

Prüfbericht-Nr.: <i>Test report no.:</i>	CN213NKV (P15E-5G) 001	Auftrags-Nr.: <i>Order no.:</i>	238495633	Seite 1 von 33 Page 1 of 33
Kunden-Referenz-Nr.: <i>Client reference no.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	2020-12-23	
Auftraggeber: <i>Client:</i>	SZ DJI TECHNOLOGY CO.,LTD. , 14th floor, West Wing, Skyworth Semiconductor Design Building NO.18 Gaoxin South 4th Ave, Nanshan, Shenzhen, Guangdong, China			
Prüfgegenstand: <i>Test item:</i>	AGRAS T30			
Bezeichnung / Typ-Nr.: <i>Identification / Type no.:</i>	3WWDZ-30A			
Auftrags-Inhalt: <i>Order content:</i>	FCC Part 15E Test report (5GHz)			
Prüfgrundlage: <i>Test specification:</i>	FCC 47CFR Part 15: Subpart E Section 15.407			
Wareneingangsdatum: <i>Date of sample receipt:</i>	2021-01-07			
Prüfmuster-Nr.: <i>Test sample no:</i>	A002982403-015 A002982403-002			
Prüfzeitraum: <i>Testing period:</i>	2021-01-26 - 2021-03-09			
Ort der Prüfung: <i>Place of testing:</i>	EMC/RF Taipei Testing Site			
Prüflaboratorium: <i>Testing laboratory:</i>	Taipei Testing Laboratories			
Prüfergebnis*: <i>Test result*:</i>	Pass			
überprüft von: <i>reviewed by:</i>			genehmigt von: <i>authorized by:</i>	
Datum: <i>Date:</i>	2021-03-22		Ausstellungsdatum: <i>Issue date:</i>	2021-03-22
Stellung / Position:	Senior Project Engineer		Stellung / Position:	Senior Project Manager
Sonstiges / Other:	This report is issued as a duplicate report of TUV report no.: CN21ZGIE (P15E-5G) 001. Both the models are electrically identical, the only difference lies in the product name/model/FCC ID/body size/power system/power supply system/spraying system. After evaluating, the worst case is model 3WWDZ-10A and presented it as the main test model. Therefore, all the test data are same as the original report.			
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	4 = ausreichend N/A = nicht anwendbar
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory F(ail) = failed a.m. test specification(s)	4 = sufficient N/A = not applicable
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

TEST SUMMARY

Report Section	FCC Clause	Test Item	Result
5.1.1	15.407(a) & 15.203	Antenna Requirement	Pass
5.1.2	15.407(a)	Maximum Conducted Output Power	Pass
5.1.3	15.407(a)	26 dB Bandwidth	Pass
5.1.3	2.1049	99% Occupied Bandwidth	Pass
5.1.4	15.407(e)	6 dB Bandwidth (U-NII-3 Band only)	Pass
5.1.5	15.407(g)	Frequency Stability	Pass
5.1.6	15.407(a)	Power Spectral Density	Pass
5.1.7	15.407(b) & 15.205 & 15.209	Radiated Spurious Emissions and Band Edges	Pass
-	15.407(h) & KDB 905462 D02	Dynamic Frequency Selection	N/A
-	15.207	Mains Conducted Emission	N/A (Note 1)

Note:

1. USB port is inside the enclosure and only for engineer debugging.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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Prüfbericht - Nr.: CN213NKV (P15E-5G) 001*Test Report No.***Seite 4 von 33***Page 4 of 33***APPENDIX A - TEST RESULT OF CONDUCTED****APPENDIX B - TEST RESULT OF RADIATED EMISSIONS****APPENDIX SP - PHOTOGRAPHS OF TEST SETUP****APPENDIX EP - PHOTOGRAPHS OF EUT**

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HISTORY OF THIS TEST REPORT

Report No.	Description	Date Issued
CN213NKV (P15E-5G) 001	Original Release	2021-03-22

1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A - Test Result of Conducted

Appendix B - Test Result of Radiated Emissions

Appendix SP - Photographs of Test Setup

Appendix EP - Photographs of EUT

Applied Standard and Test Levels

Radio
FCC 47CFR Part 15: Subpart E Section 15.407
FCC 47CFR Part 2: Subpart J Section 2.1049
ANSI C63.10:2013
KDB 789033 D02 General UNII Test Procedures New Rules v02r01

1.2 Decision Rule of Conformity

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

2. Test Sites

2.1 Test Laboratory

Taipei Testing Laboratories

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.
Taipei City 105
Taiwan (R.O.C.)

2.2 Test Facility

Taipei Testing Laboratories

No.458-18, Sec. 2, Fenliao Rd., Linkou Dist.,
New Taipei City 244
Taiwan (R.O.C.)
FCC Registration No.: 226631
ISED Registration No.: 25563

2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically in a suitably accredited Calibration Lab. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicate a 95% level of confidence.

Emission Measurement Uncertainty

Parameter	Uncertainty
Radiated Emission (9 kHz ~ 30 MHz)	± 1.15 dB
Radiated Emission (30 MHz ~ 200 MHz)	± 1.32 dB
Radiated Emission (200 MHz ~ 1 GHz)	± 1.31 dB
Radiated Emission (1 GHz ~ 18 GHz)	± 1.53 dB
Radiated Emission (18 GHz ~ 40 GHz)	± 2.50 dB
Mains Conducted Emission	± 1.65 dB

3. General Product Information

3.1 Product Function and Intended Use

The EUT is a AGRAS T30. It contains a 5GHz compatible module enabling the user to communicate data through a Wireless interface.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 System Details and Ratings

Basic Information of EUT

Item	EUT information
Kind of Equipment/Test Item	AGRAS T30
Type Identification	3WWDZ-30A
FCC ID	SS3-T30A

Technical Specification of EUT

Item	EUT information	
Operating Frequency	1.4 MHz	5728.5 MHz ~ 5846.5 MHz
	3 MHz	5730.5 MHz ~ 5844.5 MHz
	10 MHz	5730.5 MHz ~ 5844.5 MHz
	20 MHz	5735.5 MHz ~ 5839.5 MHz
	40 MHz	5745.5 MHz ~ 5829.5 MHz
Channel Spacing	1.4 MHz	2 MHz
	3 MHz	3 MHz
	10 MHz	1 MHz
	20 MHz	1 MHz
	40 MHz	1 MHz
Channel Number	1.4 MHz	60
	3 MHz	39
	10 MHz	115
	20 MHz	105
	40 MHz	85
Operation Voltage	51.8 Vdc (Battery)	
Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM)	
Maximum Output Power (mW)	311.89	
Antenna Information	Refer to 5.1.1	
Accessory Device	Refer to 4.4	

Note: There're two antennas (Ant 0 and Ant 1) used for 2.4GHz function and supports SISO mode only.

3.3 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.4 Submitted Documents

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The test modes were adapted accordingly in reference to the instructions for use.

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output expected by the customer and is going to be fixed on the firmware of the final end product.

Table for Parameters of Test Software Setting

1.4 MHz		3 MHz		10 MHz		20 MHz		40 MHz	
Channel	Power Setting	Channel	Power Setting	Channel	Power Setting	Channel	Power Setting	Channel	Power Setting
5728.5	def.	5730.5	def.	5730.5	def.	5735.5	def.	5745.5	def.
5786.5	def.	5787.5	def.	5787.5	def.	5787.5	def.	5787.5	def.
5846.5	def.	5844.5	def.	5844.5	def.	5839.5	def.	5829.5	def.

4.2 Carrier Frequency and Channel

<1.4 MHz>

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	5728.5	16	5758.5	31	5788.5	46	5818.5
2	5730.5	17	5760.5	32	5790.5	47	5820.5
3	5732.5	18	5762.5	33	5792.5	48	5822.5
4	5734.5	19	5764.5	34	5794.5	49	5824.5
5	5736.5	20	5766.5	35	5796.5	50	5826.5
6	5738.5	21	5768.5	36	5798.5	51	5828.5
7	5740.5	22	5770.5	37	5800.5	52	5830.5
8	5742.5	23	5772.5	38	5802.5	53	5832.5
9	5744.5	24	5774.5	39	5804.5	54	5834.5
10	5746.5	25	5776.5	40	5806.5	55	5836.5
11	5748.5	26	5778.5	41	5808.5	56	5838.5
12	5750.5	27	5780.5	42	5810.5	57	5840.5
13	5752.5	28	5782.5	43	5812.5	58	5842.5
14	5754.5	29	5784.5	44	5814.5	59	5844.5
15	5756.5	30	5786.5	45	5816.5	60	5846.5

<3 MHz>

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	5730.5	14	5769.5	27	5808.5
2	5733.5	15	5772.5	28	5811.5
3	5736.5	16	5775.5	29	5814.5
4	5739.5	17	5778.5	30	5817.5
5	5742.5	18	5781.5	31	5820.5
6	5745.5	19	5784.5	32	5823.5
7	5748.5	20	5787.5	33	5826.5
8	5751.5	21	5790.5	34	5829.5
9	5754.5	22	5793.5	35	5832.5
10	5757.5	23	5796.5	36	5835.5
11	5760.5	24	5799.5	37	5838.5
12	5763.5	25	5802.5	38	5841.5
13	5766.5	26	5805.5	39	5844.5

<10 MHz>

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	5730.5	30	5759.5	59	5788.5	88	5817.5
2	5731.5	31	5760.5	60	5789.5	89	5818.5
3	5732.5	32	5761.5	61	5790.5	90	5819.5
4	5733.5	33	5762.5	62	5791.5	91	5820.5
5	5734.5	34	5763.5	63	5792.5	92	5821.5
6	5735.5	35	5764.5	64	5793.5	93	5822.5
7	5736.5	36	5765.5	65	5794.5	94	5823.5
8	5737.5	37	5766.5	66	5795.5	95	5824.5
9	5738.5	38	5767.5	67	5796.5	96	5825.5
10	5739.5	39	5768.5	68	5797.5	97	5826.5
11	5740.5	40	5769.5	69	5798.5	98	5827.5
12	5741.5	41	5770.5	70	5799.5	99	5828.5
13	5742.5	42	5771.5	71	5800.5	100	5829.5
14	5743.5	43	5772.5	72	5801.5	101	5830.5
15	5744.5	44	5773.5	73	5802.5	102	5831.5
16	5745.5	45	5774.5	74	5803.5	103	5832.5
17	5746.5	46	5775.5	75	5804.5	104	5833.5
18	5747.5	47	5776.5	76	5805.5	105	5834.5
19	5748.5	48	5777.5	77	5806.5	106	5835.5
20	5749.5	49	5778.5	78	5807.5	107	5836.5
21	5750.5	50	5779.5	79	5808.5	108	5837.5
22	5751.5	51	5780.5	80	5809.5	109	5838.5
23	5752.5	52	5781.5	81	5810.5	110	5839.5
24	5753.5	53	5782.5	82	5811.5	111	5840.5
25	5754.5	54	5783.5	83	5812.5	112	5841.5
26	5755.5	55	5784.5	84	5813.5	113	5842.5
27	5756.5	56	5785.5	85	5814.5	114	5843.5
28	5757.5	57	5786.5	86	5815.5	115	5844.5
29	5758.5	58	5787.5	87	5816.5		

<20 MHz>

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	5735.5	28	5762.5	55	5789.5	82	5816.5
2	5736.5	29	5763.5	56	5790.5	83	5817.5
3	5737.5	30	5764.5	57	5791.5	84	5818.5
4	5738.5	31	5765.5	58	5792.5	85	5819.5
5	5739.5	32	5766.5	59	5793.5	86	5820.5
6	5740.5	33	5767.5	60	5794.5	87	5821.5
7	5741.5	34	5768.5	61	5795.5	88	5822.5
8	5742.5	35	5769.5	62	5796.5	89	5823.5
9	5743.5	36	5770.5	63	5797.5	90	5824.5
10	5744.5	37	5771.5	64	5798.5	91	5825.5
11	5745.5	38	5772.5	65	5799.5	92	5826.5
12	5746.5	39	5773.5	66	5800.5	93	5827.5
13	5747.5	40	5774.5	67	5801.5	94	5828.5
14	5748.5	41	5775.5	68	5802.5	95	5829.5
15	5749.5	42	5776.5	69	5803.5	96	5830.5
16	5750.5	43	5777.5	70	5804.5	97	5831.5
17	5751.5	44	5778.5	71	5805.5	98	5832.5
18	5752.5	45	5779.5	72	5806.5	99	5833.5
19	5753.5	46	5780.5	73	5807.5	100	5834.5
20	5754.5	47	5781.5	74	5808.5	101	5835.5
21	5755.5	48	5782.5	75	5809.5	102	5836.5
22	5756.5	49	5783.5	76	5810.5	103	5837.5
23	5757.5	50	5784.5	77	5811.5	104	5838.5
24	5758.5	51	5785.5	78	5812.5	105	5839.5
25	5759.5	52	5786.5	79	5813.5		
26	5760.5	53	5787.5	80	5814.5		
27	5761.5	54	5788.5	81	5815.5		

<40 MHz>

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	5745.5	23	5767.5	45	5789.5	67	5811.5
2	5746.5	24	5768.5	46	5790.5	68	5812.5
3	5747.5	25	5769.5	47	5791.5	69	5813.5
4	5748.5	26	5770.5	48	5792.5	70	5814.5
5	5749.5	27	5771.5	49	5793.5	71	5815.5
6	5750.5	28	5772.5	50	5794.5	72	5816.5
7	5751.5	29	5773.5	51	5795.5	73	5817.5
8	5752.5	30	5774.5	52	5796.5	74	5818.5
9	5753.5	31	5775.5	53	5797.5	75	5819.5
10	5754.5	32	5776.5	54	5798.5	76	5820.5
11	5755.5	33	5777.5	55	5799.5	77	5821.5
12	5756.5	34	5778.5	56	5800.5	78	5822.5
13	5757.5	35	5779.5	57	5801.5	79	5823.5
14	5758.5	36	5780.5	58	5802.5	80	5824.5
15	5759.5	37	5781.5	59	5803.5	81	5825.5
16	5760.5	38	5782.5	60	5804.5	82	5826.5
17	5761.5	39	5783.5	61	5805.5	83	5827.5
18	5762.5	40	5784.5	62	5806.5	84	5828.5
19	5763.5	41	5785.5	63	5807.5	85	5829.5
20	5764.5	42	5786.5	64	5808.5		
21	5765.5	43	5787.5	65	5809.5		
22	5766.5	44	5788.5	66	5810.5		

4.3 Test Operation and Test Software

Setup for testing: Test samples are provided with a USB interface which makes it possible to control them through a test software installed on a notebook computer.

This software was running on the laptop computer connected to the EUT. It was used to enable the operation modes listed as below.

Test Software	DjiSdrConsole
---------------	---------------

The samples were used as follows:

A002982403-015

A002982403-002

Full test was applied on all test modes, but only worst case was shown.

After evaluated, antenna 0 was the worst case, and only antenna 0 was performed for the full tests.

EUT Configure Mode	Applicable To				Description
	Antenna Port Conducted Measurement	Radiated Spurious Emissions above 1 GHz	Radiated Spurious Emissions below 1 GHz	Mains Conducted Emission	
-	√	√	√	-	-

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when position on **Y-plane**.
2. "-" means no effect.

Antenna Port Conducted Measurement

☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Frequency (MHz)	Tested Frequency (MHz)
ANT 0 (Full tests) / ANT 1 (Power only)	1.4 MHz	5728.5 to 5786.5	5728.5, 5786.5, 5846.5
	3 MHz	5730.5 to 5844.5	5730.5, 5787.5, 5844.5
	10 MHz	5730.5 to 5844.5	5730.5, 5787.5, 5844.5
	20 MHz	5735.5 to 5839.5	5735.5, 5787.5, 5839.5
	40 MHz	5745.5 to 5829.5	5745.5, 5787.5, 5829.5

Radiated Spurious Emissions (Above 1 GHz)

☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Frequency (MHz)	Tested Frequency (MHz)
ANT 0	1.4 MHz	5728.5 to 5786.5	5728.5, 5786.5, 5846.5
	3 MHz	5730.5 to 5844.5	5730.5, 5787.5, 5844.5
	10 MHz	5730.5 to 5844.5	5730.5, 5787.5, 5844.5
	20 MHz	5735.5 to 5839.5	5735.5, 5787.5, 5839.5
	40 MHz	5745.5 to 5829.5	5745.5, 5787.5, 5829.5
ANT 1	10 MHz	5730.5 to 5844.5	5844.5

Radiated Spurious Emissions (Below 1 GHz)

- ☒ Pre-Scan full test was applied on all test modes, but only worst case was shown.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Frequency (MHz)	Tested Frequency (MHz)
ANT 0 / ANT 1	10 MHz	5730.5 to 5844.5	5844.5

Test Condition

Test Item	Ambient Temperature	Relative Humidity	Tested by
Conducted Measurement	22.6-24.5 °C	60-62 %	Stanislas Charles
Radiated Spurious Emissions above 1 GHz	23.9-25.9 °C	57-59 %	Eagle Tsai
Radiated Spurious Emissions below 1 GHz	23.9-25.9 °C	57-59 %	Eagle Tsai

4.4 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

Accessory of EUT

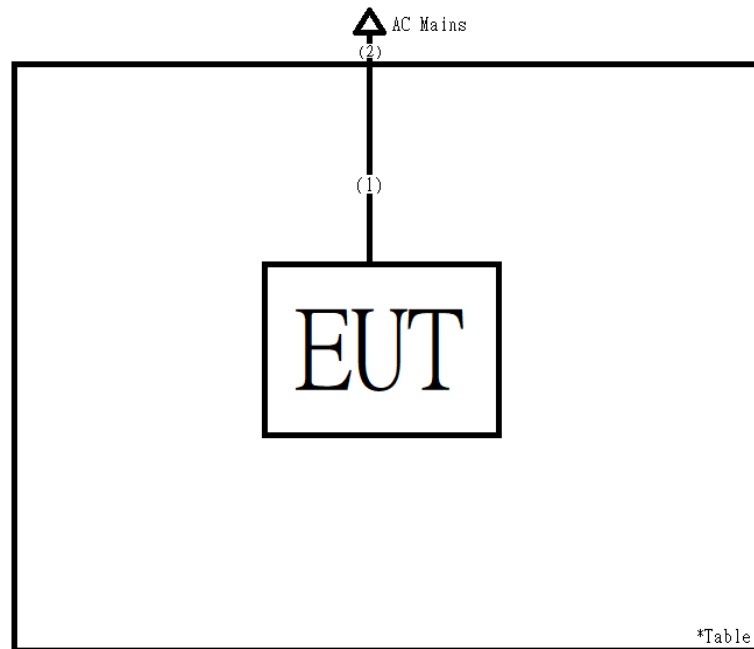
No.	Product	Brand	Model	Description
-	Battery	DJI	BAX501-28000-51.8	51.8 Vdc, 28000 mAh
-	Battery	DJI	BAX501-9500-51.8	51.8 Vdc, 9500 mAh
-	Power Charger	DJI	AGRAS BATTERY HUB	I/P: 100-120 Vac, 15 A I/P: 200-240 Vac, 15 A
-	Power Cord (for power charger)	DJI	Power cord	1m cable
-	Remote Controller	DJI	RM500-ENT	--
-	USB Cable (for remote controller)	DJI	RM500-ENT	1 m cable
-	Adapter (for remote controller)	DJI	QC24-CN	I/P: 100-240 Vac, 0.8 A O/P: 3.6Vdc-12Vdc, 3.0 A

Support Unit

Support Unit							
No.	Description	Brand	Model	S/N	Shielded	Ferrite Core (Qty)	Length (cm)
1	Power Cable	TUV	TUV-050	N/A	NO	NO	80
2	Power Cable	TUV	TUV-049	N/A	NO	NO	120
-	Signal Cable	TUV	TUV-018	N/A	YES	NO	150
-	NoteBook	Lenovo	TP00094A	PF-1GT015	-	-	-
-	Power Supply	GWINSTEK	GPS-3303	GEU915613	-	-	-

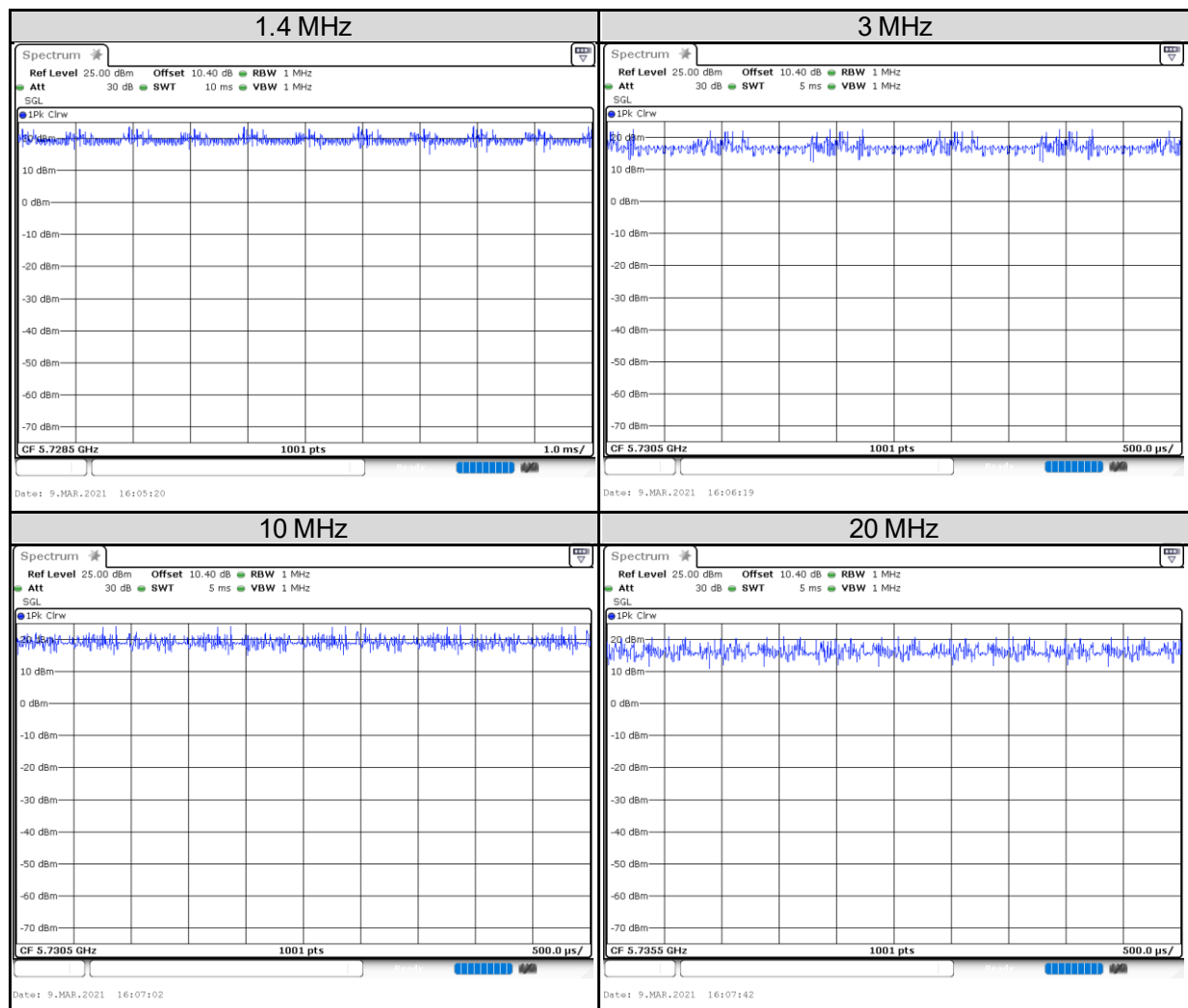
4.5 Test Setup Diagram

<Radiated Spurious Emissions mode>



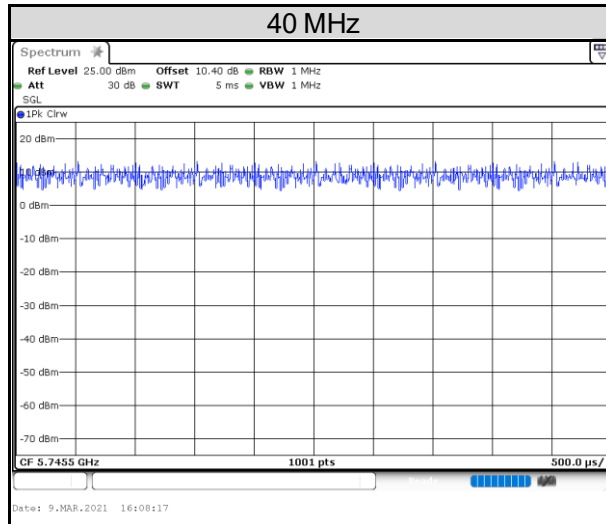
4.6 Duty Cycle of Test Signal

Mode	On + Off Time (ms)	On Time (ms)	Duty Cycle (%)	Duty Factor (dB)
1.4 MHz	1	1	100.00	0.00
3 MHz	1	1	100.00	0.00
10 MHz	1	1	100.00	0.00
20 MHz	1	1	100.00	0.00
40 MHz	1	1	100.00	0.00



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5. Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

Requirement Use of approved antennas only

According to the manufacturer declaration, the antenna information is as listed below. The antenna is with no possibility of replacement with a non-approved antenna by the end-user. Therefore, the EUT is considered to comply with this provision.

ANT	Antenna Type	Antenna Gain (dBi)
Antenna 0	Dipole Antenna	3
Antenna 1		1

Refer to EUT photo for details.

5.1.2 Maximum Conducted Output Power

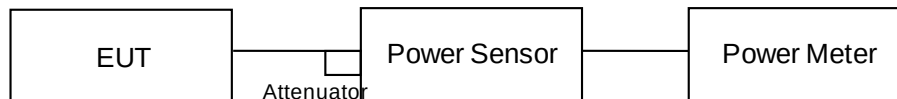
Limit

Operation Band	EUT Category	Limit
U-NII-1	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125 mW (21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
	Fixed point-to-point Access Point	1 Watt (30 dBm)
	Indoor Access Point	1 Watt (30 dBm)
	Mobile and Portable client device	250 mW (24 dBm)
U-NII-2A	---	250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-2C	---	250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-3	---	1 Watt (30 dBm)

Note: B* is the 26 dB emission bandwidth in megahertz

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Power Meter	Anritsu	ML2495A	1901008	2020/4/6	2021/4/5	2021/1/26	2021/2/25
Power Sensor	Anritsu	MA2411B	1725269	2020/4/7	2021/4/6	2021/1/26	2021/2/25

Test Procedures

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to AVERAGE. Duty factor is not added to measured value.

Test Result
<1.4 MHz>

ANT	Channel Frequency (MHz)	Average Output Power		Limit (dBm)
		(dBm)	(mW)	
ANT 0	5728.5	17.28	53.46	30.00
	5786.5	17.77	59.84	30.00
	5846.5	17.36	54.45	30.00
ANT 1	5728.5	17.47	55.85	30.00
	5786.5	17.02	50.35	30.00
	5846.5	17.61	57.68	30.00

<3 MHz>

ANT	Channel Frequency (MHz)	Average Output Power		Limit (dBm)
		(dBm)	(mW)	
ANT 0	5730.5	17.35	54.33	30.00
	5787.5	17.81	60.39	30.00
	5844.5	17.44	55.46	30.00
ANT 1	5730.5	17.43	55.34	30.00
	5787.5	17.04	50.58	30.00
	5844.5	17.64	58.08	30.00

<10 MHz>

ANT	Channel Frequency (MHz)	Average Output Power		Limit (dBm)
		(dBm)	(mW)	
ANT 0	5730.5	24.92	310.46	30.00
	5787.5	24.94	311.89	30.00
	5844.5	24.54	284.45	30.00
ANT 1	5730.5	24.46	279.25	30.00
	5787.5	24.48	280.54	30.00
	5844.5	24.80	302.00	30.00

<20 MHz>

ANT	Channel Frequency (MHz)	Average Output Power		Limit (dBm)
		(dBm)	(mW)	
ANT 0	5735.5	24.89	308.32	30.00
	5787.5	24.80	302.00	30.00
	5839.5	24.46	279.25	30.00
ANT 1	5735.5	24.25	266.07	30.00
	5787.5	23.99	250.61	30.00
	5839.5	24.66	292.42	30.00

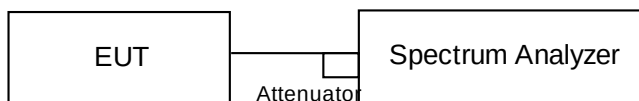
<40 MHz>

ANT	Channel Frequency (MHz)	Average Output Power		Limit (dBm)
		(dBm)	(mW)	
ANT 0	5745.5	20.35	108.39	30.00
	5787.5	24.11	257.63	30.00
	5829.5	20.06	101.39	30.00
ANT 1	5745.5	19.60	91.20	30.00
	5787.5	23.61	229.61	30.00
	5829.5	20.46	111.17	30.00

5.1.3 26 dB Bandwidth and 99% Occupied Bandwidth

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV40	101512	2020/2/18	2021/2/16	2021/1/26	2021/3/9
				2021/1/29	2022/1/28		

Test Procedure

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
- For 99% Bandwidth Measurement, the transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to PEAK. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean power of a given emission.

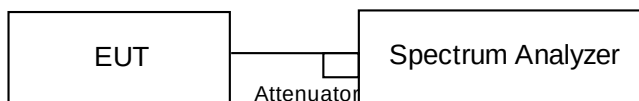
Test Results

Please refer to Appendix A

5.1.4 6 dB Bandwidth

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV40	101512	2020/2/18	2021/2/16	2021/1/26	2021/3/9
				2021/1/29	2022/1/28		

Test Procedure

MEASUREMENT PROCEDURE REF

- Set resolution bandwidth (RBW) = 100 kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

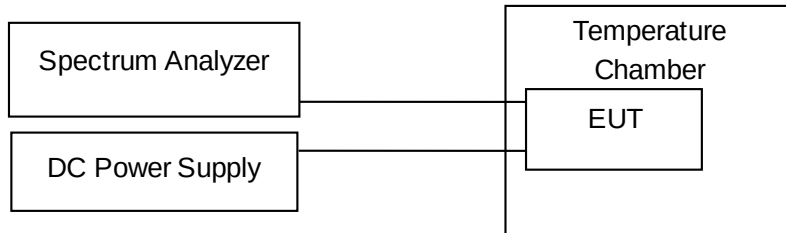
Test Results

Please refer to Appendix A

5.1.5 Frequency Stability Measurement

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV40	101512	2020/2/18	2021/2/17	2021/1/26	2021/3/9
				2021/1/29	2022/1/28		
Thermal Chamber	Giant Force	GHT-150-40-CP-SD	MAA1902-011	2020/3/10	2021/3/9	2021/1/26	2021/3/9

Test Procedure

- To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
- The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10 dB lower than the measured peak value.
- The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

Test Results

Frequency (MHz)	5786.5			
Voltage (V)	Measurement Frequency (MHz)			Max. Deviation (ppm)
5.5	5786.50058			0.100
5	5786.50087			0.150
4.5	5786.50058			0.100
Temperature (°C)	Measurement Frequency (MHz)			
	0 Minute	2 Minute	5 Minute	10 Minute
50	5786.49942	5786.49942	5786.49942	5786.49942
40	5786.50029	5786.5	5786.5	5786.5
30	5786.5	5786.5	5786.5	5786.5
20	5786.50087	5786.50058	5786.50087	5786.50087
10	5786.50145	5786.50145	5786.50145	5786.50145
0	5786.50174	5786.50174	5786.50203	5786.50174
-10	5786.50203	5786.50203	5786.50203	5786.50203
-20	5786.50116	5786.50116	5786.50116	5786.50116
Max. Deviation (ppm)	0.351	0.351	0.351	0.351

Frequency (MHz)	5787.5			
Voltage (V)	Measurement Frequency (MHz)			Max. Deviation (ppm)
3.3	5787.50058			0.100
3	5787.50058			0.100
2.7	5787.50058			0.100
Temperature (°C)	Measurement Frequency (MHz)			
	0 Minute	2 Minute	5 Minute	10 Minute
50	5787.49971	5787.49971	5787.49971	5787.49971
40	5787.5	5787.5	5787.5	5787.5
30	5787.5	5787.5	5787.5	5787.5
20	5787.50058	5787.50058	5787.50058	5787.50058
10	5787.50145	5787.50145	5787.50145	5787.50145
0	5787.50203	5787.50174	5787.50174	5787.50174
-10	5787.50203	5787.50174	5787.50203	5787.50203
-20	5787.50087	5787.50087	5787.50087	5787.50087
Max. Deviation (ppm)	0.351	0.301	0.351	0.351

5.1.6 Power Spectral Density

Limit

For the 5.15~5.25GHz Bands:

For mobile and portable client devices in the 5.15~5.25GHz band, the Maximum Power spectral density shall not exceed 11dBm/MHz. For an indoor access point operating in the band 5.15~5.25GHz, the maximum power spectral density shall not exceed 17dBm/MHz.

For the 5.25~5.35GHz and 5.47~5.725GHz Bands:

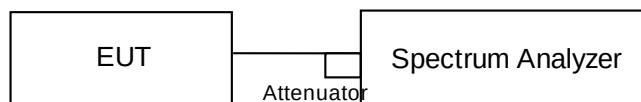
The maximum power spectral density shall not exceed 11dBm/MHz.

For the 5.745~5.85GHz Bands:

The maximum power spectral density shall not exceed 30dBm/500kHz.

Kind of Test Site Shielded room

Test Setup



Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Spectrum Analyzer	R&S	FSV40	101512	2020/2/18	2021/2/16	2021/1/26	2021/3/9
				2021/1/29	2022/1/28		

Test Procedure

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 500 kHz, Set VBW $\geq$ 3 RBW, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 500 kHz band segment within the fundamental EBW.
4. Sweep time = auto, trigger set to "free run".
5. Trace average at least 100 traces in power averaging mode.
6. Record the max value

Test Results

Please refer to Appendix A

5.1.7 Radiated Spurious Emissions

Limit

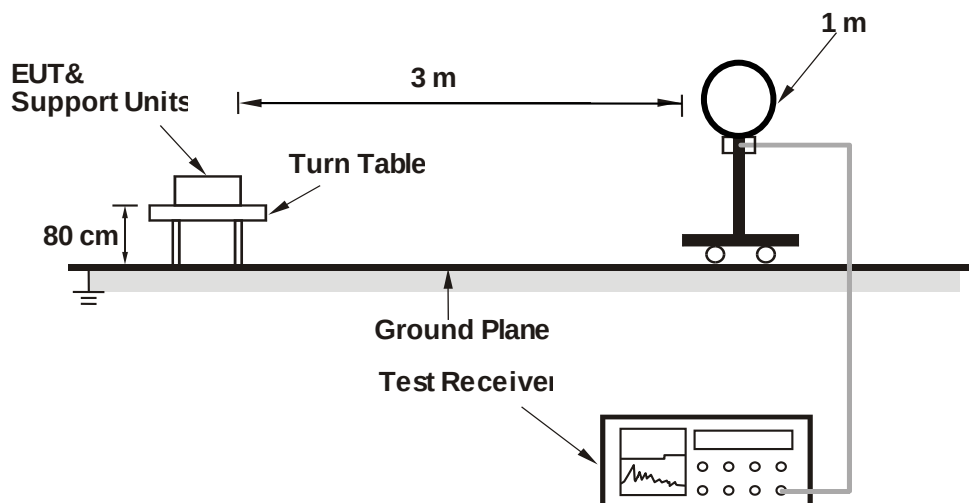
Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must comply with the radiated emission limits specified in §15.209(a).

Emissions radiated outside the restricted and authorized frequency bands must either comply with the radiated emission limits specified for the restricted bands or in §15.407(b).

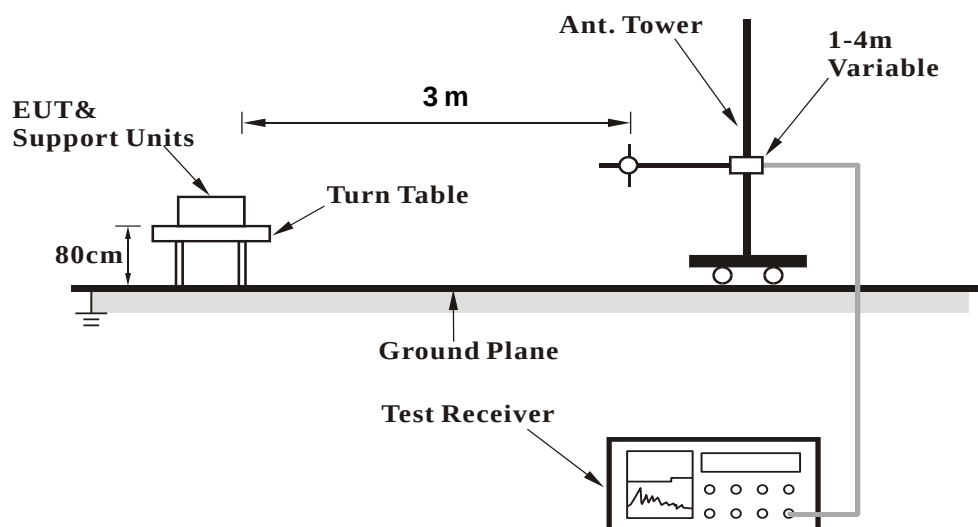
Kind of Test Site 3m Semi-Anechoic Chamber

Test Setup

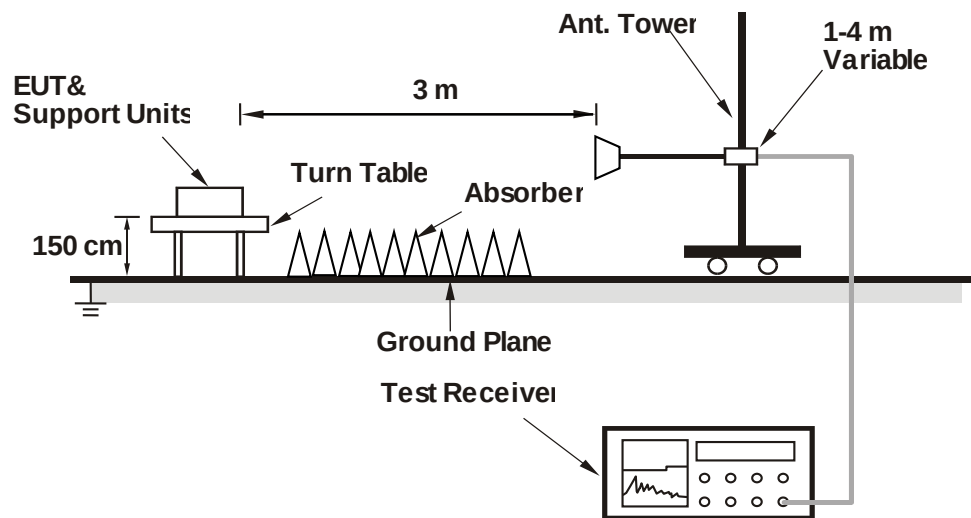
<Radiated Emissions below 30 MHz>



<Radiated Emissions 30 MHz to 1 GHz>



<Radiated Emissions above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

Test Instruments

Test Date: 2021-03-05 ~ 2021-03-08

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV40	101509	2020/5/5	2021/5/4
Receiver	R&S	ESR7	102109	2020/3/30	2021/3/29
Bilog Antenna	SCHWARZBECK	VULB-9168	00950	2021/1/25	2022/1/24
Horn Antenna	ETS-Lindgren	3117	00218929	2020/11/6	2021/11/5
LF-AMP	Agilent	8447D	2727A05146	2021/2/1	2022/1/31
HF-AMP + AC source	EMCI	EMC051845SE	980635	2021/2/1	2022/1/31
HF-AMP + AC source	EMCI	EMC184045SE	980656	2021/2/9	2022/2/8
Horn Antenna	SCHWARZBECK	BBHA 9170	00890	2020/4/13	2021/4/12
Microwave Cable	HUBER+SUHNER	SUCOFLEX 104EA	800057/4EA	2020/4/22	2021/4/21
Microwave Cable	HUBER+SUHNER	SUCOFLEX 104	802244/4	2020/4/22	2021/4/21
Microwave Cable	HUBER+SUHNER	SUCOFLEX 104	MY37203/4	2020/4/22	2021/4/21
Microwave Cable	HUBER+SUHNER	SUCOFLEX 102EA	800897/2EA	2020/3/25	2021/3/24
Microwave Cable	HUBER+SUHNER	SUCOFLEX 102EA	800902/2EA	2020/3/25	2021/3/24
Microwave Cable	HUBER+SUHNER	SUCOFLEX 102EA	801026/2EA	2020/3/25	2021/3/24
Loop Antenna	Chance Most	EMCILPA600 +calibration	287	2021/1/18	2022/1/17

Test Procedures**For Radiated Emissions below 30 MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel (OPEN), perpendicular (CLOSE), and ground-parallel (GROUND) orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated Emissions above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The Radiated Emissions testing was performed in the X, Y and Z axis orientation. The worst-case Axis orientation is recorded in this test report.

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Test Results

Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)

Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

Please refer to Appendix B.