.07 0.07 0.13	(dB) 9.89 9.89 9.89 9.89 9.89 9.89 9.89 9.8			



3.2 Field Strength of Fundamental

3.2.1 Limit of Field Strength of Fundamental

Frequencies (MHz)	Field Strength (mV/meter)	Field Strength (dBuV/m) at 3m
902~928 MHz	500 at 3m	114 (Average)
902~928 MHz	5000 at 3m	134 (Peak)
2435~2465MHz	500 at 3m	114 (Average)
2435~2465MHz	5000 at 3m	134 (Peak)
5785~5815 MHz	500 at 3m	114 (Average)
5785~5815 MHz	5000 at 3m	134 (Peak)
10.5~10.55 GHz	2500 at 3m	128 (Average)
10.5~10.55 GHz	25000 at 3m	148 (Peak)
24.075~24.175 GHz	2500 at 3m	128 (Average)
24.075~24.175 GHz	25000 at 3m	148 (Peak)

Note1: For the applicable limit, see 15.245(b)

Note2: The limit shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

3.2.2 Measuring Instruments

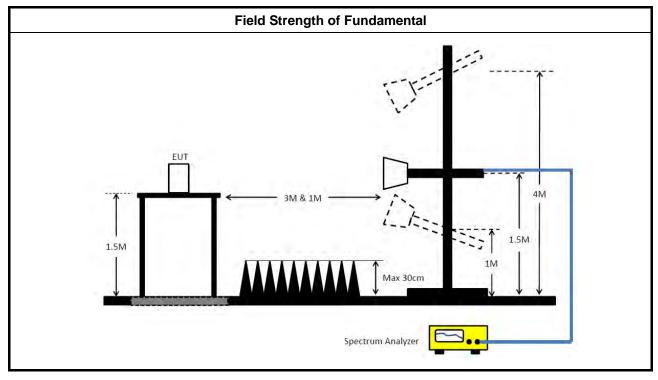
Refer a measuring instruments list in this test report.

3.2.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013, clause 6.6.



3.2.4 Test Setup



3.2.5 Measurement Results Calculation

The measured Level is calculated using:

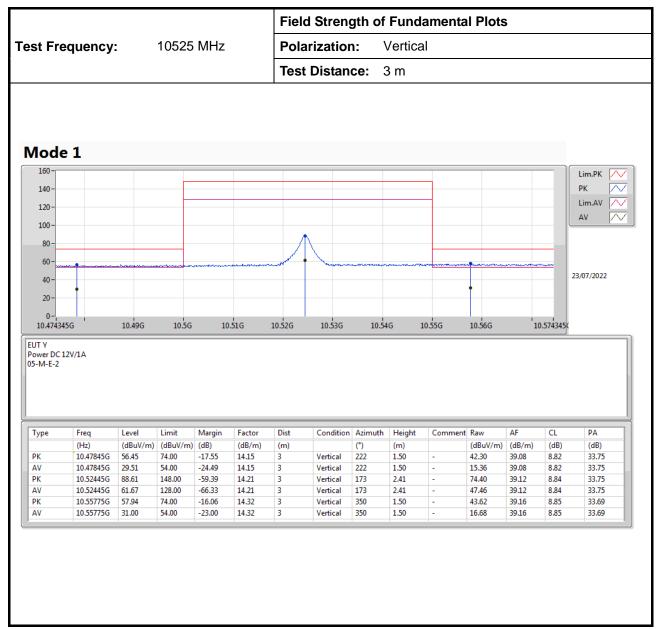
Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level.

3.2.6 Test Result of Field Strength of Fundamental

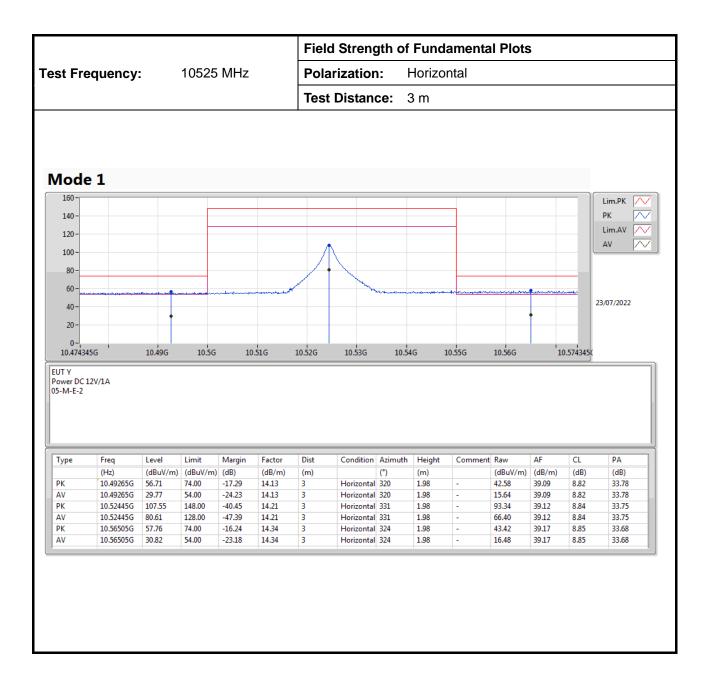
Test Conditions:	see ANSI C63.10, clause 5.11
Test Setup:	see ANSI C63.10, clause 6.6
Note1: If the equipment su	pports different modulations and/or data rates, the measurements described in
ANSI C63.10, claus	e 5.12 may not need to be repeated for all these modulations and data rates.
Simple comparison	of engineering test across all operating modes, modulations and data rates may
need to be performe	ed to define the worse case combination to be used for the conformance testing.
Note2: Conformance tests	have to be performed over the frequency range(s) that has been declared with
this Field Strength o	f Fundamental and using the antenna gain of the antenna with the highest gain
among those that h	ave been declared with this Field Strength of Fundamental. For smart antenna
systems, the antenn	a beam forming gain may have to be taken into account as well.



3.2.7 Test Result of Field Strength of Fundamental









3.3 Transmitter Spurious Emissions

3.3.1 Limit of Transmitter Spurious Emissions

	Transmitter Spurious Emissions
1.	902 - 928MHz, Field disturbance sensors
٠	Harmonic emissions in the restricted bands: 15.209 limit
•	Harmonic emissions in the non-restricted bands: 1.6mV/m
•	Except harmonic emissions, spurious emissions: FCC 15.209 limit or 50 dB below the fundamental,
	whichever is the lesser attenuation.
2.	2435 - 2465MHz, 5785 - 5815MHz, Field disturbance sensors
•	Harmonic emissions in the restricted bands at and below 17.7 GHz: 15.209 limit
•	Harmonic emissions in the restricted bands at and above 17.7 GHz: 7.5mV/m
•	Harmonic emissions in the non-restricted bands: 1.6mV/m
•	Except harmonic emissions, spurious emissions: FCC 15.209 limit or 50 dB below the fundamental,
	whichever is the lesser attenuation.
3.	10500 – 10550MHz, Field disturbance sensors
•	Harmonic emissions in the restricted bands at and above 17.7 GHz: 7.5mV/m
•	Harmonic emissions in the non-restricted bands: 25mV/m
•	Except harmonic emissions, spurious emissions: FCC 15.209 limit or 50 dB below the fundamental,
	whichever is the lesser attenuation.
4.	24075-24175 MHz, Field disturbance sensors
•	Second and third harmonics: 25 mV/m
•	Except harmonic emissions, spurious emissions: FCC 15.209 limit or 50 dB below the fundamental,
	whichever is the lesser attenuation.

Note: The limit shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].



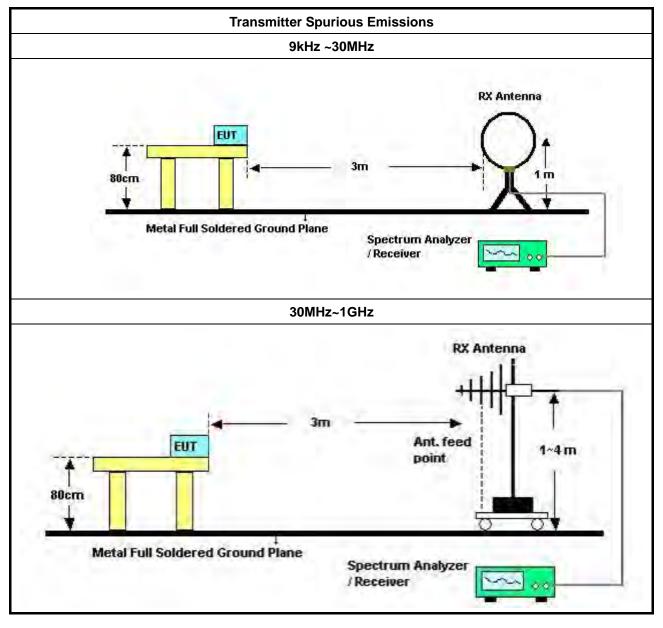
3.3.2 Measuring Instruments

Refer a measuring instruments list in this test report.

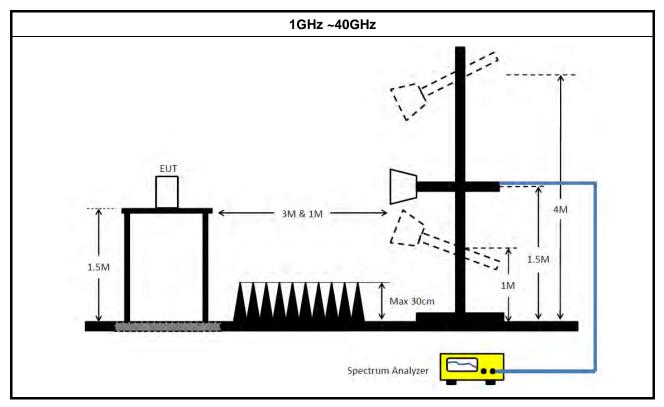
3.3.3 Test Procedures

Method of measurement: Refer as ANSI C63.10-2013, clauses 6.3, 6.4, 6.5, 6.6 and 9.12.

3.3.4 Test Setup







3.3.5 Measurement Results Calculation

The measured Level is calculated using:

For below 40GHz

Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level.

For above 40GHz

EIRP = Meas. Level - RX Antenna Gain + 20*log(4*Pi(3.14159)*D/(300/(Frequency*1000)))



3.3.6 Test Result of Transmitter Spurious Emissions

Test Conditions:	see ANSI C63.10, clause 5.11
Test Setup:	see ANSI C63.10, clauses 6.3, 6.4, 6.5, 6.6 and 9.12
Note1: If equipment	having different channel plan and nominal channel bandwidth modes, the
measuremen	ts are uninfluenced by different channel plan and nominal channel bandwidth modes,
may not need	to be repeated for all modes.
Note2: Note: Confor	mance tests have to be performed over the frequency range(s) that has been
declared with	this Field Strength of Fundamental and using the antenna gain of the antenna with the
highest gain a	among those that have been declared with this Field Strength of Fundamental. For
smart antenn	a systems, the antenna beam forming gain may have to be taken into account as well.

		Test Range:	9 kHz - 30 l	MHz	
Test Frequency:	10525 MHz		Test R	esults	
Test Range	Emission Frequency (MHz)	Emission Observed (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
9 kHz - 30 MHz	N/F	N/F	-	-	Peak

Note:

1."N/F" means Nothing Found (No spurious emissions were detected.)

2. There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.



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						Te	st Resu	ults						
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70 -													- 1	QP 🔨
60 -														-6dB 🔨
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40 -											_			
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30 - Ju 20 - 10 -	WAA-/MA	hadan wadaha kutuka wa	WWARENIN	number	diddiddiaun -	and a second second	and a second	- Andrew Andr						23/07/2022
20 -						ом 500м	550M 600	м 650м		M 800M 8	850M 900	м 950м	1Ġ	23/07/2022
20 - 10 - 0 -	100M 15	0M 200M 2	250M 3001	M 350M Margin	400M 450	Dist		Azimuth	700M 750 Height	M 800M	Raw	AF	CL	PA
20 - 10 - 0 - 30M	100M 15	0M 200M 2	250M 3001 Limit (dBuV/m)	M 350M Margin (dB)	400M 450 Factor (dB/m)	Dist (m)	Condition	Azimuth	700M 750	Comment	Raw (dBuV/m)	AF (dB/m)	CL (dB)	PA (dB)
20 - 10 - 0 - 30M	100M 15	0M 200M 2 Level (dBuV/m) 33.17	250M 3001 Limit (dBuV/m) 40.00	M 350M Margin (dB) -6.83	400M 450 Factor (dB/m) -8.36	Dist (m) 3	Condition Vertical	Azimuth (°) 240	700M 750 Height (m) 1.00	Comment	Raw (dBuV/m) 41.53	AF (dB/m) 22.41	CL (dB) 0.86	PA (dB) 31.63
20- 10- 30M	100M 15 Freq (Hz) 32.91M 61.04M	0M 200M 2 Level (dBuV/m) 33.17 35.21	250M 3001 Limit (dBuV/m) 40.00 40.00	M 350M Margin (dB) -6.83 -4.79	400M 450 Factor (dB/m) -8.36 -18.49	Dist (m) 3 3	Condition Vertical Vertical	Azimuth (°) 240 24	700M 750 Height (m) 1.00 1.50	Comment	Raw (dBuV/m) 41.53 53.70	AF (dB/m) 22.41 12.23	CL (dB) 0.86 1.20	PA (dB) 31.63 31.92
20 - 10 - 0 - 30M	100M 15	0M 200M 2 Level (dBuV/m) 33.17	Limit (dBuV/m) 40.00 40.00 40.00	M 350M Margin (dB) -6.83	400M 450 Factor (dB/m) -8.36	Dist (m) 3 3 3 3	Condition Vertical	Azimuth (°) 240	700M 750 Height (m) 1.00 1.50 2.00	Comment - "Worst"	Raw (dBuV/m) 41.53 53.70 51.93	AF (dB/m) 22.41 12.23 12.19	CL (dB) 0.86 1.20 1.26	PA (dB) 31.63
20- 10- 30M	100M 15 Freq (Hz) 32.91M 61.04M 67.83M	Level (dBuV/m) 33.17 35.21 33.43	250M 3001 Limit (dBuV/m) 40.00 40.00	M 350M Margin (dB) -6.83 -4.79 -6.57	400M 450 Factor (dB/m) -8.36 -18.49 -18.50	Dist (m) 3 3	Condition Vertical Vertical Vertical	Azimuth (°) 240 24 3	700M 750 Height (m) 1.00 1.50	Comment - "Worst" -	Raw (dBuV/m) 41.53 53.70	AF (dB/m) 22.41 12.23	CL (dB) 0.86 1.20	PA (dB) 31.63 31.92 31.95



						Tes	t Range:	: 3	30 MH2	z – 100	0 MHz			
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						Te	est Resu	lts						
Mode	2													
80-	2	1											_	
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10-			250M 300			0M 500M	1 550M 600N Condition		700M 750	0M 800M		M 950M	1Ġ CL	23/07/2022 PA
10- 0- 30M	100M 150	DM 200M :		M 350M Margin	400M 45	Dist (m)						AF		
10- 0- 30M	100M 150 Freq (Hz) 874.87M	Level (dBuV/m) 33.13	Limit (dBuV/m) 46.00	M 350M Margin (dB) -12.87	400M 459 Factor (dB/m) -1.26	Dist (m) 3	Condition Horizontal	Azimuth (°) 356	Height (m) 3.00	Comment	Raw (dBuV/m) 34.39	AF (dB/m) 26.03	CL (dB) 5.20	PA (dB) 32.49
10- 0- 30M	100M 150 Freq (Hz) 874.87M 889.42M	Level (dBuV/m) 33.13 33.21	Limit (dBuV/m) 46.00 46.00	M 350M Margin (dB) -12.87 -12.79	400M 450 Factor (dB/m) -1.26 -1.09	Dist (m) 3 3	Condition Horizontal Horizontal	Azimuth (°) 356 164	Height (m) 3.00 3.00	Comment	Raw (dBuV/m) 34.39 34.30	AF (dB/m) 26.03 26.14	CL (dB) 5.20 5.26	PA (dB) 32.49 32.49
10- 0- 30M PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M	Level (dBuV/m) 33.13 33.21 33.62	Limit (dBuV/m) 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38	400M 459 Factor (dB/m) -1.26 -1.09 -0.93	Dist (m) 3 3 3	Condition Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131	Height (m) 3.00 3.00 1.50	Comment	Raw (dBuV/m) 34.39 34.30 34.55	AF (dB/m) 26.03 26.14 26.21	CL (dB) 5.20 5.26 5.35	PA (dB) 32.49 32.49 32.49 32.49
10 - 0 - 30M	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 927.25M	Level (dBuV/m) 33.13 33.21 33.62 33.83	Limit (dBuV/m) 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17	400M 459 Factor (dB/m) -1.26 -1.09 -0.93 -0.81	Dist (m) 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358	Height (m) 3.00 3.00 1.50 1.25	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64	AF (dB/m) 26.03 26.14 26.21 26.21	CL (dB) 5.20 5.26 5.35 5.46	PA (dB) 32.49 32.49 32.49 32.49 32.49
10- 0- 30M PK PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48
10- 0- 30M PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 927.25M	Level (dBuV/m) 33.13 33.21 33.62 33.83	Limit (dBuV/m) 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17	400M 459 Factor (dB/m) -1.26 -1.09 -0.93 -0.81	Dist (m) 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64	AF (dB/m) 26.03 26.14 26.21 26.21	CL (dB) 5.20 5.26 5.35 5.46	PA (dB) 32.49 32.49 32.49 32.49 32.49
10- 0- 30M PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48
10- 30M PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48
10- 30M PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48
10- 30M PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48
10- 0- 30M PK PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48
10- 0- 30M PK PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48
10- 0- 30M PK PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48
10- 0- 30M PK PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48
10- 0- 30M PK PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48
10- 0- 30M PK PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48
10- 0- 30M PK PK PK PK PK PK	100M 150 Freq (Hz) 874.87M 889.42M 908.82M 907.25M 951.5M	Level (dBuV/m) 33.13 33.21 33.62 33.83 33.66	Limit (dBuV/m) 46.00 46.00 46.00 46.00 46.00	M 350M Margin (dB) -12.87 -12.79 -12.38 -12.17 -12.34	400M 45 Factor (dB/m) -1.26 -1.09 -0.93 -0.81 -0.37	Dist (m) 3 3 3 3 3 3 3 3 3	Condition Horizontal Horizontal Horizontal Horizontal Horizontal Horizontal	Azimuth (°) 356 164 131 358 241	Height (m) 3.00 3.00 1.50 1.25 2.00	Comment	Raw (dBuV/m) 34.39 34.30 34.55 34.64 34.03	AF (dB/m) 26.03 26.14 26.21 26.21 26.21 26.51	CL (dB) 5.20 5.26 5.35 5.46 5.60	PA (dB) 32.49 32.49 32.49 32.48 32.48



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Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
			(dB/m)	(m)		(°)	(m)				(dB)	(dB)
52G 43.03	74.00 54.00	-30.97 -37.91	0.04	3	Vertical Vertical	301 301	1.77 1.77	-	42.99 16.05	29.73 29.73	5.91 5.91	35.60 35.60
	3G 4G	3G 4G 5G	3G 4G 5G 6G 7C	Level Limit Margin Factor (dBuV/m) (dBuV/m) (dB/m) (dB/m)	Level Limit Margin Factor Dist (dBuV/m) (dBuV/m) (dB) (dB/m) (m)	Level Limit Margin Factor Dist Condition (dBuV/m) (dBuV/m) (dB) (dB/m) (m)	Level Limit Margin Factor Dist Condition Azimuth (dBuV/m) (dBuV/m) (dB) (dB/m) (m) (*)	Level Limit Margin Factor Dist Condition Azimuth Height (dBuV/m) (dBuV/m) (dB) (dB/m) (m) (°) (m)	Level Limit Margin Factor Dist Condition Azimuth Height Comment (dBuV/m) (dBuV/m) (dB) (dB/m) (m) (°) (m) (°) (m)	Level Limit Margin Factor Dist Condition Azimuth Height Comment Raw (dBuV/m) (dBuV/m) (dB) (dB/m) (m) (") (m) (") (m) (dBuV/m)	Level Limit Margin Factor Dist Condition Azimuth Height Comment Raw AF (dBuV/m) (dBuV/m) (dBv/m) (m) (°) (m) (°) (m) (dBm/m) (dBm/m)	Level Limit Margin Factor Dist Condition Azimuth Height Comment Raw AF CL (dBuV/m) (dBuV/m) (dB) (m) (*) (m) (*) (m) (dB/m) (dB/m) (dB/m) (*) (m) (*) (m) (dB/m) (dB/m) <td< td=""></td<>



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EUT Y														
EUT Y Power DC 1	.2V/1A													
EUT Y Power DC 1	Freq	Level	Limit	Margin	Factor	Dist	Condition		Height	Comment		AF (dR(m))	CL	PA (dD)
EUT Y Power DC 1 05-M-E-2		Level	Limit (dBuV/m) 74.00	-	Factor (dB/m) 0.04	Dist (m) 3	Condition Horizontal	(°)	Height (m) 1.80	Comment	Raw (dBuV/m) 47.74		CL (dB) 5.91	PA (dB) 35.60



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est rie	quency:		10525	MHz		Pola	rizatior	n: \	/ertical					
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Power DC 12 05-M-S-8	V/1A													
L	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA	
Туре												() (2)		
Туре	(Hz) 21.04879G		(dBuV/m) 97.50	(dB) -40.49	(dBuV) 36.03	(m) 1	Vertical	(°) 232	(m) 1.55	-	(dB) 37.60	(dB) 15.97	(dB) 32.59	



						Test	Range	: 1	8 GHz	<u> </u>	SHz			
est Frequ	Jency:		10525	MHz		Pola	rizatior	ו: ⊦	lorizor	ntal				
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Power DC 12V/	IA													
Power DC 12V/: 05-M-S-8		Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA	
Power DC 12V/ 05-M-S-8 Type I	Freq (Hz)		Limit (dBuV/m)		Raw (dBuV)	Dist (m)	Condition	(°)	Height (m)	Comment	(dB)	CL (dB)	PA (dB)	
Power DC 12V/2 05-M-S-8 Type I PK 2	Freq (Hz) 21.04893G						Condition Horizontal Horizontal	(°) 329	-	-				
Power DC 12V/2 05-M-S-8 Type I PK 2	Freq (Hz) 21.04893G	(dBuV/m) 60.12	(dBuV/m) 97.50	(dB) -37.38	(dBuV) 39.14	(m) 1	Horizontal	(°) 329	(m) 1.53	-	(dB) 37.60	(dB) 15.97	(dB) 32.59	
Power DC 12V/2 05-M-S-8 Type I PK 2	Freq (Hz) 21.04893G	(dBuV/m) 60.12	(dBuV/m) 97.50	(dB) -37.38	(dBuV) 39.14	(m) 1	Horizontal	(°) 329	(m) 1.53	-	(dB) 37.60	(dB) 15.97	(dB) 32.59	
PK 2	Freq (Hz) 21.04893G	(dBuV/m) 60.12	(dBuV/m) 97.50	(dB) -37.38	(dBuV) 39.14	(m) 1	Horizontal	(°) 329	(m) 1.53	-	(dB) 37.60	(dB) 15.97	(dB) 32.59	
Power DC 12V/2 05-M-S-8 Type I K 2	Freq (Hz) 21.04893G	(dBuV/m) 60.12	(dBuV/m) 97.50	(dB) -37.38	(dBuV) 39.14	(m) 1	Horizontal	(°) 329	(m) 1.53	-	(dB) 37.60	(dB) 15.97	(dB) 32.59	
Power DC 12V/2 05-M-S-8 Type I K 2	Freq (Hz) 21.04893G	(dBuV/m) 60.12	(dBuV/m) 97.50	(dB) -37.38	(dBuV) 39.14	(m) 1	Horizontal	(°) 329	(m) 1.53	-	(dB) 37.60	(dB) 15.97	(dB) 32.59	
Power DC 12V/3 05-M-S-8 Type I K 2	Freq (Hz) 21.04893G	(dBuV/m) 60.12	(dBuV/m) 97.50	(dB) -37.38	(dBuV) 39.14	(m) 1	Horizontal	(°) 329	(m) 1.53	-	(dB) 37.60	(dB) 15.97	(dB) 32.59	



3.4 Antenna Requirements

3.4.1 Limit of Antenna Requirements

Limits for Antenna Requirements

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

3.4.2 EUT Antenna

See test report clause 1.1.1, EUT antenna complied with antenna requirements.



4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Feb. 22, 2022	Feb. 21, 2023	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16 -2	04083	150kHz ~ 100MHz	Feb. 09, 2022	Feb. 08, 2023	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 12, 2022	Apr. 11, 2023	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 10, 2022	Feb. 09, 2023	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO 01	9kHz ~ 30MHz	May 18, 2022	May 17, 2023	Conduction (CO01-CB)
Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	May 14, 2022	May 13, 2023	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30 MHz ~ 1 GHz	Aug. 09, 2021	Aug. 08, 2022	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	ТDК	SAC-3M	03CH05-CB	1GHz ~18GHz 3m	Nov. 07, 2021	Nov. 06, 2022	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 25, 2022	Mar. 24, 2023	Radiation (03CH05-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120 D-1291	1GHz~18GHz	Jun. 23, 2022	Jun. 22, 2023	Radiation (03CH05-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Aug. 05, 2021	Aug. 04, 2022	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	Apr. 26, 2022	Apr. 25, 2023	Radiation (03CH05-CB)
Pre-Amplifier	EMCI	EMC12630SE	980287	1GHz – 26.5GHz	Jul. 01, 2022	Jun. 30, 2023	Radiation (03CH05-CB)
Pre-Amplifier	-	-	TF-130N-R1	18GHz ~ 40GHz	Jun. 21, 2022	Jun. 20, 2023	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Mar. 14, 2022	Mar. 13, 2023	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESCS	826547/017	9kHz ~ 2.75GHz	Jun. 17, 2022	Jun. 16, 2023	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 13, 2021	Oct. 12, 2022	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-28	1GHz~18GHz	Oct. 13, 2021	Oct. 12, 2022	Radiation (03CH05-CB)
RF Cable-high	Woken	RG402	High Cable-04+28	1GHz~18GHz	Oct. 13, 2021	Oct. 12, 2022	Radiation (03CH05-CB)



Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
High Cable	Woken	WCA0929M	40G#5+7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#5	1GHz ~ 40 GHz	Dec. 08, 2021	Dec. 07, 2022	Radiation (03CH05-CB)
High Cable	Woken	WCA0929M	40G#7	1GHz ~ 40 GHz	Dec. 14, 2021	Dec. 13, 2022	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE	V5.10	-	N.C.R.	N.C.R.	Radiation (03CH05-CB)

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

NCR means Non-Calibration required.