



FCC Radio Test Report

FCC ID: 2BFBC-M01

This report concerns: Original Grant

Project No.	:	2312C186
Equipment	:	Harbor Monitor
Brand Name	:	Harbor
Test Model	:	M01
Series Model	:	N/A
Applicant	:	PROJECT MONITOR INC
Address	:	4516 Lovers Lane STE 392, DALLAS Texas, United States 75225
Manufacturer	:	Thundercomm Technology Co., Ltd.
Address	:	No. 107, Data Valley Middle Road, Xiantao District, Yubei District
		Chongqing, China
Factory	:	HuaZhuang Electronics (Vietnam) Co.,LTD.
Address	:	A part of lot J, Dong Van II Industrial park, Bach Thuong ward, Duy Tien
		town, Ha Nam Province, Vietnam
Date of Receipt	:	Feb. 05, 2024
Date of Test	:	Feb. 06, 2024 ~ Mar. 23, 2024
Issued Date	:	Apr. 26, 2024
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG2024020563 for AC power line conducted
		emissions and radiated emissions, DG2024020564 for others.
Standard(s)	:	FCC CFR Title 47, Part 15, Subpart E

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

Prepared by

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Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. BTL assumes no responsibility for the data provided by the customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by BTL.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the ISO/IEC 17025: 2017 requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective. Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.



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	REP	ORT ISSUED HISTORY		
Report No.	Version	Description	Issued Date	Note
BTL-FCCP-4-2312C186	R00	Original Report.	Apr. 26, 2024	Valio
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1. APPLICABLE STANDARDS

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

ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of NVLAP: KDB 789033 D02 General UNII Test Procedures New Rules v02r01

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC CFR Title 47, Part 15, Subpart E					
Standard(s) Section	Test Item	Test Result	Judgment	Remark	
15.207 15.407(b)	AC Power Line Conducted Emissions	APPENDIX A	PASS		
15.407(b) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS		
15.407(a) 15.407(e)	Bandwidth	APPENDIX E	PASS		
15.407(a)	Maximum Output Power	APPENDIX F	PASS		
15.407(a)	Power Spectral Density	APPENDIX G	PASS		
15.407(g)	Frequency Stability	APPENDIX H	PASS		
15.203	Antenna Requirements		PASS	NOTE (2)	
15.407(c)	Automatically Discontinue Transmission		PASS	NOTE (3)	

Note:

(1) "N/A" denotes test is not applicable in this test report.

- (2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.
- (3) During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. the EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.
- (4) For UNII-1 this device was functioned as a
 - Outdoor access point device
 - □ Indoor access point device
 - ☐ Fixed point-to-point access points device
 - Client device



2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 3 Jinshagang 1st Rd. Shixia, Dalang Town, Dongguan City, Guangdong 523792 BTL's Registration Number for FCC: 162128

BTL's Designation Number for FCC: CN5042

2.2 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)) The BTL measurement uncertainty as below table:

A. AC power line conducted emissions test:

Test Site	Method	Measurement Frequency Range	<i>U</i> ,(dB)
DG-C02	CISPR	150kHz ~ 30MHz	2.88

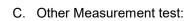
B. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	<i>U</i> ,(dB)
DG-CB01	CISPR	9kHz ~ 30MHz	2.36

Test Site	Method	Measurement Frequency Range	Ant. H / V	<i>U</i> ,(dB)
DG-CB03 (3m)		30MHz ~ 200MHz	V	4.40
	CISPR	30MHz ~ 200MHz	Н	3.62
		200MHz ~ 1,000MHz	V	4.58
		200MHz ~ 1,000MHz	Н	3.98

Test Site	Method	Measurement Frequency Range	<i>U</i> ,(dB)
DG-CB03 (3m)		1GHz ~ 6GHz	4.08
	CISPR	6GHz ~ 18GHz	4.62

Test Site	Method	Measurement Frequency Range	<i>U</i> ,(dB)
DG-CB03 (1m)		18 ~ 26.5 GHz	3.36
	CISPR	26.5 ~ 40 GHz	3.58



Test Item	Uncertainty
Bandwidth	0.90 %
Maximum Output Power	1.3 dB
Power Spectral Density	1.4 dB
Frequency Stability	2.7 ppm
Temperature	0.8 °C
Humidity	2.2 %

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

2.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By	Test Date
AC Power Line Conducted Emissions	24°C	68%	AC 120V/60Hz	Hayden Chen	Feb. 21, 2024
Radiated Emissions -9kHz to 30 MHz	22°C	53%	AC 120V/60Hz	Hayden Chen	Feb. 20, 2024
Radiated Emissions -30MHz to 1000MHz	22°C	43%	AC 120V/60Hz	Allen Tong	Feb. 26, 2024
Radiated Emissions -Above 1000MHz	21-23°C	40-43%	AC 120V/60Hz	Allen Tong	Feb. 25, 2024- Mar. 10, 2024
Bandwidth	25°C	51-52%	DC 12V	Steve Zhou	Mar. 05, 2024- Mar. 06, 2024
Maximum Output Power	24-25°C	46-57%	DC 12V	Oliver Wang	Feb. 24, 2024- Mar. 20, 2024
Power Spectral Density	25°C	51-52%	DC 12V	Steve Zhou	Mar. 05, 2024- Mar. 06, 2024
Frequency Stability	Normal & Extreme	51-52%	Normal & Extreme	Steve Zhou	Mar. 05, 2024



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Harbor Monitor
Brand Name	Harbor
Test Model	M01
Series Model	N/A
Model Difference(s)	N/A
HVIN	M01
FVIN	FlatBuild_Turbox-CM6125_DK.V03_la3.0.D.userdebug.20240423.102 3.zip
Power Source	1# DC voltage supplied from AC adapter. Model: S-TR-151PU4 2# Supplied from battery. Model: GSP297987HV-1S2P
Power Rating	1# I/P: 100-240V~, 50/60Hz 0.5A Max Type-C O/P: 5.0V === 3.0A, 9.0V === 2.22A, 12.0V === 1.67A 2# 6200mAh, 3.8V, 23.56Wh
Operation Frequency Band(s)	UNII-1: 5150 MHz ~ 5250 MHz UNII-2A: 5250 MHz ~ 5350 MHz UNII-2C: 5470 MHz ~ 5725 MHz UNII-3: 5725 MHz ~ 5850 MHz
Modulation Type	IEEE 802.11a/n/ac: OFDM
Bit Rate of Transmitter	IEEE 802.11a: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n: up to 150 Mbps IEEE 802.11ac: up to 433.3 Mbps
Maximum Output Power _UNII-1	IEEE 802.11n(HT40): 12.98 dBm (0.0199 W)
	IEEE 802.11a: 12.45 dBm (0.0176 W)
Maximum Output Power _UNII-2C	IEEE 802.11a: 11.55 dBm (0.0143 W)
Maximum Output Power _UNII-3	IEEE 802.11ac(VHT80): 11.97 dBm (0.0157 W)

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.



2. Channel List:

IEEE 802.11a IEEE 802.11n(HT20) IEEE 802.11ac(VHT20)			11n(HT40) 1ac(VHT40)	IEEE 802.1	lac(VHT80)
UNII-1		UNII-1		UNII-1	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230		
44	5220				
48	5240				

IEEE 80 IEEE 802.1 IEEE 802.11	1n(HT20)	IEEE 802.11n(HT40) IEEE 802.11ac(VHT40)		IEEE 802.1	lac(VHT80)
UNII-2A		UNII-2A		UNII-2A	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	54	5270	58	5290
56	5280	62	5310		
60	5300				
64	5320				

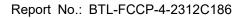
IEEE 802.11a IEEE 802.11n(HT20) IEEE 802.11ac(VHT20)		IEEE 802.11n(HT40) IEEE 802.11ac(VHT40)		IEEE 802.11ac(VHT80)	
UNI	-2C	UNI	I-2C	UNII-2C	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	102	5510	106	5530
104	5520	110	5550	122	5610
108	5540	118	5590		
112	5560	126	5630		
116	5580	134	5670		
120	5600				
124	5620				
128	5640				
132	5660				
136	5680				
140	5700				

IEEE 802.1	IEEE 802.11a IEEE 802.11n(HT20) IEEE 802.11ac(VHT20)		IEEE 802.11n(HT40) IEEE 802.11ac(VHT40)		1ac(VHT80)
UNII-3		UN	II-3	UNII-3	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	151	5755	155	5775
153	5765	159	5795		
157	5785				
161	5805				
165	5825				



3. Antenna Specification:

•••		a opeemeation.				
	Ant.	Manufacturer P/N Antenna Type		Connector	Gain (dBi)	
		Etheta Communication				
	1	Technoloies (china) Co.,	RD1202305NB87-1	PIFA	N/A	2.55
		LTD.				



3.2 TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

Pretest Mode	Description
Mode 1	TX A Mode Channel 36/40/48 (UNII-1)
Mode 2	TX N(HT20) Mode Channel 36/40/48 (UNII-1)
Mode 3	TX N(HT40) Mode Channel 38/46 (UNII-1)
Mode 4	TX AC(VHT20) Mode Channel 36/40/48 (UNII-1)
Mode 5	TX AC(VHT40) Mode Channel 38/46 (UNII-1)
Mode 6	TX AC(VHT80) Mode Channel 42 (UNII-1)
Mode 7	TX A Mode Channel 52/60/64 (UNII-2A)
Mode 8	TX N(HT20) Mode Channel 52/60/64 (UNII-2A)
Mode 9	TX N(HT40) Mode Channel 54/62 (UNII-2A)
Mode 10	TX AC(VHT20) Mode Channel 52/60/64 (UNII-2A)
Mode 11	TX AC(VHT40) Mode Channel 54/62 (UNII-2A)
Mode 12	TX AC(VHT80) Mode Channel 58 (UNII-2A)
Mode 13	TX A Mode Channel 100/116/140 (UNII-2C)
Mode 14	TX N(HT20) Mode Channel 100/116/140 (UNII-2C)
Mode 15	TX N(HT40) Mode Channel 102/110/134 (UNII-2C)
Mode 16	TX AC(VHT20) Mode Channel 100/116/140 (UNII-2C)
Mode 17	TX AC(VHT40) Mode Channel 102/110/134 (UNII-2C)
Mode 18	TX AC(VHT80) Mode Channel 106/122 (UNII-2C)
Mode 19	TX A Mode Channel 149/157/165 (UNII-3)
Mode 20	TX N(HT20) Mode Channel 149/157/165 (UNII-3)
Mode 21	TX N(HT40) Mode Channel 151/159 (UNII-3)
Mode 22	TX AC(VHT20) Mode Channel 149/157/165 (UNII-3)
Mode 23	TX AC(VHT40) Mode Channel 151/159 (UNII-3)
Mode 24	TX AC(VHT80) Mode Channel 155 (UNII-3)
Mode 25	TX N(HT40) Mode Channel 38 (UNII-1)

Following mode(s) was (were) found to be the worst case(s) and selected for the final test.

AC power line conducted emissions test			
Final Test Mode Description			
Mode 25	TX N(HT40) Mode Channel 38 (UNII-1)		

Radiated Emissions Test - Below 1GHz		
Final Test Mode	Description	
Mode 25	TX N(HT40) Mode Channel 38 (UNII-1)	



Radiated Emissions Test - Above 1GHz				
Final Test Mode	Description			
Mode 1	TX A Mode Channel 36/40/48 (UNII-1)			
Mode 2	TX N(HT20) Mode Channel 36/40/48 (UNII-1)			
Mode 3	TX N(HT40) Mode Channel 38/46 (UNII-1)			
Mode 6	TX AC(VHT80) Mode Channel 42 (UNII-1)			
Mode 7	TX A Mode Channel 52/60/64 (UNII-2A)			
Mode 8	TX N(HT20) Mode Channel 52/60/64 (UNII-2A)			
Mode 9	TX N(HT40) Mode Channel 54/62 (UNII-2A)			
Mode 12	TX AC(VHT80) Mode Channel 58 (UNII-2A)			
Mode 13	TX A Mode Channel 100/116/140 (UNII-2C)			
Mode 14	TX N(HT20) Mode Channel 100/116/140 (UNII-2C)			
Mode 15	TX N(HT40) Mode Channel 102/110/134 (UNII-2C)			
Mode 18	TX AC(VHT80) Mode Channel 106/122 (UNII-2C)			
Mode 19	TX A Mode Channel 149/157/165 (UNII-3)			
Mode 20	TX N(HT20) Mode Channel 149/157/165 (UNII-3)			
Mode 21	TX N(HT40) Mode Channel 151/159 (UNII-3)			
Mode 24	TX AC(VHT80) Mode Channel 155 (UNII-3)			

Maximum Output Power Test				
Final Test Mode	Description			
Mode 1	TX A Mode Channel 36/40/48 (UNII-1)			
Mode 2	TX N(HT20) Mode Channel 36/40/48 (UNII-1)			
Mode 3	TX N(HT40) Mode Channel 38/46 (UNII-1)			
Mode 4	TX AC(VHT20) Mode Channel 36/40/48 (UNII-1)			
Mode 5	TX AC(VHT40) Mode Channel 38/46 (UNII-1)			
Mode 6	TX AC(VHT80) Mode Channel 42 (UNII-1)			
Mode 7	TX A Mode Channel 52/60/64 (UNII-2A)			
Mode 8	TX N(HT20) Mode Channel 52/60/64 (UNII-2A)			
Mode 9	TX N(HT40) Mode Channel 54/62 (UNII-2A)			
Mode 10	TX AC(VHT20) Mode Channel 52/60/64 (UNII-2A)			
Mode 11	TX AC(VHT40) Mode Channel 54/62 (UNII-2A)			
Mode 12	TX AC(VHT80) Mode Channel 58 (UNII-2A)			
Mode 13	TX A Mode Channel 100/116/140 (UNII-2C)			
Mode 14	TX N(HT20) Mode Channel 100/116/140 (UNII-2C)			
Mode 15	TX N(HT40) Mode Channel 102/110/134 (UNII-2C)			
Mode 16	TX AC(VHT20) Mode Channel 100/116/140 (UNII-2C)			
Mode 17	TX AC(VHT40) Mode Channel 102/110/134 (UNII-2C)			
Mode 18	TX AC(VHT80) Mode Channel 106/122 (UNII-2C)			



Maximum Output Power Test		
Final Test Mode	Description	
Mode 19	TX A Mode Channel 149/157/165 (UNII-3)	
Mode 20	TX N(HT20) Mode Channel 149/157/165 (UNII-3)	
Mode 21	TX N(HT40) Mode Channel 151/159 (UNII-3)	
Mode 22	TX AC(VHT20) Mode Channel 149/157/165 (UNII-3)	
Mode 23	TX AC(VHT40) Mode Channel 151/159 (UNII-3)	
Mode 24	TX AC(VHT80) Mode Channel 155 (UNII-3)	

Other Conducted Test		
Final Test Mode	Description	
Mode 1	TX A Mode Channel 36/40/48 (UNII-1)	
Mode 2	TX N(HT20) Mode Channel 36/40/48 (UNII-1)	
Mode 3	TX N(HT40) Mode Channel 38/46 (UNII-1)	
Mode 6	TX AC(VHT80) Mode Channel 42 (UNII-1)	
Mode 7	TX A Mode Channel 52/60/64 (UNII-2A)	
Mode 8	TX N(HT20) Mode Channel 52/60/64 (UNII-2A)	
Mode 9	TX N(HT40) Mode Channel 54/62 (UNII-2A)	
Mode 12	TX AC(VHT80) Mode Channel 58 (UNII-2A)	
Mode 13	TX A Mode Channel 100/116/140 (UNII-2C)	
Mode 14	TX N(HT20) Mode Channel 100/116/140 (UNII-2C)	
Mode 15	TX N(HT40) Mode Channel 102/110/134 (UNII-2C)	
Mode 18	TX AC(VHT80) Mode Channel 106/122 (UNII-2C)	
Mode 19	TX A Mode Channel 149/157/165 (UNII-3)	
Mode 20	TX N(HT20) Mode Channel 149/157/165 (UNII-3)	
Mode 21	TX N(HT40) Mode Channel 151/159 (UNII-3)	
Mode 24	TX AC(VHT80) Mode Channel 155 (UNII-3)	

Note:

- (1) For AC power line conducted emissions and radiated emission below 1 GHz test, the TX N(HT40) Mode Channel 38 (UNII-1) is found to be the worst case and recorded.
- (2) For radiated emission above 1 GHz test, the spurious points of 1GHz~26.5GHz and 26.5GHz~40GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.
- (3) For radiated emission above 1 GHz test, the polarization of Vertical and Horizontal are evaluated, the worst case is Horizontal and recorded.
- (4) For radiated emission Harmonic 18-40GHz test, only tested the worst case and recorded.
- (5) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.
- (6) The measurements for Output Power are tested, the worst case are IEEE 802.11a mode, IEEE 802.11n(HT20) mode, IEEE 802.11n(HT40) mode and IEEE 802.11ac(VHT80) mode, only the worst cases are documented for other test items.

3.3 PARAMETERS OF TEST SOFTWARE

UNII-1			
Test Software Version	QRCT4.0		
Frequency (MHz)	5180	5200	5240
IEEE 802.11a	13	13	13
IEEE 802.11n(HT20)	13	13	13
IEEE 802.11ac(VHT20)	13	13	13
Frequency (MHz)	5190	5230	
IEEE 802.11n(HT40)	13	12.5	
IEEE 802.11ac(VHT40)	13	12.5	
Frequency (MHz)	5210		
IEEE 802.11ac(VHT80)	13		

UNII-2A			
Test Software Version	QRCT4.0		
Frequency (MHz)	5260	5300	5320
IEEE 802.11a	12.5	12.5	12.5
IEEE 802.11n(HT20)	12.5	12.5	12.5
IEEE 802.11ac(VHT20)	12.5	12.5	12.5
Frequency (MHz)	5270	5310	
IEEE 802.11n(HT40)	12	12	
IEEE 802.11ac(VHT40)	12	12	
Frequency (MHz)	5290		
IEEE 802.11ac(VHT80)	12.5		

UNII-2C			
Test Software Version	QRCT4.0		
Frequency (MHz)	5500	5580	5700
IEEE 802.11a	11	11	11
IEEE 802.11n(HT20)	11.5	11	11
IEEE 802.11ac(VHT20)	11.5	11	11
Frequency (MHz)	5510	5550	5670
IEEE 802.11n(HT40)	11	11	10.5
IEEE 802.11ac(VHT40)	11	11	10.5
Frequency (MHz)	5530	5610	
IEEE 802.11ac(VHT80)	11	10.5	

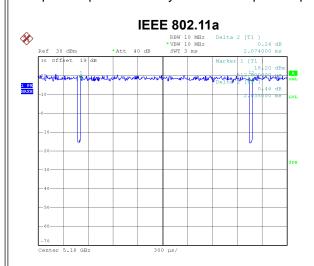


UNII-3			
Test Software Version		QRCT4.0	
Frequency (MHz)	5745	5785	5825
IEEE 802.11a	11.5	11.5	11.5
IEEE 802.11n(HT20)	11.5	11.5	11.5
IEEE 802.11ac(VHT20)	11.5	11.5	11.5
Frequency (MHz)	5755	5795	
IEEE 802.11n(HT40)	11	11	
IEEE 802.11ac(VHT40)	11	11	
Frequency (MHz)	5775		
IEEE 802.11ac(VHT80)	11.5		



3.4 DUTY CYCLE

If duty cycle is \geq 98 %, duty factor is not required. If duty cycle is < 98 %, duty factor shall be considered. The output power = measured power + duty factor. The power spectral density = measured power spectral density + duty factor.





1.164

IEEE 802.11n(HT20)

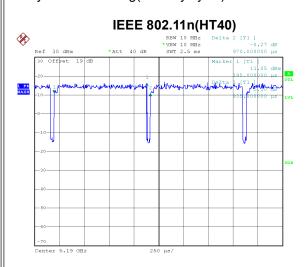
SWT

RBW 10 MHz •VBW 10 MHz

A.MAL

Date: 5.MAR.2024 00:47:57

Duty cycle = 2.038 ms / 2.074 ms = 98.26% Duty Factor = 10 log(1 / Duty cycle) = 0.00



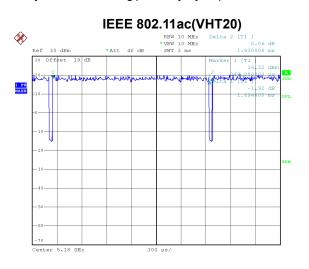
Date: 6.MAR.2024 04:03:03

Duty cycle = 0.935 ms / 0.970 ms = 96.39% Duty Factor = 10 log(1 / Duty cycle) = 0.16 Date: 6.MAR.2024 04:02:07

X

1 PK MAXH 30 dBm

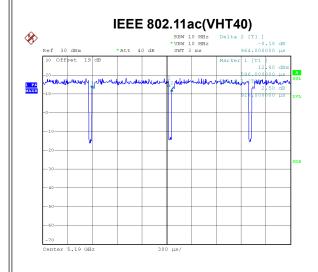
Duty cycle = 1.900 ms / 1.935 ms = 98.19% Duty Factor = 10 log(1 / Duty cycle) = 0.00



Date: 5.MAR.2024 00:49:14

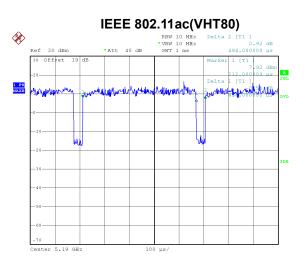
Duty cycle = 1.894 ms / 1.930 ms = 98.13% Duty Factor = 10 log(1 / Duty cycle) = 0.00

<u>3TL</u>



Date: 5.MAR.2024 00:53:00

Duty cycle = 0.928 ms / 0.964 ms = 96.27% Duty Factor = 10 log(1 / Duty cycle) = 0.17



Date: 5.MAR.2024 00:54:20

Duty cycle = 0.458 ms / 0.494 ms = 92.71% Duty Factor = 10 log(1 / Duty cycle) = 0.33

NOTE:

For IEEE 802.11a:

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle \ge 98%).

For IEEE 802.11n(HT20):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle \ge 98%).

For IEEE 802.11n(HT40):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1070 Hz (Duty cycle < 98%).

For IEEE 802.11ac(VHT20):

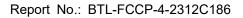
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle \ge 98%).

For IEEE 802.11ac(VHT40):

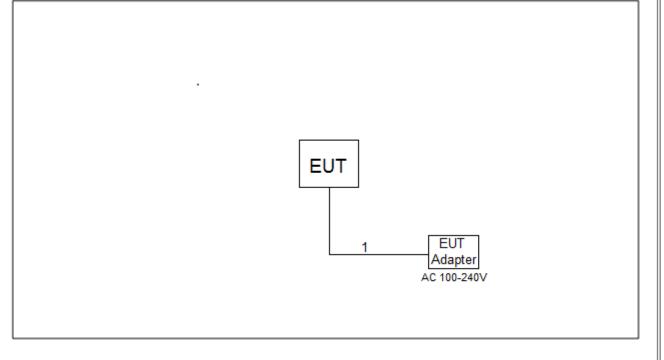
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1078 Hz (Duty cycle < 98%).

For IEEE 802.11ac(VHT80):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 2183 Hz (Duty cycle < 98%).







3.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
-	-	-	-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.2m

3.7 CUSTOMER INFORMATION DESCRIPTION

The antenna gain is provided by the manufacturer.
 Except for AC power line conducted emissions and radiated emissions, the results of all test items include cable losses. All cable losses are provided by the testing laboratory.



4. AC POWER LINE CONDUCTED EMISSIONS

4.1 LIMIT

Frequency	Limit (dBµV)		
(MHz)	Quasi-peak	Average	
0.15 - 0.5	66 to 56*	56 to 46*	
0.5 - 5.0	56	46	
5.0 - 30.0	60	50	

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

The following table is the setting of the receiver:

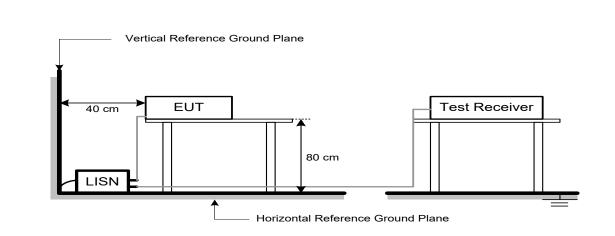
Receiver Parameter	Setting
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

4.3 DEVIATION FROM TEST STANDARD

No deviation



4.4 TEST SETUP



4.5 EUT OPERATION CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

The EUT was programmed to be in continuously transmitting/TX mode.

4.6 TEST RESULTS

Please refer to the APPENDIX A.



5. RADIATED EMISSIONS

5.1 LIMIT

In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSIONS MEASUREMENT (9 kHz to 1000 MHz)

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS (Above 1000 MHz)

		(
Frequency (MHz)	EIRP Limit (dBm/MHz)	Band edge at 3m (dBµV/m)	Harmonic at 1m (dBµV/m)
5150-5250	-27	68.2	77.7 (Note 3)
5250-5350	-27	68.2	77.7 (Note 3)
5470-5725	-27	68.2	77.7 (Note 3)
	-27	68.2	77.7 (Note 3)
5725-5850	10	105.2	114.7 (Note 3)
NOTE (2)	15.6	110.8	120.3 (Note 3)
	27	122.2	131.7 (Note 3)

NOTE:

(1) The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength: 1000000√30P E =

- (2) According to 15.407(b)(4)(i), all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
- (3)

 $FS_{\text{limit}} = FS_{\text{max}} - 20\log\left(\frac{d_{\text{limit}}}{d_{\text{measure}}}\right)$

20log (d_{limit}/d_{measure})=20log (3/1)=9.5 dB.



5.2 TEST PROCEDURE

- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1 GHz)
- b. The measuring distance of 3 m or 1m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8m or 1.5m; the height of the test antenna shall vary between 1 m to 4 m. 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 find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1 GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1 GHz)
- i. For the actual test configuration, please refer to the related Item -EUT Test Photos.

The following table is the setting of the receiver:

Spectrum Parameters	Setting
Start ~ Stop Frequency	9 kHz~150 kHz for RBW 200 Hz
Start ~ Stop Frequency	0.15 MHz~30 MHz for RBW 9 kHz
Start ~ Stop Frequency	30 MHz~1000 MHz for RBW 100 kHz

Spectrum Parameters	Setting
Start Frequency 1000 MHz	
Stop Frequency 10th carrier harmonic or 40 GHz, whichever is I	
RBW / VBW 1 MHz / 3 MHz for PK value	
(Emission in restricted band)	1 MHz / 1/T Hz for AVG value

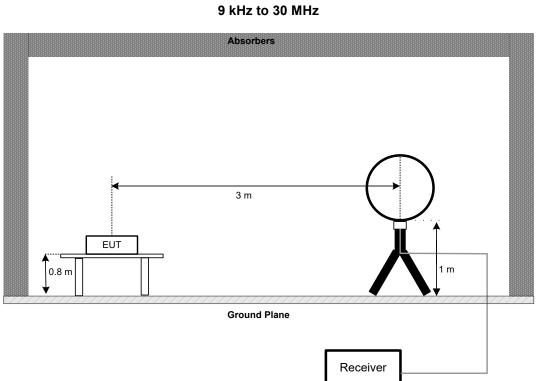
Receiver Parameters	Setting	
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector	
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector	
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector	
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector	
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector	
Start ~ Stop Frequency	1 GHz~40 GHz for PK/AVG detector	



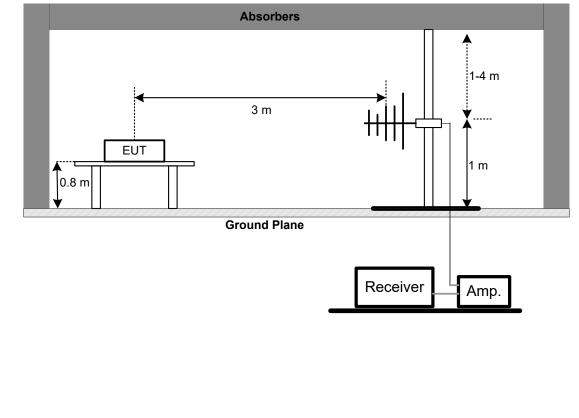
5.3 DEVIATION FROM TEST STANDARD

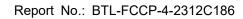
No deviation.

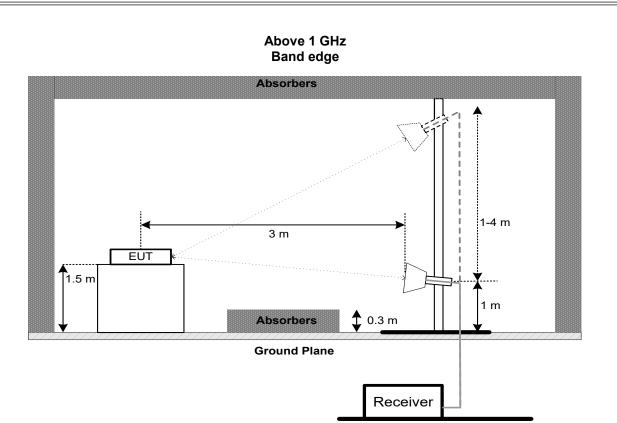
5.4 TEST SETUP



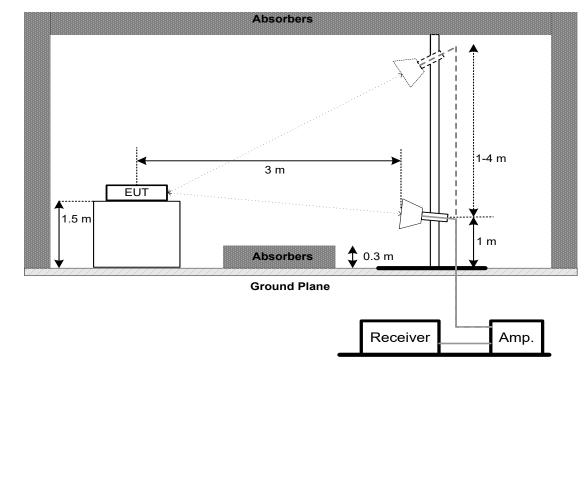
30 MHz to 1 GHz





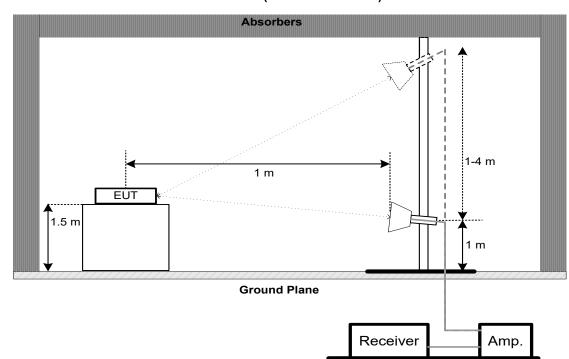


Harmonic (1 GHz to 18 GHz)





Harmonic (18 GHz to 40 GHz)



5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULTS - 9 KHZ TO 30 MHZ

Please refer to the APPENDIX B.

Remark:

- (1) Distance extrapolation factor = 40 log (specific distance / test distance) (dB).
- (2) Limit line = specific limits (dBuV) + distance extrapolation factor.

5.7 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

5.8 TEST RESULTS - ABOVE 1000 MHZ

Please refer to the APPENDIX D.

Remark:

(1) No limit: This is fundamental signal, the judgment is not applicable. For fundamental signal judgment was referred to Peak output test.



6. BANDWIDTH

6.1 LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.407(a) FCC 15.407(e)	26 dB Bandwidth	-	5150-5250
	26 dB Bandwidth	-	5250-5350
	26 dB Bandwidth	-	5470-5725
	6 dB Bandwidth	Minimum 500 kHz	5725-5850

6.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below

b. Spectrum Setting:

For UNII-1, UNII-2A, UNII-2C:

Spectrum Parameter	Setting
Span Frequency	> 26 dB Bandwidth
RBW	Appromiximately 1% of the emission bandwidth
VBW	> RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

For UNII-3:

Spectrum Parameter	Setting
Span Frequency	> 6 dB Bandwidth
RBW	100 kHz
VBW	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

For 99% Occupied Bandwidth:

Spectrum Parameter	Setting
Span Frequency	1.5 times to 5 times the OBW
RBW	1% to 5% of the OBW
VBW	≥3*RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

c. Measured the spectrum width with power higher than 26 dB / 6 dB below carrier.

6.3 DEVIATION FROM STANDARD

No deviation.



6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 TEST RESULTS

Please refer to the APPENDIX E.



7. MAXIMUM OUTPUT POWER

7.1 LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.407(a) Maximum Output Power	AP device: 1 Watt (30 dBm) Client device: 250 mW (23.98 dBm)	5150-5250	
	Maximum Output Power	250 mW (23.98 dBm)	5250-5350
		250 mW (23.98 dBm)	5470-5725
		1 Watt (30dBm)	5725-5850

Note:

- a. For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- b. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26dB Bandwidth in megahertz.

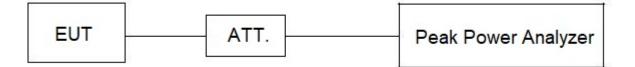
7.2 TEST PROCEDURE

- a. The EUT was directly connected to the peak power analyzer and antenna output port as show in the block diagram below.
- b. The test was performed in accordance with method of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULTS

Please refer to the APPENDIX F.



8. POWER SPECTRAL DENSITY

8.1 LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.407(a) Power Spectral Density	AP device: 17 dBm/MHz Client device: 11 dBm/MHz	5150-5250	
	Power Spectral Density	11 dBm/MHz	5250-5350
		11 dBm/MHz	5470-5725
		30 dBm/500 kHz	5725-5850

8.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting:
 - For UNII-1, UNII-2A, UNII-2C:

Spectrum Parameter	Setting
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1 MHz.
VBW	3 MHz.
Detector	RMS
Trace average	100 trace
Sweep Time	Auto

For UNII-3:

Spectrum Parameter	Setting	
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal	
RBW	100 kHz.	
VBW	300 kHz.	
Detector	RMS	
Trace average	100 trace	
Sweep Time	Auto	

Note:

 For UNII-3, according to KDB publication 789033 D02 General UNII Test Procedures New Rules v02r01, section II.F.5., it is acceptable to set RBW at 100kHz and VBW at 300kHz if the spectrum analyzer does not have 500 kHz RBW. Then, add 10 log (500 kHz/100 kHz) to the measured result, i.e. 7 dB.

 During the test of U-NII 3 PSD, the measurement result with RBW=100kHz has been added 7 dB by compensating offset. For example, the cable loss is 19 dB, and the final offset is 19 + 7 = 26 dB when RBW=100kHz is used.

8.3 DEVIATION FROM STANDARD

No deviation.



8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 TEST RESULTS

Please refer to the APPENDIX G.



9. FREQUENCY STABILITY

9.1 LIMIT

Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.407(g)	Frequency Stability	An emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.	5150-5250 5250-5350 5470-5725 5725-5850

9.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting:

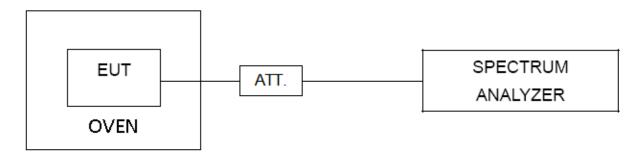
Spectrum Parameter	Setting
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

- c. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
- d. User manual temperature is -10°C~55°C.

9.3 DEVIATION FROM STANDARD

No deviation.

9.4 TEST SETUP



9.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

9.6 TEST RESULTS

Please refer to the APPENDIX H.



10. MEASUREMENT INSTRUMENTS LIST

	AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	EMI Test Receiver	R&S	ESR3	103027	Jun. 16, 2024	
2	TWO-LINE V-NETWORK	R&S	ENV216	101447	Dec. 22, 2024	
3	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
4	Cable	N/A	SFT205-NMNM-9M -001	9M	Nov. 27, 2024	
5	643 Shield Room	ETS	6*4*3	N/A	N/A	

	Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Active Loop Antenna	Schwarzbeck	FMZB 1513-60B	1513-60 B-034	Apr. 01, 2024	
2	MXE EMI Receiver	Keysight	N9038A	MY56400091	Dec. 22, 2024	
3	Cable	N/A	RW2350-3.8A-NMB M-1.5M	N/A	Jun. 10, 2024	
4	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
5	966 Chamber room	ETS	9*6*6	N/A	Jul. 11, 2024	

	Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	1462	Dec. 13, 2024	
2	Attenuator	EMC INSTRUMENT	EMCI-N-6-06	AT-06009	Dec. 13, 2024	
3	Preamplifier	EMC INSTRUMENT	EMC001330	980863	Nov. 17, 2024	
4	Cable	RegalWay	LMR400-NMNM-12 .5m	N/A	Jul. 04, 2024	
5	Cable	RegalWay	LMR400-NMNM-3 m	N/A	Jul. 04, 2024	
6	Cable	RegalWay	LMR400-NMNM-0. 5m	N/A	Jul. 04, 2024	
7	Receiver	Agilent	N9038A	MY52130039	Dec. 22, 2024	
8	Positioning Controller	MF	MF-7802	N/A	N/A	
9	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
10	966 Chamber room	CM	9*6*6	N/A	May 17, 2024	



	Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Receiver	Agilent	N9038A	MY52130039	Dec. 22, 2024	
2	Preamplifier	EMC INSTRUMENT	EMC118A45SE	980888	Nov. 17, 2024	
3	EXA Spectrum Analyzer	Keysight	N9010A	MY55150209	Jun. 16, 2024	
4	Double Ridged Guide Antenna	ETS	3115	75789	May 31, 2024	
5	Cable	RegalWay	RWLP50-4.0A-SMS M-12.5M	N/A	Feb. 19, 2025	
6	Cable	RegalWay	RWLP50-4.0A-NM RASM-2.5M	N/A	Aug. 08, 2024	
7	Cable	RegalWay	RWLP50-4.0A-NM RASMRA-0.8M	N/A	Aug. 08, 2024	
8	Low Noise Amplifier	CONNPHY	CLN-18G40G-4330 -K	619413	Jul. 06, 2024	
9	Cable	RegalWay	RWLP50-2.6A-2.92 M2.92M-1.1M	N/A	Jul. 26, 2024	
10	Cable	Tonscend	HF160-KMKM-3M	N/A	Jul. 26, 2024	
11	Broad-Band Horn Antenna	Schwarzbeck	BBHA9170(3m)	9170-319	Jun. 20, 2024	
12	966 Chamber room	СМ	9*6*6	N/A	May 17, 2024	
13	Attenuator	Talent Microwave	TA10A2-S-18	N/A	N/A	
14	Filter	STI	BRC50704-01	N/A	Dec. 22, 2024	
15	Filter	STI	BRC50703-01	N/A	Dec. 22, 2024	
16	Filter	STI	BRC50705-01	N/A	Dec. 22, 2024	
17	Positioning Controller	MF	MF-7802	N/A	N/A	
18	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	

	Maximum Output Power					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Peak Power Analyzer	Keysight	8990B	MY51000506	Jun. 17, 2024	
2	Wideband power sensor	Keysight	N1923A	MY58310004	Jun. 17, 2024	
3	Attenuator	Talent Microwave	TA10A2-S-18	N/A	N/A	

	Bandwidth & Power Spectral Density						
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until		
1	Spectrum Analyzer	R&S	FSP40	100185	Jun. 16, 2024		
2	Attenuator	Talent Microwave	TA10A0-S-26.5	N/A	N/A		
3	Attenuator	Talent Microwave	TA10A0-S-26.5	N/A	N/A		
4	DC Block	N/A	N/A	N/A	N/A		
5	Measurement Software	BTL	BTL Conducted Test	N/A	N/A		



	Frequency Stability					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Spectrum Analyzer	R&S	FSP40	100185	Jun. 16, 2024	
2	Attenuator	Talent Microwave	TA10A0-S-26.5	N/A	N/A	
3	Attenuator	Talent Microwave	TA10A0-S-26.5	N/A	N/A	
4	DC Block	N/A	N/A	N/A	N/A	
5	Measurement Software	BTL	BTL Conducted Test	N/A	N/A	
6	Multi-output DC Power Supply	GW Instek	GPC-3030DN	EK880675	Jul. 07, 2024	
7	Table top type high and low temperature test chamber	CEPREI	CEEC-M64T-40	15-008	Dec. 22, 2024	

Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.

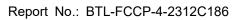


11. EUT TEST PHOTOS





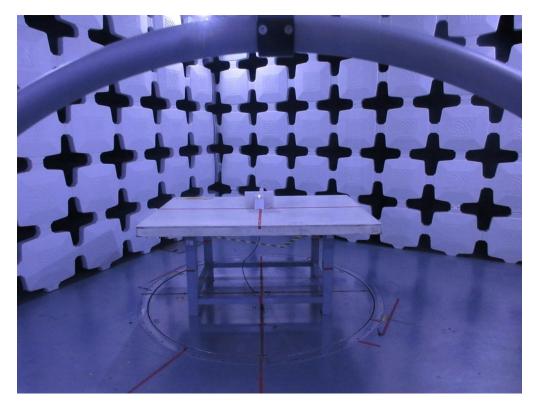
AC Power Line Conducted Emissions Test Photos

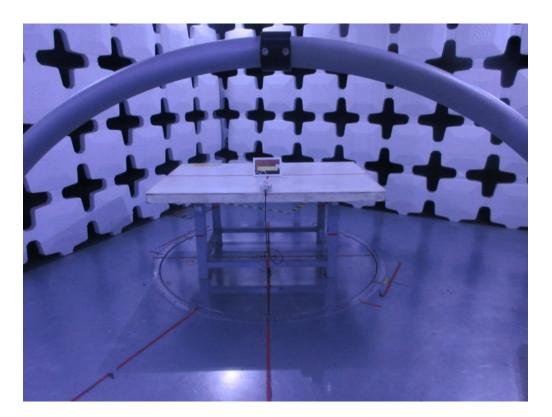




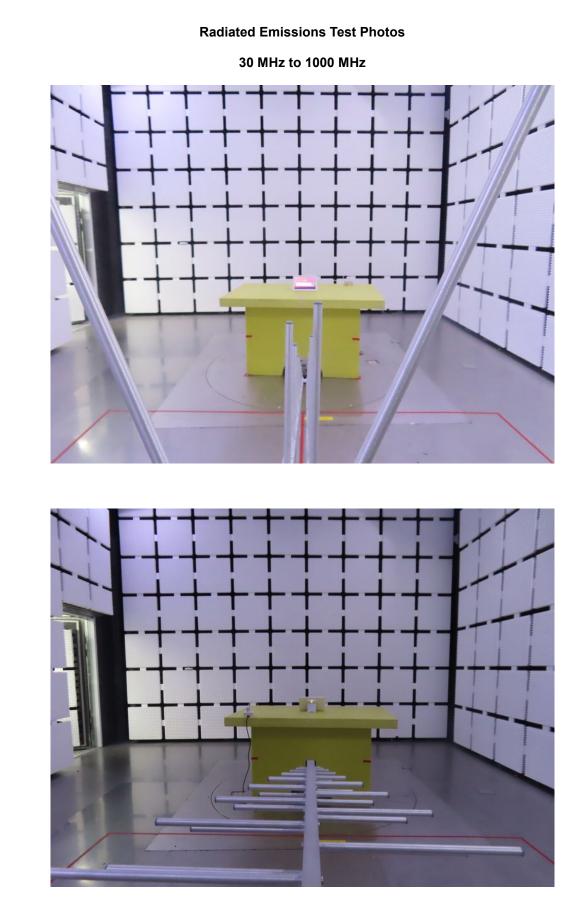
Radiated Emissions Test Photos

9 kHz to 30 MHz

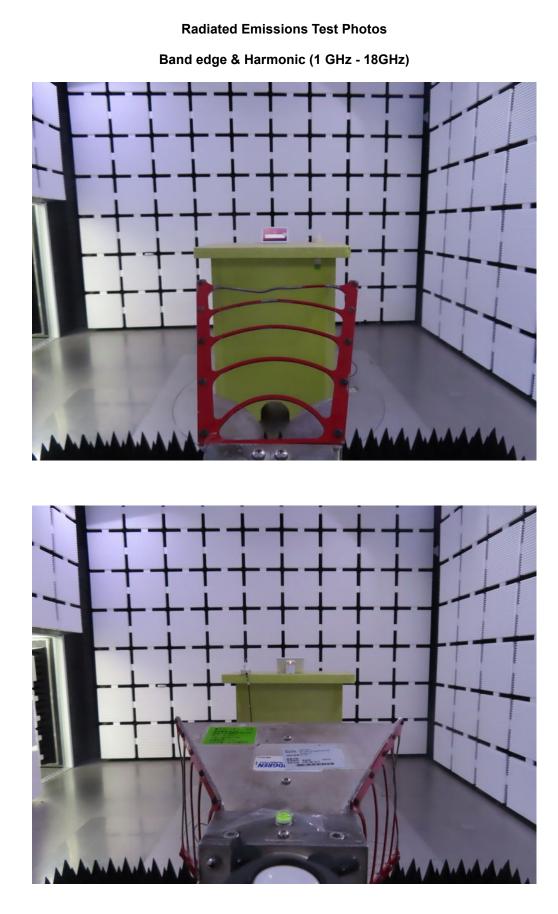




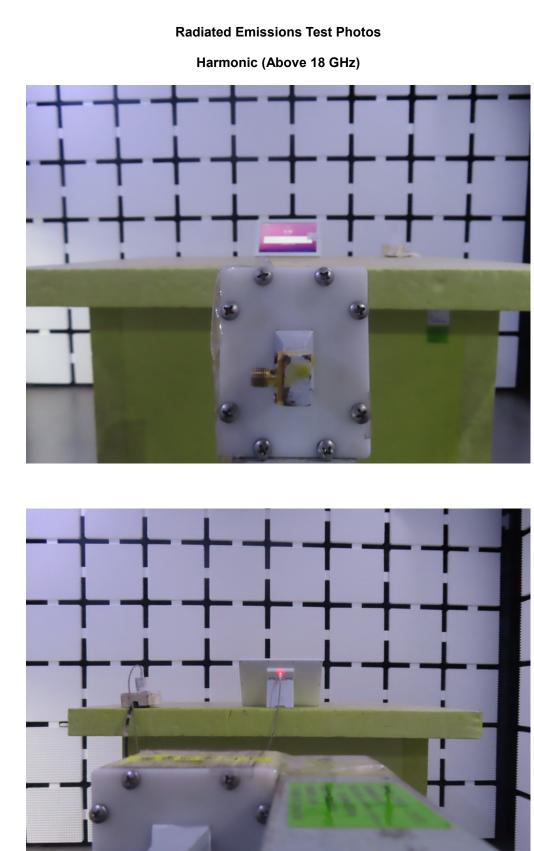














Conducted Test Photos

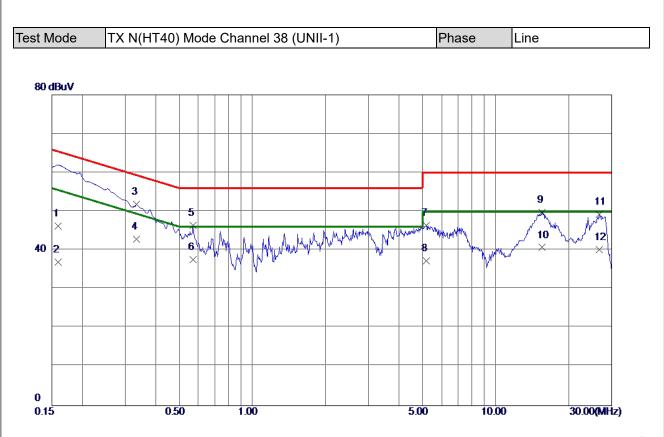






APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS

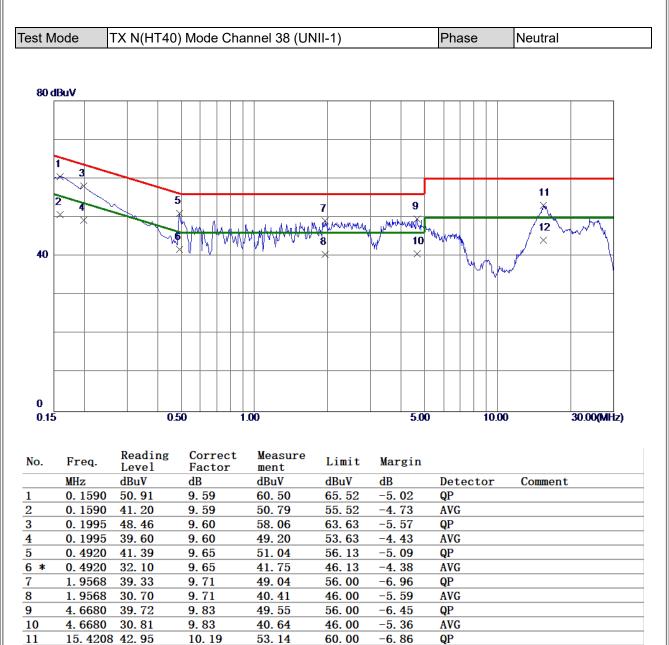




No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1590	36. 50	9.74	46.24	65.52	-19.28	QP	
2	0.1590	27. 20	9.74	36.94	55. 52	-18.58	AVG	
3	0.3345	42.02	9.77	51.79	59.34	-7.55	QP	
4 *	0.3345	33.10	9.77	42.87	49.34	-6.47	AVG	
5	0.5707	36. 55	9.79	46.34	56.00	- 9. 66	QP	
6	0.5707	27.80	9.79	37.59	46.00	-8.41	AVG	
7	5.1788	36. 39	10.00	46.39	60.00	-13.61	QP	
8	5.1788	27.30	10.00	37.30	50.00	-12.70	AVG	
9	15. 4928	39. 39	10.32	49.71	60.00	-10. 29	QP	
10	15. 4928	30.40	10.32	40. 72	50.00	-9.28	AVG	
11	26.6910	38. 59	10.61	49.20	60.00	-10.80	QP	
12	26. 6910	29.60	10.61	40.21	50.00	-9.79	AVG	

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.





12

15. 4208 33. 90

(1) Measurement Value = Reading Level + Correct Factor.

10.19

44.09

(2) Margin Level = Measurement Value - Limit Value.

-5.91

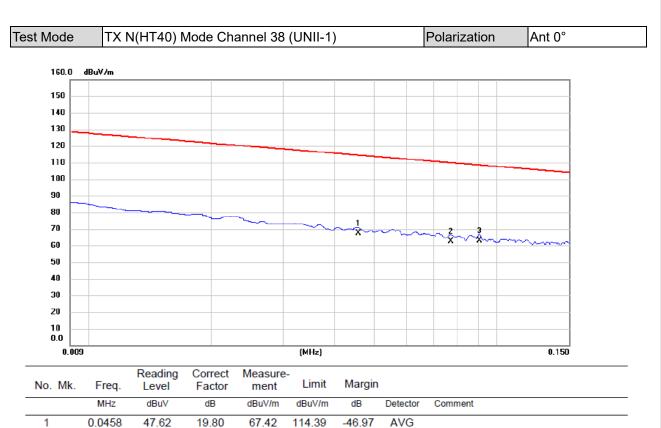
50.00

AVG



APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ





2

3

*

0.0770

0.0906

42.85

43.21

19.89

19.88

62.74

63.09

109.88

108.46

-47.14

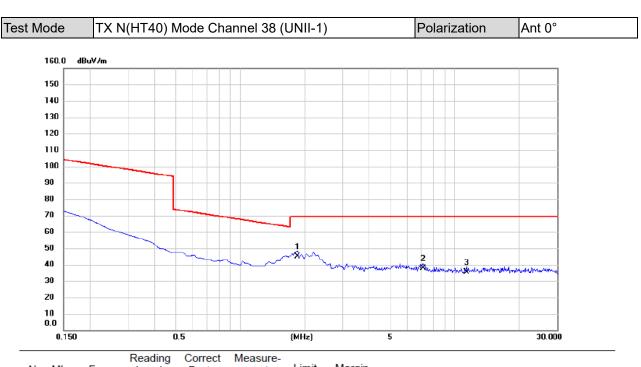
-45.37

AVG

QP

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.

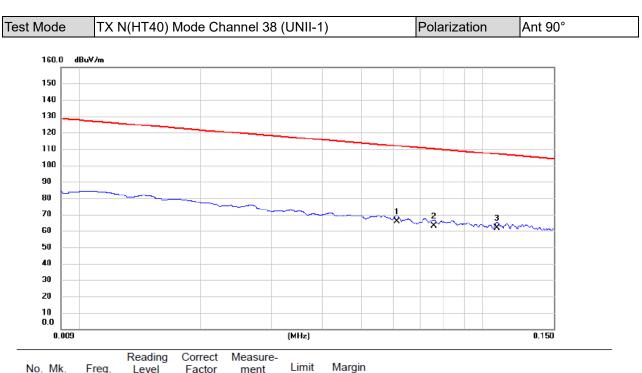




	No.	Mk.	Freq.	Level	Factor	ment	Limit	Margin		
-			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1	*	1.8515	25.31	19.80	45.11	69.54	-24.43	QP	
	2		7.1051	17.68	20.03	37.71	69.54	-31.83	QP	
-	3		11.3288	15.36	20.22	35.58	69.54	-33.96	QP	

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.

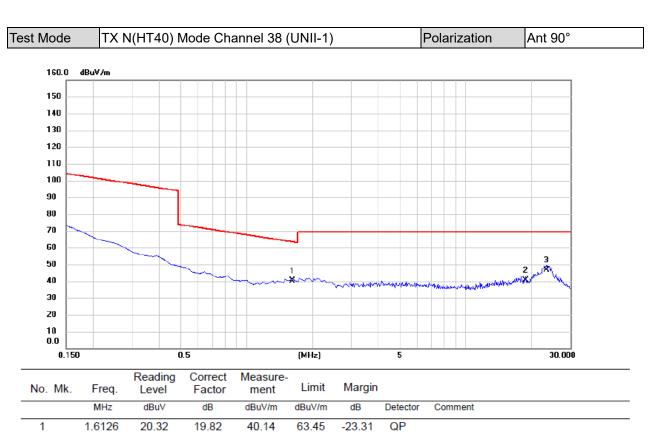




INO. IVIK.	Freq.	Level	Factor	ment	Linin	maryin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0612	45.84	19.84	65.68	111.87	-46.19	AVG	
2	0.0756	42.94	19.89	62.83	110.03	-47.20	AVG	
3 *	0.1085	41.85	19.83	61.68	106.90	-45.22	QP	

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





2

3

*

18.7465

23.3584

19.89

25.84

20.54

20.81

40.43

46.65

69.54

69.54

-29.11

-22.89

QP

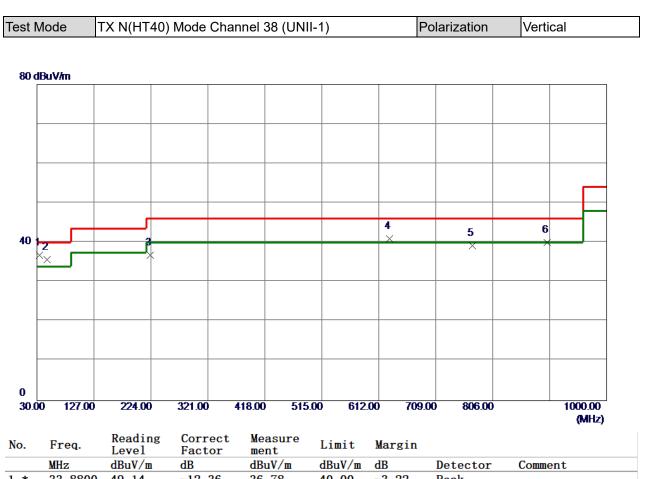
QP

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ

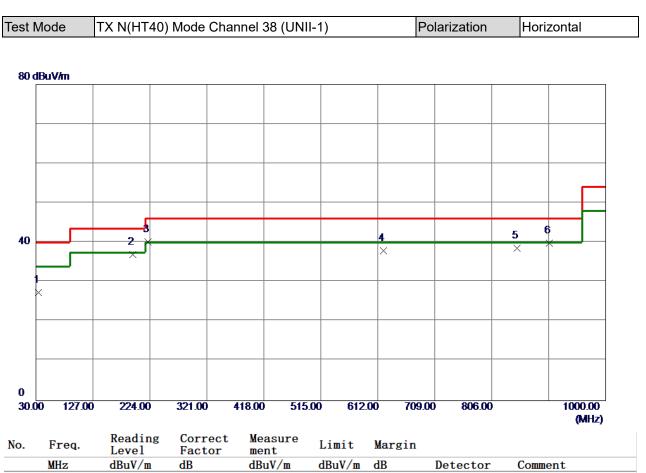




		MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	33. 8800	49.14	-12.36	36.78	40.00	-3.22	Peak	
2		47.4600	46.99	-11.35	35.64	40.00	-4.36	Peak	
3		223. 0300	50.99	-14.17	36.82	46.00	- 9 . 18	Peak	
4		630. 4300	44.15	-3.21	40.94	46.00	-5.06	Peak	
5		771.0800	40.48	-1.26	39.22	46.00	-6.78	Peak	
6		899.1200	39.78	0.15	39. 9 3	46.00	-6.07	Peak	

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.





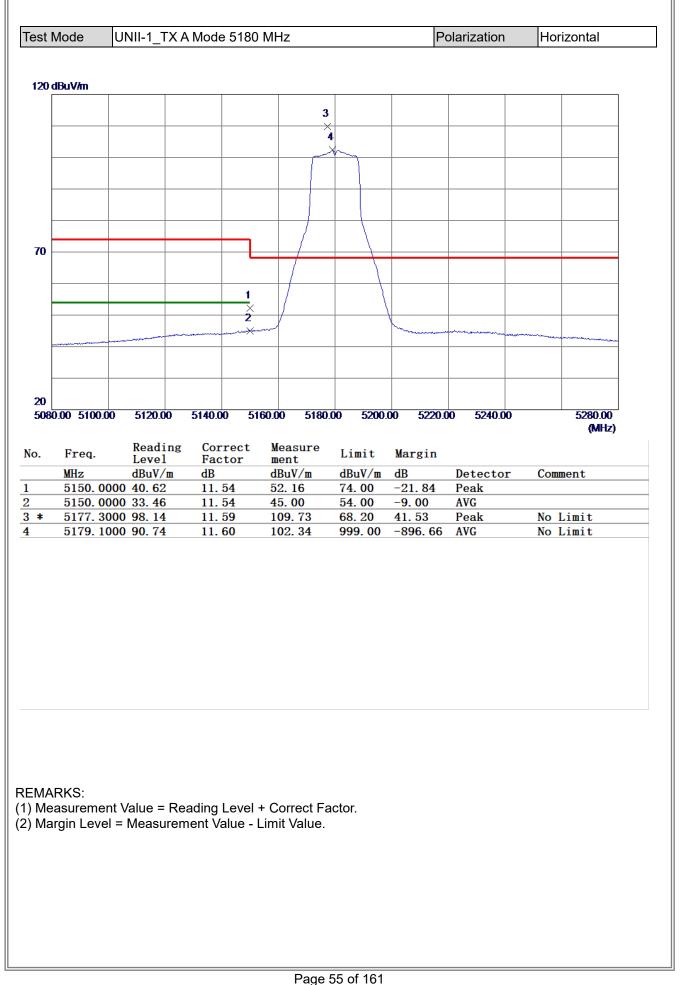
		Level	ractor	шенс				
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	33. 8800	39.72	-12.36	27.36	40.00	-12.64	Peak	
2	194. 4149	51.07	-14. 16	36.91	43. 50	-6. 59	Peak	
3 *	221.0900	54.44	-14. 32	40 . 12	46.00	-5.88	Peak	
4	621.2150	41.26	-3.35	37.91	46.00	-8. 09	Peak	
5	848.6800	39.13	-0. 55	38. 58	46.00	-7.42	Peak	
6	904. 4550	39.71	0.19	39.90	46.00	-6. 10	Peak	

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.

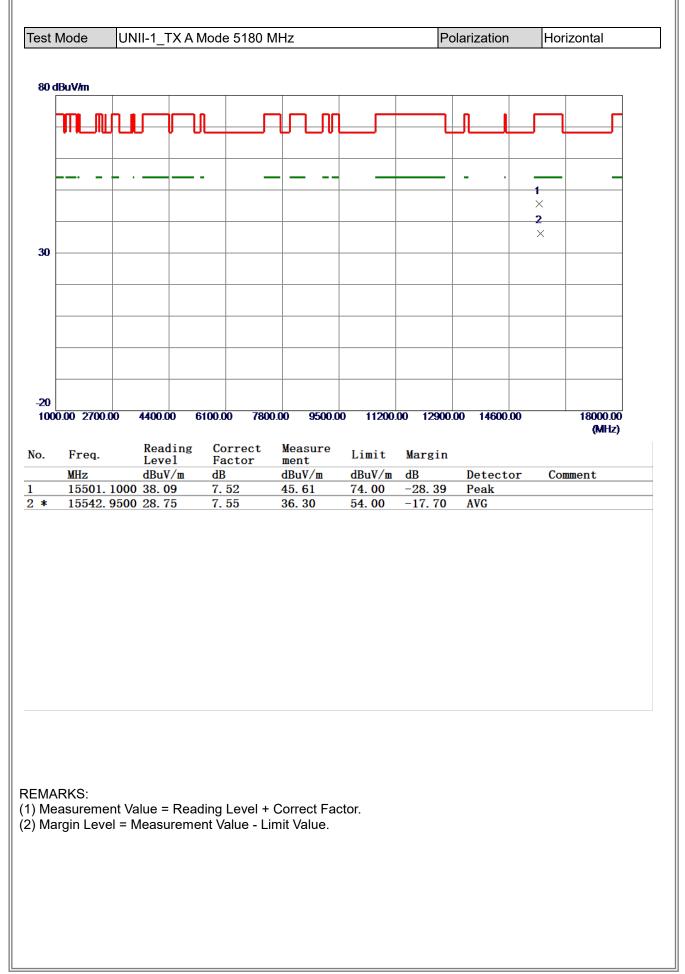


APPENDIX D - RADIATED EMISSION - ABOVE 1000 MHZ

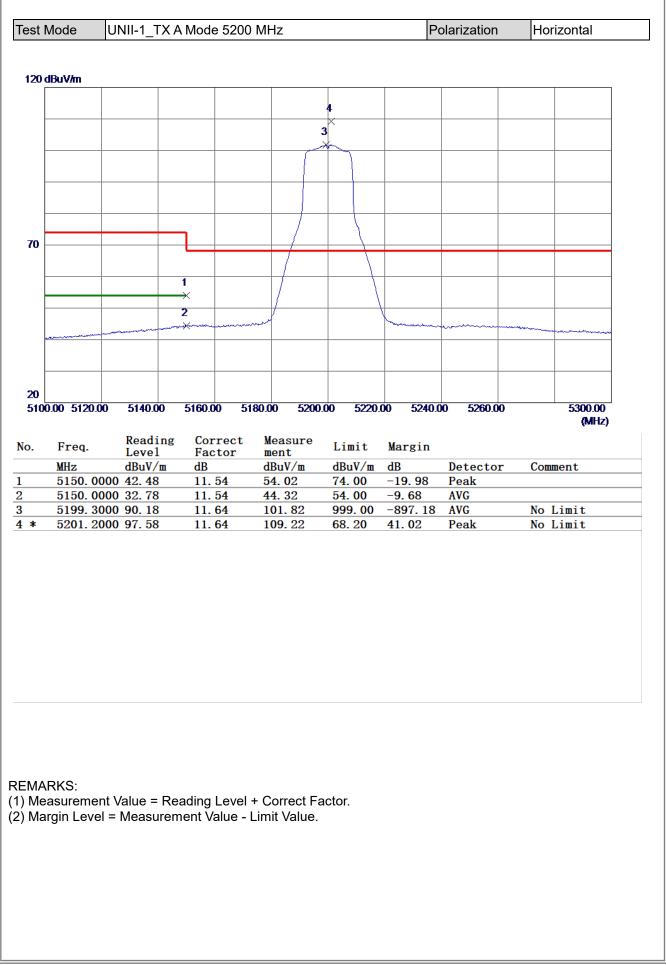




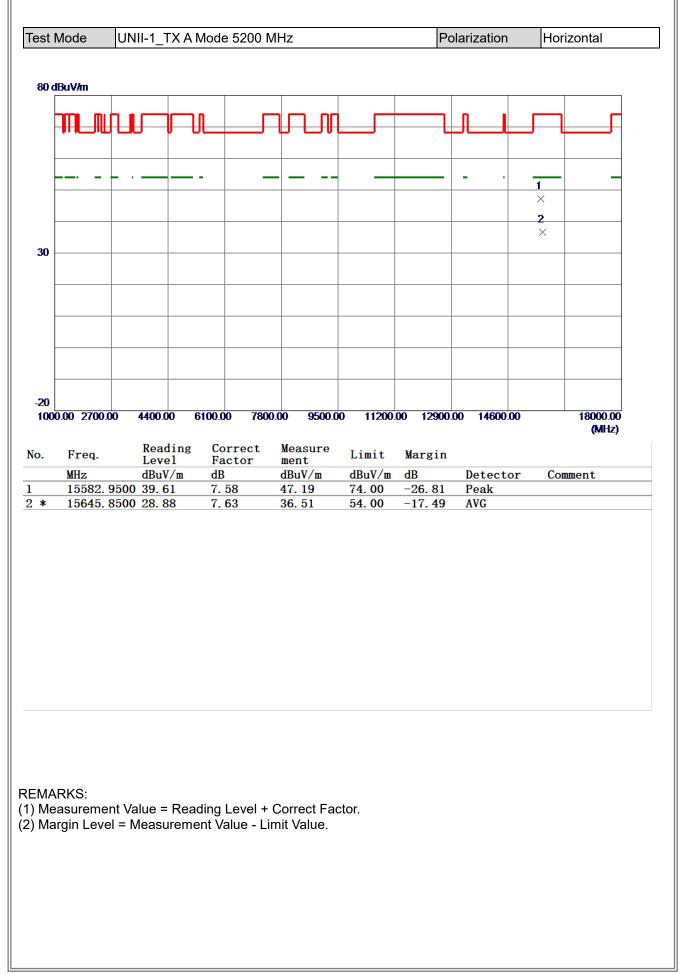




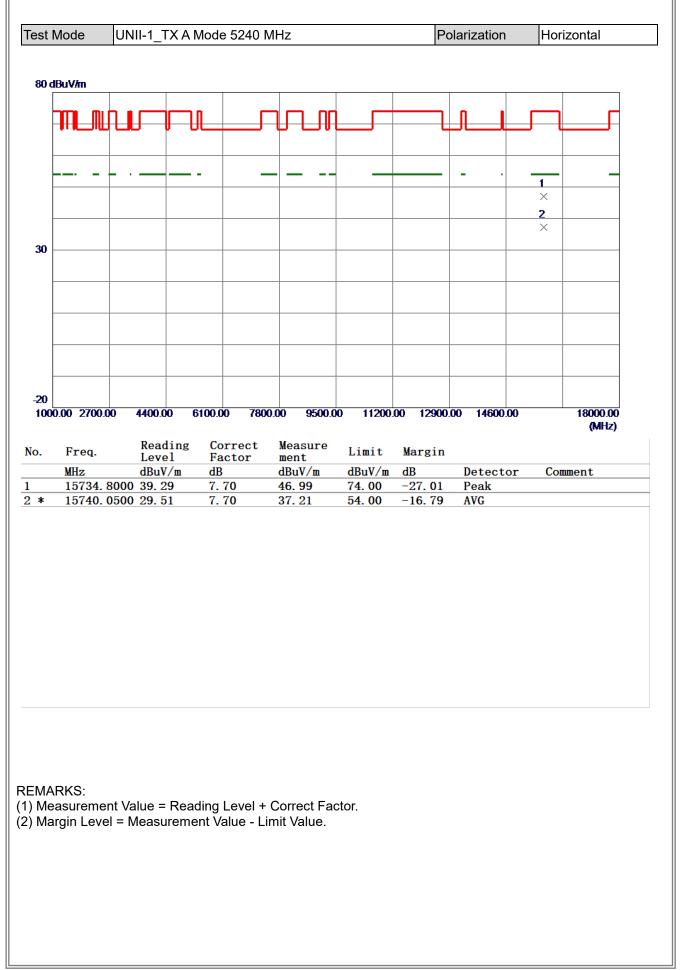




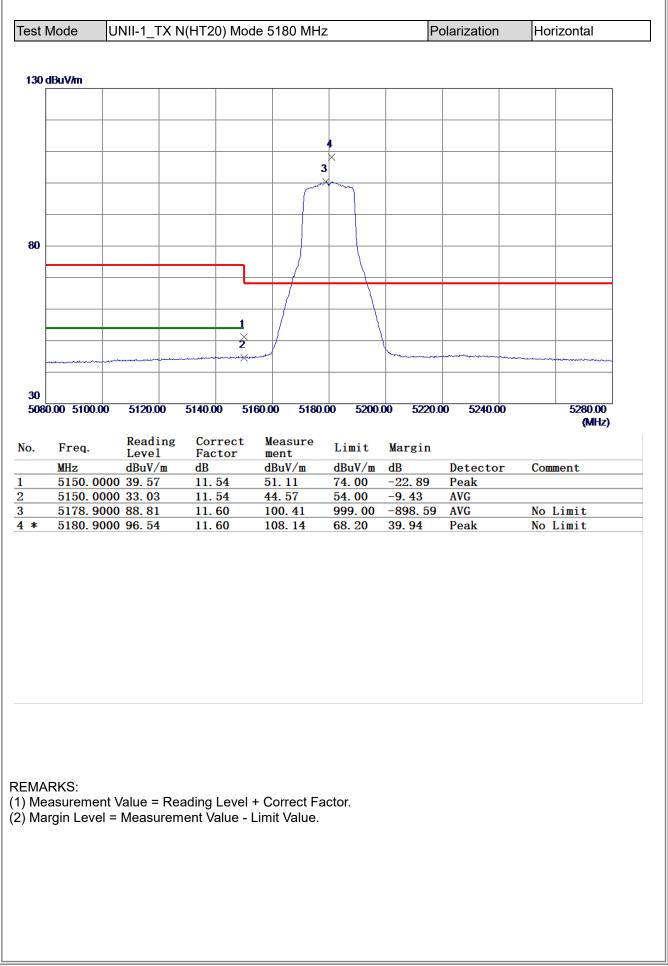




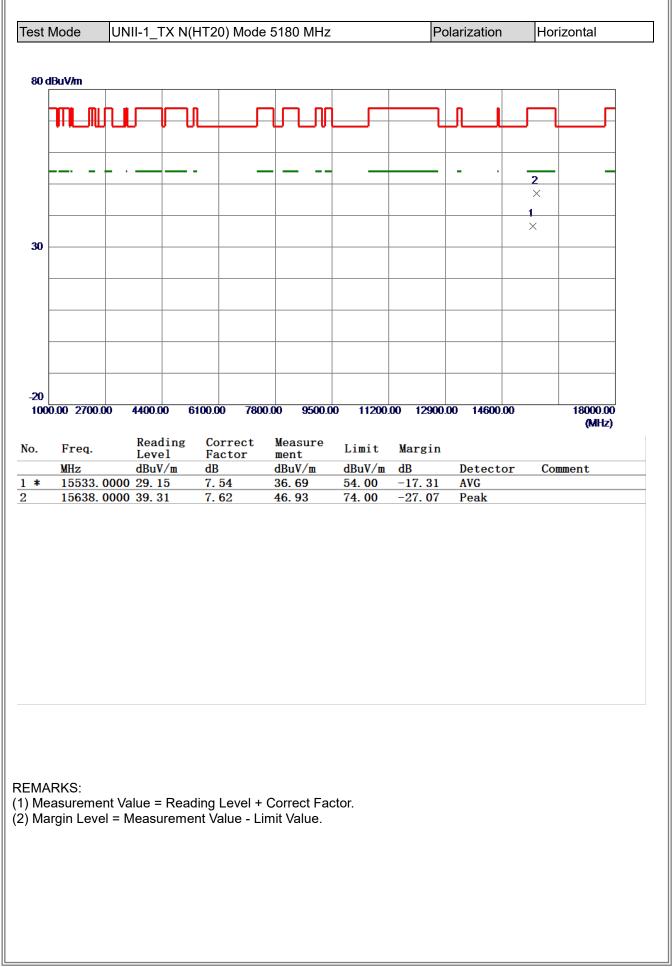




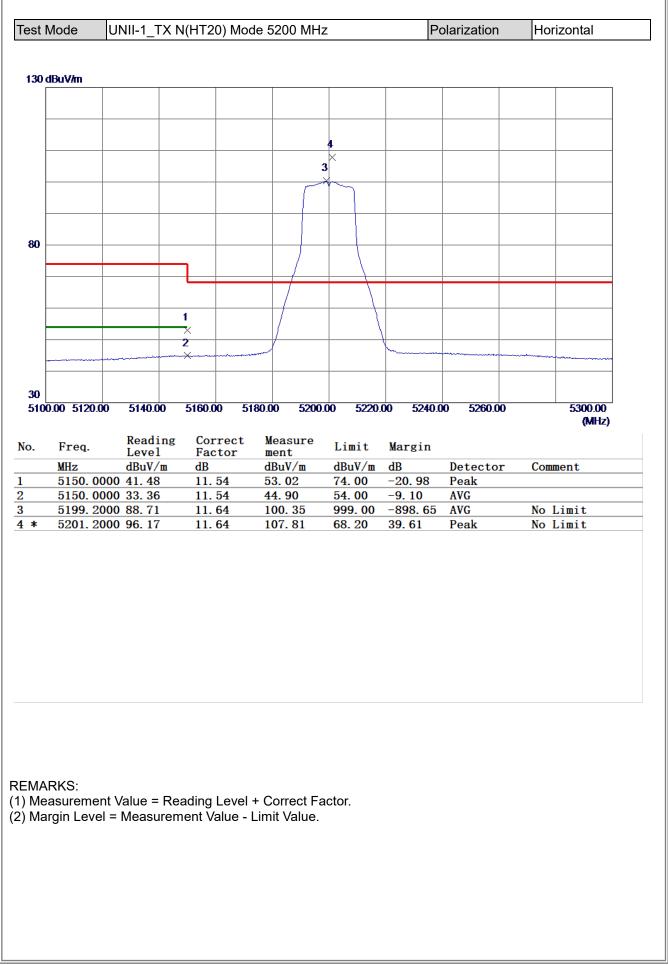




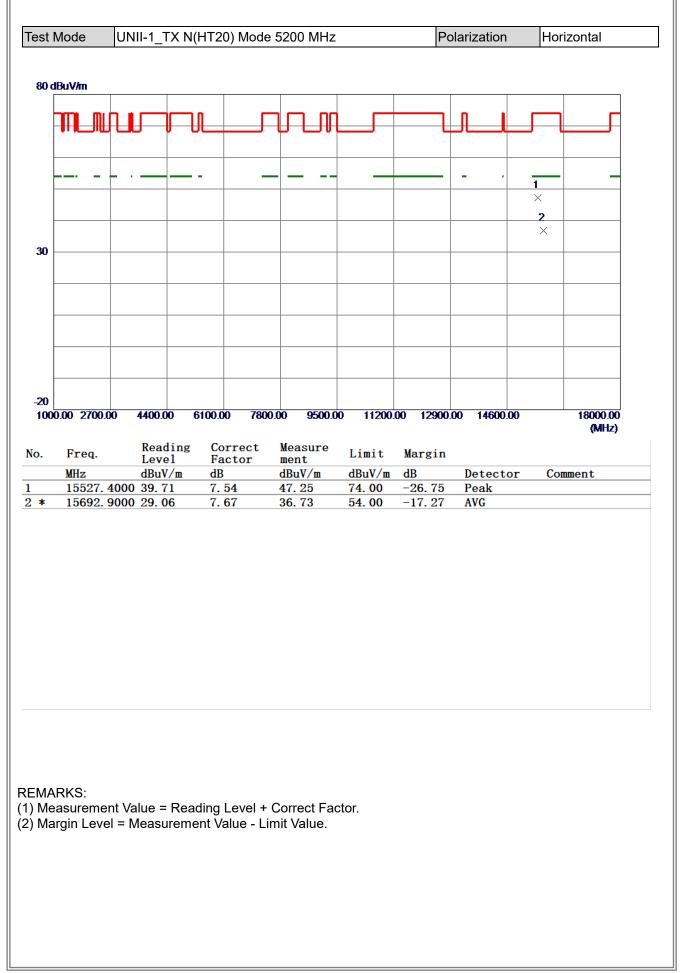




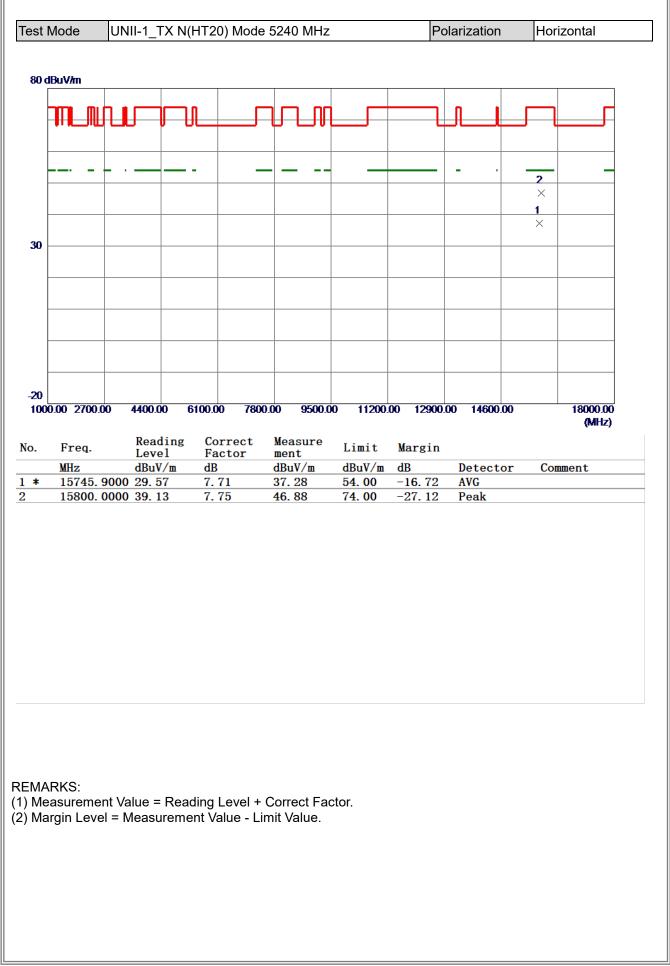




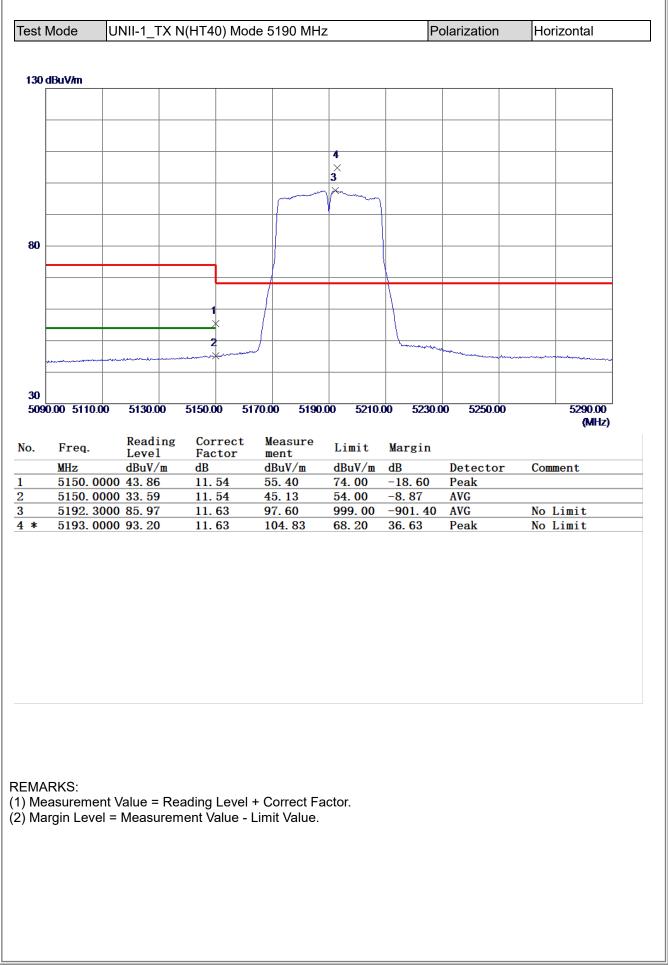




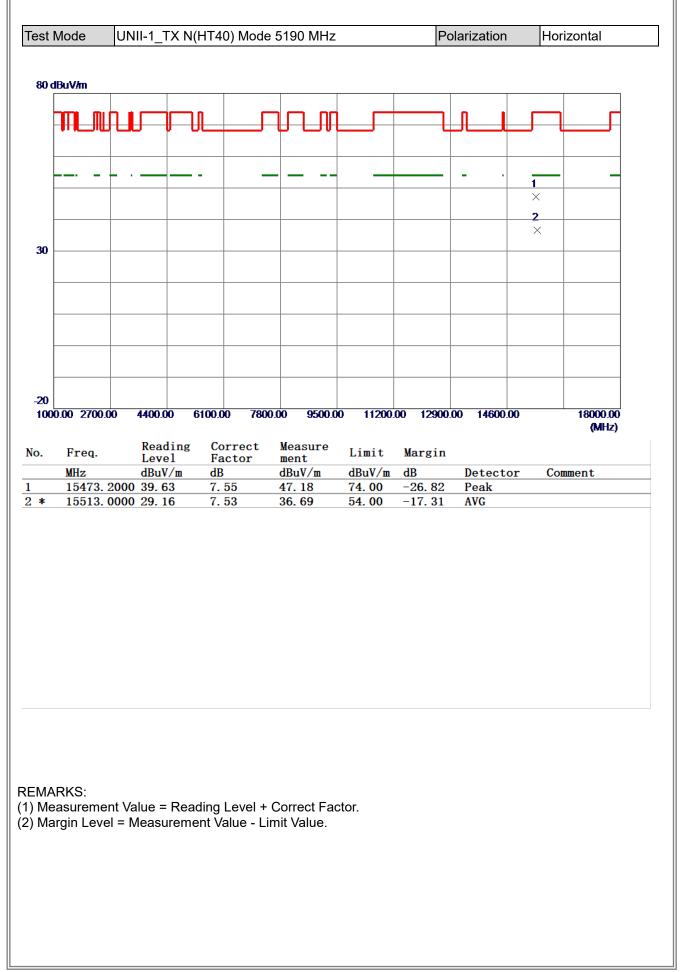




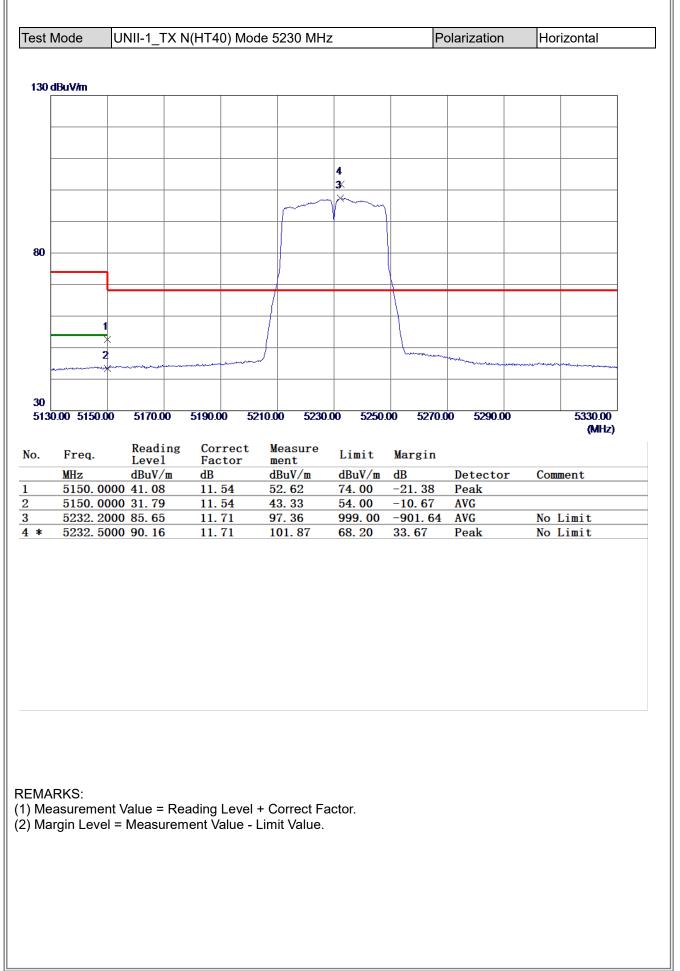




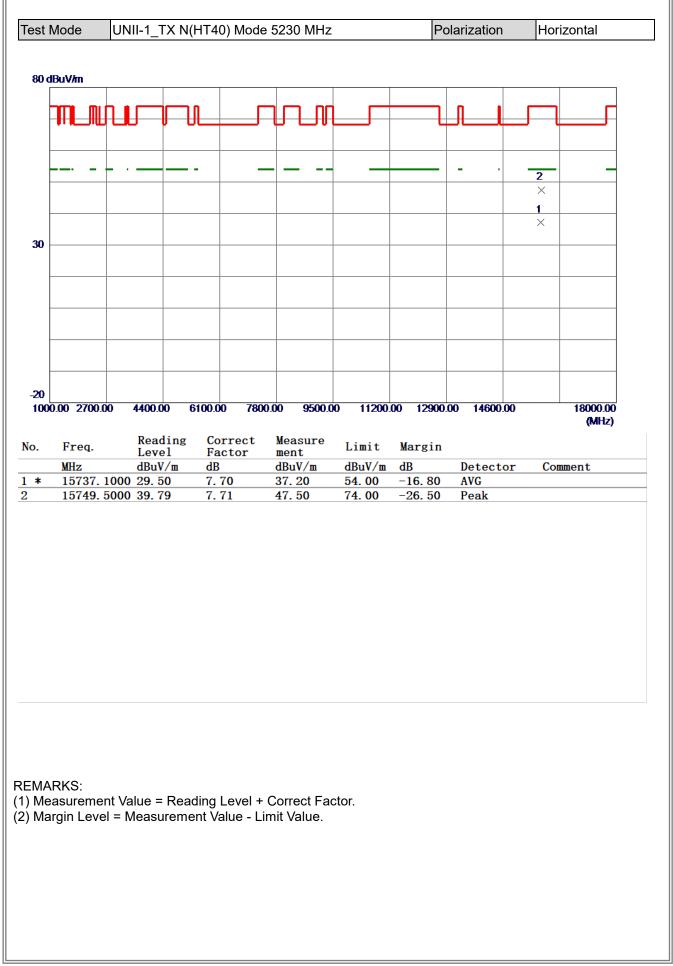




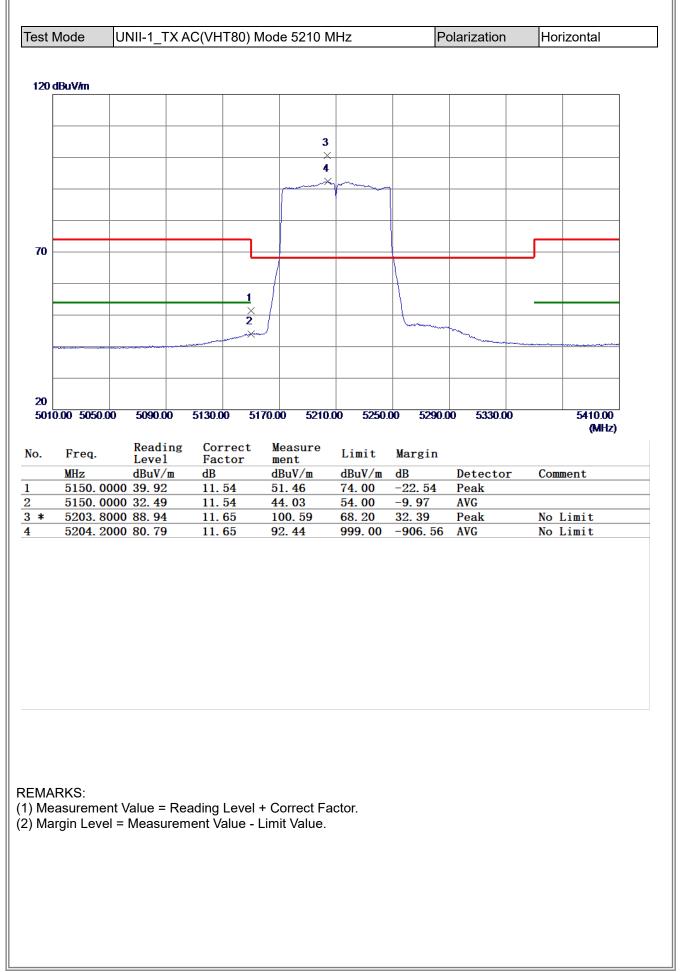




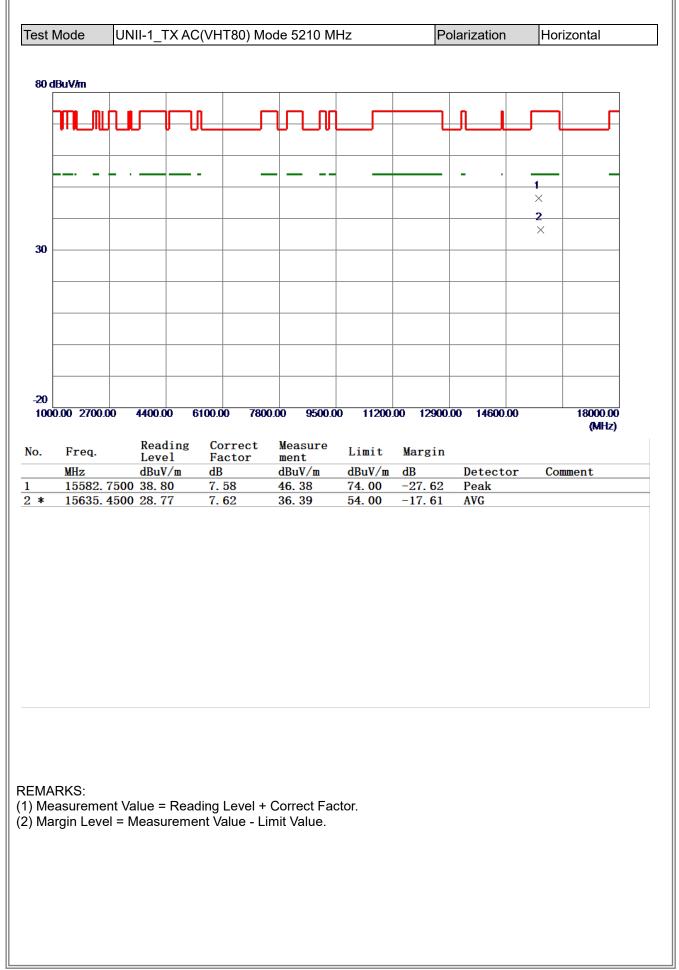




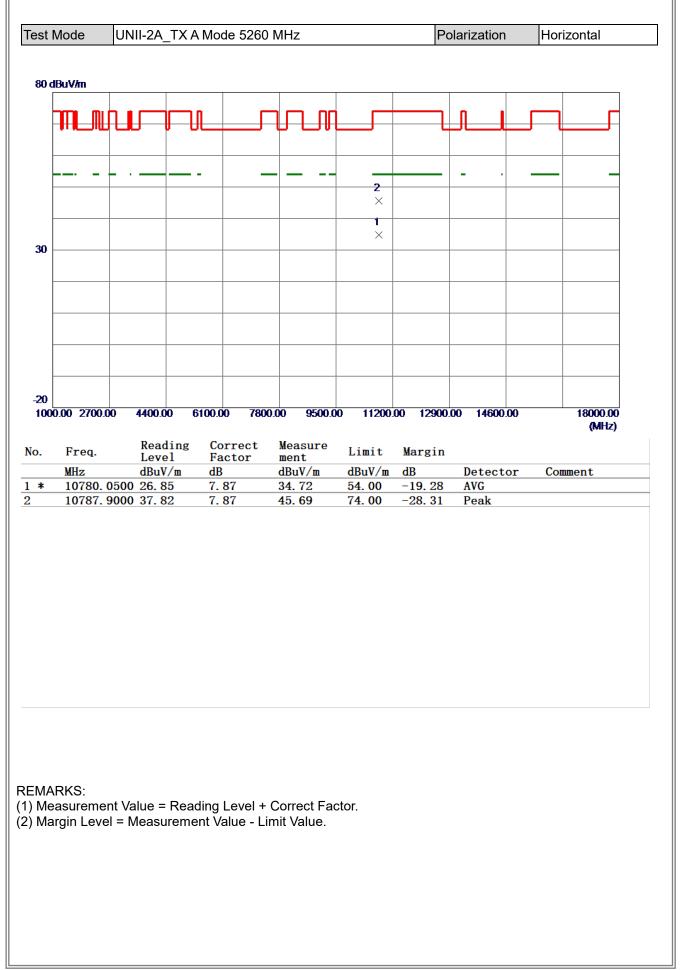








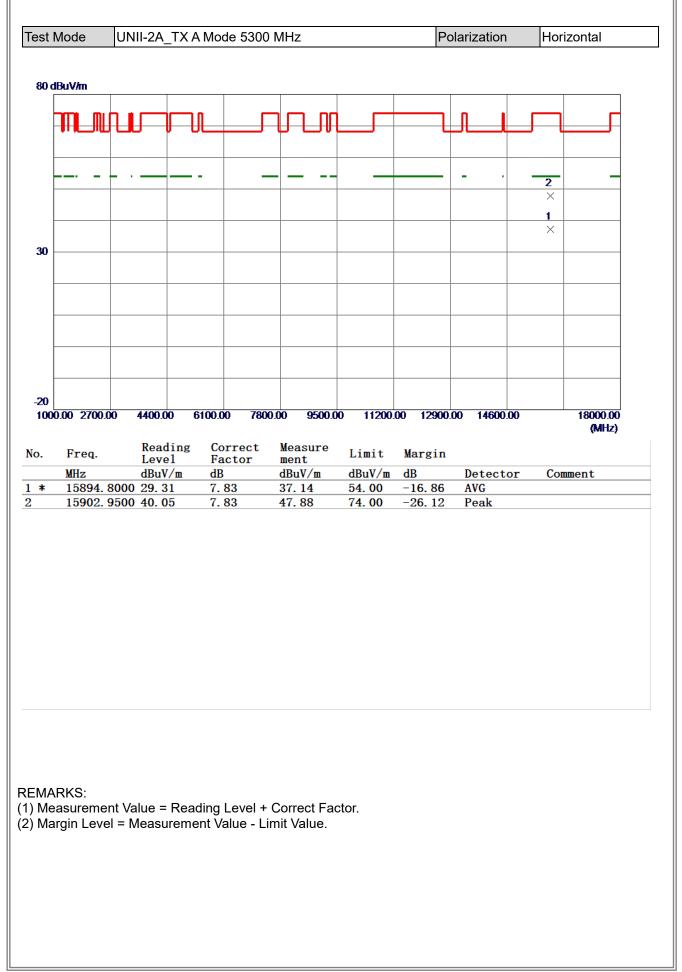




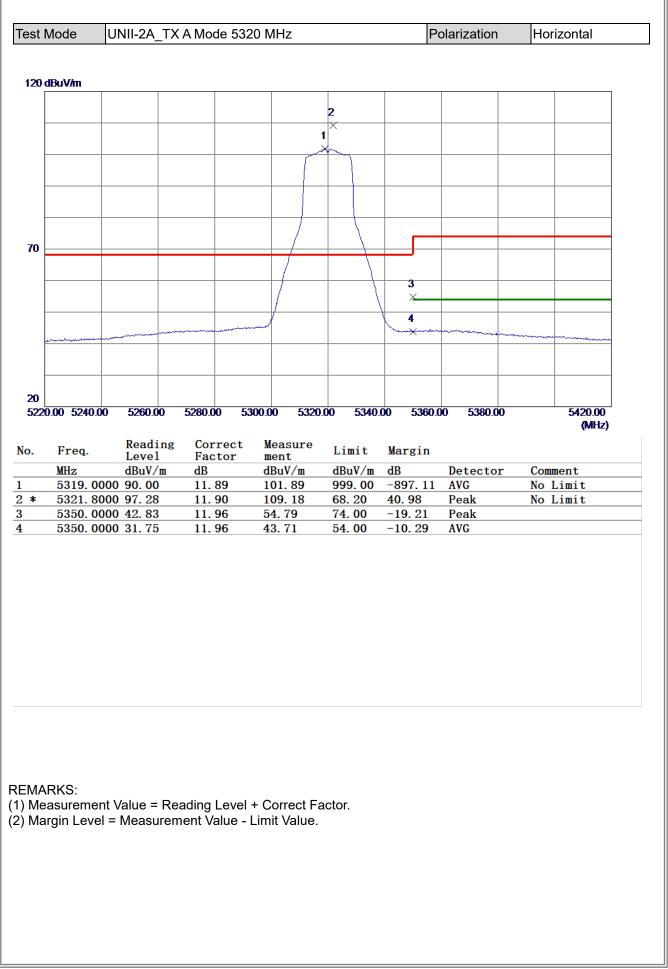
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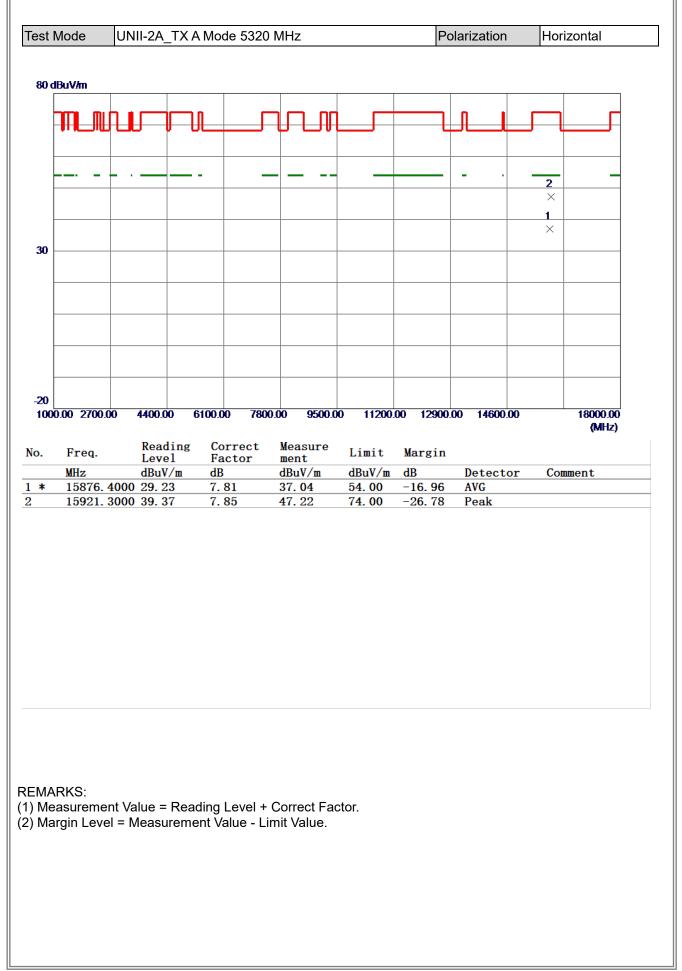




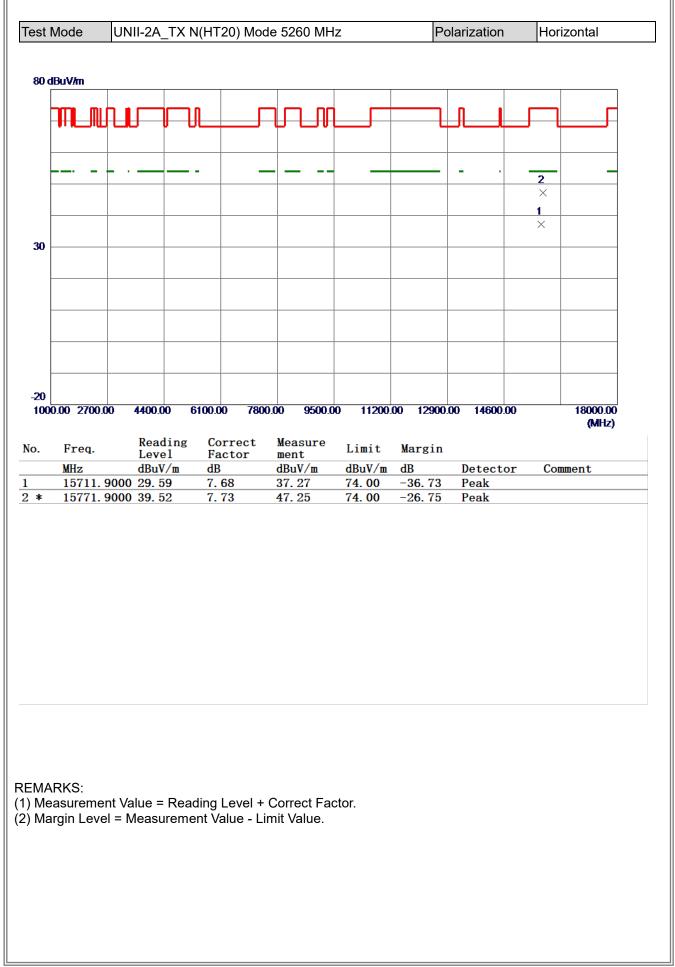
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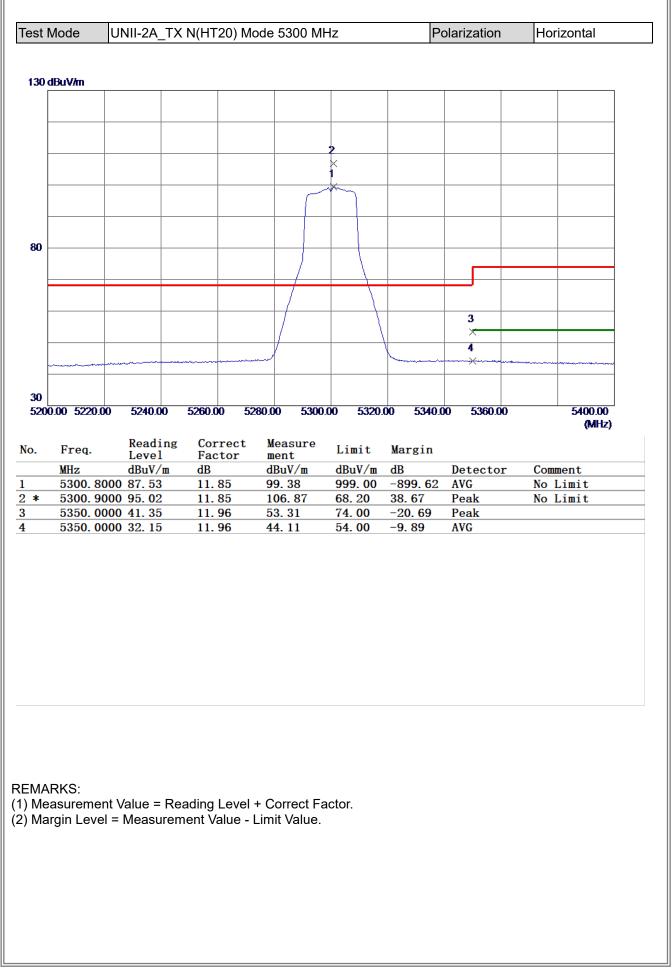




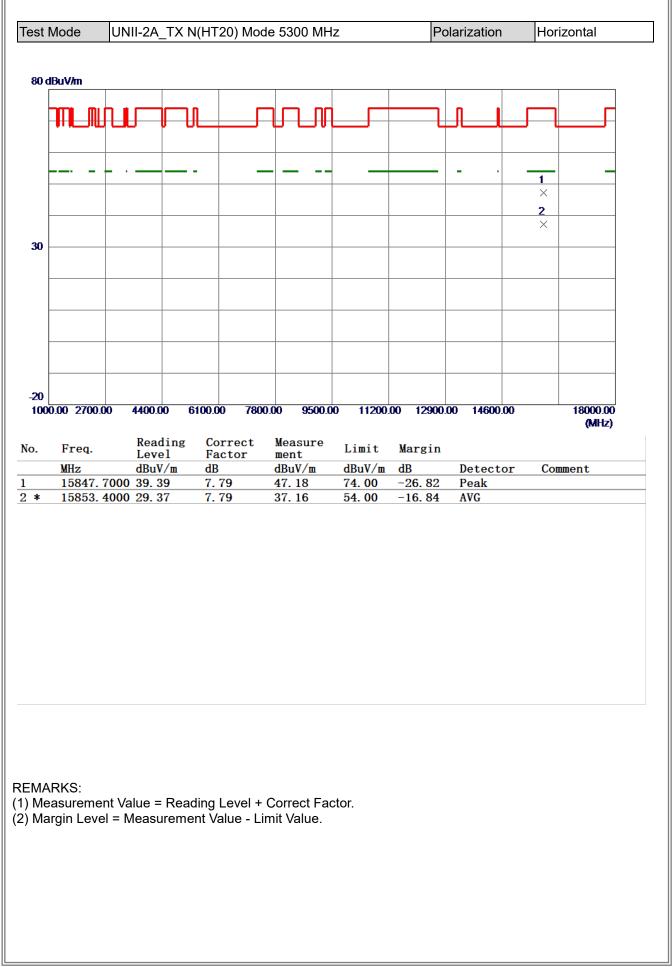




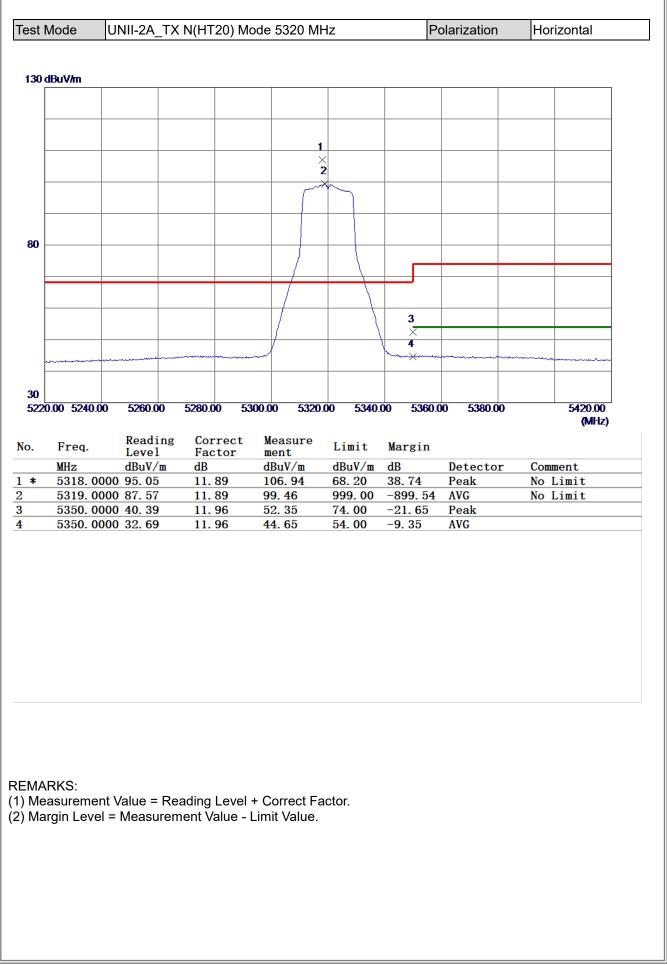




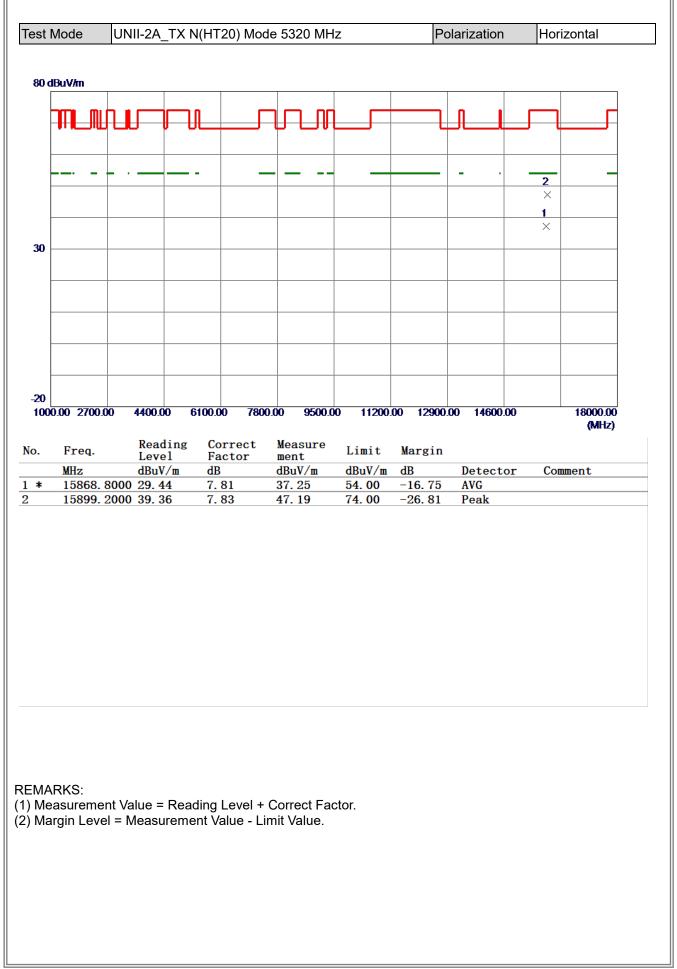




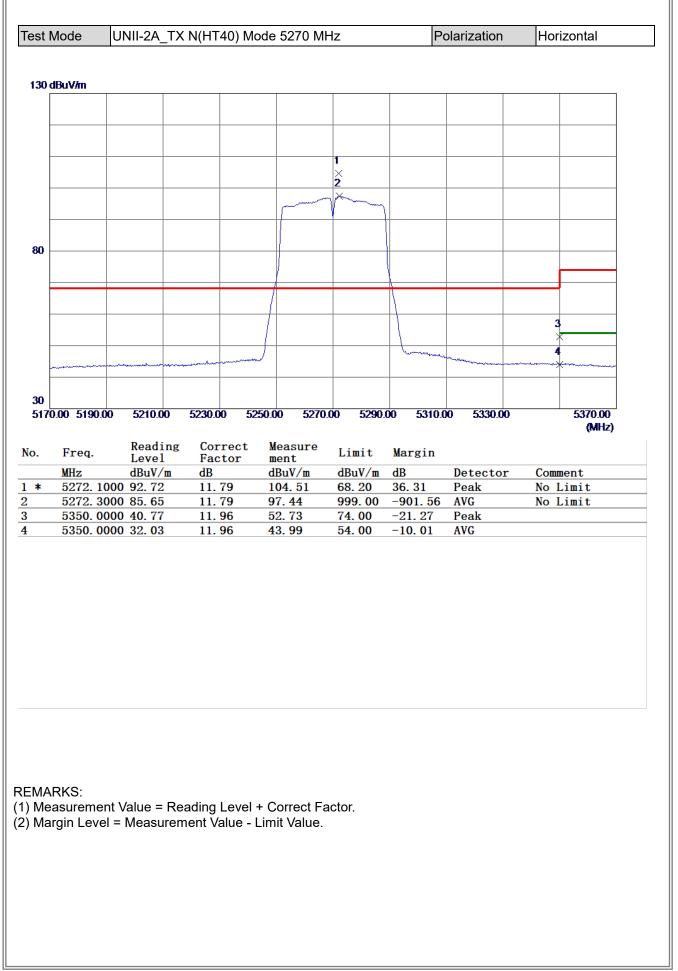




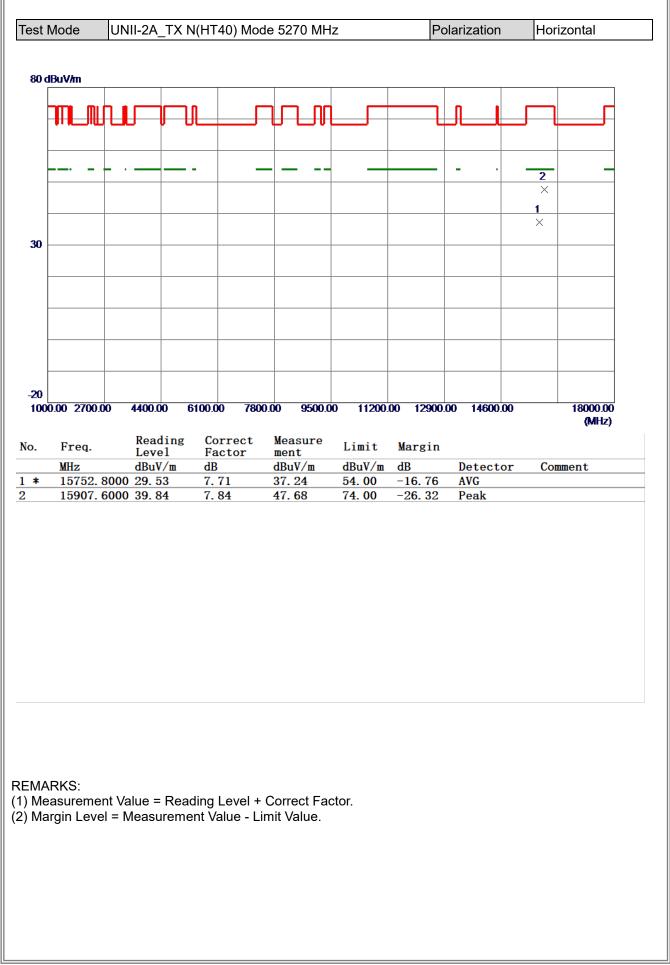




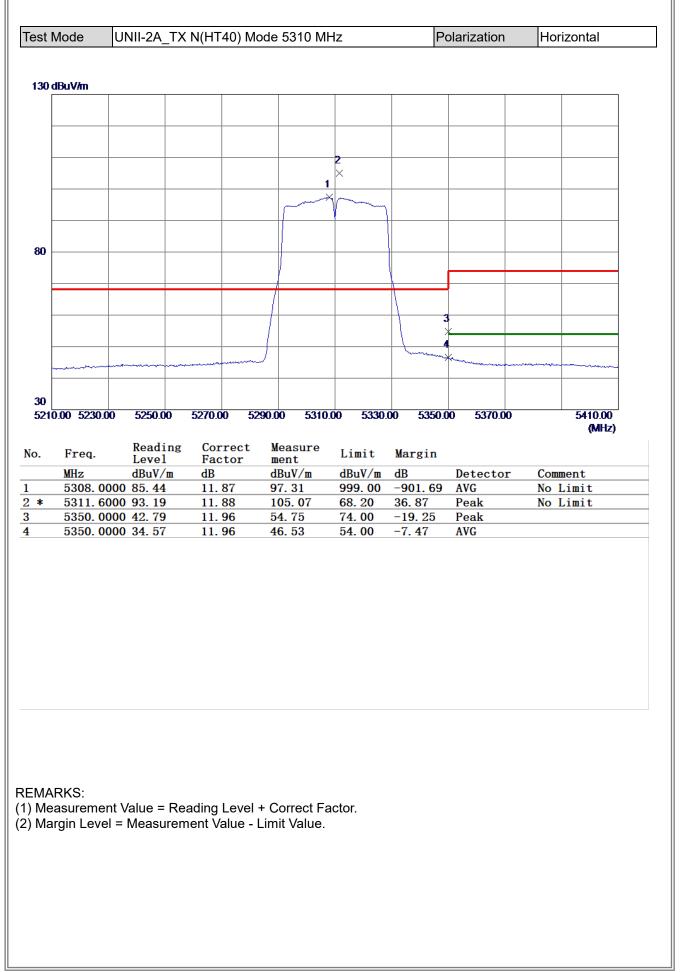




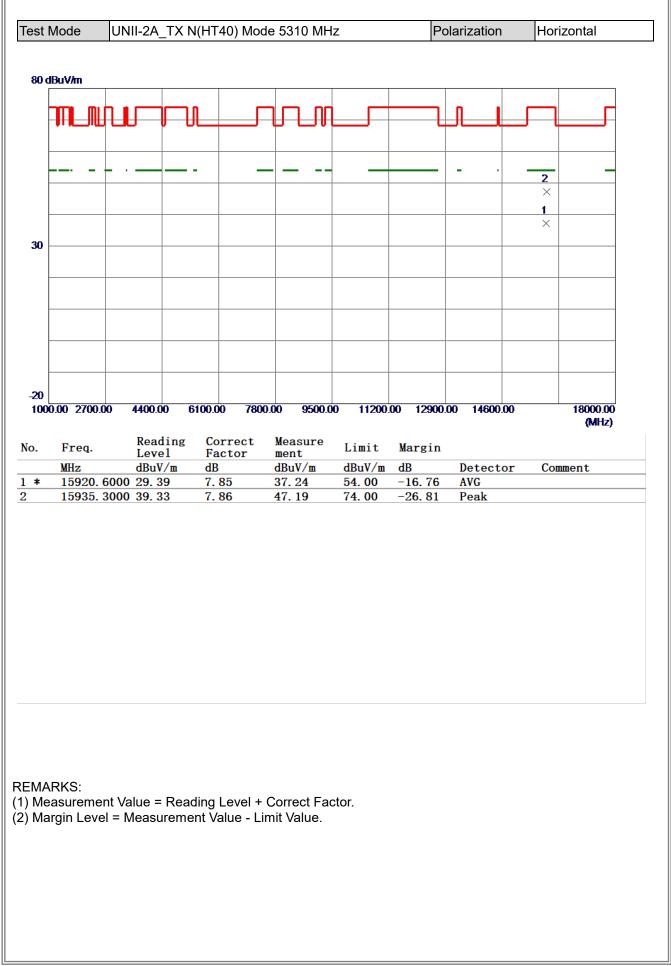




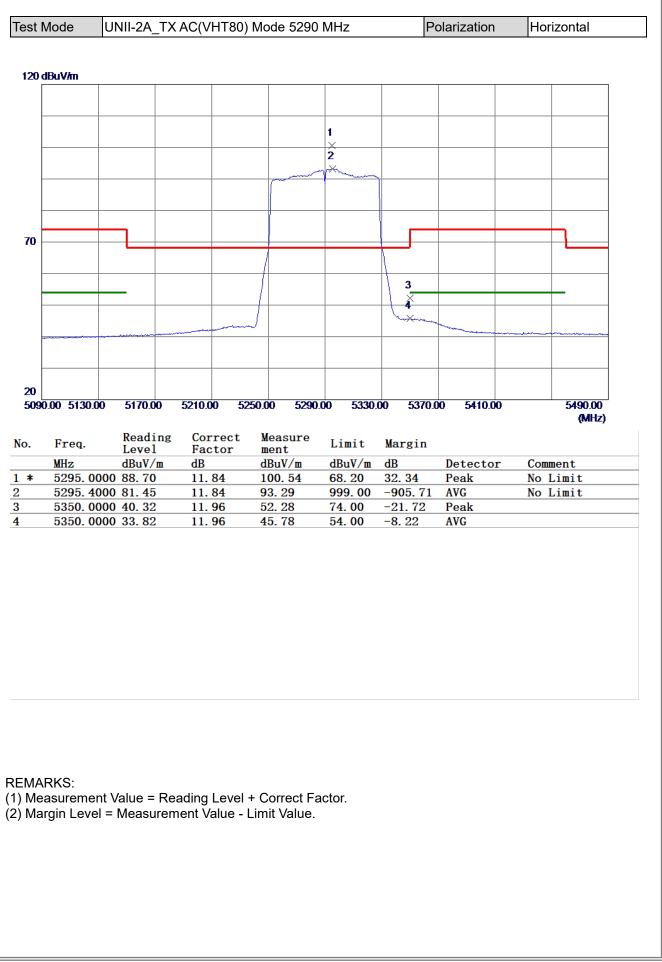




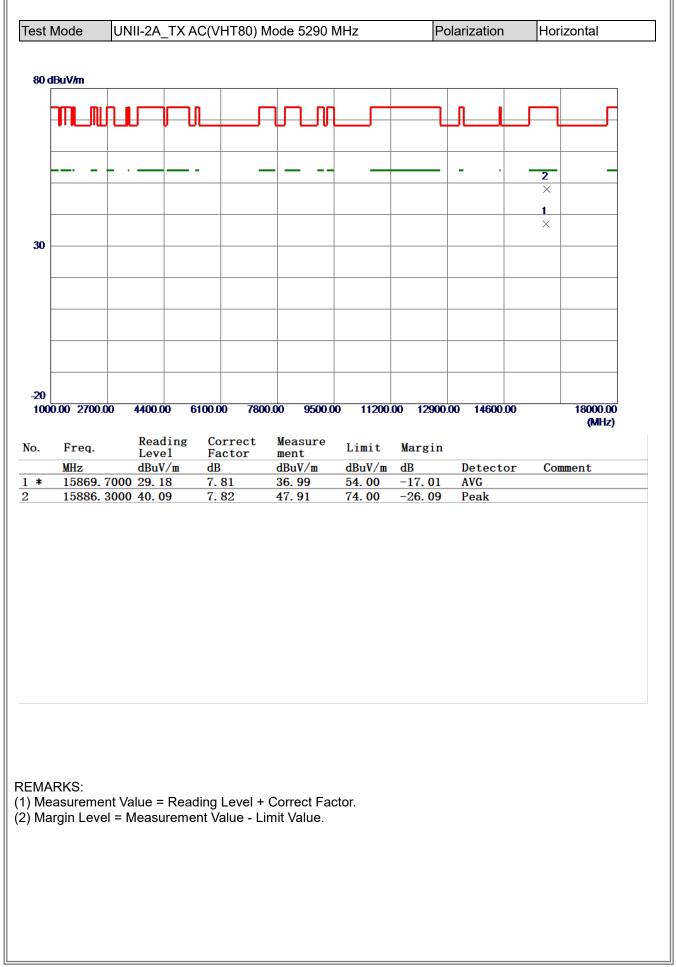




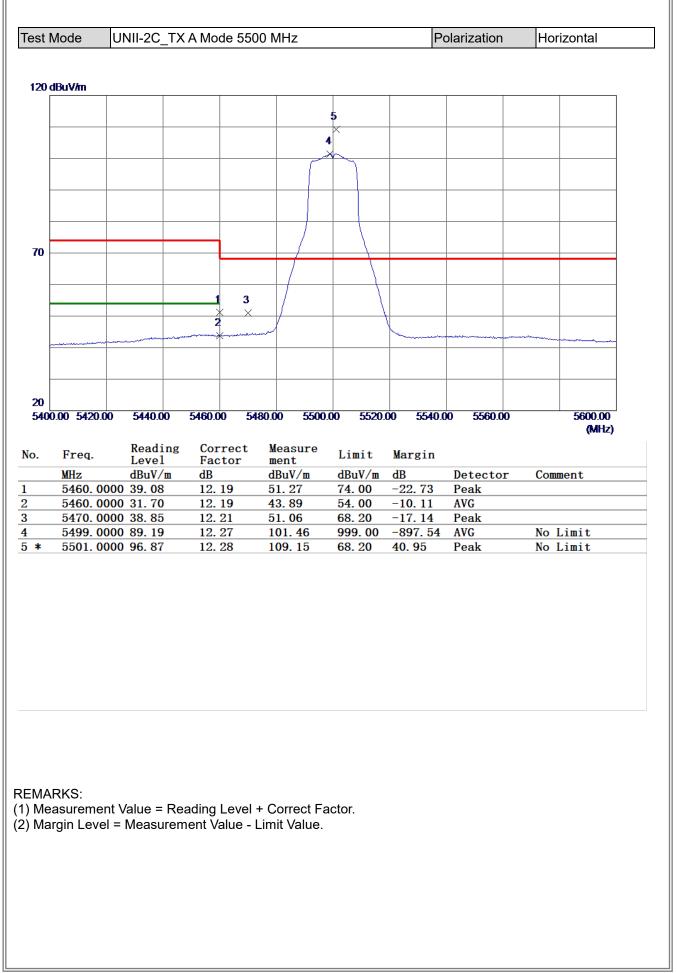




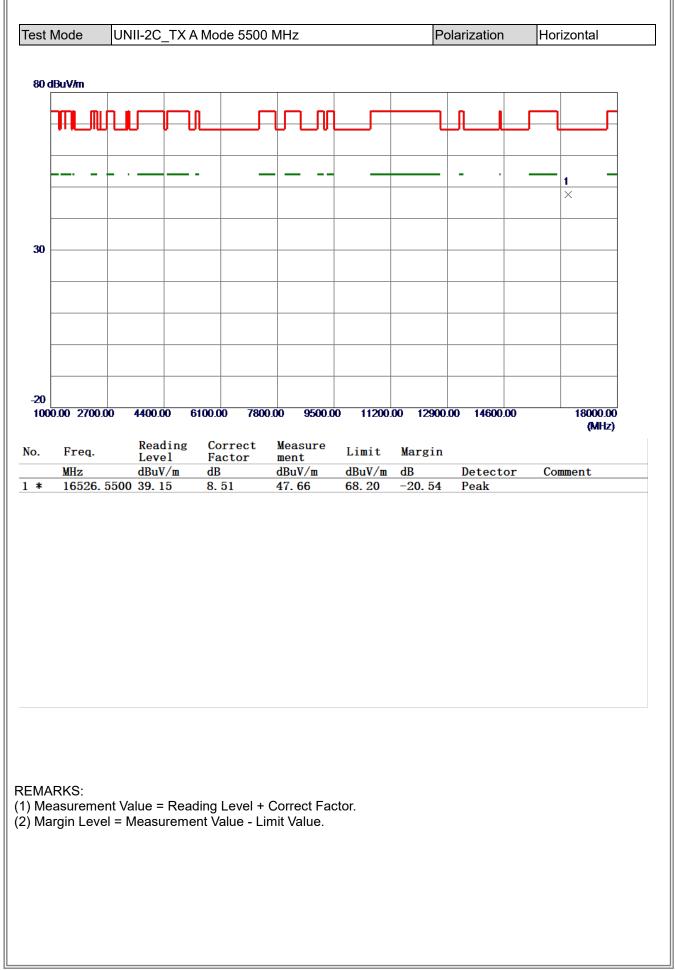




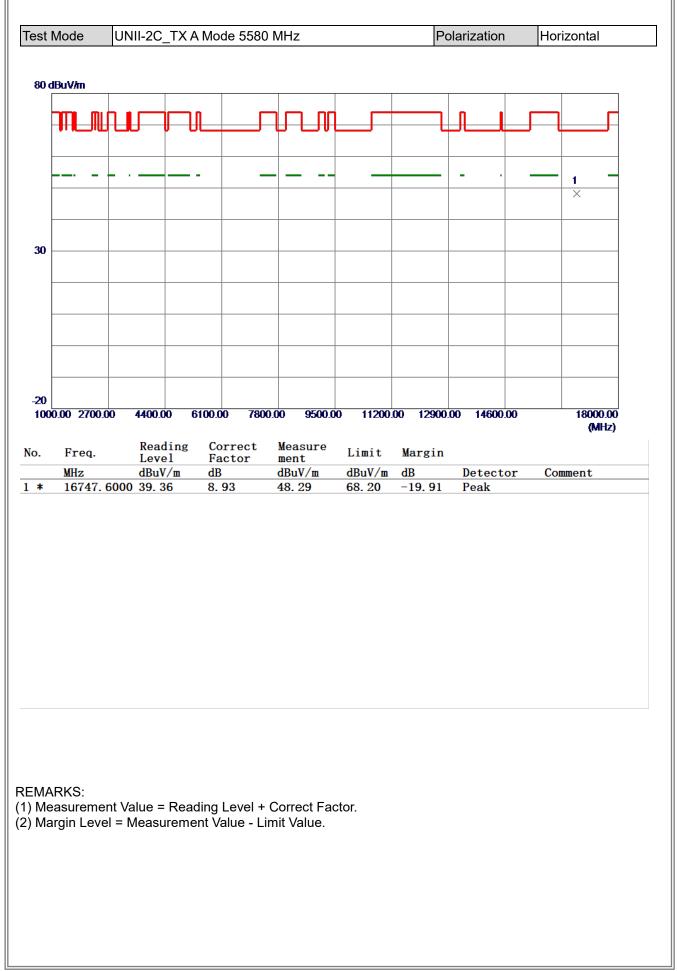
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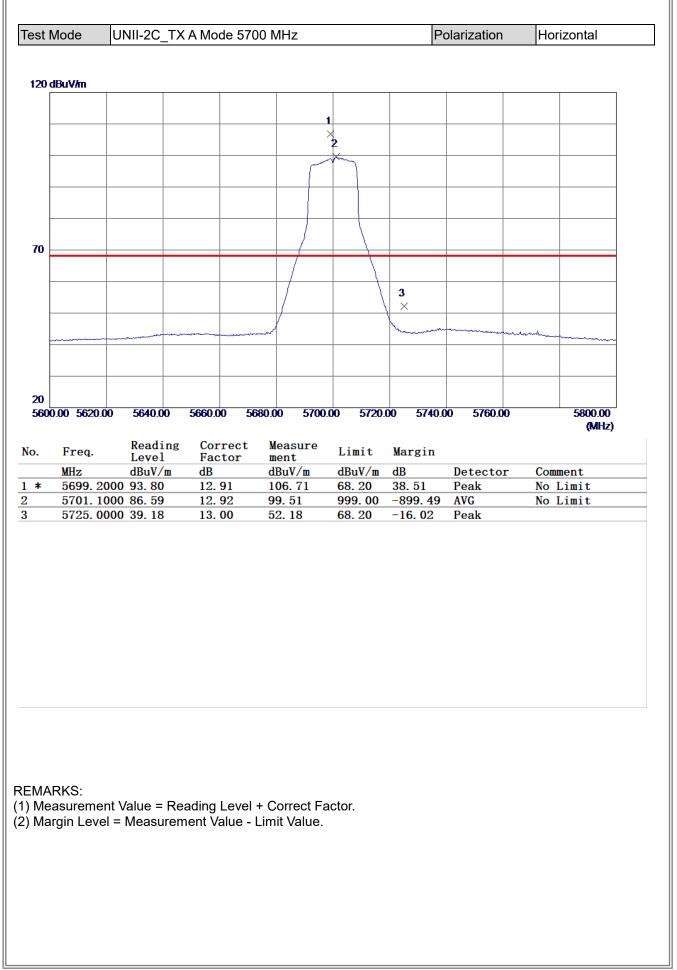




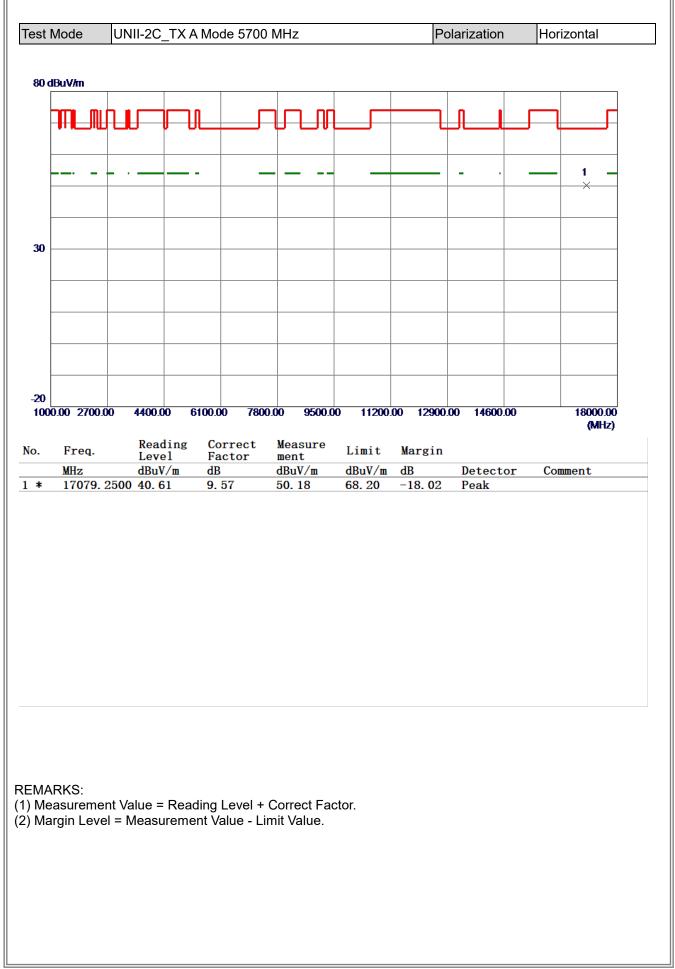




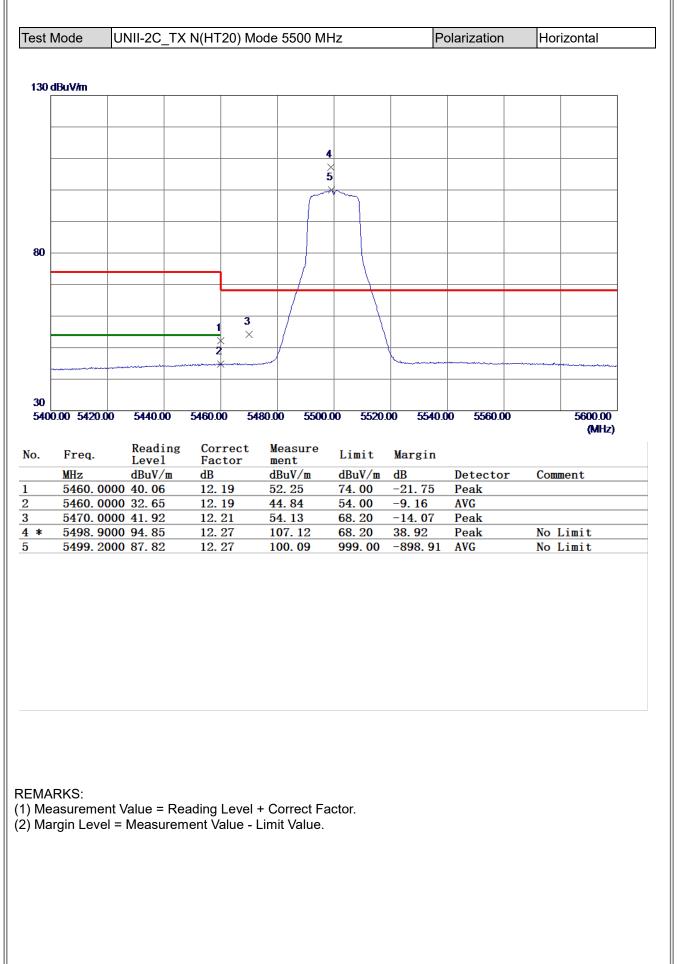
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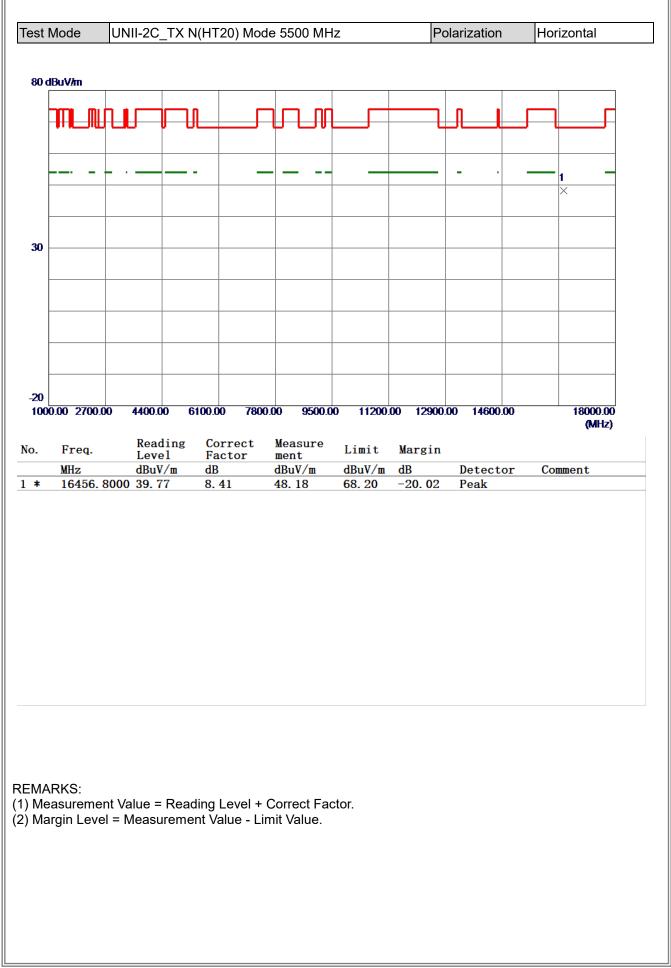




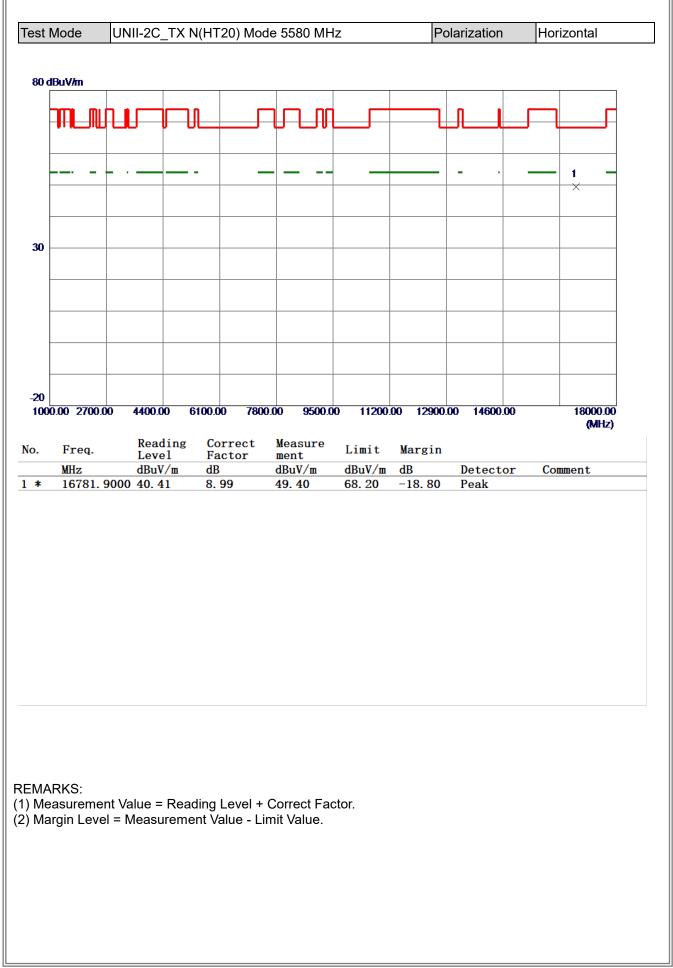




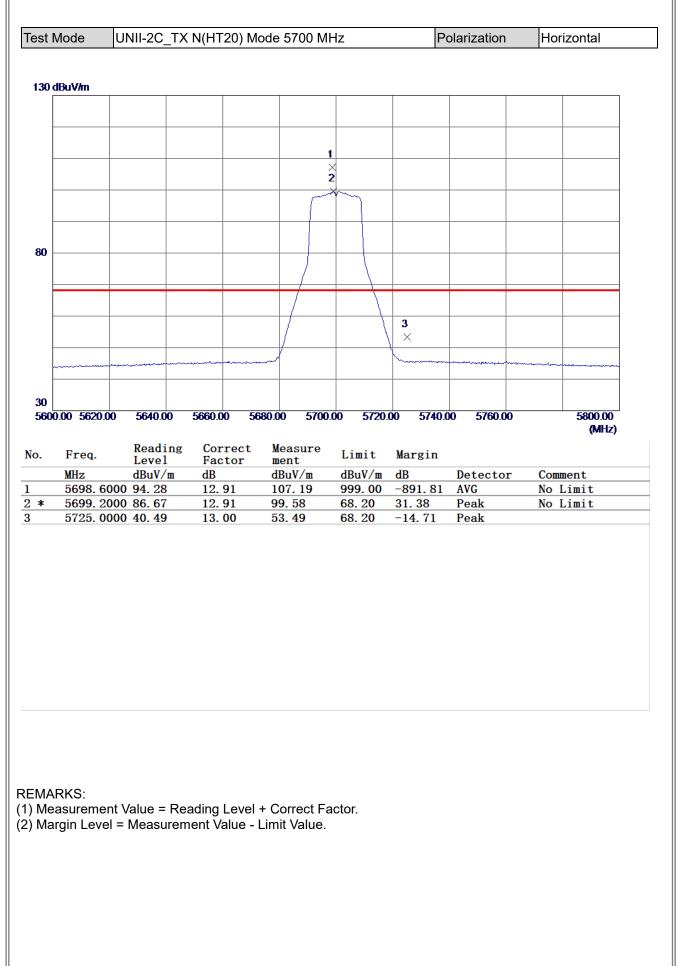




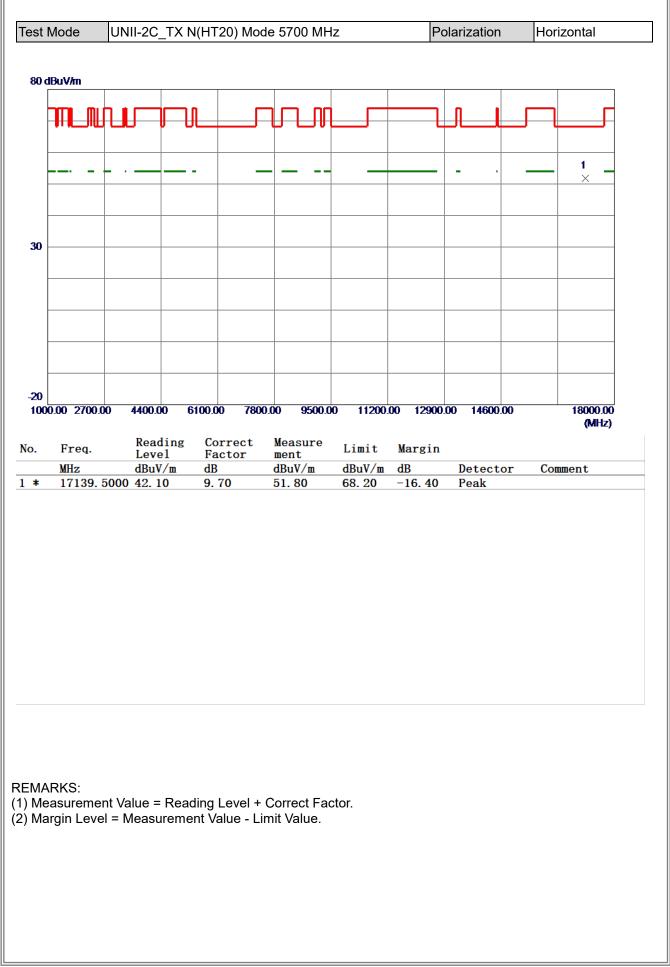




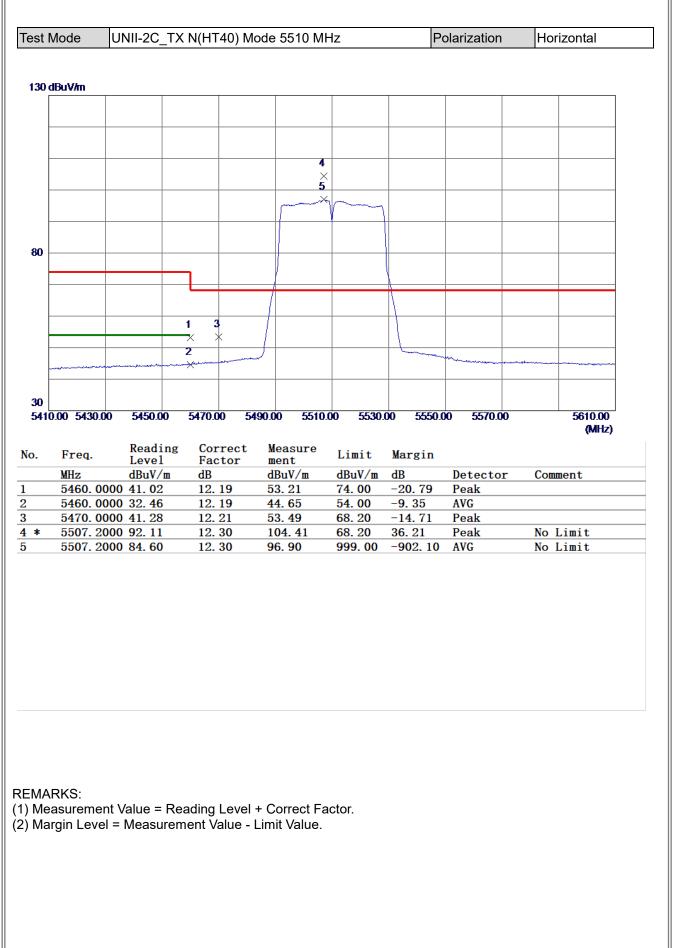




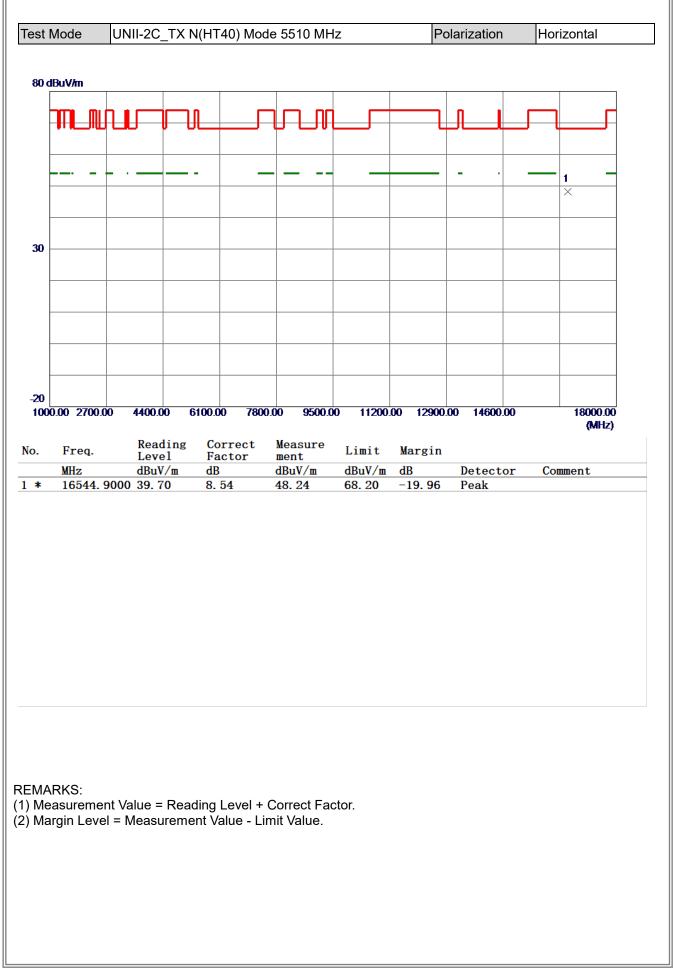




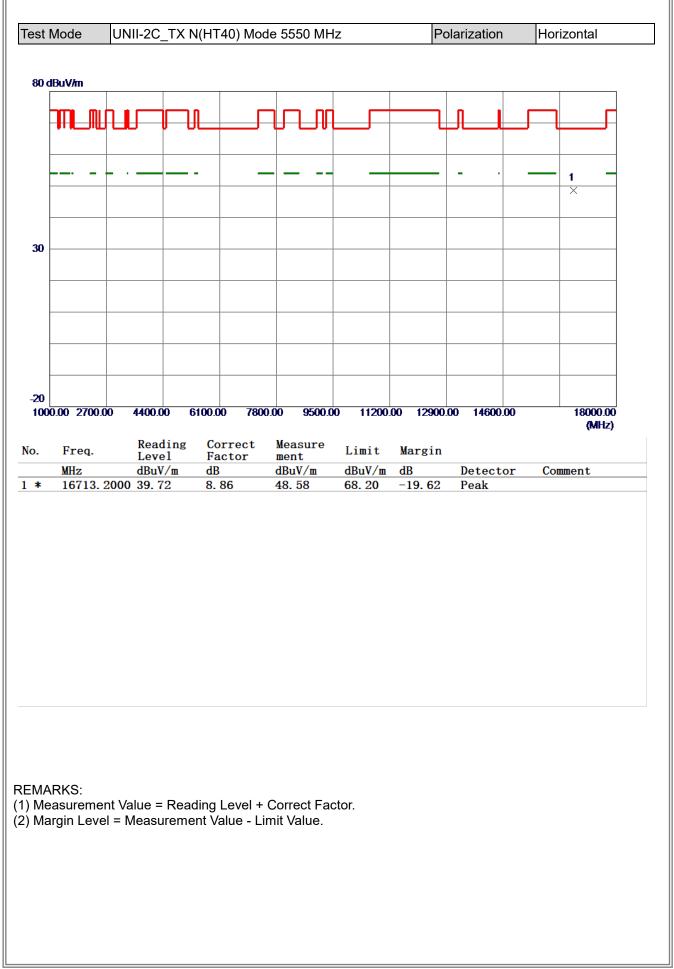




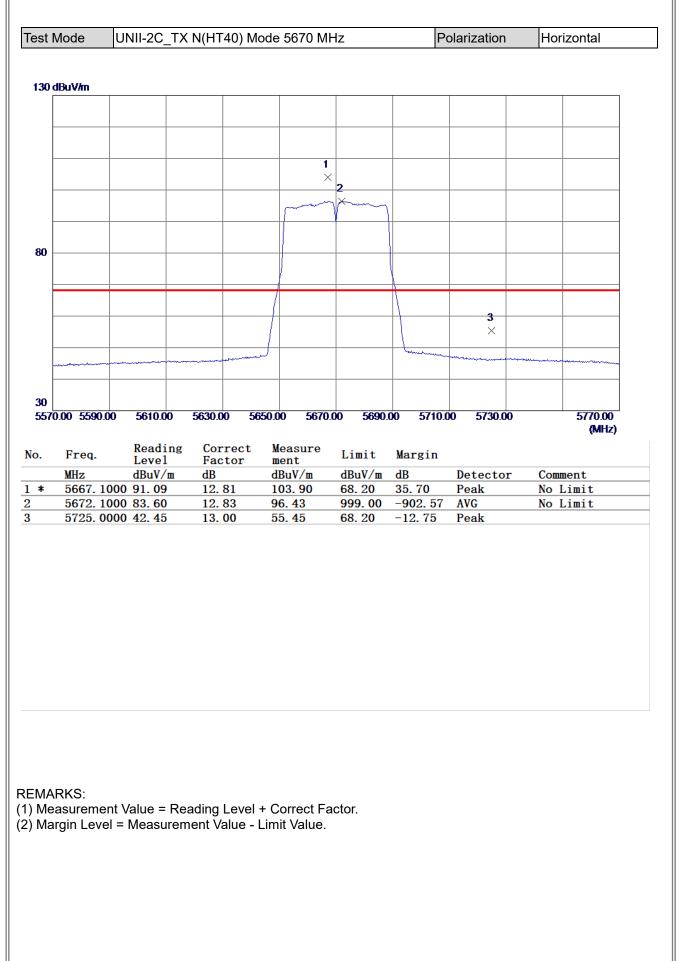




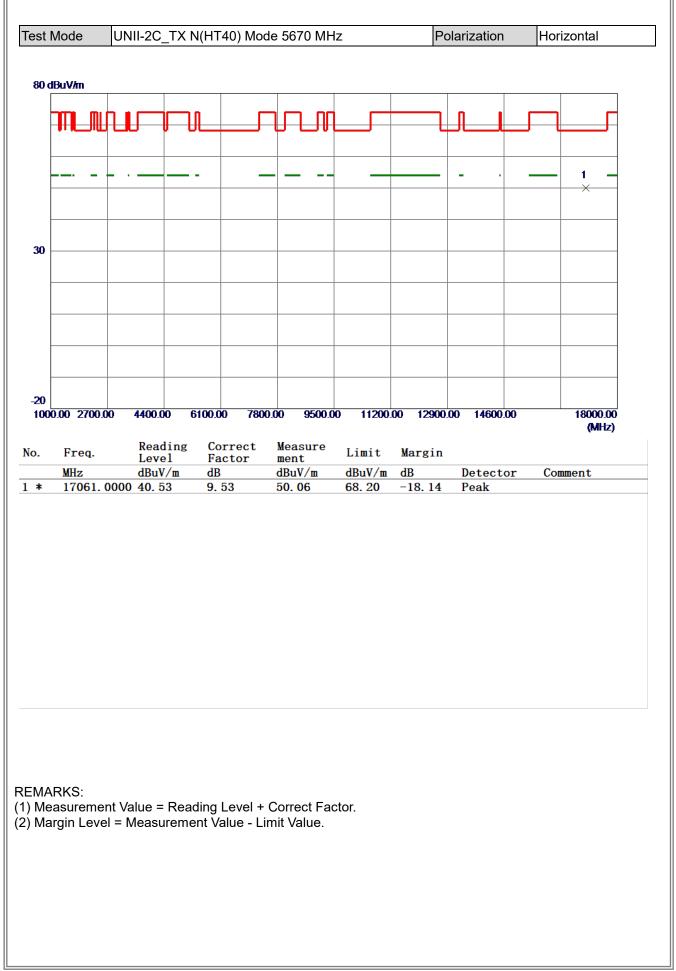




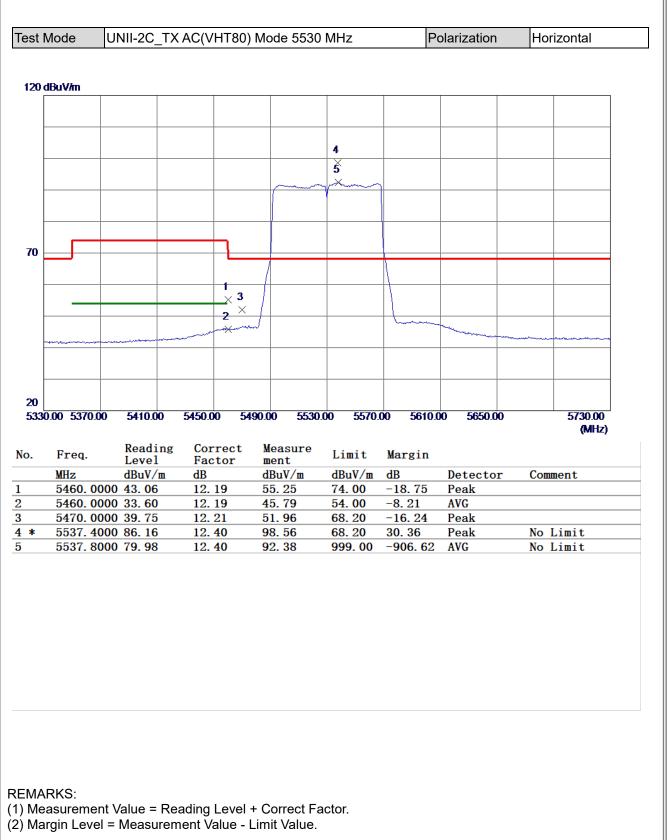




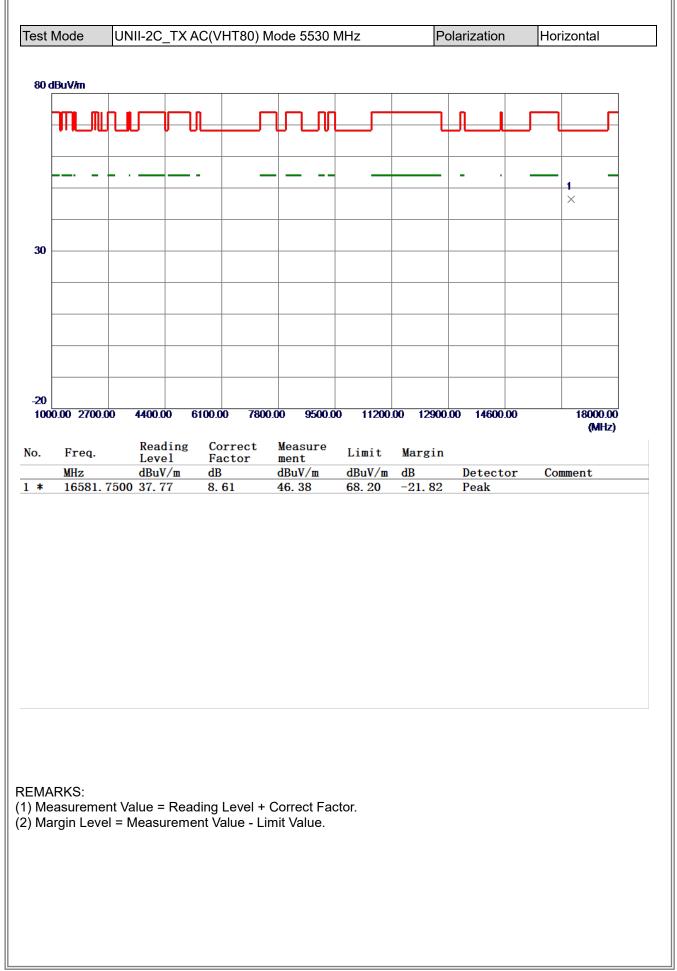




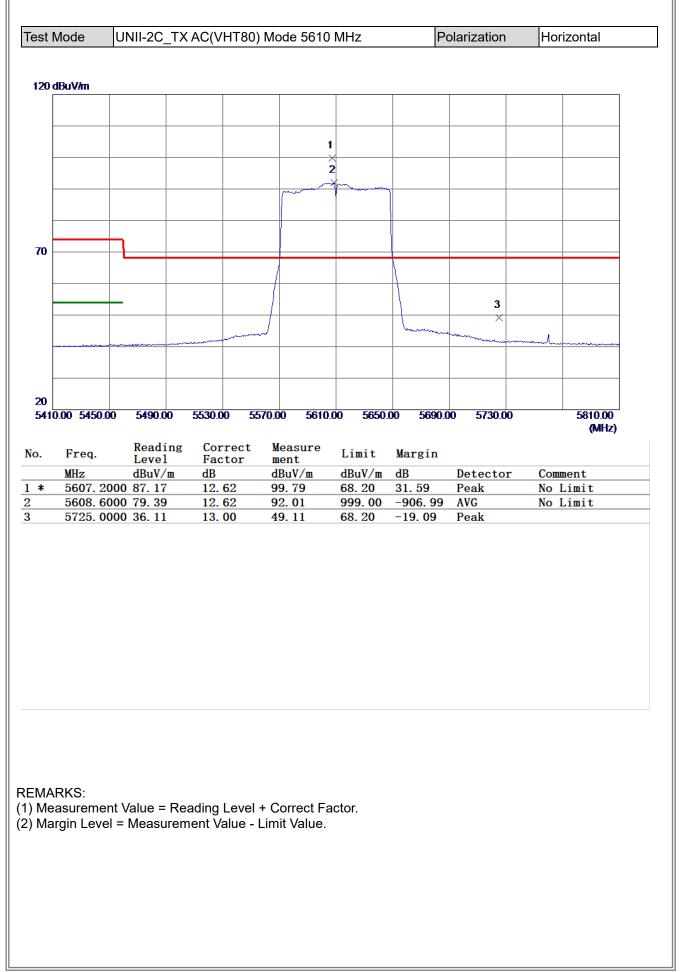




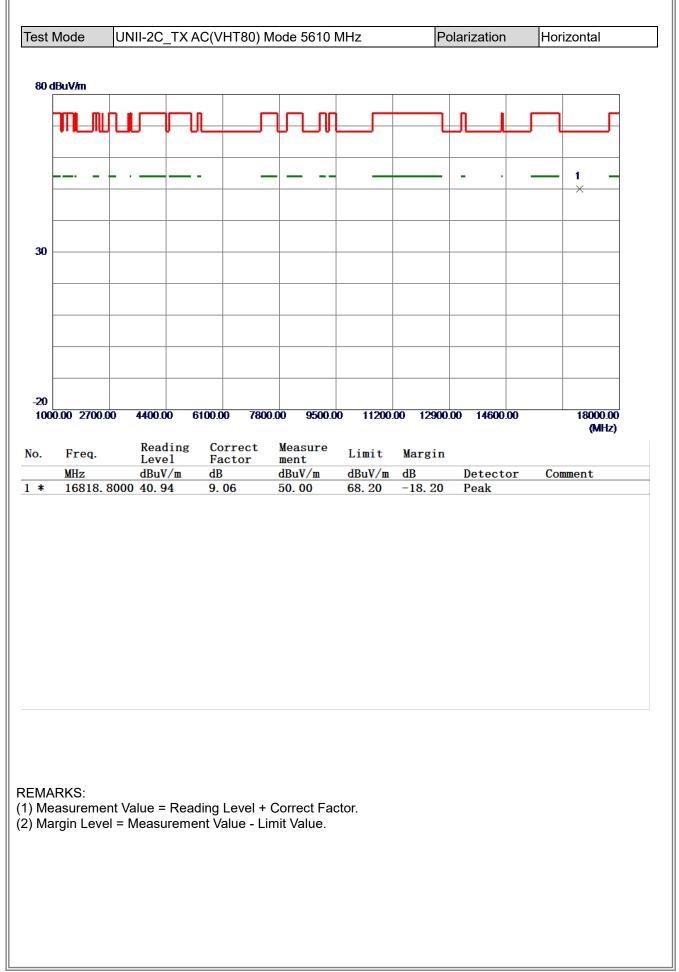




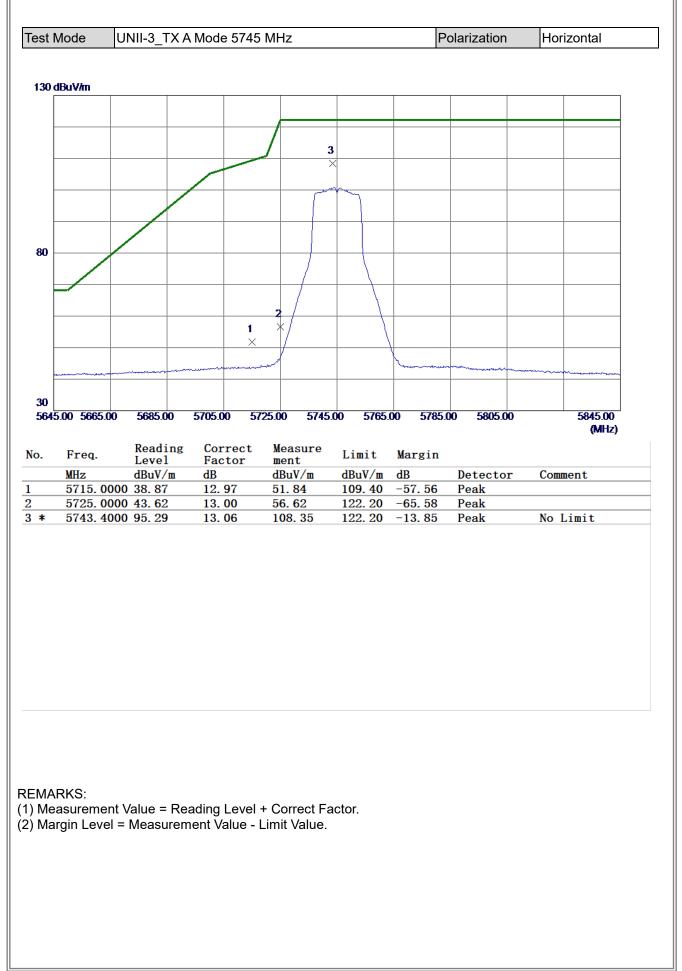




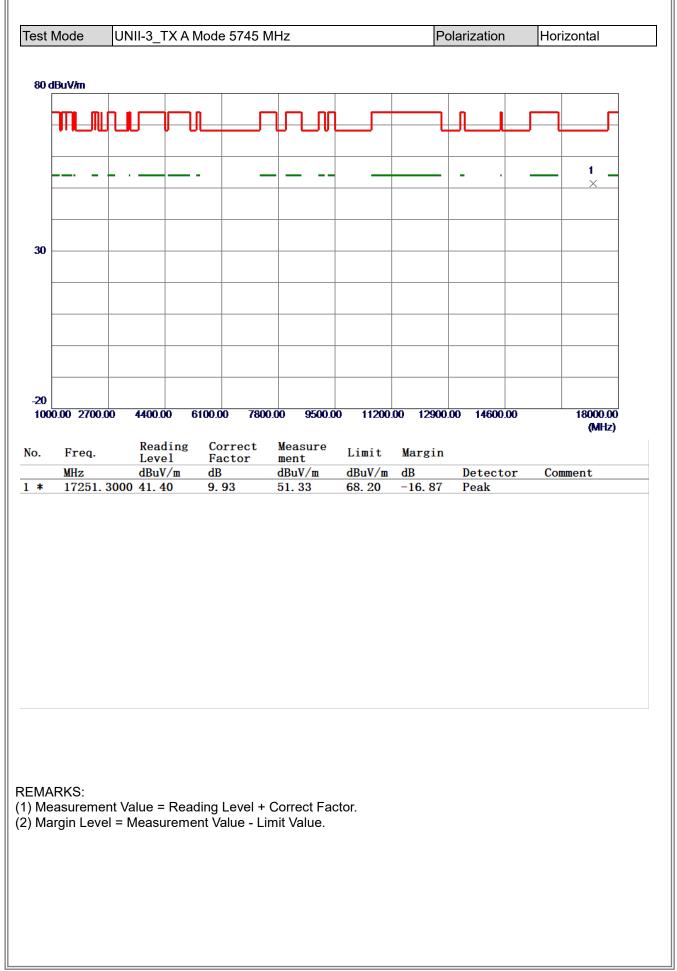




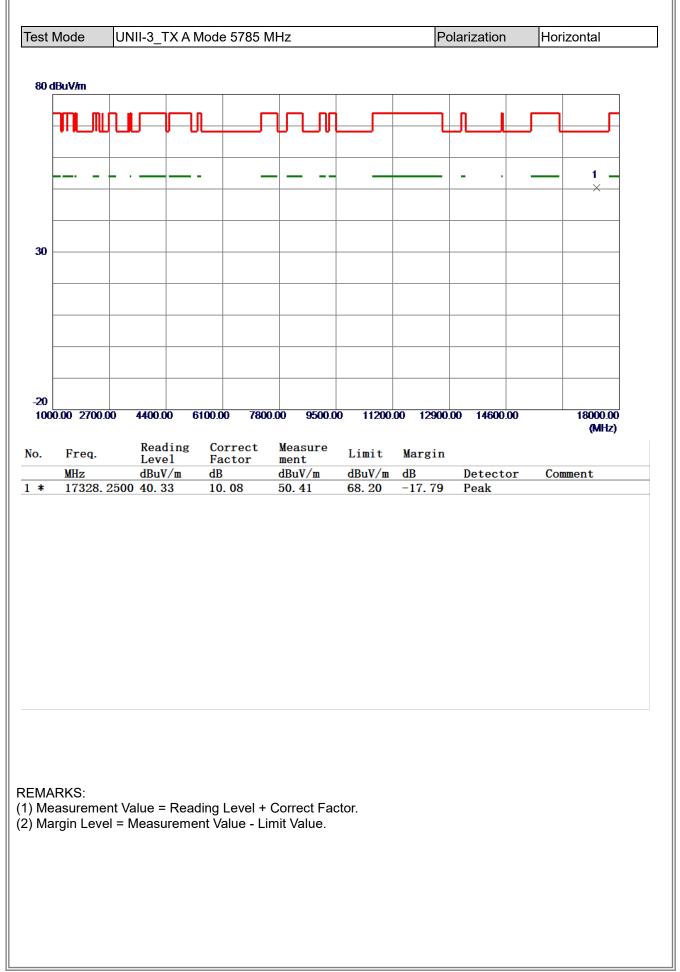




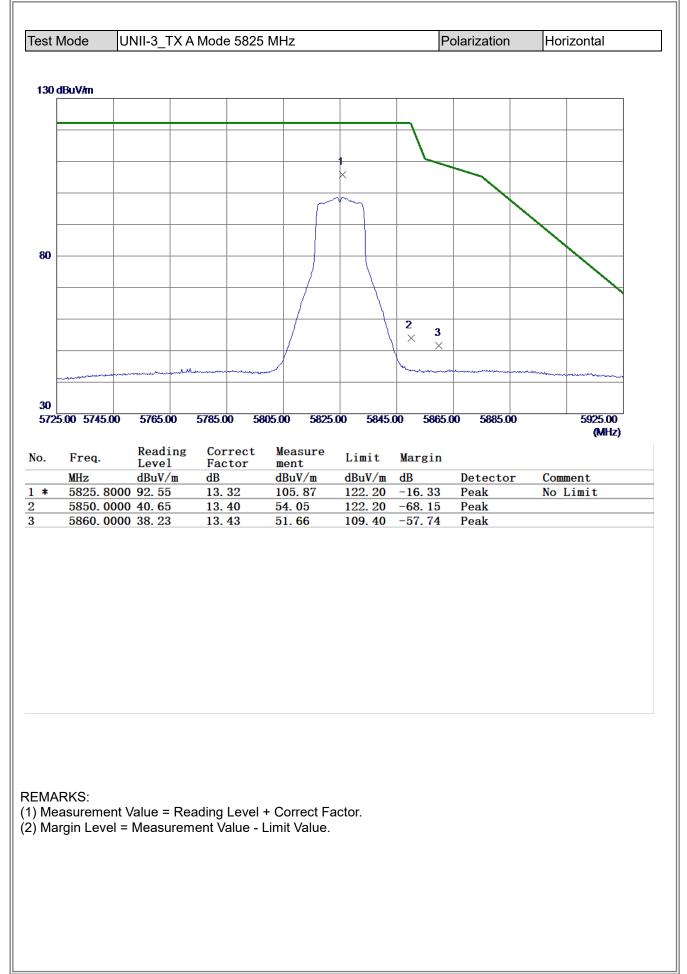




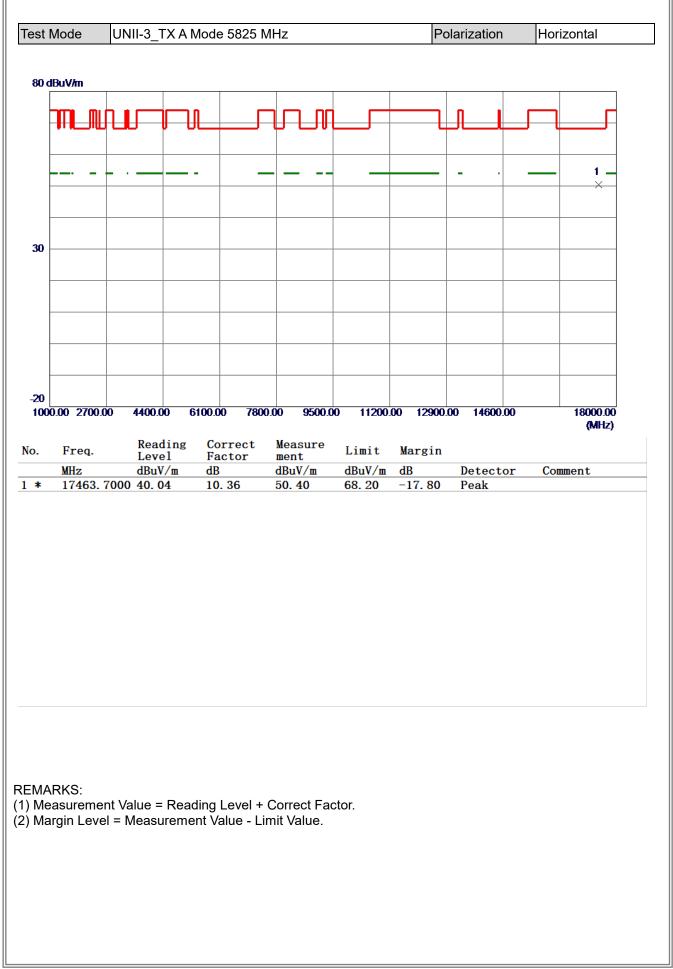




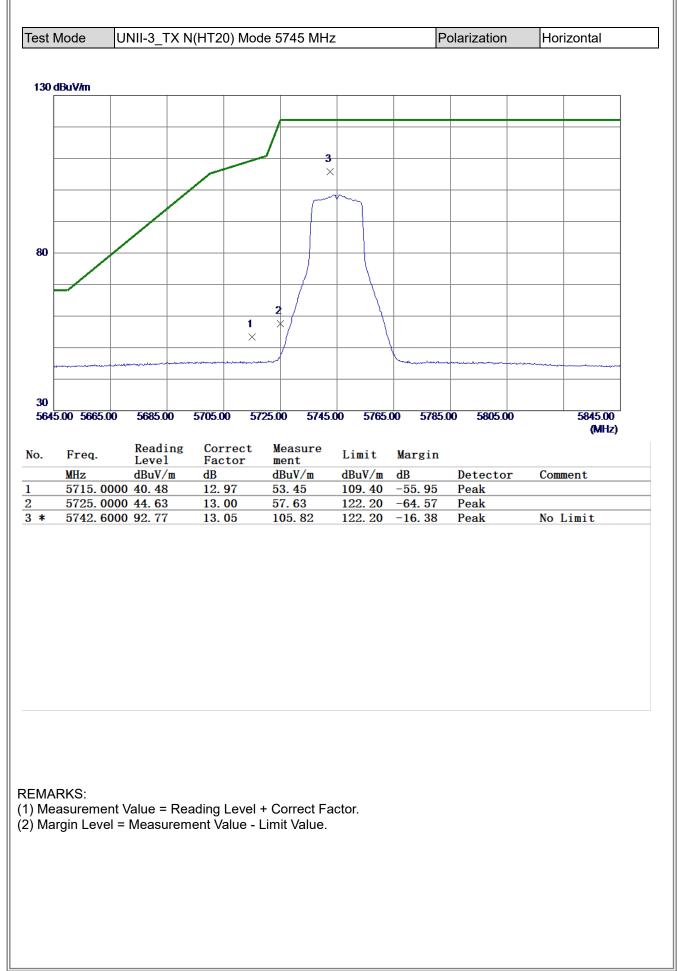
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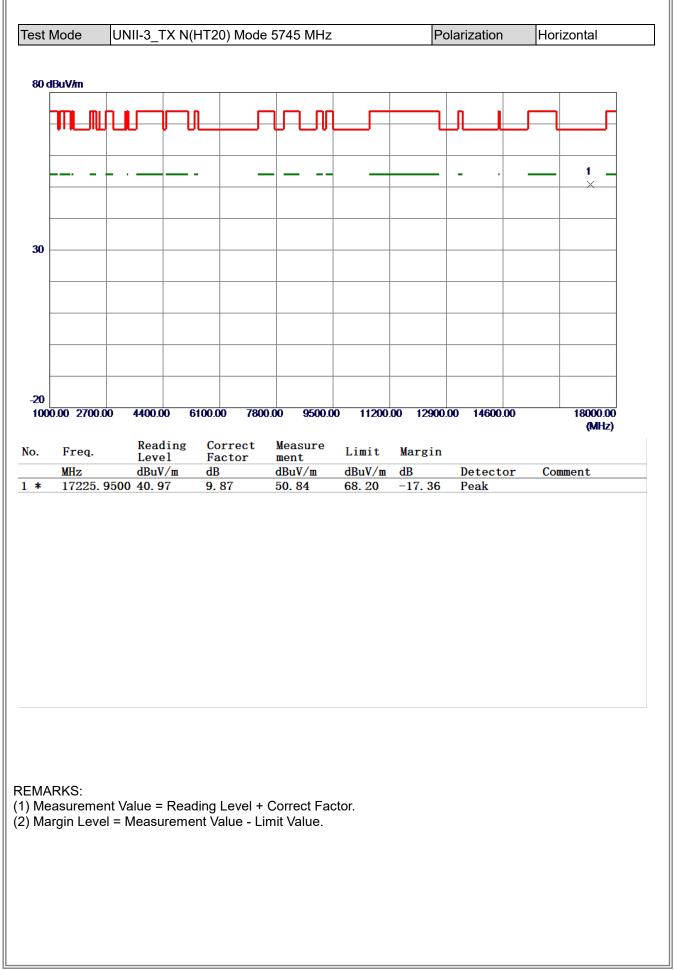




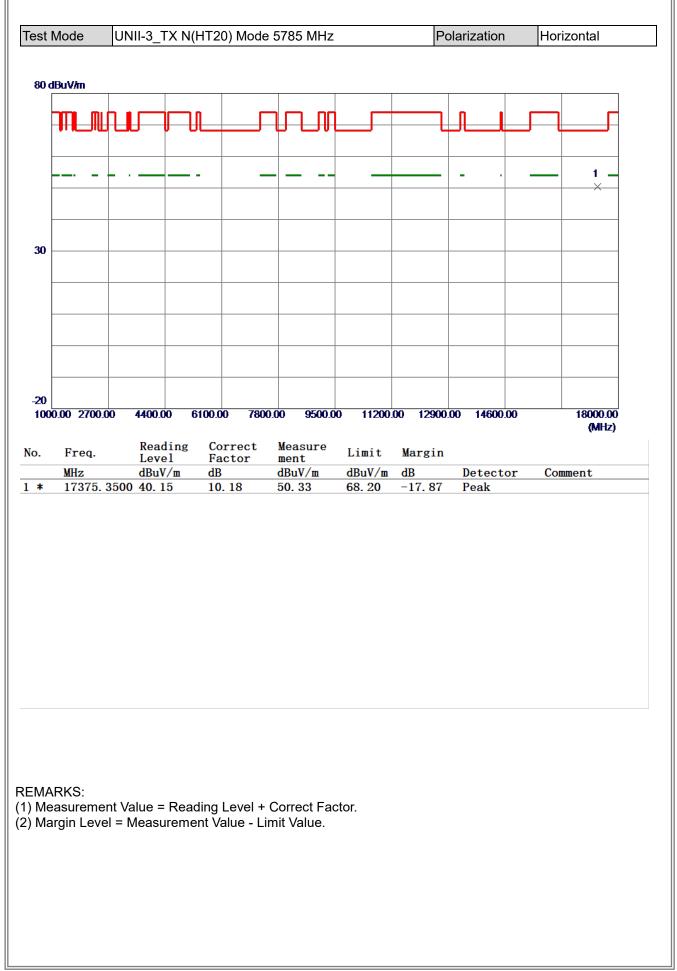




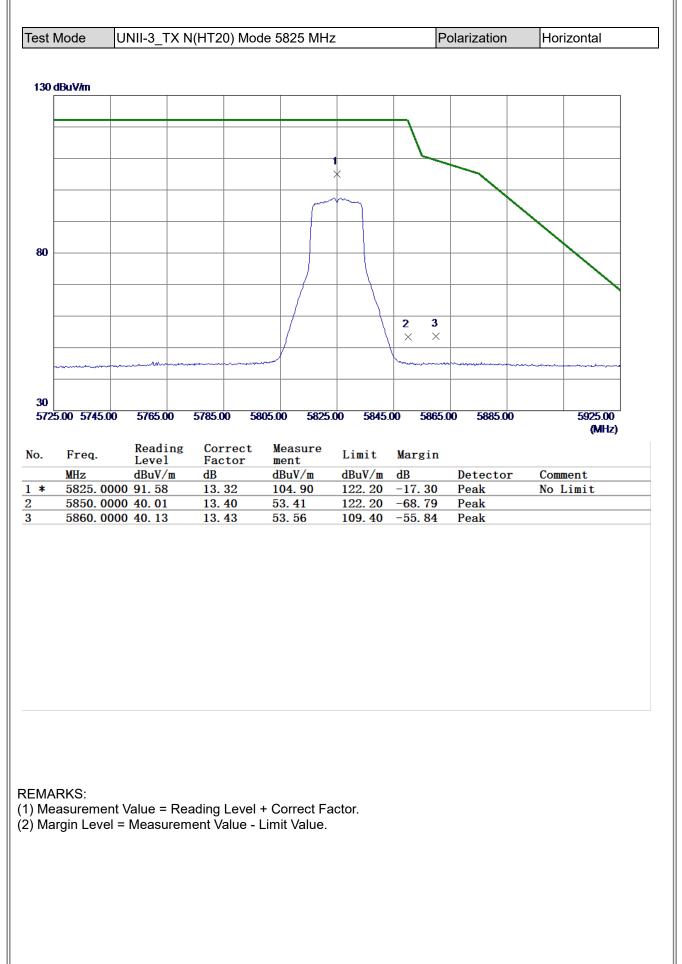




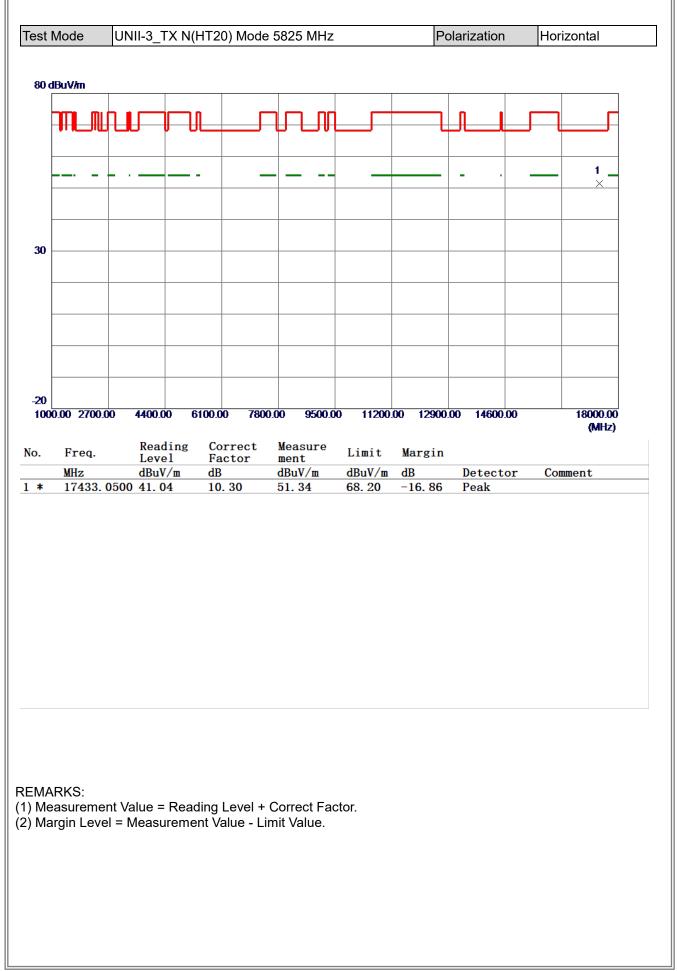




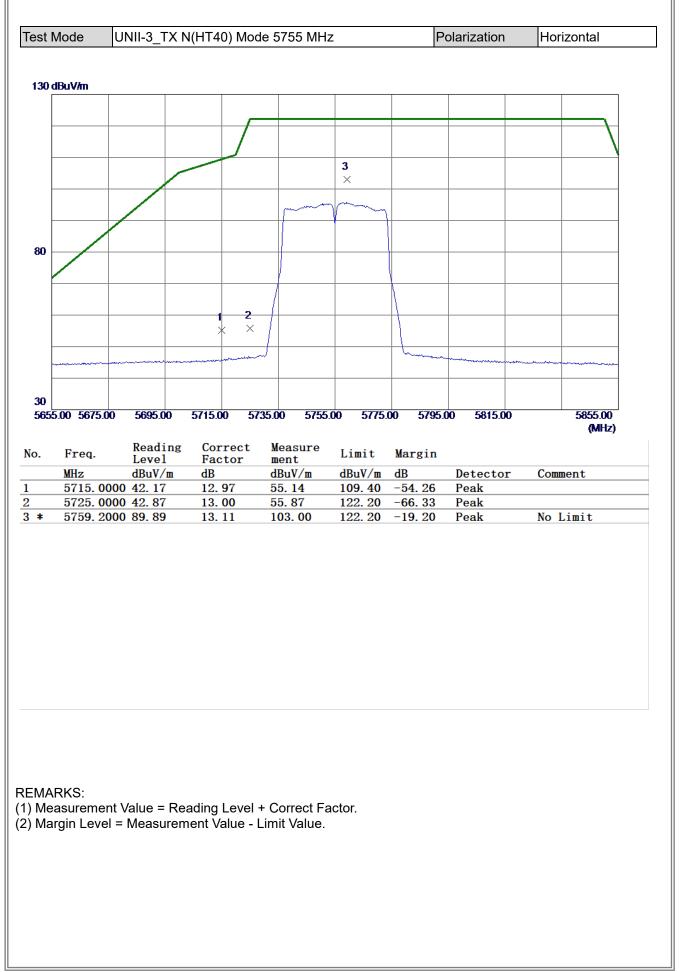




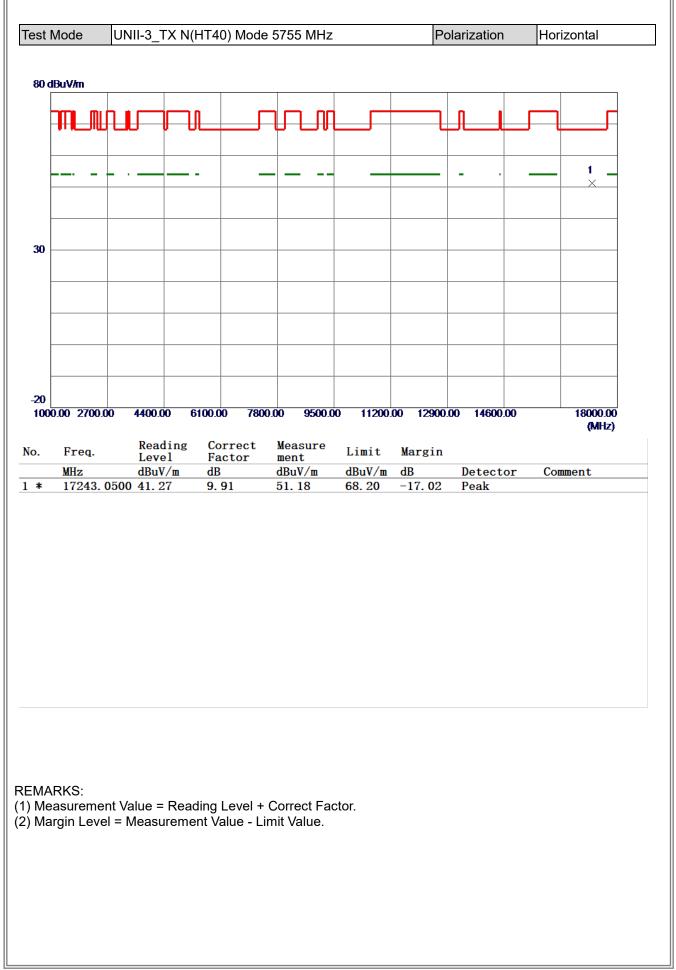




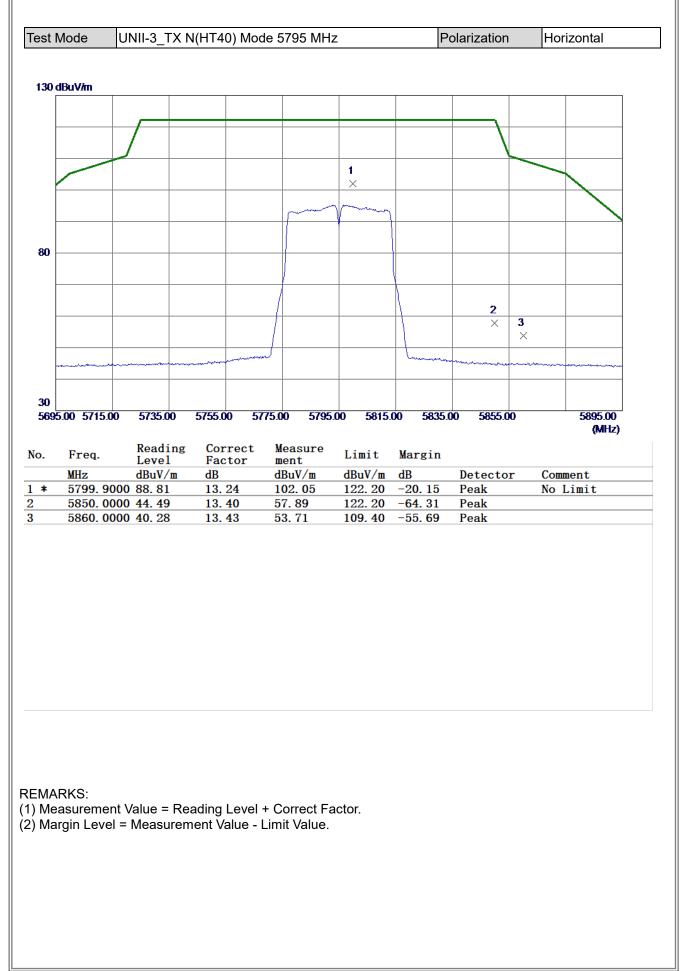




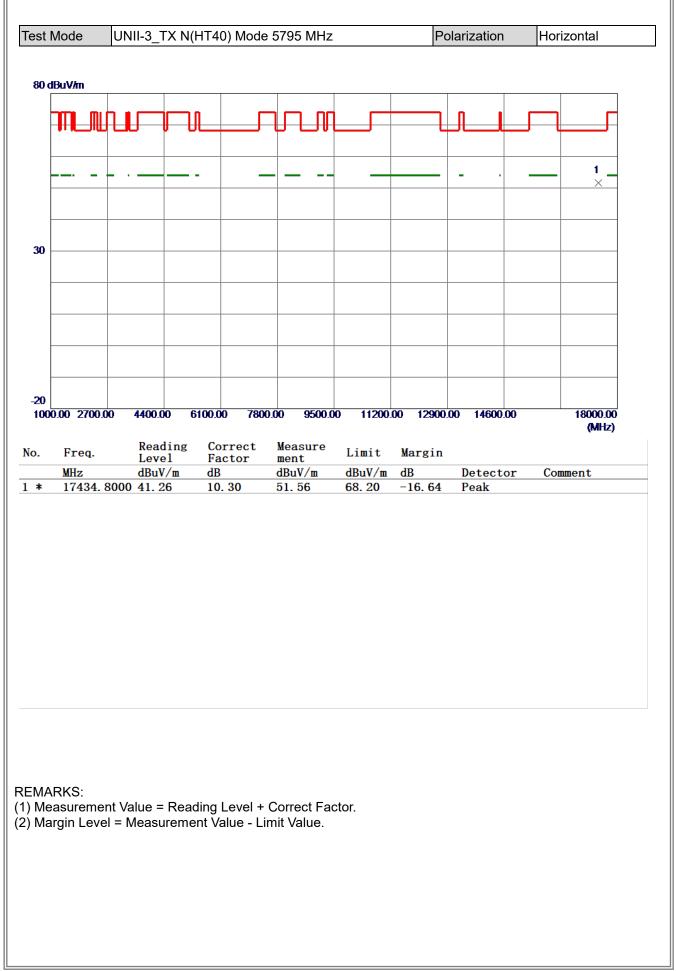




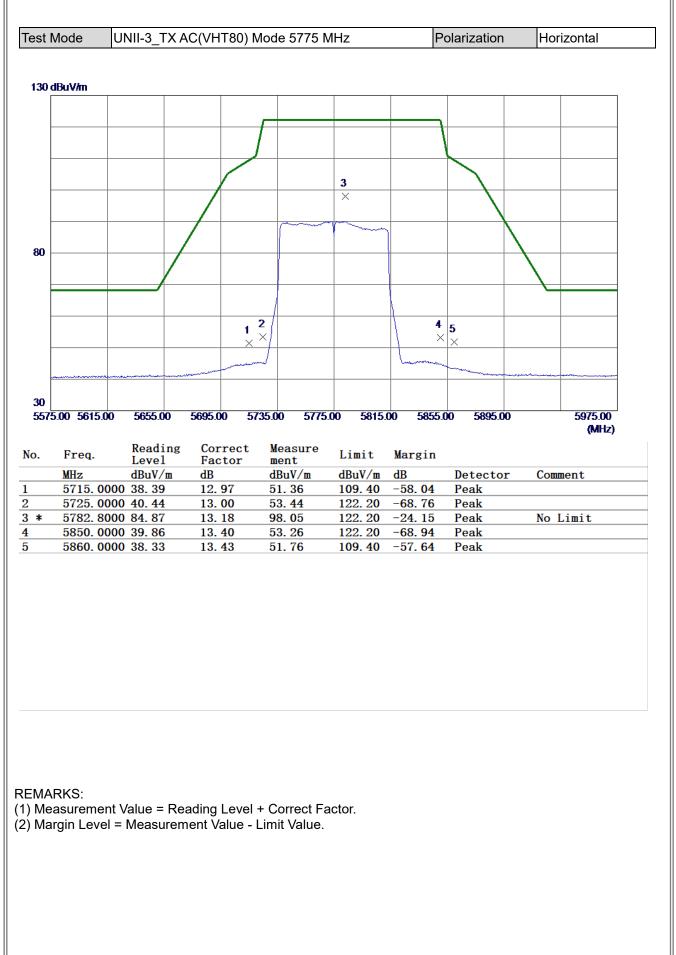




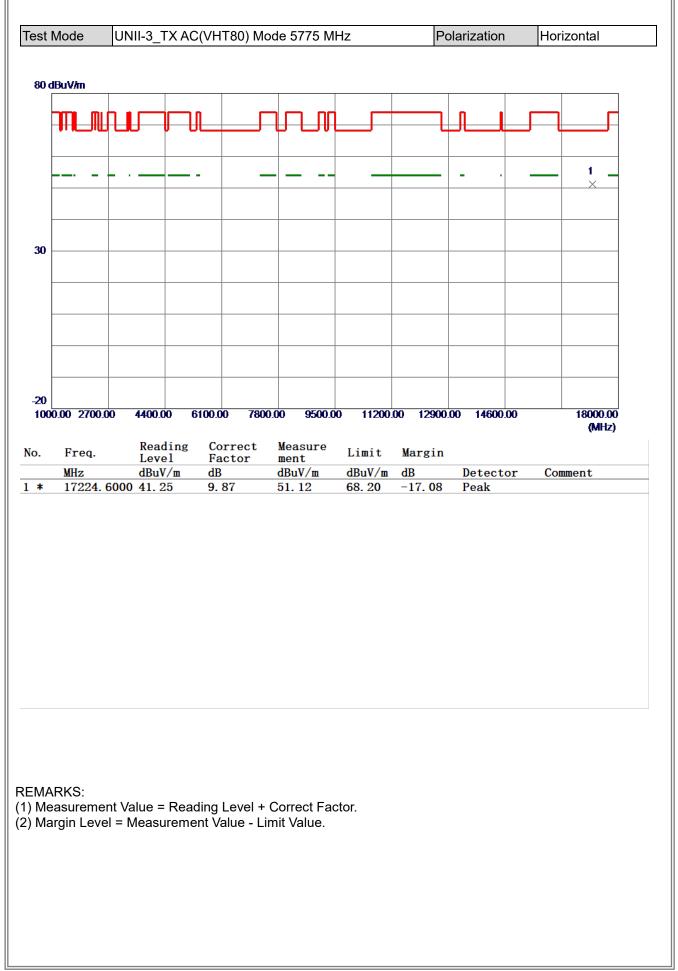










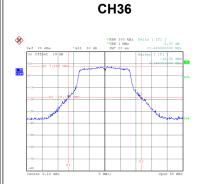


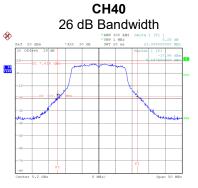


APPENDIX E - BANDWIDTH

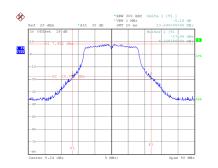


Test Mode	UNII-1_TX A Mode			
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)	
36	5180	23.489	17.000	
40	5200	23.999	16.900	
48	5240	23.690	17.000	

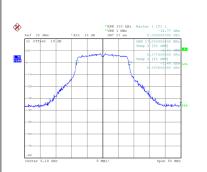




CH48

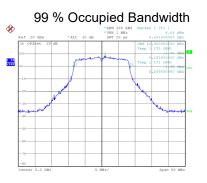


Date: 5.MAR.2024 01:53:21



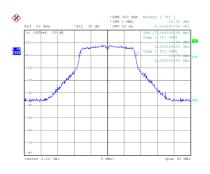
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Date: 5.MAR.2024 01:54:41



Date: 5.MAR.2024 01:56:02

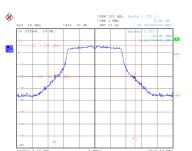
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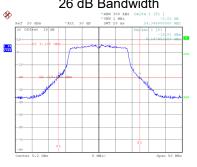


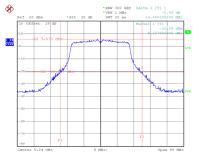
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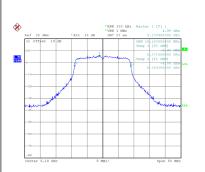
Test Mode	UNII-1_TX N(HT20) Mode		
Channel	Frequency	26 dB Bandwidth	99 % Occupied Bandwidth
Channel	(MHz)	(MHz)	(MHz)
36	5180	25.750	18.100
40	5200	24.348	18.000
48	5240	24.650	18.000
C	CH36	CH40 26 dB Bandwidth	CH48





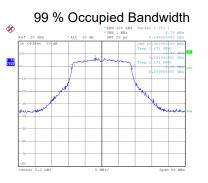


Date: 6.MAR.2024 04:15:33

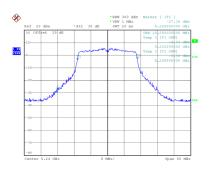


Date: 6.MAR.2024 04:14:52

Date: 6.MAR.2024 04:16:47



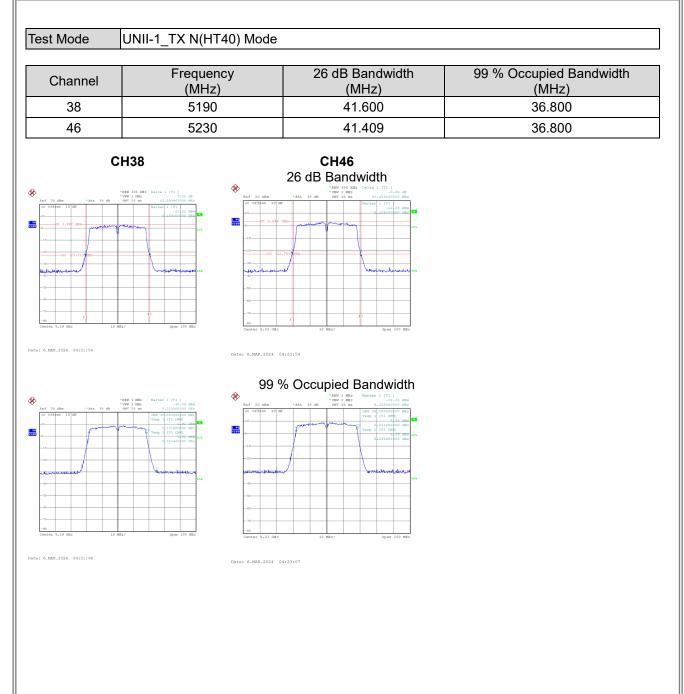
Date: 6.MAR.2024 04:17:56



Date: 6.MAR.2024 04:16:05

Date: 6.MAR.2024 04:17:13







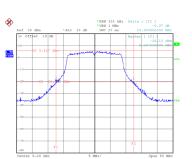
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)
42	5210	83.614	76.000
	23 Offine 3 10 10 -10 -10 -20 -20		

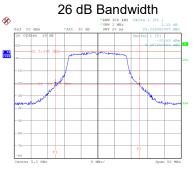


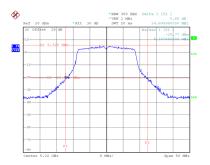
Channel	Frequenc (MHz)	y 26 dB Bandwic (MHz)	dth 99 % Occupied Bandwidth (MHz)
52	5260	24.150	16.900
60	5300	23.399	17.000
64	5320	23.789	17.000
С	H52	CH60 26 dB Bandwidth	СН64
Ind 12 delta *AUX 5 35 delta Ind 027446 35 delta Ind 027466 36 delta Ind 027467 36 delta Ind 027467 36 delta Ind 027467 36 delta Ind 02747 36 delta Ind 02747 36 delta Ind 02747 36 delta Ind 02747 37 delta	Mar 10 (BE , Sub 1 (T)) Mar 20 (BE , Sub 1 (T)) Mar 20 (BE , Sub 1 (T)) (T) 2 (BE , Sub 1	*2010 2010 2010 2010 2010 2010 2010 2010	• • • • • • • • • • • • • • • • • • •
5.MAR.2024 01:57:15		Date: 5.MAR.2024 01:50:25	Date: 5.MAR.2024 01:59:23
Not 30 -1000 10 T 0 -100 -100 10 0 -100 -100 10 0 0 -100 10 0 0 0 0 10 0 0 0 0 10 0 0 0 0 10 0 0 0 0 11 0 0 0 0 0 12 0 0 0 0 0 0 12 0	NEW 300 ME Nexter 1 [71] 6.34 YEM 1 DE 6.34 000 TOW 1 DE 5.31 000		30 dbm ************************************
: 5.MAR.2024 01:56:30		Date: 5.MAR.2024 01:57:38	Date: 5.MAR.2024 01:58:38



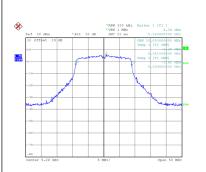
Test Mode UNII-2A_TX N(HT20) Mode Frequency 26 dB Bandwidth 99 % Occupied Bandwidth Channel (MHz) (MHz) (MHz) 5260 18.000 52 24.990 5300 25.300 18.000 60 64 5320 24.700 18.000 CH52 CH60 **CH64**







Date: 6.MAR.2024 04:19:03



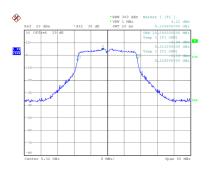
Date: 6.MAR.2024 04:18:22

Date: 6.MAR.2024 04:20:17



Date: 6.MAR.2024 04:21:31

Date: 6.MAR.2024 04:20:47

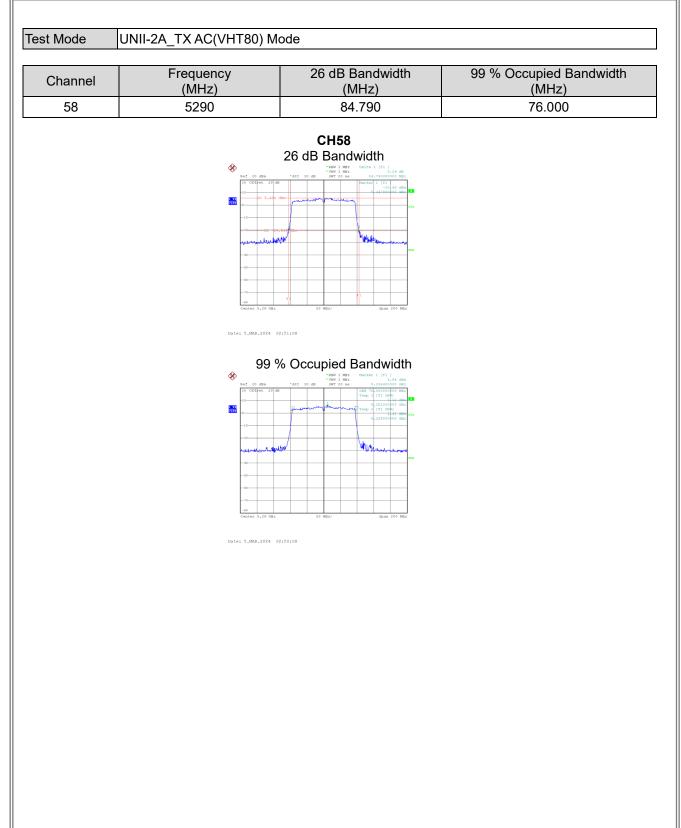


Date: 6.MAR.2024 04:19:35



Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)
54	5270	41.200	36.800
62	5310	41.900	36.800
	154	CH62 26 dB Bandwidth **** 30 dB ***********************************	
		2.122 (B)	
,	ç	9 % Occupied Bandwidth	
* R2 * VZ 20 dBm * Att 30 dB S5	W 1 MHz Marker 1 [T1] W 3 MHz 7.54 dBm Ref 20 c T7 20 ms 5.266800000 GHz 20 office		
Offhet 19 dB	Out 3.6 6000000 Mrs. -10	1 10 00 (BW 34.0000000 Min Tay 10.000000 Min Tay 10.0000000 Min Tay 10.00000000 Min Tay 10.000000000000 Min Tay 10.00000000000000000000000000000000000	
.MAR.2024 04:34:27	Date: 6.MAR.	024 04:36:10	







Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99 % Occupied Bandwidth (MHz)
100	5500	23.950	17.000
116	5580	24.590	16.900
140	5700	24.950	16.900
CI		CH116 26 dB Bandwidth	CH140
5.1438.2024 02:00:26	Caster 5 Dater 5.4048-	024 02101137	Entry 5.MAR.2024 0210215
	• 2252 300 kHz Marker 1 [21]	9 % Occupied Bandwidth	*RBW 300 kHz Marker 1 [T1] *VUW 1 NUT 6.60 dDm
	YME 1 198 Strib dim Part 2 bit Part 2 bi	8m *Att 30 dB SWT 20 ms 5.555000000 GHz	Part 2 of dim * Att, 5 0 dim mm 7 19 km 5 - 46430000 dim 10

Date: 5.MAR.2024 01:59:44

Date: 5.MAR.2024 02:00:54

Date: 5.MAR.2024 02:02:08