

47 CFR PART 22/24/27 TEST REPORT
for
Embedded Display System with CAN Bus
Model No.: E070W1D1-4 V.2U
FCC ID: 2AT5JE070W1D14V2U

of

Applicant: Powerview Display Corp.
Address: Rm. 5, 6F., No. 32, Taiyuan St., Zhubei City, Hsinchu County 302,
Taiwan (R.O.C.)

Tested and Prepared

by

Worldwide Testing Services (Taiwan) Co., Ltd.

FCC Registration No.: TW1477, TW1072

Industry Canada filed test laboratory Reg. No. 20037



Report No.: W6M22111-21340-P-247

6F, NO. 58, LANE 188, RUEY-KUANG RD., NEIHU TAIPEI 114, TAIWAN, R.O.C.
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Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

Certification of Test Report

Applicant : Powerview Display Corp.
Rm. 5, 6F., No. 32, Taiyuan St., Zhubei City,
Hsinchu County 302, Taiwan (R.O.C.)

Manufacturer : Powerview Display Corp.
Rm. 5, 6F., No. 32, Taiyuan St., Zhubei City,
Hsinchu County 302, Taiwan (R.O.C.)

Tested Equipment :

Type Description	: Embedded Display System with CAN Bus
Model Number	: E070W1D1-4 V.2U
Multi-listing Model Number	: E070W1D1-4 v.nx
Brand Name	: ./.
Operation Frequency	: Please see chapter 2.3.
RF Output Power:	: WCDMA Band II: 23.22 dBm (EIRP) Band IV 24.38 dBm (EIRP) Band V: 19.24 dBm (ERP) LTE Band II: 23.45 dBm (EIRP) Band IV 24.86 dBm (EIRP) Band XII: 13.36 dBm (ERP)
Power Supply	: 12 Vd.c., Battery 3.7 Vd.c.

Regulation Applied : 47CFR Part 22 (2020-10), Part 24 (2020-10),
Part 27 (2020-10)

Test Method : 47CFR Part 2 (2020), TIA/EIA-603E (2016) and
ANSI C63.26 (2015)

I HEREBY CERTIFY THAT: The test results written in this report were derived conscientiously in accordance with the requirements and procedures of 47CFR Part 2(2020), TIA/EIA-603E(2016), and it was found that the device described above is in compliance with the applicable limits specified in 47CFR Part 22/24/27.

Note:

1. The result of this test report is valid only in connection to the sample has been tested at the laboratory of Worldwide Testing Services (Taiwan) Co. Ltd.
2. This test report shall always be duplicated in full pages unless the written approval of the testing laboratory is obtained.

Test Engineer:

February 21, 2022

Sora Kuo

Sora

Date

WTS-Lab.

Name

Signature

Technical responsibility for area of testing:

February 21, 2022

Kevin Wang

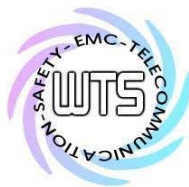
Kevin Wang

Date

WTS

Name

Signature

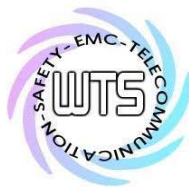


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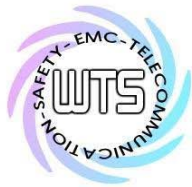


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1. Summary

1.1 Description of tested equipment

This equipment under tested, E070W1D1-4 V.2U, is an Embedded Display System with CAN Bus. This test report only contains test requirements specified in 47CFR Part 22, Part 24 and Part 27 for WCDMA and LTE function. For other functions; please refer to separate test report with respect to the relevant test standard and specification.

1.2 Date of testing processing

Date of receipt of test item(1st): July 22, 2019

Date of test(1st): from July 22, 2019 to September 02, 2019

Date of receipt of test item(2nd): January 25, 2022

Date of test(2nd): from January 26, 2022 to February 21, 2022

Other Information: None

1.3 Modification Information

No modification was made during the all test items been performed.

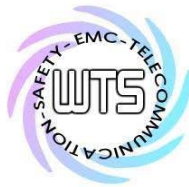
1.4 Test standards

Technical standard: **47 CFR Part 2 (2020), TIA/EIA-603E (2016), ANSI C63.26 (2015)
47 CFR Part 22 (2020), Part 24 (2020) and Part 27 (2020)**

Deviation from test standard: None

Special statement:

1. This test report is based on the original test report no.: W6M21906-19141-P-247.
2. The relevant Circuitry, PCB Layout, Inner element, Appearance and Function is exactly the same as the one in original test report. The differences are the model number, max output power of has been retested and the version of test standards. After estimation, there is no deviation between these test standards. Therefore the other test result is also based on the original test report no. W6M21906-19141-P-247 without retesting.



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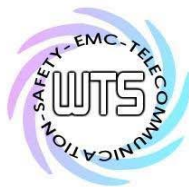
1.5 Summary of test result

WCDMA

Section in this Report	Test Item	FCC Relevant Section	Verdict
3.2	RF Power Output (Equivalent isotropically radiated power)	2.1046(a), 24.232	Pass
4.2	Modulation characteristics	2.1047	Not Required
5.2	Occupied bandwidth	2.1049(h) 24.238(b)	Pass
6.2	Spurious emissions at antenna terminals	24.238(a), 2.1051	Pass
7.2	Field strength of spurious radiation	24.238(a), 2.1053	Pass
7.5	Band Edge emissions	24.238(b)	Pass
8.2	Frequency stability	2.1055 24.235	Pass

LTE

Harmonized Standard Requirements and Conformance Test Specifications				
Item	Clause	Test Content	Limit	Test Result
3.2	§22.913 §24.232 §27.50	Effective Radiated Power and Equivalent Isotropic Radiated Power Measurement	ERP < 7 Watts (Band 5) EIRP < 2 Watts (Band 2) ERP < 3 Watts (Band 12, Band 13) EIRP < 1 Watts (Band 4)	Pass
5.3	§24.232 §27.50	Peak-to-Average Ratio	< 13 dB	Pass
6.2	§2.1049	Occupied Bandwidth	OBW : No Limit	Pass
7.2	§22.917 §24.238 §27.53	Conducted Spurious Emission Measurement	< 43+10log10(P[Watts])	Pass
8.2	§22.917 §24.238 §27.53	Radiated Spurious Emission Measurement	< 43+10log10(P[Watts])	Pass
8.5	§22.917 §24.238 §27.53	Conducted Band Edge Measurement	< 43+10log10(P[Watts])	Pass
9.2	§2.1055 §22.355 §24.235 §27.54	Frequency stability / Temperature variation Measurement	< 2.5 ppm	Pass



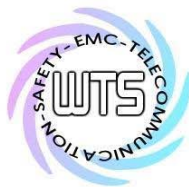
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Test item Name	Measurement Uncertainty
Estimation Result of Uncertainty of Radiated Emission(3M)	Expanded Uncertainty: 0.009-30 MHz : 3.48 dB 30-1000 MHz : 4.48 dB 1-18 GHz : 4.15 dB 18-40 GHz : 3.78 dB
Estimation Result of Uncertainty of Conducted Output Power Measurement	Expanded Uncertainty : 3.07 dB
Estimation Result of Uncertainty of Bandwidth Measurement	Expanded Uncertainty : 0.45 kHz
Estimation Result of Uncertainty of Frequency Drift Measurement	Expanded Uncertainty : 6.11 Hz
Estimation Result of Uncertainty of Band Edge Measurement	Expanded Uncertainty : 0.67 dBc

The decision rule is: Measurement uncertainty is not included in the calculation of test results.



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2. General Information

2.1 Testing laboratory

2.1.1 Location

OATS
No.5-1, Shuang Sing Village,
LiShuei Rd., Wanli Township,
Taipei County 207, Taiwan (R.O.C.)
Company
Worldwide Testing Services (Taiwan) Co., Ltd.
6F, NO. 58, LANE 188, RUEY-KUANG RD.
NEIHU, TAIPEI 114, TAIWAN R.O.C.
Tel : 886-2-66068877
Fax : 886-2-66068879

2.1.2 Details of accreditation status

Accredited testing laboratory
FCC filed test laboratory Reg. No. TW1477, TW1072
Industry Canada filed test laboratory Reg. No. 20037

2.1.3 Test location, where different from Worldwide Testing Services (Taiwan) Co., Ltd.

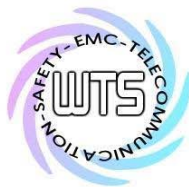
Name: ./.
Accredited number: ./.
Street: ./.
Town: ./.
Country: ./.

2.2 Details of approval holder

Name: Powerview Display Corp.
Street: Rm. 5, 6F., No. 32, Taiyuan St., Zhubei City,
Town: Hsinchu County 302,
Country: Taiwan (R.O.C.)

Manufacturer: (if different from applicant)

Name: ./.
Street: ./.
Town: ./.
Country: ./.



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2.3 Description of Tested System

The EUT was tested alone without the Accessories or Peripherals.

Equipment	Model No.	Series No.	Software	Cable information	Note
No accessories were used with this EUT.					

Frequencies Selected to be investigated:

WCDMA Band II

Uplink

Low Frequency (ch 9262): 1852.4 MHz

Mid Frequency (ch 9400): 1880.0 MHz

High Frequency (ch 9538): 1907.6 MHz

Downlink

Low Frequency (ch 9262): 1932.4 MHz

Mid Frequency (ch 9400): 1960 MHz

High Frequency (ch 9538): 1987.6 MHz

WCDMA Band IV

Uplink

Low Frequency (ch 1312): 1712.2 MHz

Mid Frequency (ch 1413): 1732.6 MHz

High Frequency (ch 1513): 1752.6 MHz

Downlink

Low Frequency (ch 1312): 2112.4 MHz

Mid Frequency (ch 1413): 2132.6 MHz

High Frequency (ch 1513): 2152.6 MHz

WCDMA Band V

Uplink

Low Frequency (ch 4132): 826.4 MHz

Mid Frequency (ch 4183): 836.6 MHz

High Frequency (ch 4233): 846.6 MHz

Downlink

Low Frequency (ch 4132): 871.4 MHz

Mid Frequency (ch 4183): 881.6 MHz

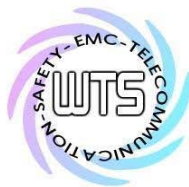
High Frequency (ch 4233): 891.6 MHz

LTE

Band II

Test Frequency ID	Bandwidth [MHz]	N _{UL}	Frequency of Uplink [MHz]	N _{DL}	Frequency of Downlink [MHz]
Low Range	1.4	18607	1850.7	607	1930.7
	3	18615	1851.5	615	1931.5
	5	18625	1852.5	625	1932.5
	10	18650	1855	650	1935
	15 ^[1]	18675	1857.5	675	1937.5
	20 ^[1]	18700	1860	700	1940
Mid Range	1.4/3/5/10 15 ^[1] /20 ^[1]	18900	1880	900	1960
High Range	1.4	19193	1909.3	1193	1989.3
	3	19185	1908.5	1185	1988.5
	5	19175	1907.5	1175	1987.5
	10	19150	1905	1150	1985
	15 ^[1]	19125	1902.5	1125	1982.5
	20 ^[1]	19100	1900	1100	1980

NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.



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Band IV

Test Frequency ID	Bandwidth [MHz]	N _{UL}	Frequency of Uplink [MHz]	N _{DL}	Frequency of Downlink [MHz]
Low Range	1.4	19957	1710.7	1957	2110.7
	3	19965	1711.5	1965	2111.5
	5	19975	1712.5	1975	2112.5
	10	20000	1715	2000	2115
	15	20025	1717.5	2025	2117.5
	20	20050	1720	2050	2120
Mid Range	1.4/3/5/10/15/20	20175	1732.5	2175	2132.5
High Range	1.4	20393	1754.3	2393	2154.3
	3	20385	1753.5	2385	2153.5
	5	20375	1752.5	2375	2152.5
	10	20350	1750	2350	2150
	15	20325	1747.5	2325	2147.5
	20	20300	1745	2300	2145

Band XII

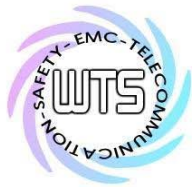
Test Frequency ID	Bandwidth [MHz]	N _{UL}	Frequency of Uplink [MHz]	N _{DL}	Frequency of Downlink [MHz]
Low Range	1.4	23017	699.7	5017	729.7
	3	23025	700.5	5025	730.5
	5 [1]	23035	701.5	5035	731.5
	10 [1]	23060	704	5060	734
Mid Range	1.4/3 5 [1]/10 [1]	23095	707.5	5095	737.5
High Range	1.4	23173	715.3	5173	745.3
	3	23165	714.5	5165	744.5
	5 [1]	23155	713.5	5155	743.5
	10 [1]	23130	711	5130	741

NOTE 1: Bandwidth for which a relaxation of the specified UE receiver sensitivity requirement (TS 36.101 [27] Clause 7.3) is allowed.

Antenna Type: PCB Antenna
Antenna Gain: WCDMA Band II: 1.54 dBi, Band IV: 2.05 dBi, Band V: -1.81dBi
LTE Band II: 1.69 dBi, Band IV: 2.06 dBi, Band XII: -6.94 dBi
(Testing laboratory assumes no responsibility for affecting any validity of the result while the information which is provided by clients.)
Power supply: 12 Vd.c., Battery 3.7 Vd.c.

2.4 Test environment

Temperature: 27 °C
Relative humidity content: 54 %
Air pressure: 86-103 Kpa



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2.5 General Test Requirement

Radiated Emission: For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100 kHz respectively with an appropriate sweep speed.

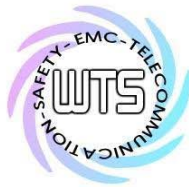
For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.



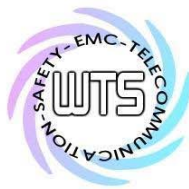
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2.6 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2021/6/17	2022/6/16
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2021/11/9	2022/11/8
ETSTW-CE 006	IMPULSBEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2021/9/22	2022/9/21
ETSTW-CE 008	HF-EICHLEITUNG RF STEP ATTENUATOR 139dB DPSP	334.6010.02	844581/024	R&S	Function Test	
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2021/7/29	2022/7/28
ETSTW-CE 016	TWO-LINE V-NETWORK	ENV216	100050	R&S	2021/11/8	2022/11/7
ETSTW-CE 028	MXE EMI Receiver	N9038A	MY53220110	Agilent	2021/7/28	2022/7/27
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2021/6/17	2022/6/16
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2021/9/28	2022/9/27
ETSTW-RE 012	TUNABLE BANDREJECT FILTER	D.C 0309	146	K&L	Function Test	
ETSTW-RE 013	TUNABLE BANDREJECT FILTER	D.C 0336	397	K&L	Function Test	
ETSTW-RE 018	MICROWAVE HORN ANTENNA	AT4560	27212	AR	2021/8/4	2022/8/3
ETSTW-RE 019	MICROWAVE HORN ANTENNA	22240-25	121074	FM	2021/5/31	2022/5/30
ETSTW-RE 027	Passive Loop Antenna	6512	00034563	ETS-Lindgren	2021/6/16	2022/6/15
ETSTW-RE 030	Double-Ridged Guide Horn Antenna	3117	00035224	ETS-Lindgren	2021/5/5	2022/5/4
ETSTW-RE 042	Biconical Antenna	HK116	100172	R&S	2022/2/3	2023/2/2
ETSTW-RE 043	Log-Periodic Dipole Antenna	HL223	100166	R&S	2021/5/21	2022/5/20
ETSTW-RE 044	Log-Periodic Antenna	HL050	100094	R&S	2021/7/14	2022/7/13
ETSTW-RE 045	ESA-E SERIES SPECTRUM ANALYZER	E4404B	MY45111242	Agilent	Pre-test Use	
ETSTW-RE 050	Attenuator 10dB	50HF-010-1	None	JFW	2022/2/18	2023/2/17
ETSTW-RE 051	Attenuator 6dB	50HF-006-1	None	JFW	2022/2/18	2023/2/17
ETSTW-RE 053	Attenuator 3dB	50HF-003-1	None	JFW	2022/2/18	2023/2/17
ETSTW-RE 055	SPECTRUM ANALYZER	FSU 26	200074	R&S	2021/3/16	2022/3/15
ETSTW-RE 060	Attenuator 30dB	5015-30	F651012z-01	ATM	2022/2/18	2023/2/17
ETSTW-RE 062	Amplifier Module	CHC 2	None	KMIC	2021/5/14	2022/5/13
ETSTW-RE 064	Bluetooth Test Set	MT8852B-042	6K00005709	Anritsu	Function Test	
ETSTW-RE 069	Double-Ridged Guide Horn Antenna	3117	00069377	ETS-Lindgren	Function Test	
ETSTW-RE 072	CELL SITE TEST SET	8921A	3339A00375	HP	2021/10/27	2022/10/26
ETSTW-RE 088	SOLID STATE AMPLIFIER	KMA180265A01	99057	KMIC	2021/9/17	2022/9/16
ETSTW-RE 091	Match Pad	MDCS1500	None	WOKEN	2021/5/27	2022/5/26
ETSTW-RE 099	DC Block	50DB-007-1	None	JFW	2022/2/18	2023/2/17
ETSTW-RE 112	AC POWER SOURCE	TFC-1005	T-0A023536	T-Power	Function test	
ETSTW-RE 115	2.4GHz Notch Filter	N0124411	473874	MICROWAVE	2022/1/5	2023/1/4

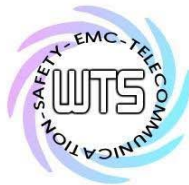


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				CIRCUITS		
ETSTW-RE 120	RF Player	MP9200	MP9210-111022	ADIVIC	2021/10/29	2022/10/28
ETSTW-RE 122	SIGNAL GENERATOR	SMF100A	102149	R&S	2021/6/8	2022/6/7
ETSTW-RE 125	5GHz Notch filter	5NSL11-5200/E221.3-O/O	1	K&L Microwave	2021/8/6	2022/8/5
ETSTW-RE 126	5GHz Notch filter	5NSL12-5800/E221.3-O/O	1	K&L Microwave	2021/8/6	2022/8/5
ETSTW-RE 127	RF Switch Box	RFS-01	None	WTS	2022/2/18	2023/2/17
ETSTW-RE 128	5.3GHz Notch filter	N0153001	SN487233	Microwave Circuits	2021/8/6	2022/8/5
ETSTW-RE 129	5.5GHz Notch filter	N0555984	SN487234	Microwave Circuits	2021/8/6	2022/8/5
ETSTW-RE 130	Handheld RF Spectrum Analyzer	N9340A	CN0147000204	Agilent	Pre-test Use	
ETSTW-RE 142	Amplifier	8447D	2805A03378	Agilent	2021/5/14	2022/5/13
ETSTW-RE 146	Preamplifier	JPA-10M1G	15090004	JPT	2021/6/4	2022/6/3
ETSTW-RE 152	Bi-log Hybrid Antenna	MCTD 2786B	BLB20J04029	ETC	2021/10/5	2022/10/4
ETSTW-RE 153	Signal Analyzer	FSV40	101929	R&S	2021/10/6	2022/10/5
ETSTW-RE 159	Bi-log Hybrid Antenna (30M~1000 MHz)	MCTD 2786B	BLB21N04035	ETC	2021/12/06	2022/12/05
ETSTW-RF 002	Electromagnetic field probe	LF-30	K-0007	STT	2021/7/19	2022/7/18
ETSTW-EMI 011	USB Compact Modulator	SFC-U	101689	R&S	2021/6/2	2022/6/1
ETSTW-GSM 002	Universal Radio Communication Tester	CMU 200	109439	R&S	2021/3/16	2022/3/15
ETSTW-GSM 003	Radio Communication Analyzer	MT8820C	6201342073	Anritsu	2021/4/27	2022/4/26
ETSTW-GSM 004	Wideband Radio Communication Tester	CMW500	128092	R&S	2021/10/29	2022/10/28
ETSTW-GSM 019	Band Reject Filter	WRCTF824/849-822/851-40 /12+9SS	3	WI	2022/1/5	2023/1/4
ETSTW-GSM 020	Band Reject Filter	WRCD1747/1748-1743/1752-32/SSS	1	WI	2022/1/5	2023/1/4
ETSTW-GSM 021	Band Reject Filter	WRCD1879.5/1880.5-1875.5/1884.5-32/SSS	3	WI	2022/1/5	2023/1/4
ETSTW-GSM 022	Band Reject Filter	WRCT901.9/903.1-904.25-50/8SS	1	WI	2022/1/5	2023/1/4
ETSTW-GSM 023	Power Divider	4901.19.A	None	SUHNER	2021/9/7	2022/9/6
ETSTW-GSM 024	Radio Communication Analyzer	MT8821C	None	Anritsu	2021/4/1	2022/3/31
ETSTW-GSM 025	Band Reject Filter	BRM19835	001	Micro-Tronics	2021/8/6	2022/8/5
ETSTW-Cable 011	SMA to N type Cable	RGU-400	None	THERMAX	Pre-test Use NCR	
ETSTW-Cable 016	BNC Cable	Switch Box	B Cable 1	Schwarz beck	2022/2/18	2023/2/17
ETSTW-Cable 017	BNC Cable	X Cable	B Cable 2	Schwarz beck	2022/2/18	2023/2/17
ETSTW-Cable 018	BNC Cable	Y Cable	B Cable 3	Schwarz beck	2022/2/18	2023/2/17
ETSTW-Cable 019	BNC Cable	Z Cable	B Cable 4	Schwarz beck	2022/2/18	2023/2/17
ETSTW-Cable 020	N TYPE Cable	OATS Cable 1	N30N30-L335-15M	JYE BAO CO.,LTD.	2021/7/1	2022/6/30
ETSTW-Cable 027	Microwave Cable	SUCOFLEX 104	279083	HUBER+SUHNER	2021/5/7	2022/5/6
ETSTW-Cable 028	Microwave Cable	FA147A0015M2020	30064-2	UTIFLEX	2021/9/17	2022/9/16
ETSTW-Cable 029	Microwave Cable	FA147A0015M2020	30064-3	UTIFLEX	2021/9/17	2022/9/16
ETSTW-Cable 030	Microwave Cable	SUCOFLEX 104 (S Cable 9)	279067	HUBER+SUHNER	2022/2/18	2023/2/17



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ETSTW-Cable 043	Microwave Cable	SUCOFLEX 104	317576	HUBER+SUHNER	2021/5/14	2022/5/13
ETSTW-Cable 047	Microwave Cable	SUCOFLEX 104	325518	HUBER+SUHNER	2021/7/2	2022/7/1
ETSTW-Cable 058	Microwave Cable	SUCOFLEX 104	none	HUBER+SUHNER	2021/6/4	2022/6/3
ETSTW-Cable 064	Microwave Cable	SUCOFLEX 104	MY28891	HUBER+SUHNER	2021/5/14	2022/5/13
ETSTW-Cable 071	N TYPE CABLE	EMCCFD400-NM-NM-25000	170239	EMCI	2021/6/4	2022/6/3
ETSTW-Cable 072	SMA type cable (8m)	SUCOFLEX 104	805800/4	HUBER+SUHNER	2021/5/14	2022/5/13
ETSTW-Cable 074	SMA type cable (2m)	SUCOFLEX 104	802563/4	HUBER+SUHNER	2021/5/14	2022/5/13
WTSTW-SW 002	EMI TEST SOFTWARE	EZ EMC	None	Farad	Version ETS-03A1 Version EMEC-3A1+	
WTSTW-SW 006	EMI TEST SOFTWARE	e3	None	AUDIX	Version 9.161014	
WTSTW-SW 008	Signal studio	Agilent	None	AUDIX	Version 2.0.0.1	
ETSTW-TH 002	Thermohygrometer	608-H1	45204317	Testo	2021/10/18	2022/10/17
ETSTW-TH 003	Wireless weather station	GAIA	N/A	TFA	2021/10/18	2022/10/17

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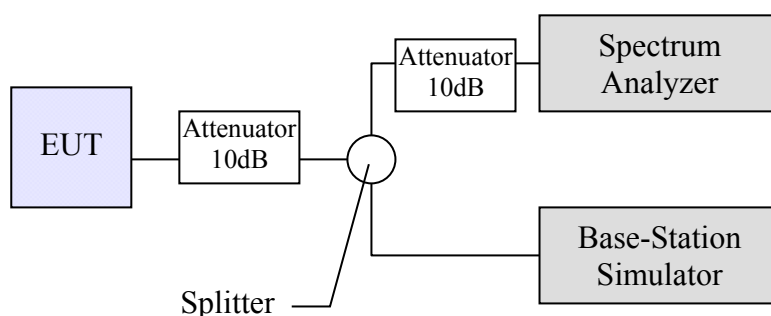
3. RF Power Output

3.1 Test procedure

3.1.1 Conducted Method

Per 47CFR Part 2.1046, the RF power output shall be measured at the RF output terminals and following procedure is employed:

The transmitter output was connected as the following figure:



The whole connection system is calibrated with a standard signal generator. Power on and make a link from simulator to EUT and then set the EUT to maximum output power.

Measure the RF power with the spectrum analyzer in accordance the following settings:

RBW: 300 kHz for Frequency below 1GHz and 1MHz for Frequency equal to and above 1GHz.

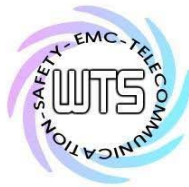
VBW: 300 kHz for Frequency below 1GHz and 1MHz for Frequency equal to and above 1GHz.

Span: 2MHz

Sweep: 3s

The power output at the transmitter antenna terminal is then determined by assign the value of the corrected factor to the spectrum analyzer reading.

Tests were performed at three frequencies (low, middle and high channels) and operation mode selected.



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3.2 Test Results

Test date: February 03, 2022

Temperature: 22.5 °C

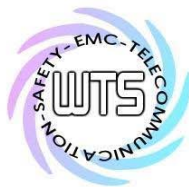
Humidity: 51.8 %

Tester: Sora

WCDMA

Band II & Band IV & Band V

WCDMA Band II	POWER(dBm) Low Ch9262/ 1852.4MHz	POWER(dBm) Mid Ch9400/ 1880MHz	POWER(dBm) High Ch9538/ 1907.6MHz	EIRP Low Ch9262/ 1852.4MHz	EIRP Mid Ch9400/ 1880MHz	EIRP High Ch9538/ 1907.6MHz
	21.68	21.56	21.25	23.22	23.1	22.79
WCDMA Band IV	POWER(dBm) Low Ch1312/ 1712.4MHz	POWER(dBm) Mid Ch1413/ 1732.6MHz	POWER(dBm) High Ch1513/ 1752.6MHz	EIRP Low Ch1312/ 1712.4MHz	EIRP Mid Ch1413/ 1732.6MHz	EIRP High Ch1513/ 1752.6MHz
	22.33	22.08	22.01	24.38	24.13	24.06
WCDMA Band V	POWER(dBm) Low Ch4132/ 826.4MHz	POWER(dBm) Mid Ch4183/ 836.6MHz	POWER(dBm) High Ch4233/ 846.6MHz	ERP Low Ch4132/ 826.4MHz	ERP Mid Ch4183/ 836.6MHz	ERP High Ch4233/ 846.6MHz
	20.94	20.93	21.05	19.13	19.12	19.24



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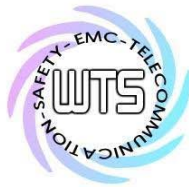
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LTE

Band II

BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch18607/ 1850.7MHz	POWER (dBm) Mid Ch18900/ 1880MHz	POWER (dBm) High Ch19193 /1909.3MHz	EIRP Low Ch18607/ 1850.7MHz	EIRP Mid Ch18900/ 1880MHz	EIRP High Ch19193/ 1909.3MHz
1.4	QPSK	1	0	20.69	21.71	20.63	22.38	23.40	22.32
1.4	QPSK	1	3	20.91	21.52	20.88	22.60	23.21	22.57
1.4	QPSK	1	5	20.57	21.25	20.85	22.26	22.94	22.54
1.4	QPSK	3	0	20.71	20.86	20.74	22.40	22.55	22.43
1.4	QPSK	3	1	20.51	20.73	20.80	22.20	22.42	22.49
1.4	QPSK	3	3	20.52	21.08	20.87	22.21	22.77	22.56
1.4	QPSK	6	0	19.46	20.97	19.60	21.15	22.66	21.29
1.4	16QAM	1	0	19.87	20.48	20.33	21.56	22.17	22.02
1.4	16QAM	1	3	19.97	20.67	20.43	21.66	22.36	22.12
1.4	16QAM	1	5	19.93	20.48	20.26	21.62	22.17	21.95
1.4	16QAM	3	0	20.24	20.34	20.31	21.93	22.03	22.00
1.4	16QAM	3	1	20.34	20.24	20.25	22.03	21.93	21.94
1.4	16QAM	3	3	19.55	20.22	20.27	21.24	21.91	21.96
1.4	16QAM	6	0	19.31	19.83	19.22	21.00	21.52	20.91
BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch18615/ 1851.5MHz	POWER (dBm) Mid Ch18900/ 1880MHz	POWER (dBm) High Ch19185/ 1908.5MHz	EIRP Low Ch18615/ 1851.5MHz	EIRP Mid Ch18900/ 1880MHz	EIRP High Ch19185/ 1908.5MHz
3	QPSK	1	0	20.63	21.76	20.91	22.32	23.45	22.60
3	QPSK	1	7	20.39	21.49	21.03	22.08	23.18	22.72
3	QPSK	1	14	20.41	21.37	20.98	22.10	23.06	22.67
3	QPSK	8	0	19.24	19.91	19.80	20.93	21.60	21.49
3	QPSK	8	3	19.33	20.05	19.82	21.02	21.74	21.51
3	QPSK	8	7	19.43	20.11	19.79	21.12	21.80	21.48
3	QPSK	15	0	19.30	20.94	19.72	20.99	22.63	21.41
3	16QAM	1	0	20.12	20.70	20.22	21.81	22.39	21.91
3	16QAM	1	7	20.43	20.60	20.35	22.12	22.29	22.04
3	16QAM	1	14	20.25	20.68	20.23	21.94	22.37	21.92
3	16QAM	8	0	18.89	19.20	18.92	20.58	20.89	20.61
3	16QAM	8	3	18.90	19.05	18.90	20.59	20.74	20.59
3	16QAM	8	7	18.96	19.07	18.93	20.65	20.76	20.62
3	16QAM	15	0	18.69	19.05	19.02	20.38	20.74	20.71
BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch18625/ 1852.5MHz	POWER (dBm) Mid Ch18900/ 1880MHz	POWER (dBm) High Ch19175/ 1907.5MHz	EIRP Low Ch18625/ 1852.5MHz	EIRP Mid Ch18900/ 1880MHz	EIRP High Ch19175/ 1907.5MHz
5	QPSK	1	0	20.57	21.07	21.11	22.26	22.76	22.80
5	QPSK	1	12	20.67	21.17	21.00	22.36	22.86	22.69
5	QPSK	1	24	20.57	21.09	20.95	22.26	22.78	22.64
5	QPSK	12	0	19.63	20.02	19.94	21.32	21.71	21.63
5	QPSK	12	6	19.58	20.00	19.89	21.27	21.69	21.58
5	QPSK	12	13	19.56	20.03	19.98	21.25	21.72	21.67
5	QPSK	25	0	19.86	20.01	20.02	21.55	21.70	21.71
5	16QAM	1	0	20.40	20.54	20.68	22.09	22.23	22.37
5	16QAM	1	12	20.19	20.76	20.61	21.88	22.45	22.30
5	16QAM	1	24	20.44	20.55	20.53	22.13	22.24	22.22

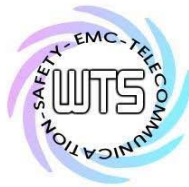


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5	16QAM	12	0	19.04	19.08	19.22	20.73	20.77	20.91
5	16QAM	12	6	19.01	19.02	19.15	20.70	20.71	20.84
5	16QAM	12	13	18.97	19.05	19.19	20.66	20.74	20.88
5	16QAM	25	0	18.99	19.01	19.18	20.68	20.70	20.87
BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch18650/ 1855MHz	POWER (dBm) Mid Ch18900/ 1880MHz	POWER (dBm) High Ch19150/ 1905MHz	EIRP Low Ch18650/ 1855MHz	EIRP Mid Ch18900/ 1880MHz	EIRP High Ch19150/ 1905MHz
10	QPSK	1	0	21.14	21.31	21.32	22.83	23.00	23.01
10	QPSK	1	24	21.19	21.36	21.55	22.88	23.05	23.24
10	QPSK	1	49	21.27	21.15	21.34	22.96	22.84	23.03
10	QPSK	25	0	21.69	20.05	20.13	23.38	21.74	21.82
10	QPSK	25	12	19.85	20.01	20.21	21.54	21.70	21.90
10	QPSK	25	25	20.01	20.07	20.18	21.70	21.76	21.87
10	QPSK	50	0	19.95	20.02	20.02	21.64	21.71	21.71



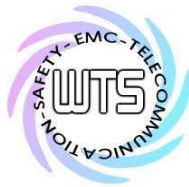
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Band IV

BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch19957/ 1710.7MHz	POWER (dBm) Mid Ch20175/ 1732.5MHz	POWER (dBm) High Ch20393/ 1754.3MHz	EIRP Low Ch19957/ 1710.7MHz	EIRP Mid Ch20175/ 1732.5MHz	EIRP High Ch20393/ 1754.3MHz
1.4	QPSK	1	0	22.80	21.79	21.62	24.86	23.85	23.68
1.4	QPSK	1	3	22.46	21.78	21.70	24.52	23.84	23.76
1.4	QPSK	1	5	22.35	21.54	21.66	24.41	23.60	23.72
1.4	QPSK	3	0	22.69	21.49	21.45	24.75	23.55	23.51
1.4	QPSK	3	1	22.61	21.39	21.43	24.67	23.45	23.49
1.4	QPSK	3	3	22.64	21.47	21.51	24.70	23.53	23.57
1.4	QPSK	6	0	21.90	21.55	20.49	23.96	23.61	22.55
1.4	16QAM	1	0	21.76	21.02	20.80	23.82	23.08	22.86
1.4	16QAM	1	3	21.76	21.18	20.91	23.82	23.24	22.97
1.4	16QAM	1	5	21.58	20.82	21.05	23.64	22.88	23.11
1.4	16QAM	3	0	21.32	20.71	20.74	23.38	22.77	22.80
1.4	16QAM	3	1	21.12	20.77	20.82	23.18	22.83	22.88
1.4	16QAM	3	3	21.29	20.78	20.66	23.35	22.84	22.72
1.4	16QAM	6	0	20.06	19.63	19.67	22.12	21.69	21.73
BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch19965/ 1711.5MHz	POWER (dBm) Mid Ch20175/ 1732.5MHz	POWER (dBm) High Ch20385/ 1753.5MHz	EIRP Low Ch19965/ 1711.5MHz	EIRP Mid Ch20175/ 1732.5MHz	EIRP High Ch20385/ 1753.5MHz
3	QPSK	1	0	21.81	22.64	21.69	23.87	24.70	23.75
3	QPSK	1	7	21.51	22.56	21.66	23.57	24.62	23.72
3	QPSK	1	14	20.62	22.41	21.65	22.68	24.47	23.71
3	QPSK	8	0	20.47	21.13	20.52	22.53	23.19	22.58
3	QPSK	8	3	20.29	20.18	20.43	22.35	22.24	22.49
3	QPSK	8	7	20.43	21.29	20.44	22.49	23.35	22.50
3	QPSK	15	0	20.45	21.29	20.42	22.51	23.35	22.48
3	16QAM	1	0	21.57	21.46	21.02	23.63	23.52	23.08
3	16QAM	1	7	20.93	21.58	21.09	22.99	23.64	23.15
3	16QAM	1	14	21.04	21.38	21.16	23.10	23.44	23.22
3	16QAM	8	0	19.89	20.20	19.67	21.95	22.26	21.73
3	16QAM	8	3	19.56	20.17	19.61	21.62	22.23	21.67
3	16QAM	8	7	19.78	20.13	19.71	21.84	22.19	21.77
3	16QAM	15	0	19.66	20.09	19.66	21.72	22.15	21.72
BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch19975/ 1712.5MHz	POWER (dBm) Mid Ch20175/ 1732.5MHz	POWER (dBm) High Ch20375/ 1752.5MHz	EIRP Low Ch19975/ 1712.5MHz	EIRP Mid Ch20175/ 1732.5MHz	EIRP High Ch20375/ 1752.5MHz
5	QPSK	1	0	21.87	22.26	21.83	23.93	24.32	23.89
5	QPSK	1	12	21.8	22.61	21.77	23.86	24.67	23.83
5	QPSK	1	24	21.61	22.53	21.90	23.67	24.59	23.96
5	QPSK	12	0	20.69	21.20	20.62	22.75	23.26	22.68
5	QPSK	12	6	20.61	21.25	20.61	22.67	23.31	22.67
5	QPSK	12	13	20.58	21.31	20.57	22.64	23.37	22.63
5	QPSK	25	0	20.76	20.90	20.64	22.82	22.96	22.70
5	16QAM	1	0	22.1	21.39	20.95	24.16	23.45	23.01
5	16QAM	1	12	20.7	21.21	21.07	22.76	23.27	23.13
5	16QAM	1	24	20.76	21.33	21.26	22.82	23.39	23.32
5	16QAM	12	0	20.08	20.00	19.74	22.14	22.06	21.80

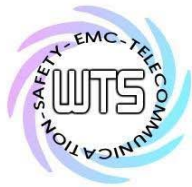


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5	16QAM	12	6	20.02	19.95	19.71	22.08	22.01	21.77
5	16QAM	12	13	20.07	19.93	19.86	22.13	21.99	21.92
5	16QAM	25	0	19.93	20.03	19.71	21.99	22.09	21.77
BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch20000/ 1715MHz	POWER (dBm) Mid Ch20175/ 1732.5MHz	POWER (dBm) High Ch20350/ 1750MHz	EIRP Low Ch20000/ 1715MHz	EIRP Mid Ch20175/ 1732.5MHz	EIRP High Ch20350/ 1750MHz
10	QPSK	1	0	21.98	22.21	21.93	24.04	24.27	23.99
10	QPSK	1	24	21.81	22.58	21.88	23.87	24.64	23.94
10	QPSK	1	49	21.61	22.71	21.88	23.67	24.77	23.94
10	QPSK	25	0	20.49	21.43	20.79	22.55	23.49	22.85
10	QPSK	25	12	20.38	21.40	20.72	22.44	23.46	22.78
10	QPSK	25	25	20.4	21.34	20.66	22.46	23.40	22.72
10	QPSK	50	0	20.16	21.14	20.80	22.22	23.20	22.86



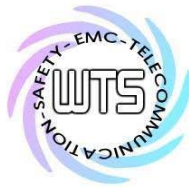
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Band XII

BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch23017/ 699.7MHz	POWER (dBm) Mid Ch23095/ 707.5MHz	POWER (dBm) High Ch23173/ 715.3MHz	ERP Low Ch23017/ 699.7MHz	ERP Mid Ch23095/ 707.5MHz	ERP High Ch23173/ 715.3MHz
1.4	QPSK	1	0	19.56	19.63	20.30	12.62	12.69	13.36
1.4	QPSK	1	3	19.93	19.71	20.21	12.99	12.77	13.27
1.4	QPSK	1	5	19.46	19.62	20.05	12.52	12.68	13.11
1.4	QPSK	3	0	19.67	19.08	19.75	12.73	12.14	12.81
1.4	QPSK	3	1	19.85	18.95	19.88	12.91	12.01	12.94
1.4	QPSK	3	3	19.95	18.86	20.01	13.01	11.92	13.07
1.4	QPSK	6	0	18.61	18.48	19.51	11.67	11.54	12.57
1.4	16QAM	1	0	19.37	18.71	18.83	12.43	11.77	11.89
1.4	16QAM	1	3	19.42	18.75	18.93	12.48	11.81	11.99
1.4	16QAM	1	5	19.38	18.42	18.79	12.44	11.48	11.85
1.4	16QAM	3	0	19.05	18.61	18.94	12.11	11.67	12.00
1.4	16QAM	3	1	19.01	18.51	18.72	12.07	11.57	11.78
1.4	16QAM	3	3	19.03	18.48	18.73	12.09	11.54	11.79
1.4	16QAM	6	0	17.61	17.46	17.64	10.67	10.52	10.70
BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch23025/ 700.5MHz	POWER (dBm) Mid Ch23095/ 707.5MHz	POWER (dBm) High Ch23165/ 714.5MHz	ERP Low Ch23025/ 700.5MHz	ERP Mid Ch23095/ 707.5MHz	ERP High Ch23165/ 714.5MHz
3	QPSK	1	0	19.85	19.77	19.17	12.91	12.83	12.23
3	QPSK	1	7	19.77	19.22	19.14	12.83	12.28	12.20
3	QPSK	1	14	19.62	19.34	19.22	12.68	12.40	12.28
3	QPSK	8	0	18.90	18.21	18.46	11.96	11.27	11.52
3	QPSK	8	3	18.75	18.11	18.25	11.81	11.17	11.31
3	QPSK	8	7	18.86	18.05	18.24	11.92	11.11	11.30
3	QPSK	15	0	18.75	18.14	18.02	11.81	11.20	11.08
3	16QAM	1	0	19.26	18.73	18.56	12.32	11.79	11.62
3	16QAM	1	7	19.22	18.42	18.45	12.28	11.48	11.51
3	16QAM	1	14	19.16	18.53	18.29	12.22	11.59	11.35
3	16QAM	8	0	18.12	17.13	17.07	11.18	10.19	10.13
3	16QAM	8	3	18.08	17.15	17.05	11.14	10.21	10.11
3	16QAM	8	7	18.01	17.17	17.11	11.07	10.23	10.17
3	16QAM	15	0	17.80	17.18	17.16	10.86	10.24	10.22
BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch23035/ 701.5MHz	POWER (dBm) Mid Ch23095/ 707.5MHz	POWER (dBm) High Ch23155/ 713.5MHz	ERP Low Ch23035/ 701.5MHz	ERP Mid Ch23095/ 707.5MHz	ERP High Ch23155/ 713.5MHz
5	QPSK	1	0	19.62	19.15	19.06	12.68	12.21	12.12
5	QPSK	1	12	19.23	18.94	18.99	12.29	12.00	12.05
5	QPSK	1	24	19.13	18.78	19.02	12.19	11.84	12.08
5	QPSK	12	0	18.46	18.24	18.12	11.52	11.30	11.18
5	QPSK	12	6	18.35	18.01	18.22	11.41	11.07	11.28
5	QPSK	12	13	18.21	17.95	18.57	11.27	11.01	11.63
5	QPSK	25	0	19.03	18.13	18.09	12.09	11.19	11.15
5	16QAM	1	0	19.53	18.61	18.59	12.59	11.67	11.65
5	16QAM	1	12	19.33	18.38	18.75	12.39	11.44	11.81
5	16QAM	1	24	19.63	18.43	18.94	12.69	11.49	12.00
5	16QAM	12	0	18.20	17.73	17.20	11.26	10.79	10.26



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5	16QAM	12	6	18.11	17.65	17.05	11.17	10.71	10.11
5	16QAM	12	13	17.97	17.06	17.74	11.03	10.12	10.80
5	16QAM	25	0	18.93	18.12	17.13	11.99	11.18	10.19
BW (MHz)	Modulation	RB Size	RB offset	POWER (dBm) Low Ch23060/ 704MHz	POWER (dBm) Mid Ch23095/ 707.5MHz	POWER (dBm) High Ch23130/ 711MHz	ERP Low Ch23060/ 704MHz	ERP Mid Ch23095/ 707.5MHz	ERP High Ch23130/ 711MHz
10	QPSK	1	0	19.54	19.52	19.35	12.60	12.58	12.41
10	QPSK	1	24	19.32	19.06	19.21	12.38	12.12	12.27
10	QPSK	1	49	18.93	18.95	19.18	11.99	12.01	12.24
10	QPSK	25	0	18.58	18.15	17.85	11.64	11.21	10.91
10	QPSK	25	12	18.28	18.08	17.92	11.34	11.14	10.98
10	QPSK	25	25	18.39	18.16	17.97	11.45	11.22	11.03
10	QPSK	50	0	18.33	17.79	17.98	11.39	10.85	11.04

Test equipment: ETSTW-GSM 002, ETSTW-GSM 004

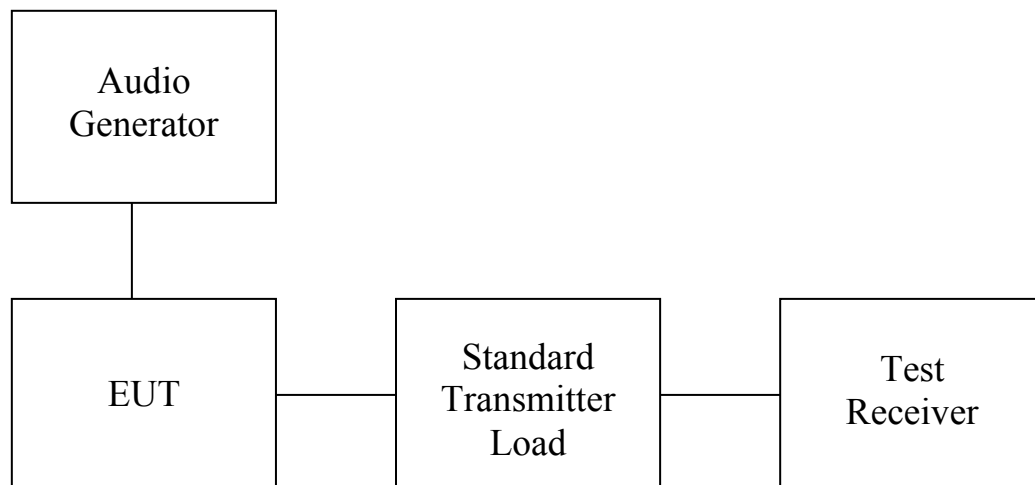
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

4. Modulation Characteristics

4.1 Test procedure

- ☐ A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted.
The audio signal generator is connected to the audio input of the EUT with its full rating. The modulation response is measured at certain modulation frequencies, related to 1000Hz reference signal. Tests are performed for positive and negative modulation.
- ☐ Equipment which employs modulation Limiting: A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The audio signal generator is connected to the audio input of the EUT with its full rating. The modulation limiting is measured at certain modulation frequencies from 100Hz to 15kHz.



4.2 Test Results

For digital modulation employed, this test item is not applicable.

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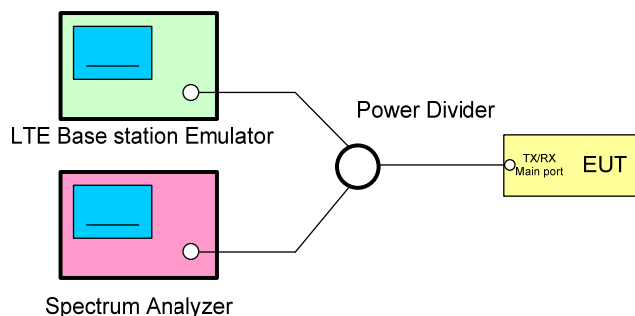
5. Peak-to-Average Ratio

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB. The PAPR measurements should be made using either an instrument with complementary cumulative distribution function (CCDF) capabilities to determine that PAPR will not exceed 13 dB for more than 0.1 percent of the time or other Commission approved procedure. The measurement must be performed using a signal corresponding to the highest PAPR expected during periods of continuous transmission.

5.1 Test procedure

1. The EUT main port was connected to the LTE emulator and spectrum analyzer via power divider
2. For Spectrum Analyzer setting :
3. Set the CCDF function in spectrum analyzer.
4. Set RBW $\geq$ signal's occupied bandwidth.
5. Set the number of counts to a value that stabilizes the measured CCDF curve.
6. Set the measurement interval (sweep time) to 1ms.
7. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1%
8. Record the deviation as Peak to Average Ratio.

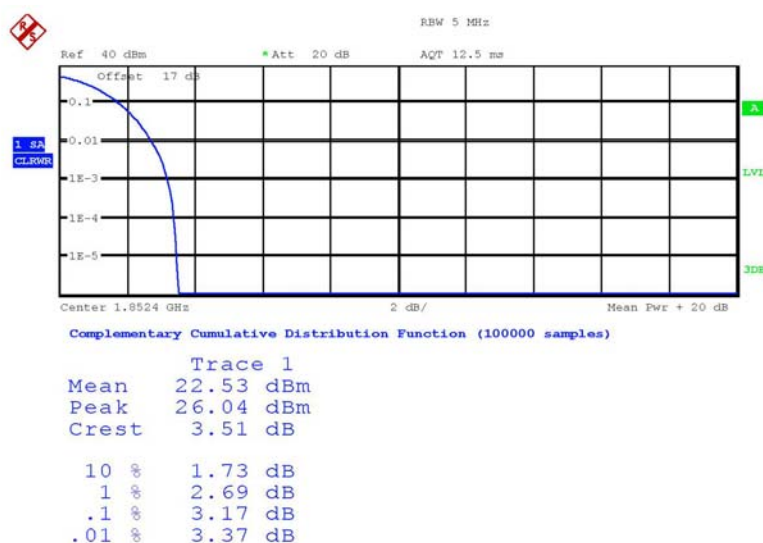
5.2 Test Set up



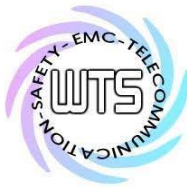
5.3 Test Results

WCDMA

Band II

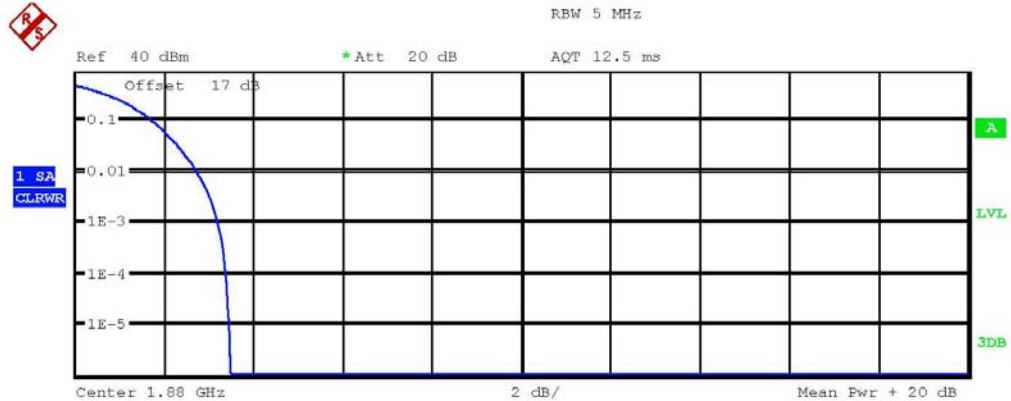


Date: 22.JUL.2019 15:06:49



Report Number: W6M22111-21340-P-247

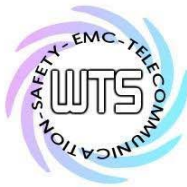
FCC ID: 2AT5JE070W1D14V2U



Complementary Cumulative Distribution Function (100000 samples)

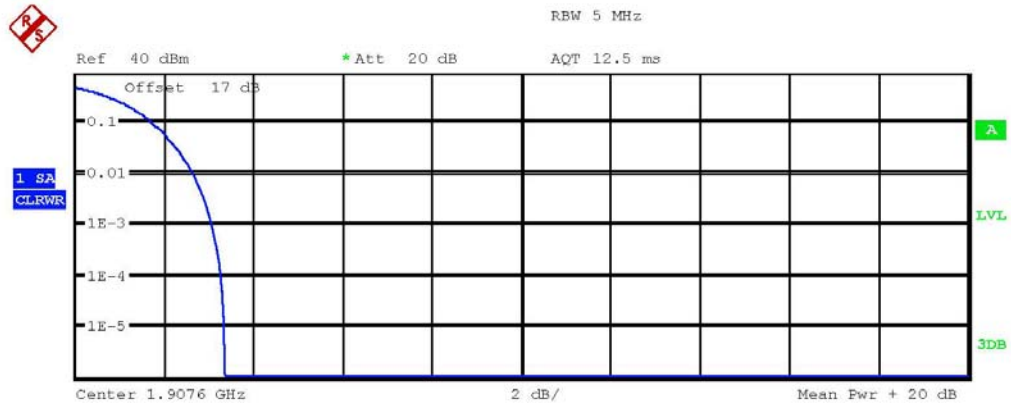
Trace 1	
Mean	22.76 dBm
Peak	26.25 dBm
Crest	3.49 dB
10 %	1.76 dB
1 %	2.72 dB
.1 %	3.21 dB
.01 %	3.37 dB

Date: 22.JUL.2019 15:05:55



Report Number: W6M22111-21340-P-247

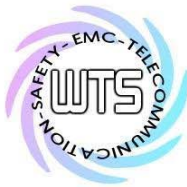
FCC ID: 2AT5JE070W1D14V2U



Complementary Cumulative Distribution Function (100000 samples)

Trace 1	
Mean	22.91 dBm
Peak	26.25 dBm
Crest	3.34 dB
10 %	1.73 dB
1 %	2.66 dB
.1 %	3.04 dB
.01 %	3.27 dB

Date: 22.JUL.2019 15:05:36

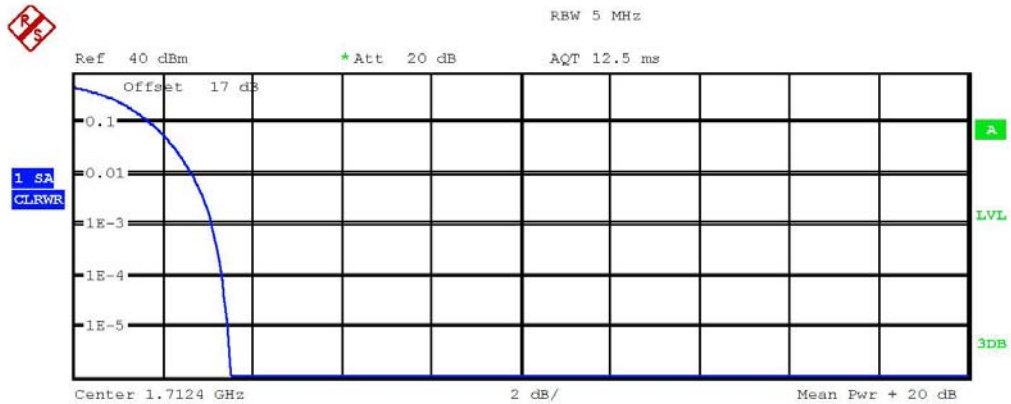


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FCC ID: 2AT5JE070W1D14V2U

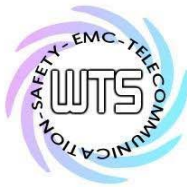
Band IV



Complementary Cumulative Distribution Function (100000 samples)

Trace 1	
Mean	22.89 dBm
Peak	26.40 dBm
Crest	3.51 dB
10 %	1.73 dB
1 %	2.63 dB
.1 %	3.08 dB
.01 %	3.30 dB

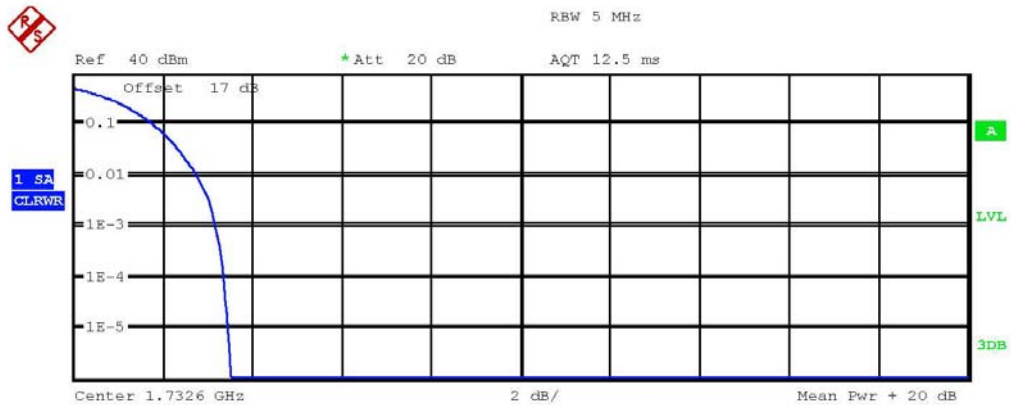
Date: 22.JUL.2019 15:05:08



Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

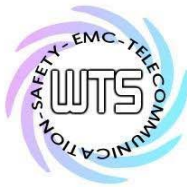
FCC ID: 2AT5JE070W1D14V2U



Complementary Cumulative Distribution Function (100000 samples)

Trace 1	
Mean	23.16 dBm
Peak	26.68 dBm
Crest	3.52 dB
10 %	1.76 dB
1 %	2.76 dB
.1 %	3.17 dB
.01 %	3.37 dB

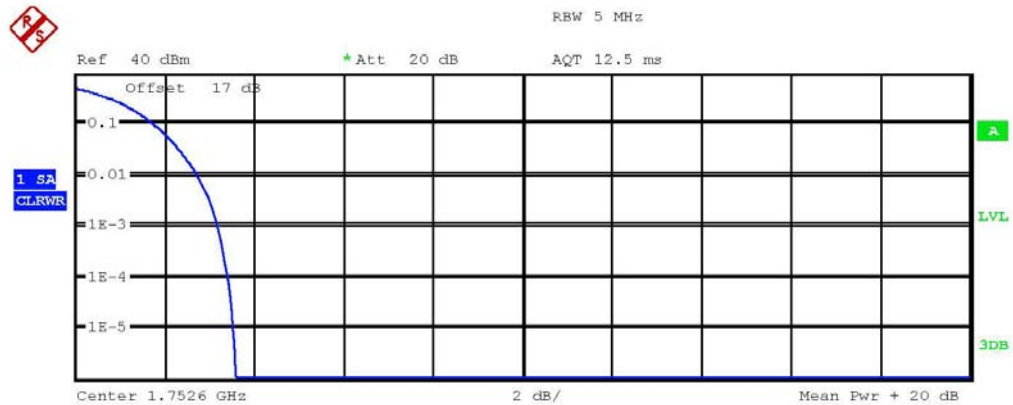
Date: 22.JUL.2019 15:04:48



Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

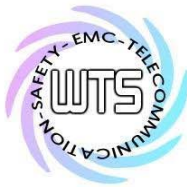
FCC ID: 2AT5JE070W1D14V2U



Complementary Cumulative Distribution Function (100000 samples)

Trace 1	
Mean	22.95 dBm
Peak	26.54 dBm
Crest	3.59 dB
10 %	1.73 dB
1 %	2.69 dB
.1 %	3.17 dB
.01 %	3.40 dB

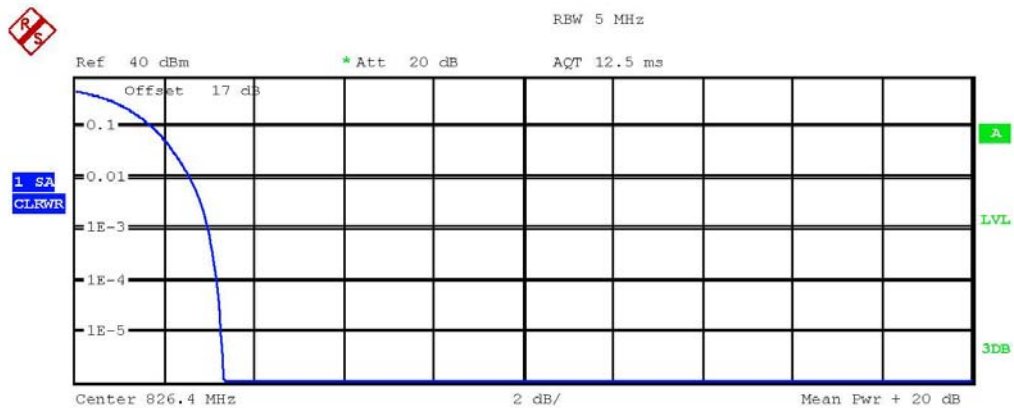
Date: 22.JUL.2019 15:04:15



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

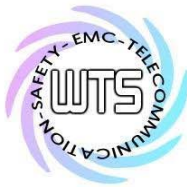
Band V



Complementary Cumulative Distribution Function (100000 samples)

Trace 1	
Mean	22.01 dBm
Peak	25.34 dBm
Crest	3.33 dB
10 %	1.73 dB
1 %	2.56 dB
.1 %	2.98 dB
.01 %	3.17 dB

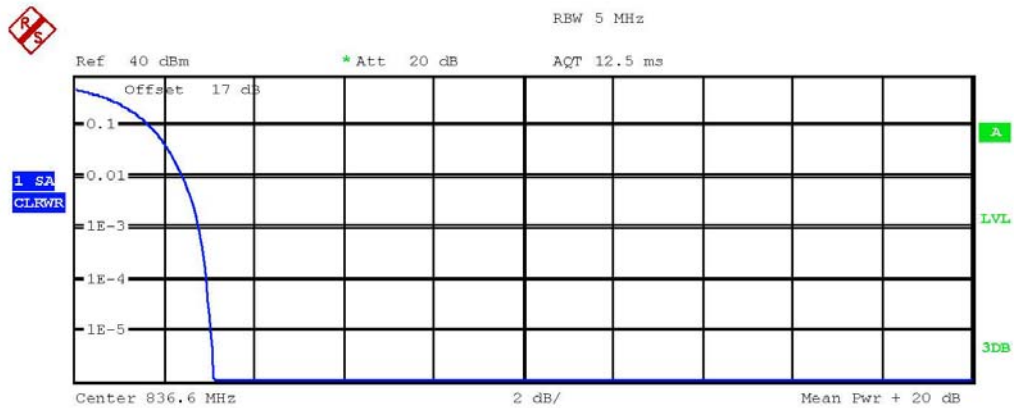
Date: 22.JUL.2019 15:02:31



Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

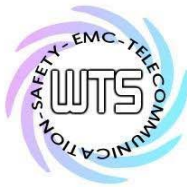
FCC ID: 2AT5JE070W1D14V2U



Complementary Cumulative Distribution Function (100000 samples)

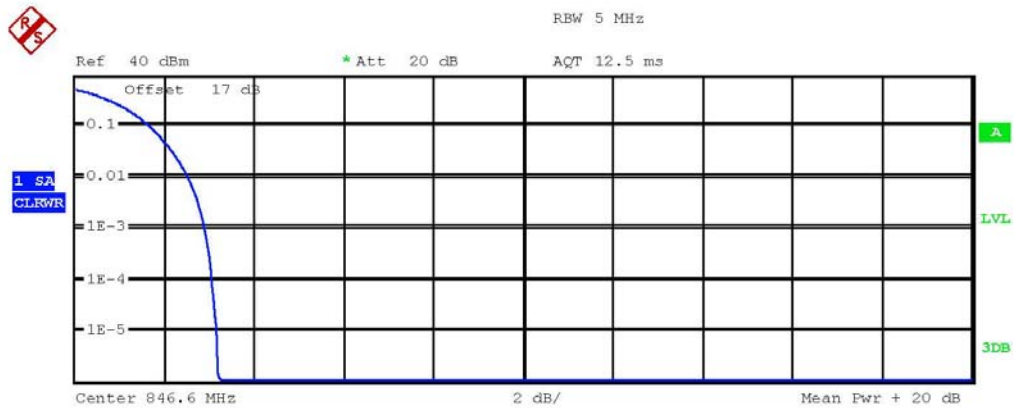
Trace 1			
Mean	21.95	dBm	
Peak	25.05	dBm	
Crest	3.10	dB	
10 %	1.67	dB	
1 %	2.40	dB	
.1 %	2.79	dB	
.01 %	2.95	dB	

Date: 22.JUL.2019 15:03:07



Report Number: W6M22111-21340-P-247

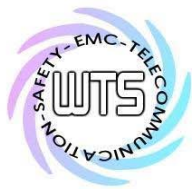
FCC ID: 2AT5JE070W1D14V2U



Complementary Cumulative Distribution Function (100000 samples)

Trace 1			
Mean	21.99	dBm	
Peak	25.20	dBm	
Crest	3.21	dB	
10 %	1.67	dB	
1 %	2.53	dB	
.1 %	2.92	dB	
.01 %	3.08	dB	

Date: 22.JUL.2019 15:03:26



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

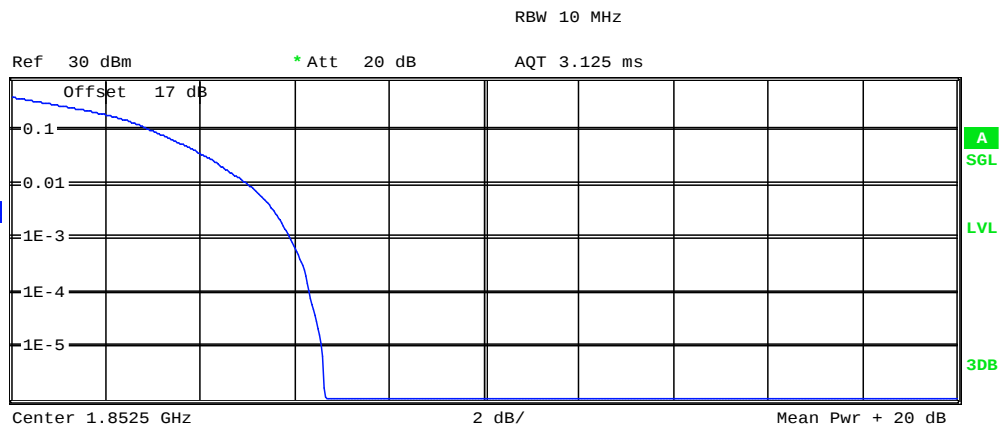
LTE

Band II

FRB



1 SA
CLRWR

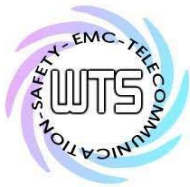


Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 18.49 dBm
Peak 25.13 dBm
Crest 6.64 dB

10 %	3.01 dB
1 %	5.03 dB
.1 %	5.93 dB
.01 %	6.31 dB

Date: 29.AUG.2019 13:50:40

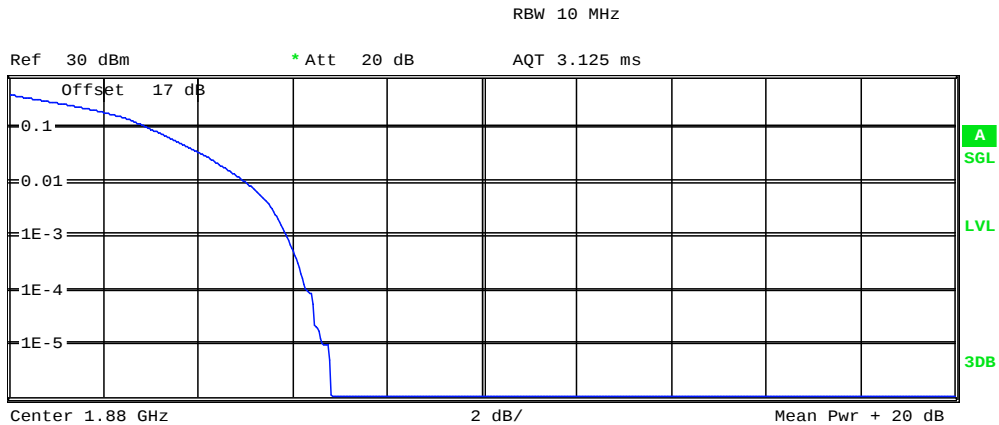


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



1 SA
CLRWR



Complementary Cumulative Distribution Function (100000 samples)

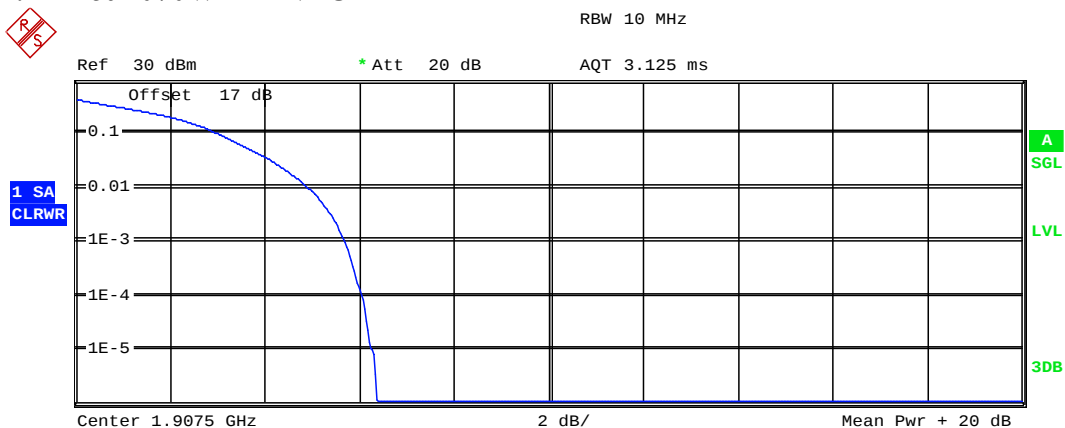
Trace 1	
Mean	19.37 dBm
Peak	26.19 dBm
Crest	6.82 dB
10 %	3.01 dB
1 %	5.00 dB
.1 %	5.87 dB
.01 %	6.31 dB

Date: 29.AUG.2019 13:49:30



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



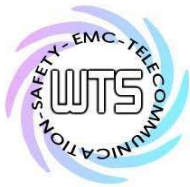
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	18.20 dBm
Peak	24.56 dBm
Crest	6.36 dB

10 %	3.01 dB
1 %	4.90 dB
.1 %	5.71 dB
.01 %	6.06 dB

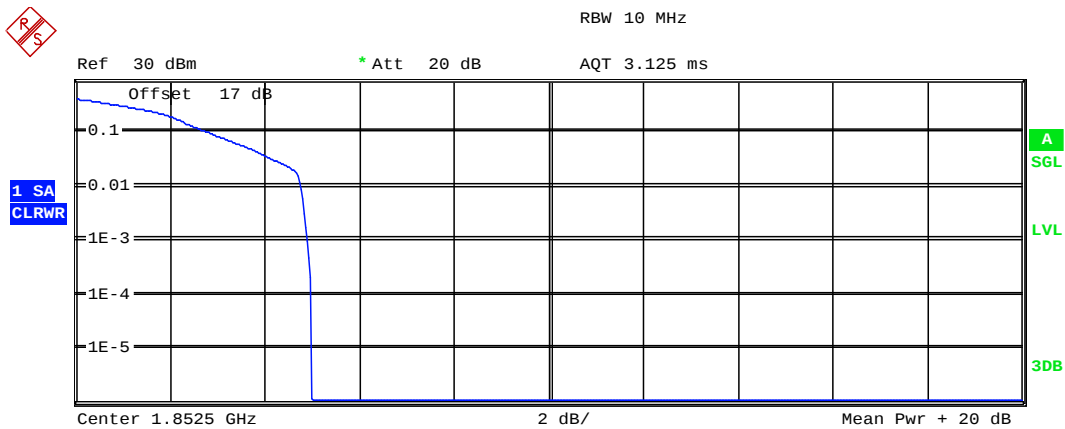
Date: 29.AUG.2019 13:52:34



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

1RB



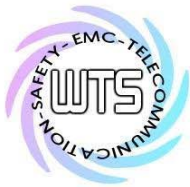
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	19.51 dBm
Peak	24.49 dBm
Crest	4.99 dB

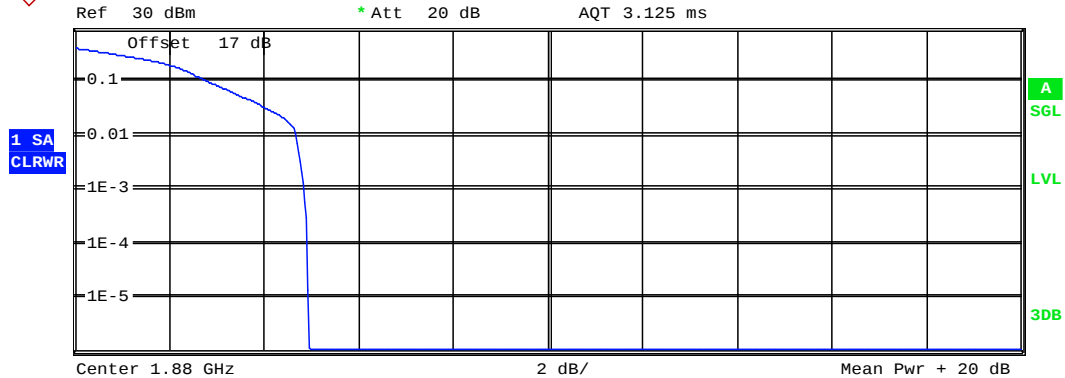
10 %	2.82 dB
1 %	4.78 dB
.1 %	4.90 dB
.01 %	5.00 dB

Date: 28.AUG.2019 11:57:03



Report Number: W6M22111-21340-P-247

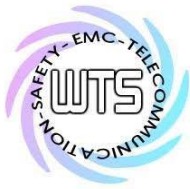
FCC ID: 2AT5JE070W1D14V2U



Complementary Cumulative Distribution Function (100000 samples)

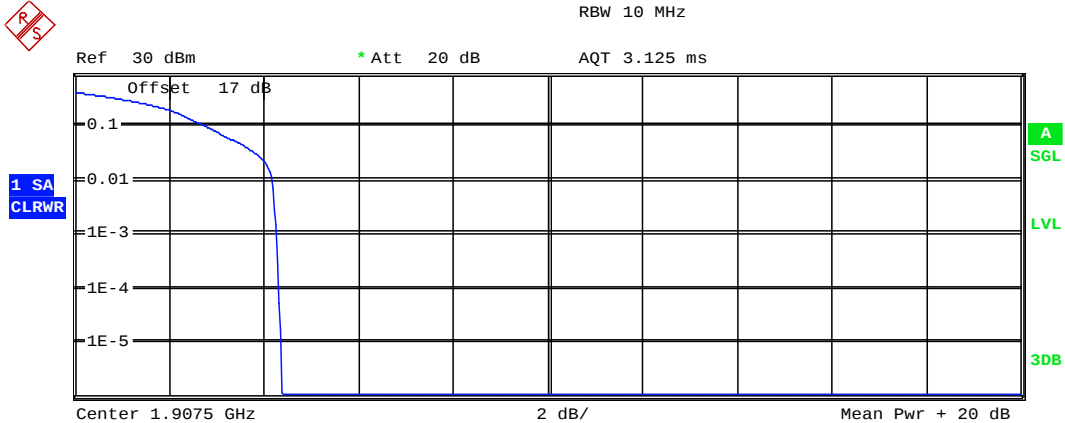
Trace 1	
Mean	19.99 dBm
Peak	24.92 dBm
Crest	4.93 dB
10 %	2.85 dB
1 %	4.68 dB
.1 %	4.84 dB
.01 %	4.94 dB

Date: 28.AUG.2019 11:56:12



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

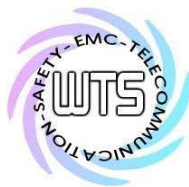


Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	19.63 dBm
Peak	24.00 dBm
Crest	4.37 dB
10 %	2.79 dB
1 %	4.17 dB
.1 %	4.26 dB
.01 %	4.33 dB

Date: 28.AUG.2019 11:57:40

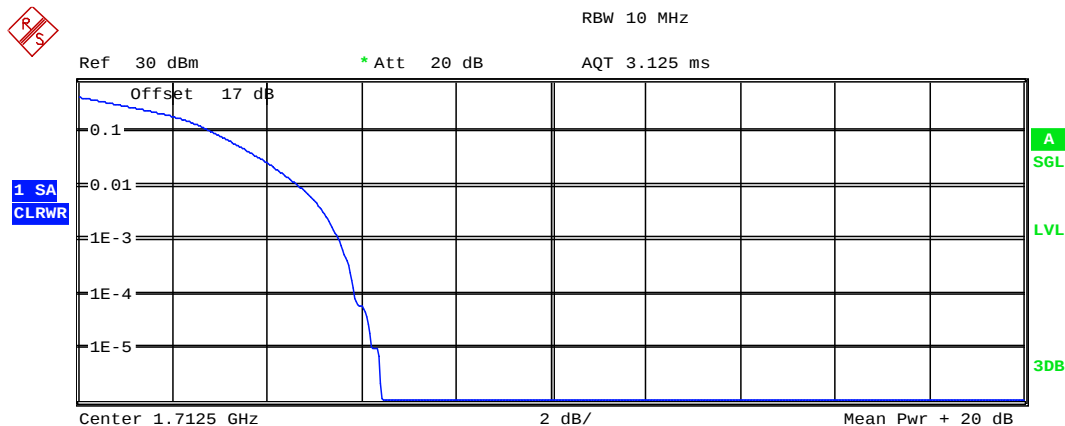


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

Band IV

FRB

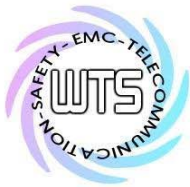


Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	19.28 dBm
Peak	25.69 dBm
Crest	6.41 dB
10 %	2.88 dB
1 %	4.68 dB
.1 %	5.54 dB
.01 %	5.87 dB

Date: 29.AUG.2019 13:53:34

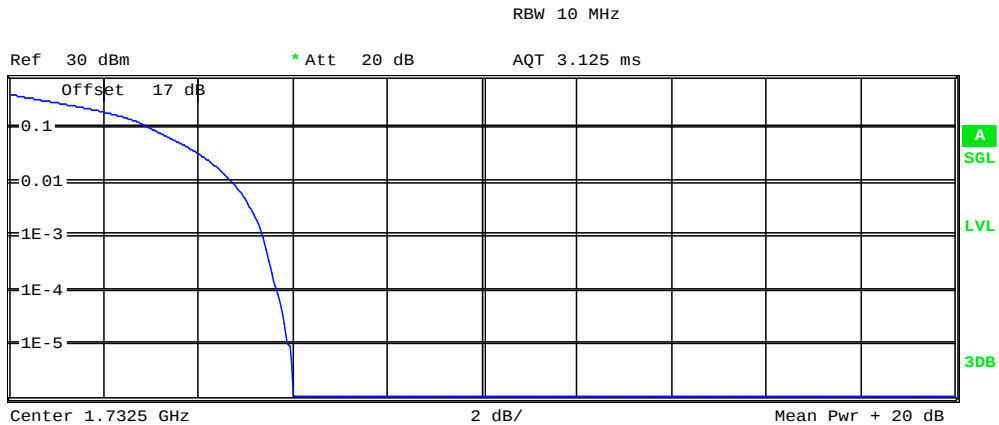


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



1 SA
CLRWR

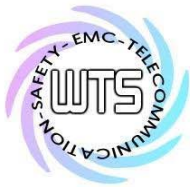


Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	18.90 dBm
Peak	24.92 dBm
Crest	6.01 dB
10 %	3.04 dB
1 %	4.74 dB
.1 %	5.38 dB
.01 %	5.67 dB

Date: 29.AUG.2019 13:53:02

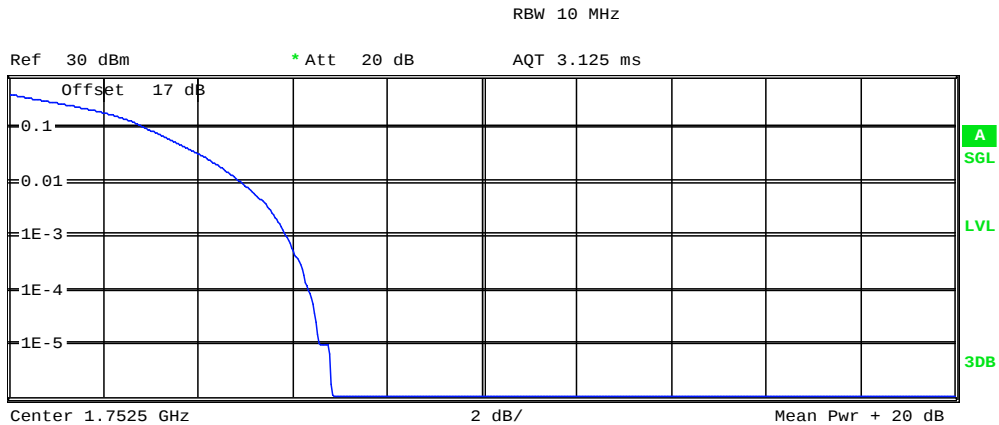


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



1 SA
CLRWR

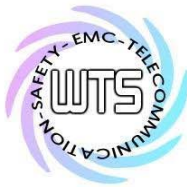


Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	18.23 dBm
Peak	25.06 dBm
Crest	6.83 dB
10 %	2.95 dB
1 %	4.90 dB
.1 %	5.87 dB
.01 %	6.35 dB

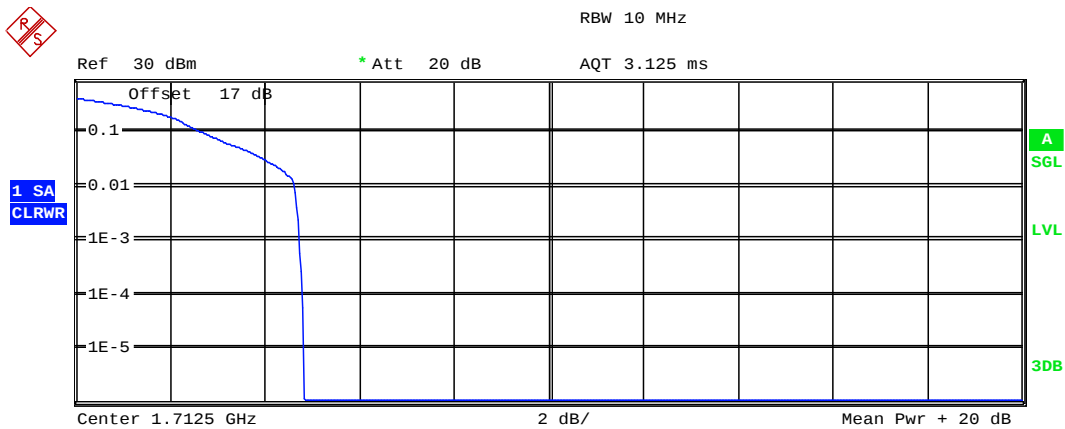
Date: 29.AUG.2019 13:54:01



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

1RB



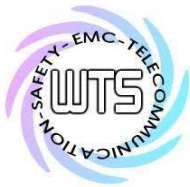
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	19.68 dBm
Peak	24.49 dBm
Crest	4.81 dB

10 %	2.72 dB
1 %	4.62 dB
.1 %	4.74 dB
.01 %	4.81 dB

Date: 28.AUG.2019 11:59:14

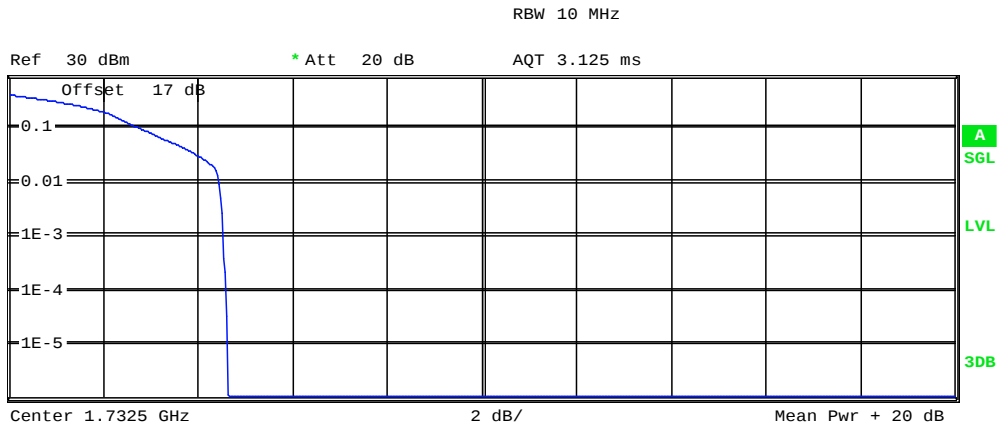


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



1 SA
CLRWR

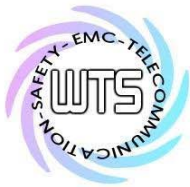


Complementary Cumulative Distribution Function (100000 samples)

Trace 1

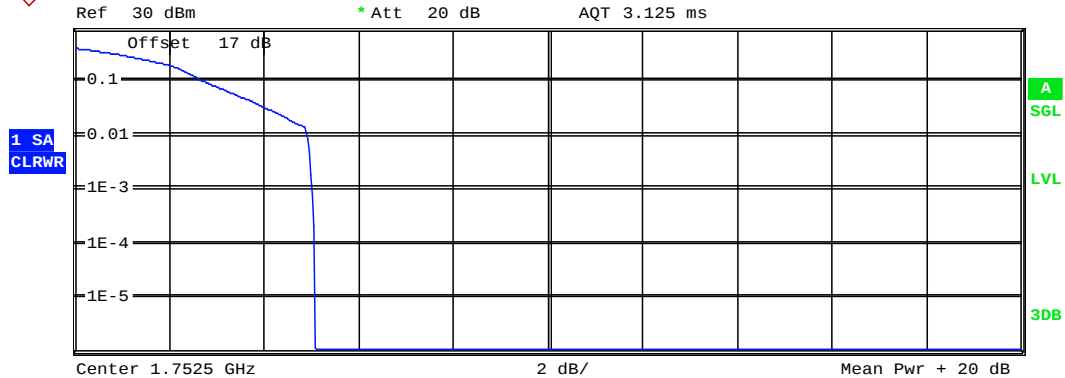
Mean	19.88 dBm
Peak	24.49 dBm
Crest	4.61 dB
10 %	2.82 dB
1 %	4.46 dB
.1 %	4.55 dB
.01 %	4.62 dB

Date: 28.AUG.2019 11:58:37



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

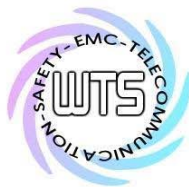


Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	19.50 dBm
Peak	24.56 dBm
Crest	5.07 dB
10 %	2.76 dB
1 %	4.90 dB
.1 %	5.03 dB
.01 %	5.10 dB

Date: 28.AUG.2019 12:00:20



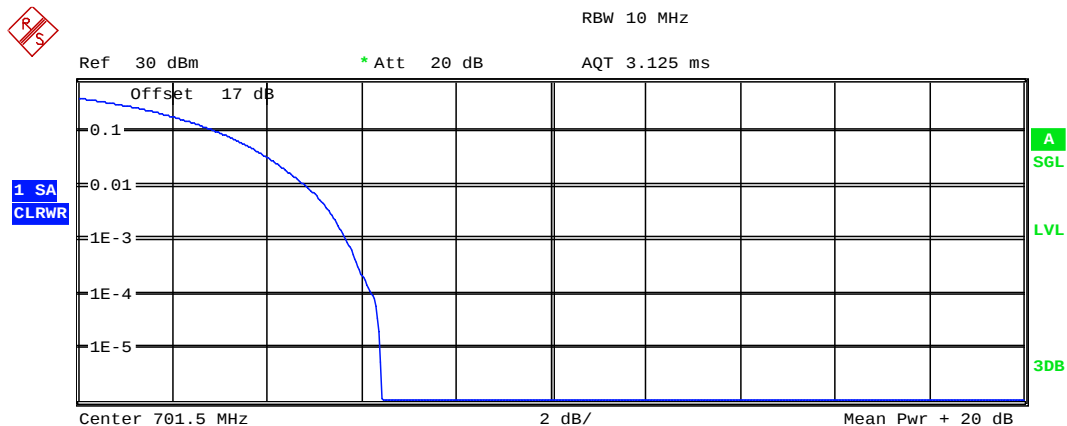
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

Band XII

FRB

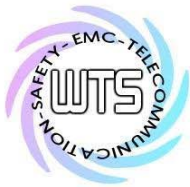


Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 16.53 dBm
Peak 22.94 dBm
Crest 6.41 dB

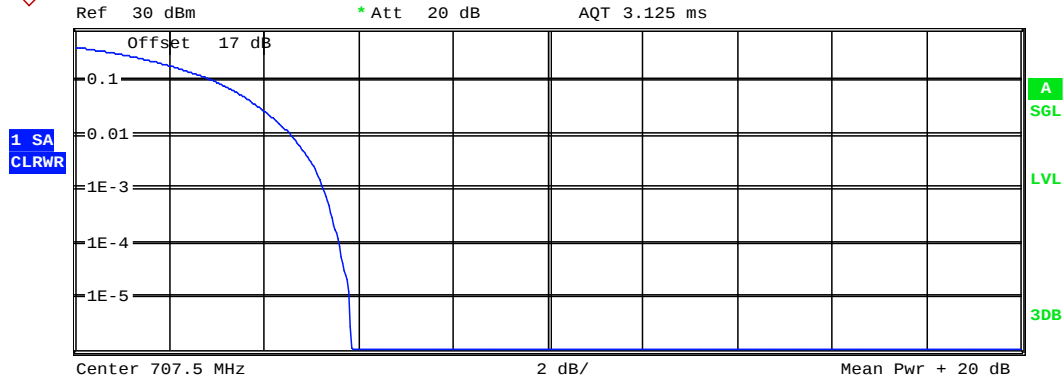
10 % 3.01 dB
1 % 4.84 dB
.1 % 5.67 dB
.01 % 6.22 dB

Date: 29.AUG.2019 13:54:59



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	15.77 dBm
Peak	21.60 dBm
Crest	5.83 dB
10 %	2.98 dB
1 %	4.58 dB
.1 %	5.26 dB
.01 %	5.61 dB

Date: 29.AUG.2019 13:54:37

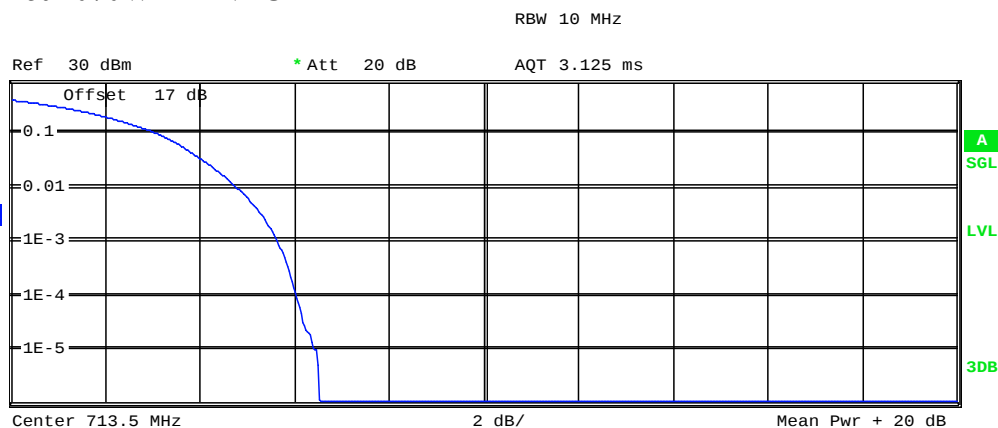


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



1 SA
CLRWR

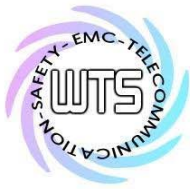


Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	15.77 dBm
Peak	22.31 dBm
Crest	6.53 dB
10 %	3.11 dB
1 %	4.78 dB
.1 %	5.64 dB
.01 %	6.03 dB

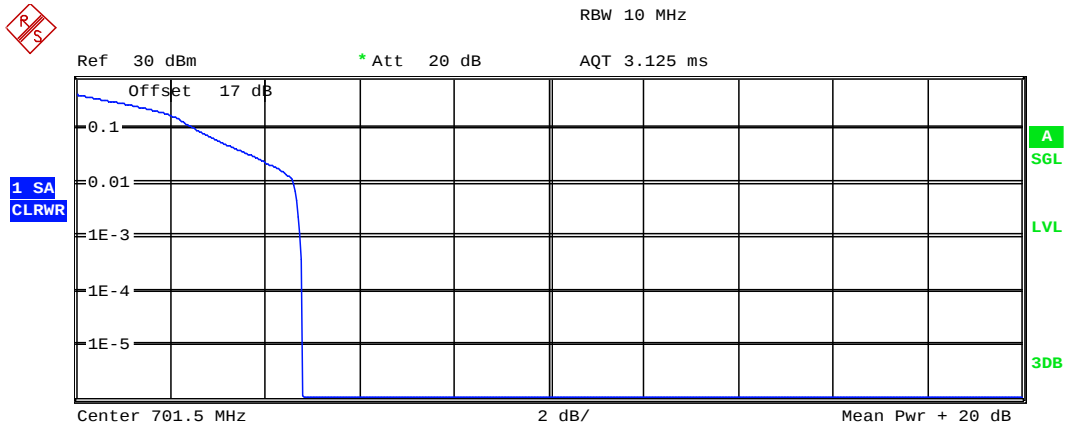
Date: 29.AUG.2019 13:55:21



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

1RB



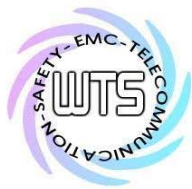
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	18.51 dBm
Peak	23.29 dBm
Crest	4.78 dB

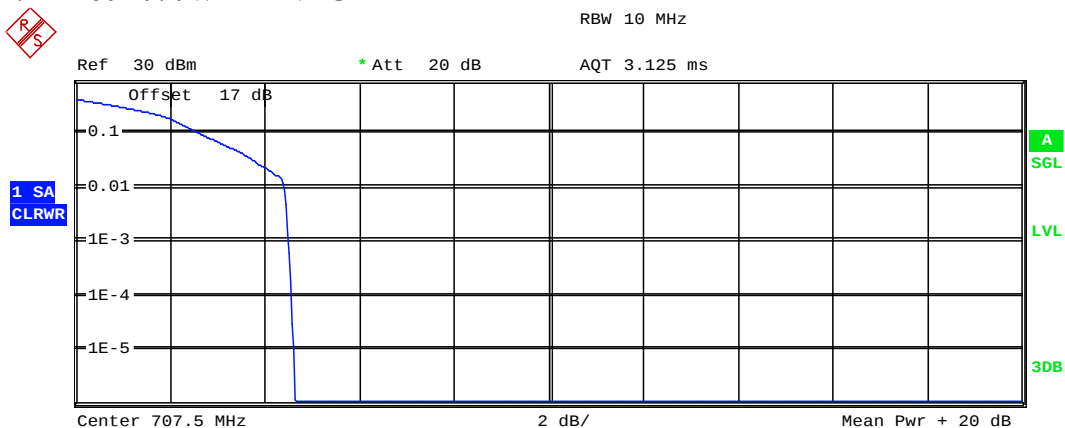
10 %	2.56 dB
1 %	4.62 dB
.1 %	4.74 dB
.01 %	4.81 dB

Date: 28.AUG.2019 11:50:23



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

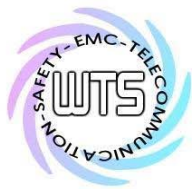


Complementary Cumulative Distribution Function (100000 samples)

Trace 1

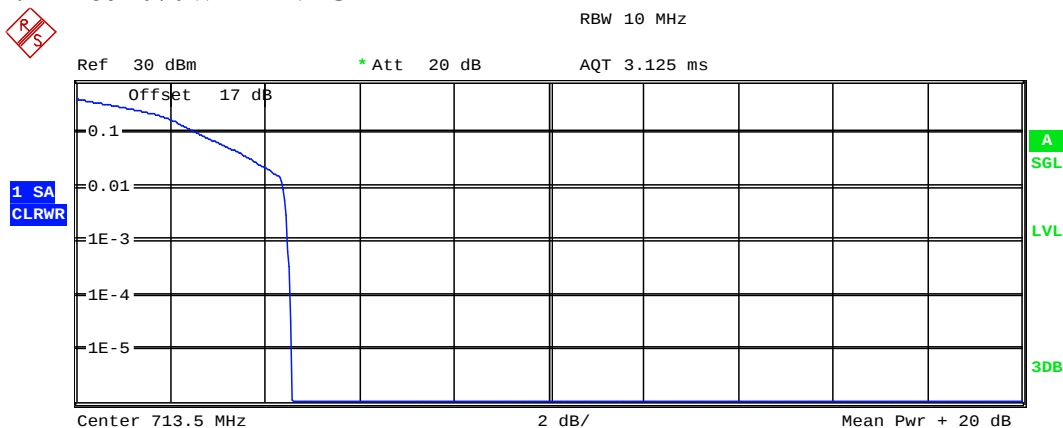
Mean	17.75 dBm
Peak	22.38 dBm
Crest	4.63 dB
10 %	2.63 dB
1 %	4.39 dB
.1 %	4.49 dB
.01 %	4.58 dB

Date: 28.AUG.2019 11:48:49



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Complementary Cumulative Distribution Function (100000 samples)

Trace 1	
Mean	18.11 dBm
Peak	22.66 dBm
Crest	4.55 dB
10 %	2.60 dB
1 %	4.39 dB
.1 %	4.49 dB
.01 %	4.55 dB

Date: 28.AUG.2019 11:49:20

Limit according to FCC §24.232 and §27.50, The peak-to-average ratio (PAR) of the transmission may not exceed 13dB.

Test equipment: ETSTW-RE 055, ETSTW-GSM 002, ETSTW-GSM 023, ETSTW-GSM 004

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FCC ID: 2AT5JE070W1D14V2U

6. Occupied Bandwidth

The occupied bandwidth (OBW) is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to a specified percentage 0.5% of the total mean transmitted power.

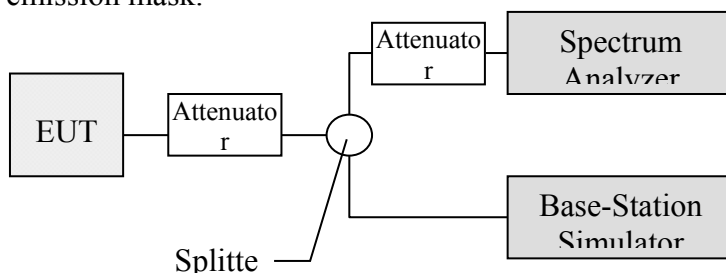
The 26 dB occupied bandwidth is the width of a frequency band such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal 26 dB.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

6.1 Test procedure

The RF output of the transceiver was connected as the following figure.

Occupied Bandwidth was measured with a occupied bandwidth function of the analyzer at 99% power was occupied. Then set the spectrum analyzer to cover the upper and lower band edges to measure emission mask.

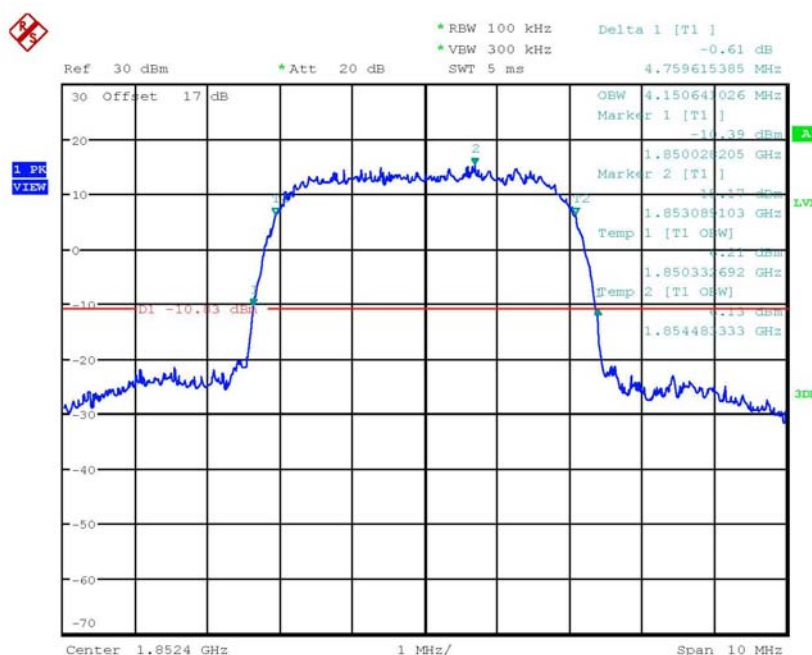


6.2 Test Results

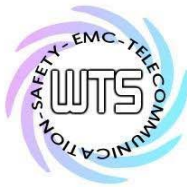
Occupied Channel Bandwidth

WCDMA

Band II



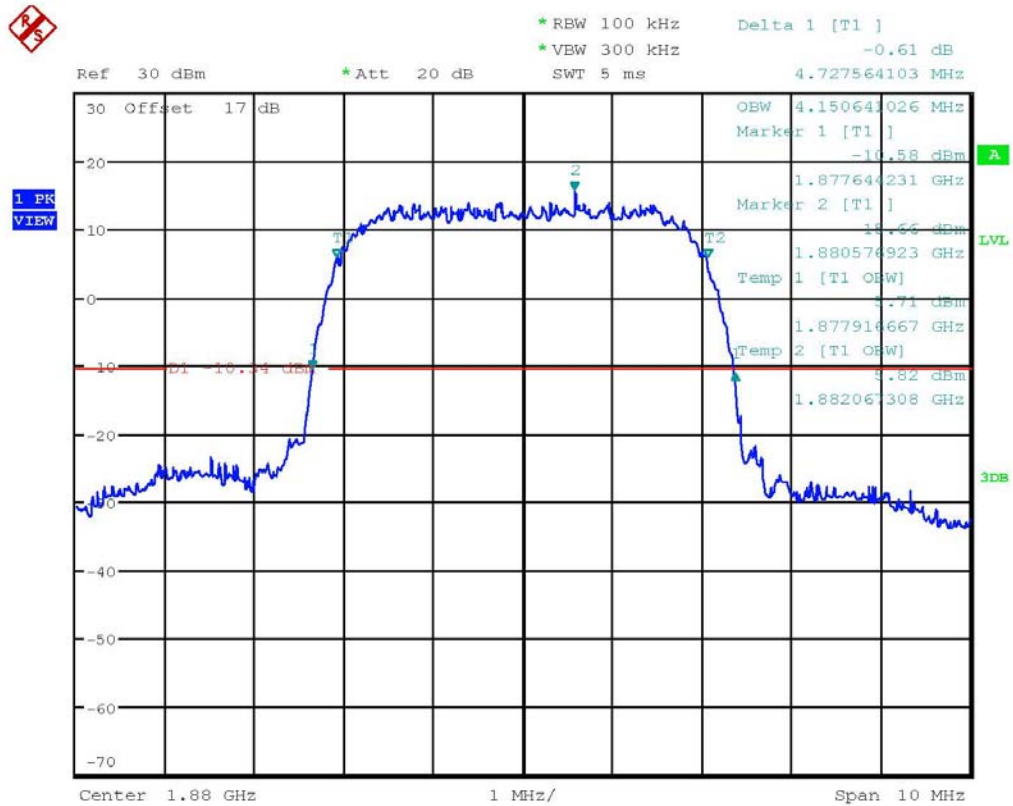
Date: 22.JUL.2019 14:36:35



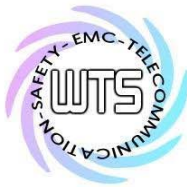
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



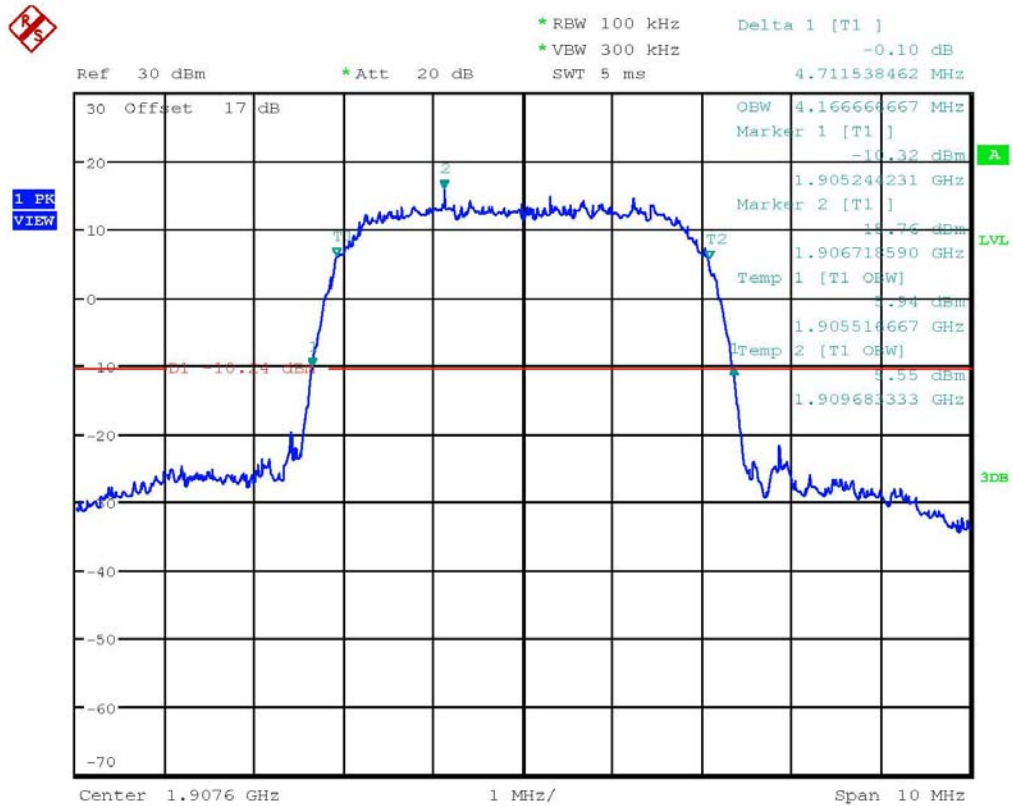
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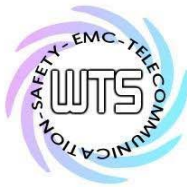
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 22.JUL.2019 14:39:02

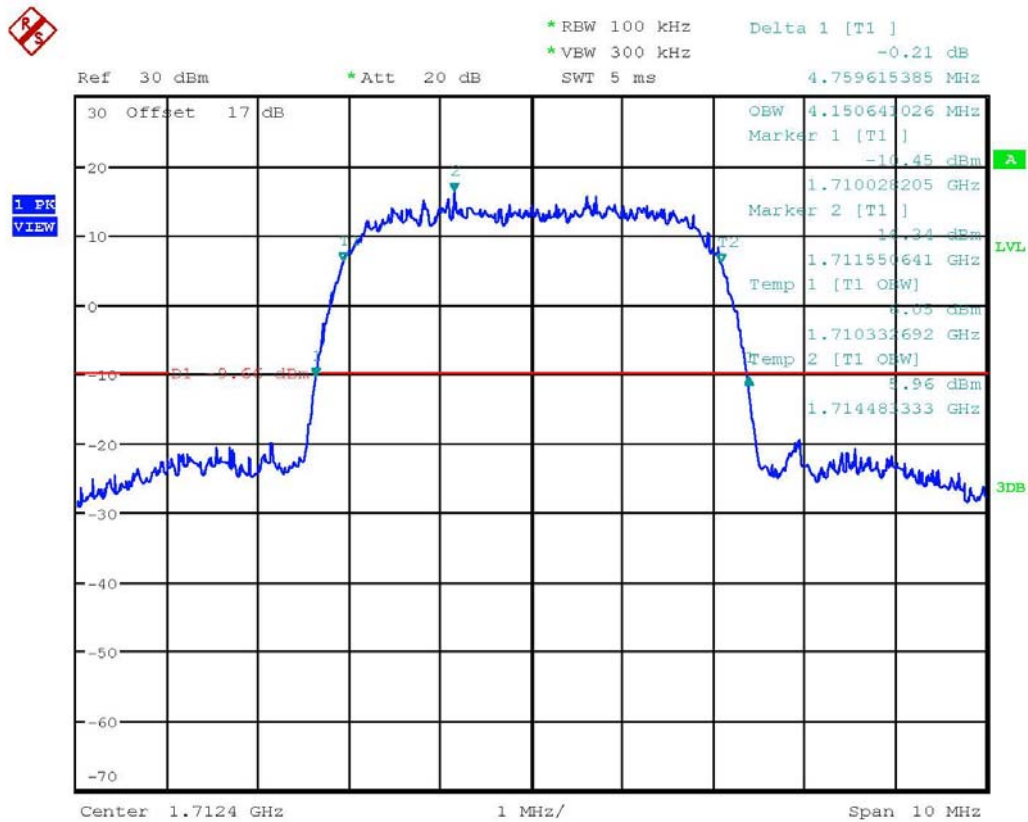


Worldwide Testing Services(Taiwan) Co., Ltd.

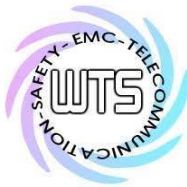
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

Band IV



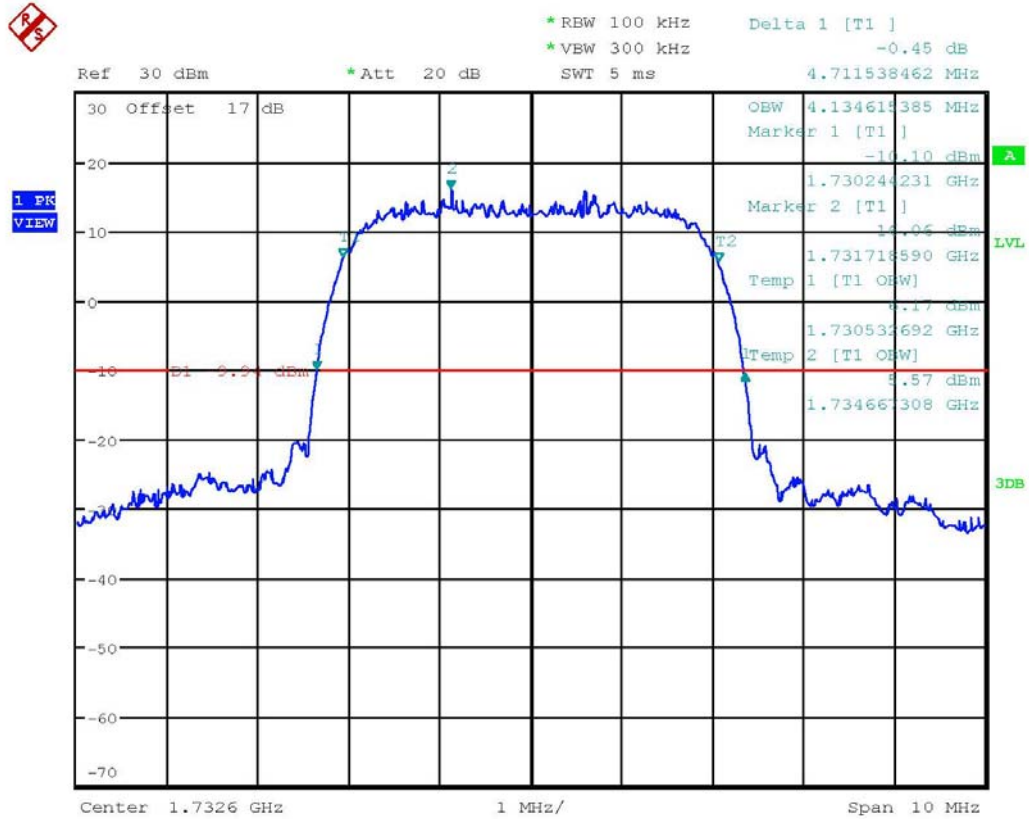
Date: 22.JUL.2019 14:20:21



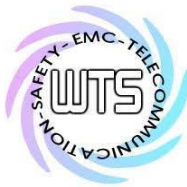
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

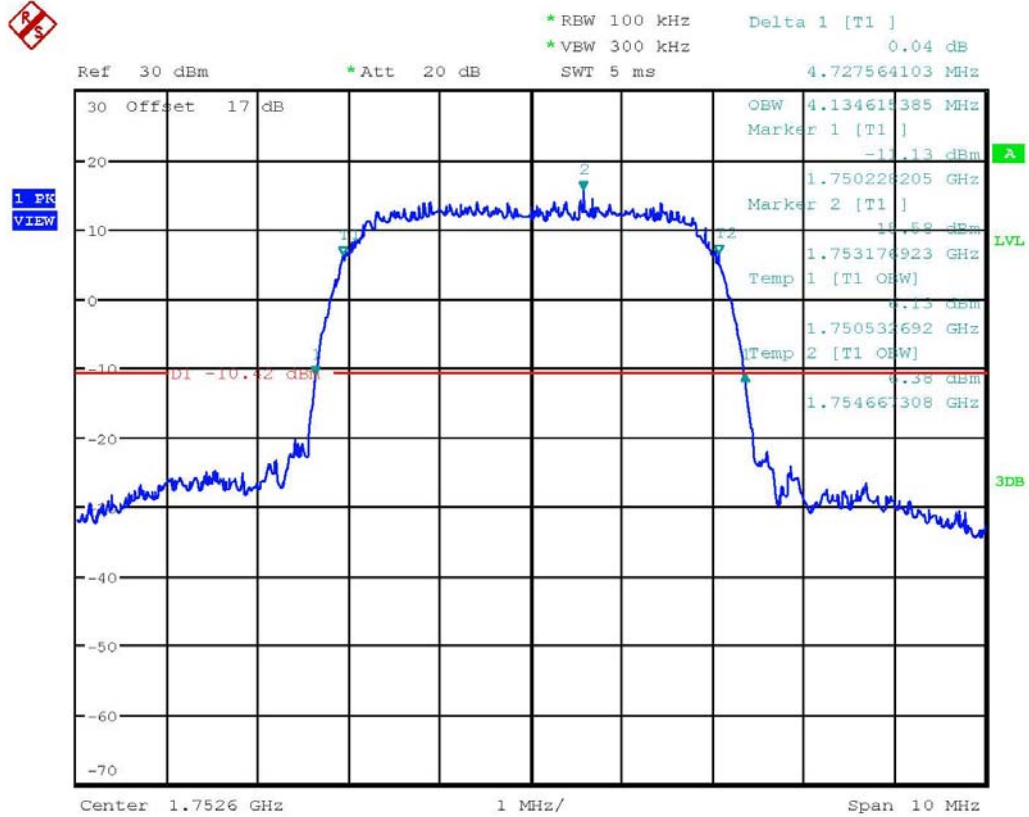


Date: 22.JUL.2019 14:22:46

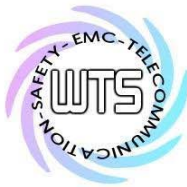


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 22.JUL.2019 14:24:24

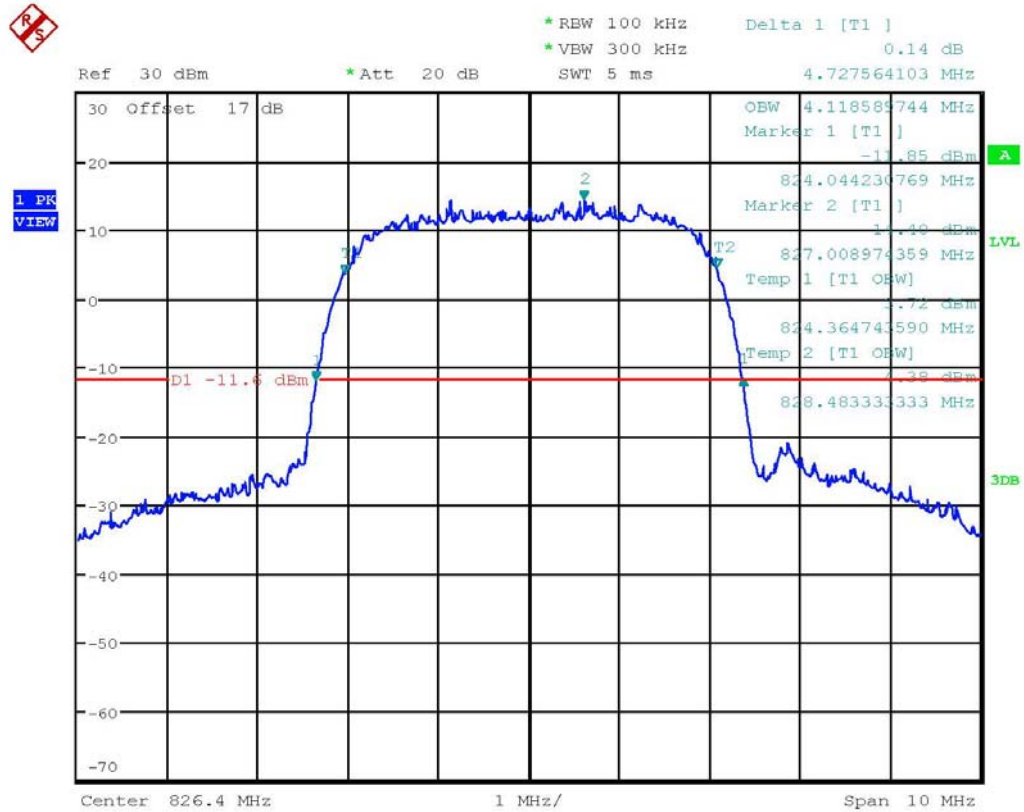


Worldwide Testing Services(Taiwan) Co., Ltd.

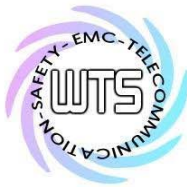
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

Band V



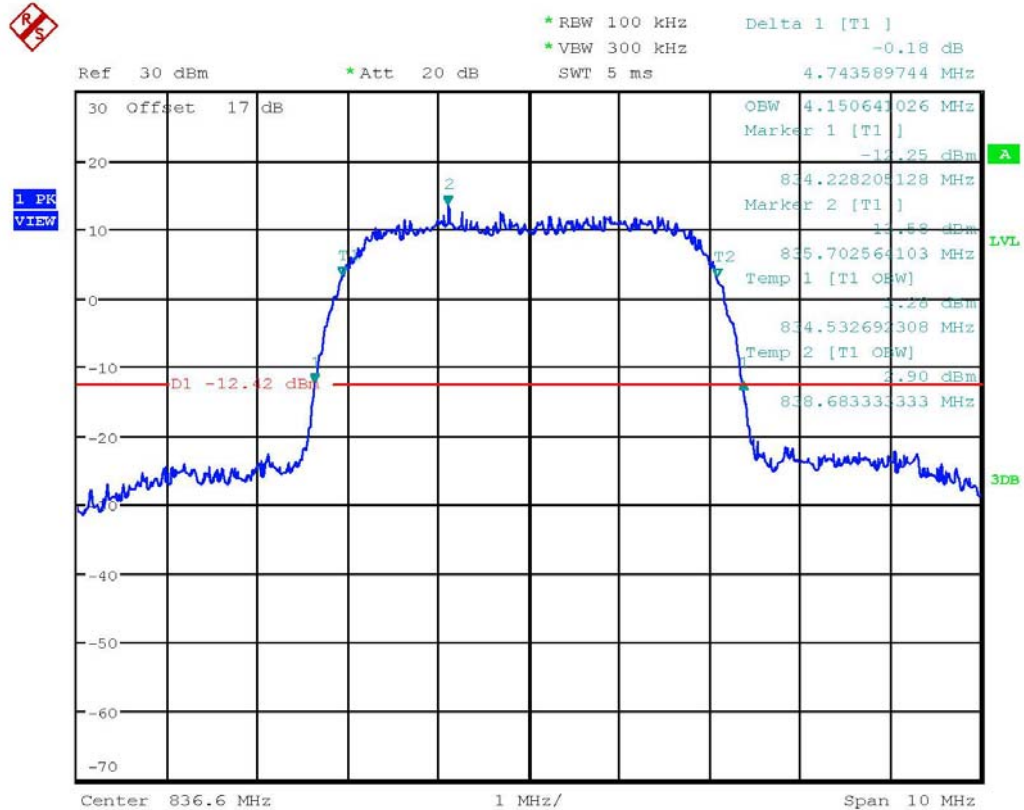
Date: 22.JUL.2019 14:45:47



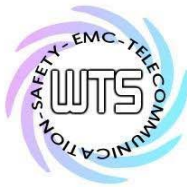
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



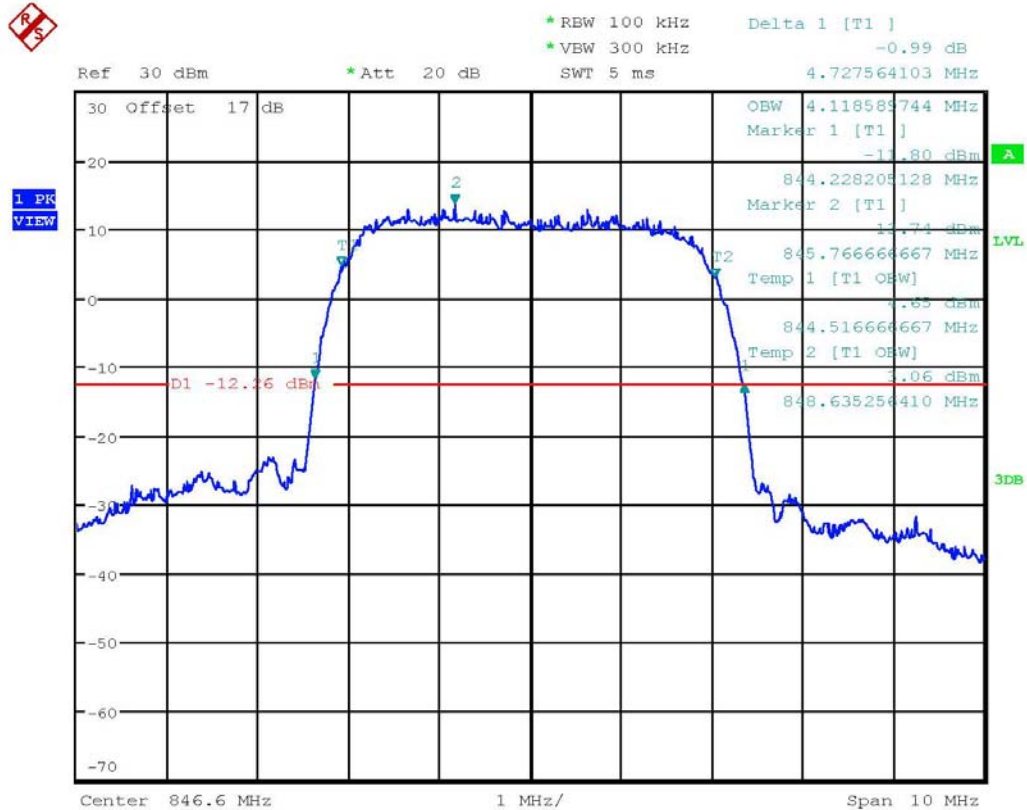
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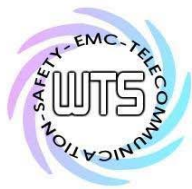
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 22.JUL.2019 14:48:28



Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

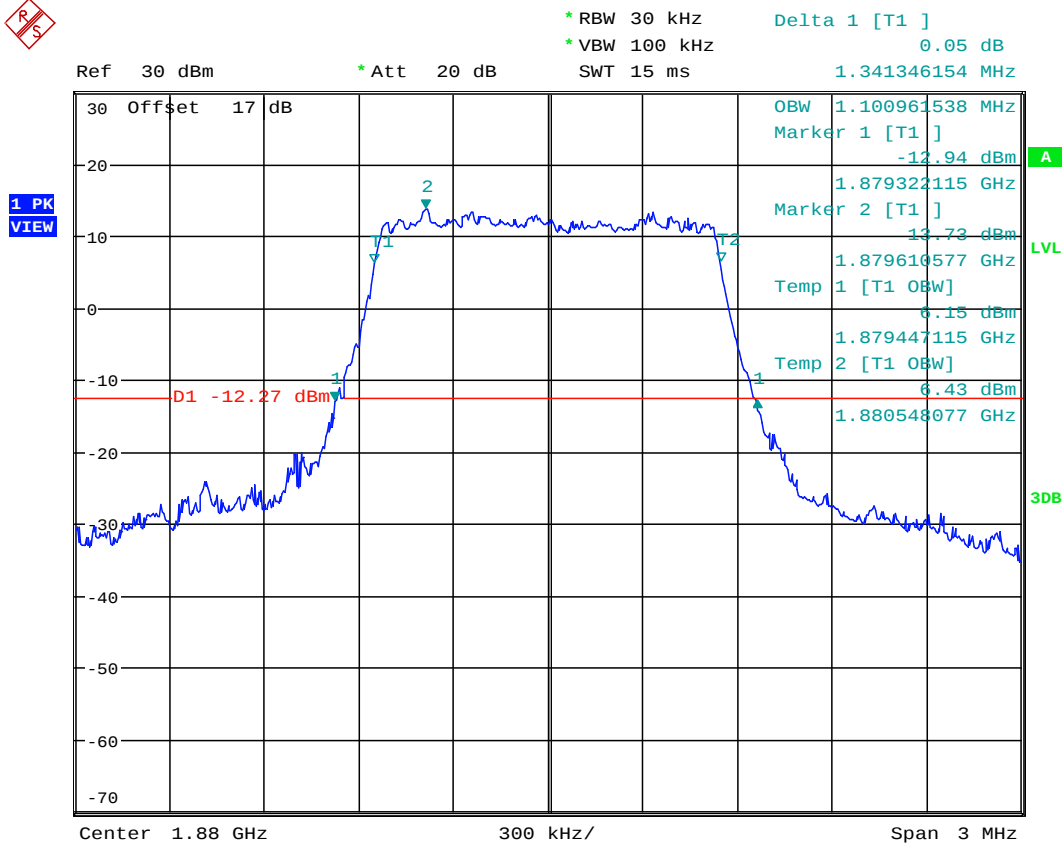
FCC ID: 2AT5JE070W1D14V2U

LTE

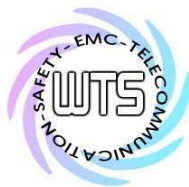
Band II

16QAM

1.4MHz



Date: 28.AUG.2019 10:06:26

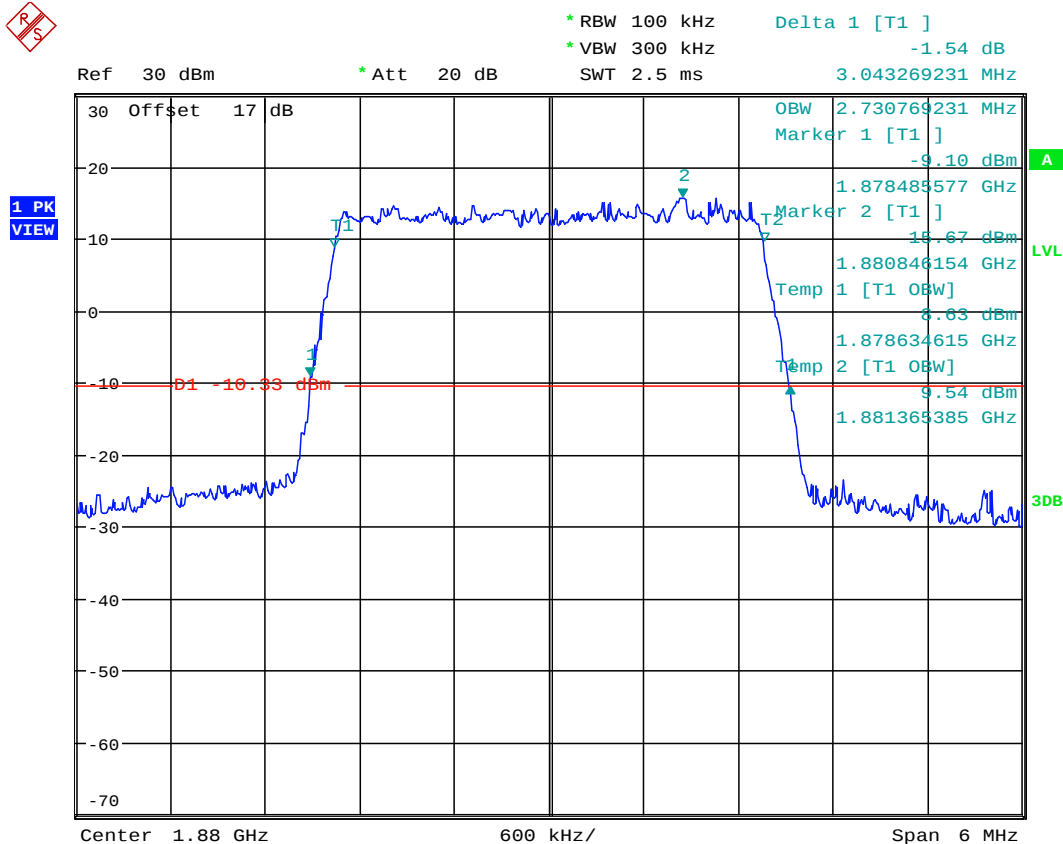


Worldwide Testing Services(Taiwan) Co., Ltd.

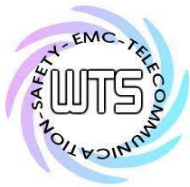
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz



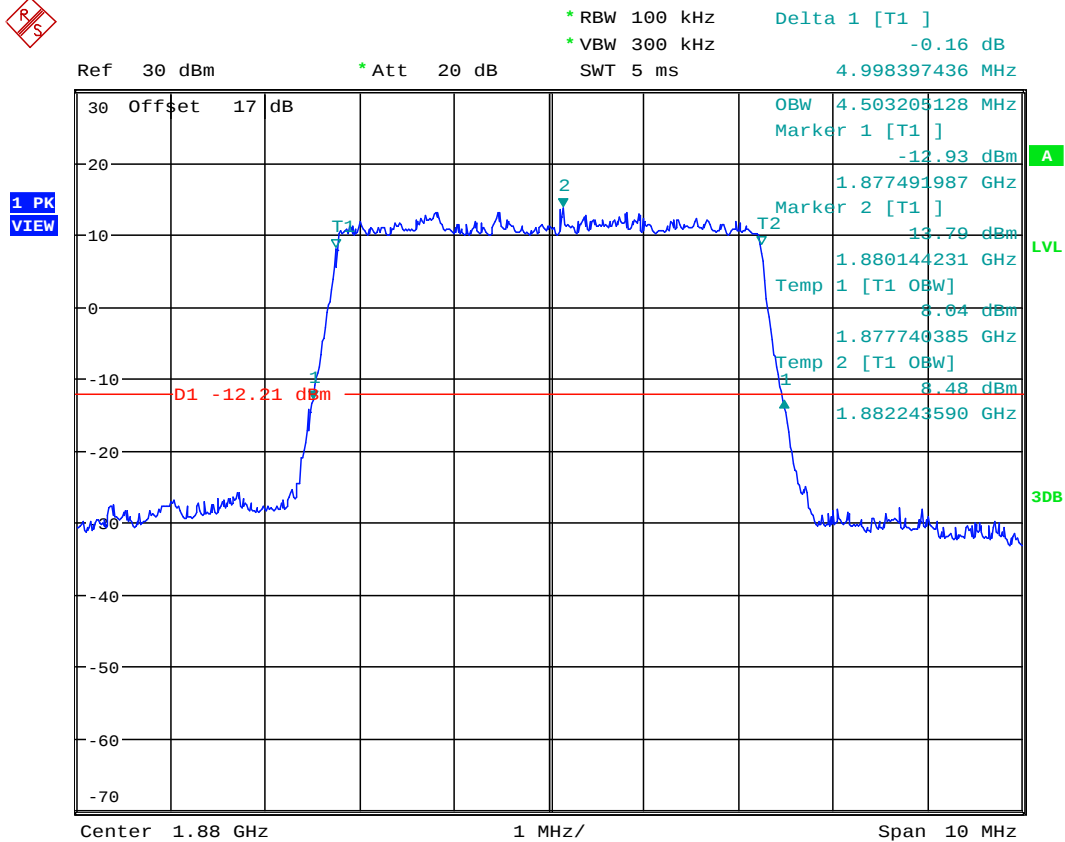
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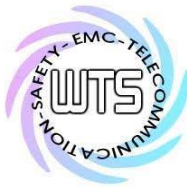
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



Date: 28.AUG.2019 10:13:28

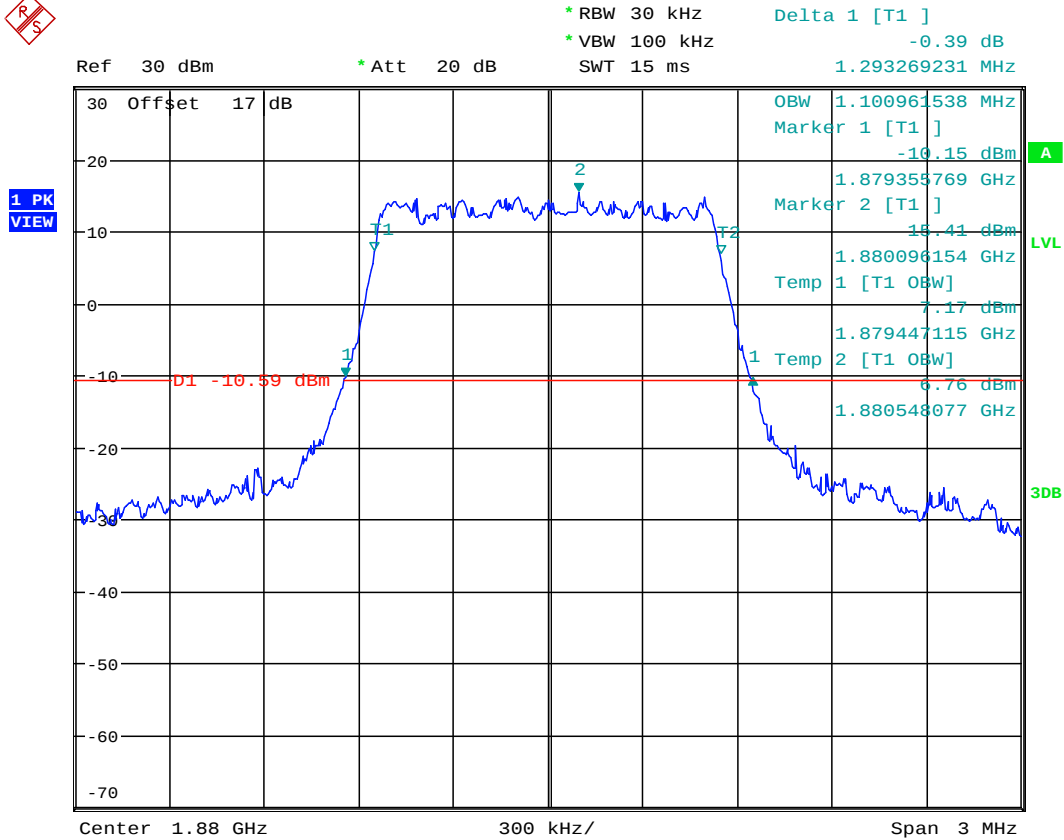


Report Number: W6M22111-21340-P-247

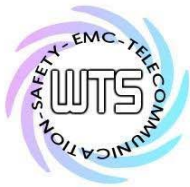
FCC ID: 2AT5JE070W1D14V2U

QPSK

1.4MHz



Date: 28.AUG.2019 10:05:18

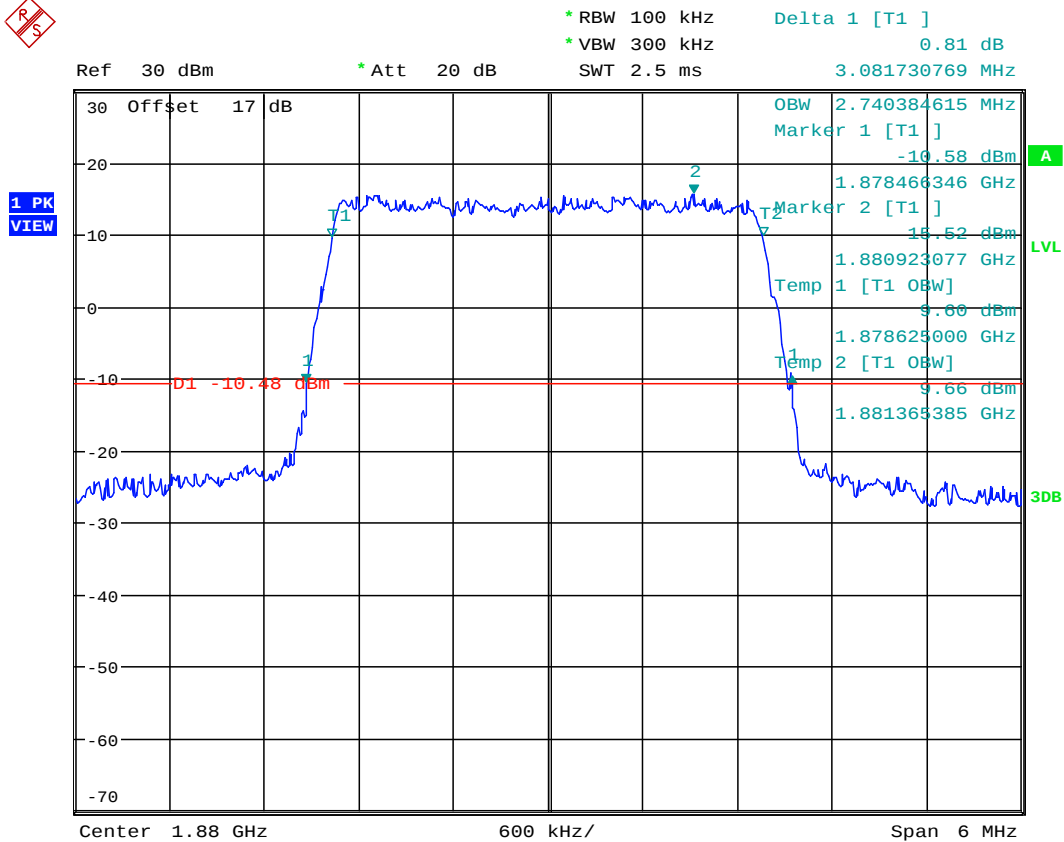


Worldwide Testing Services(Taiwan) Co., Ltd.

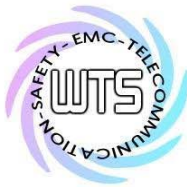
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz



Date: 28.AUG.2019 10:08:35

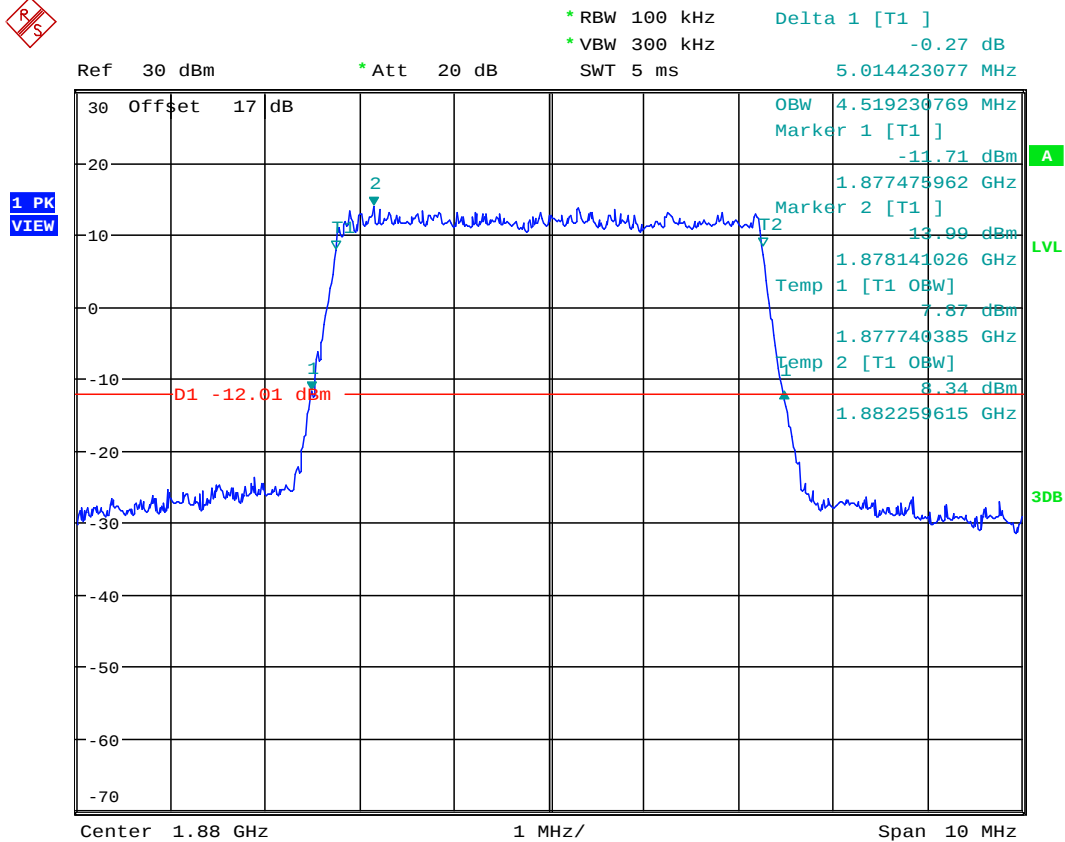


Worldwide Testing Services(Taiwan) Co., Ltd.

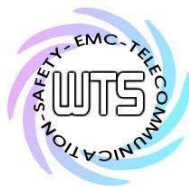
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



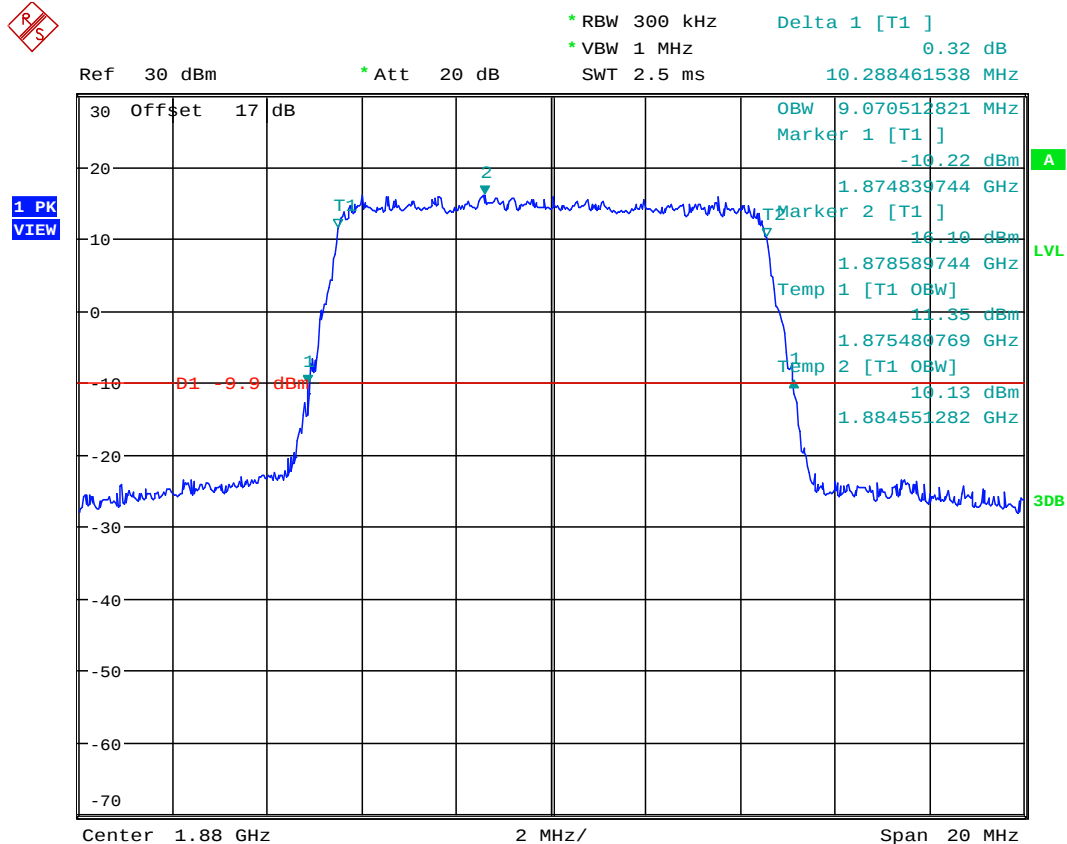
Date: 28.AUG.2019 10:12:27



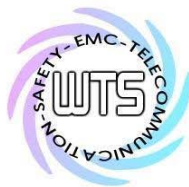
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

10MHz



Date: 24.JUL.2019 15:39:49



Worldwide Testing Services(Taiwan) Co., Ltd.

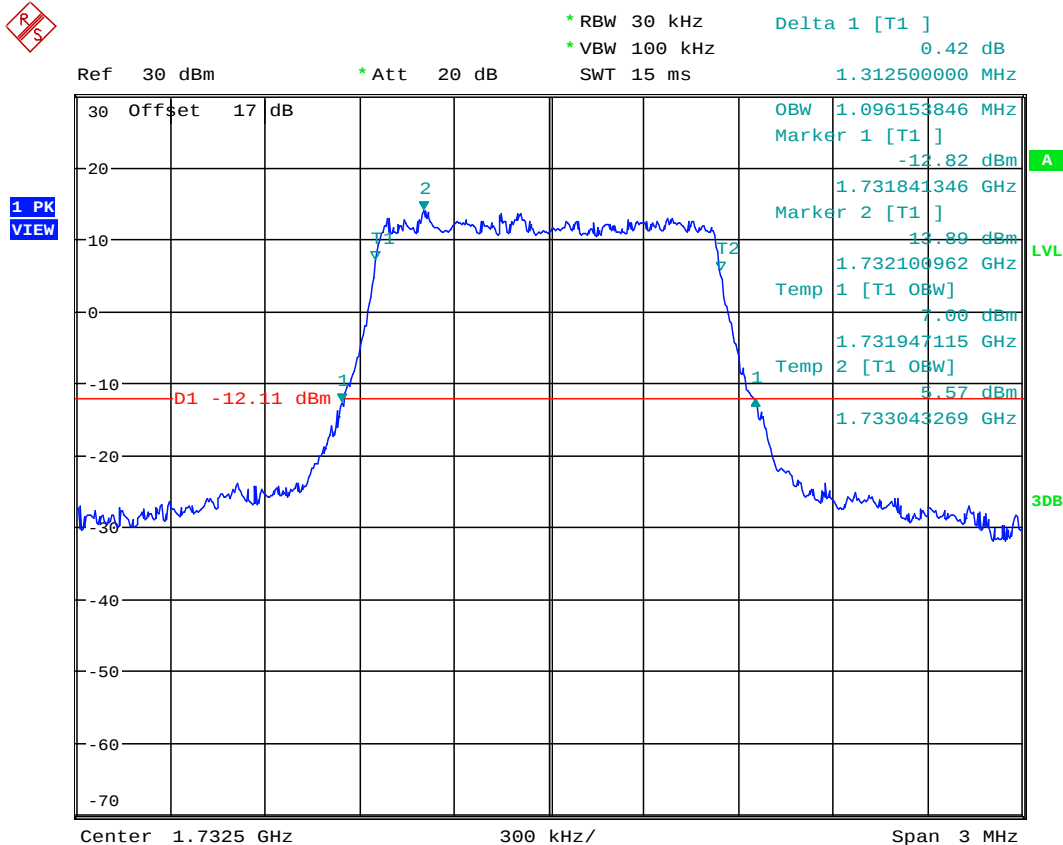
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

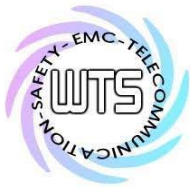
Band IV

16QAM

1.4MHz



Date: 28.AUG.2019 11:09:26

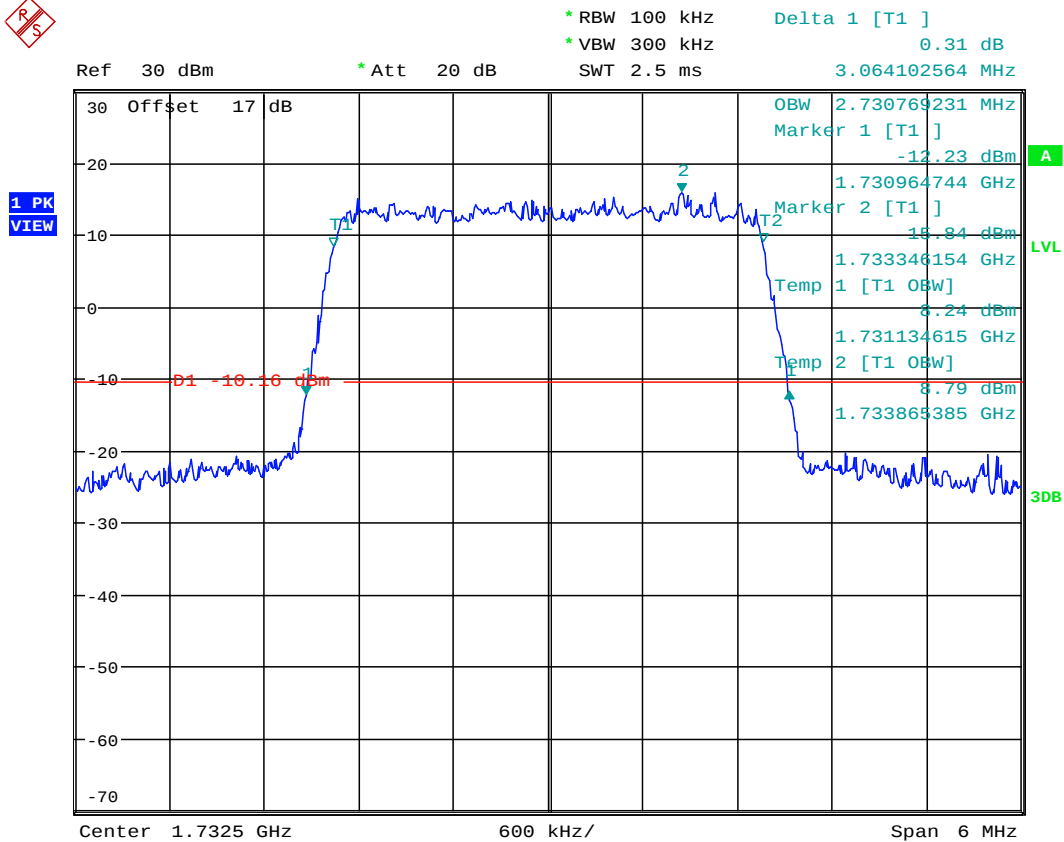


Worldwide Testing Services(Taiwan) Co., Ltd.

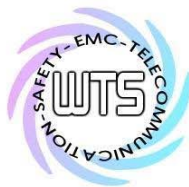
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz



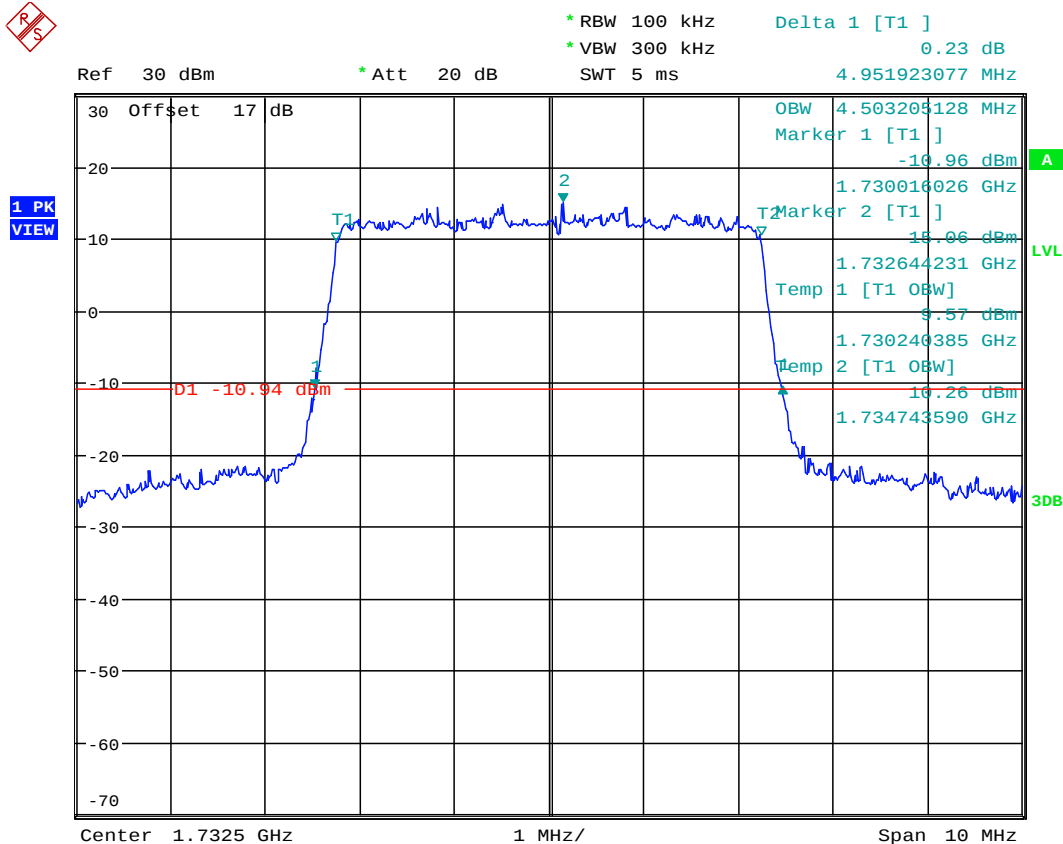
Date: 28.AUG.2019 11:08:04



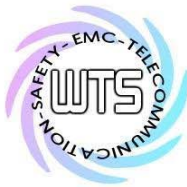
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



Date: 28.AUG.2019 11:04:28



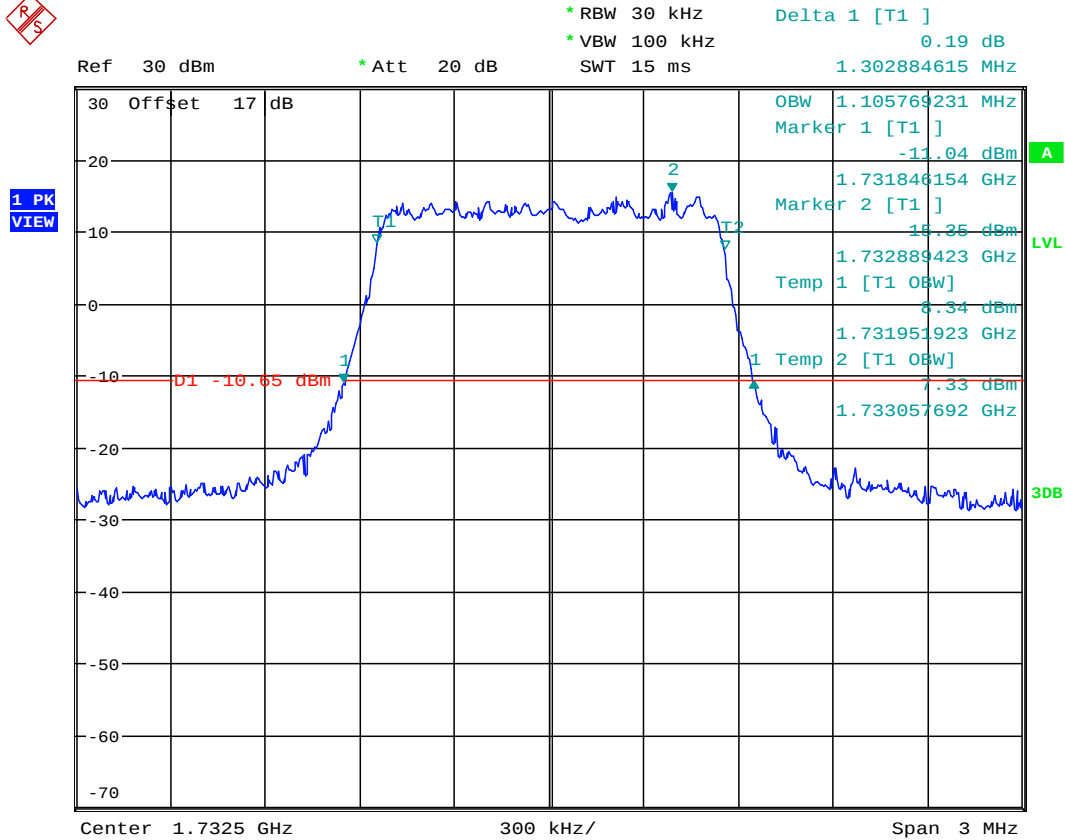
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

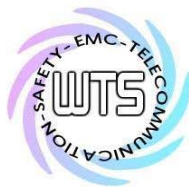
FCC ID: 2AT5JE070W1D14V2U

QPSK

1.4MHz



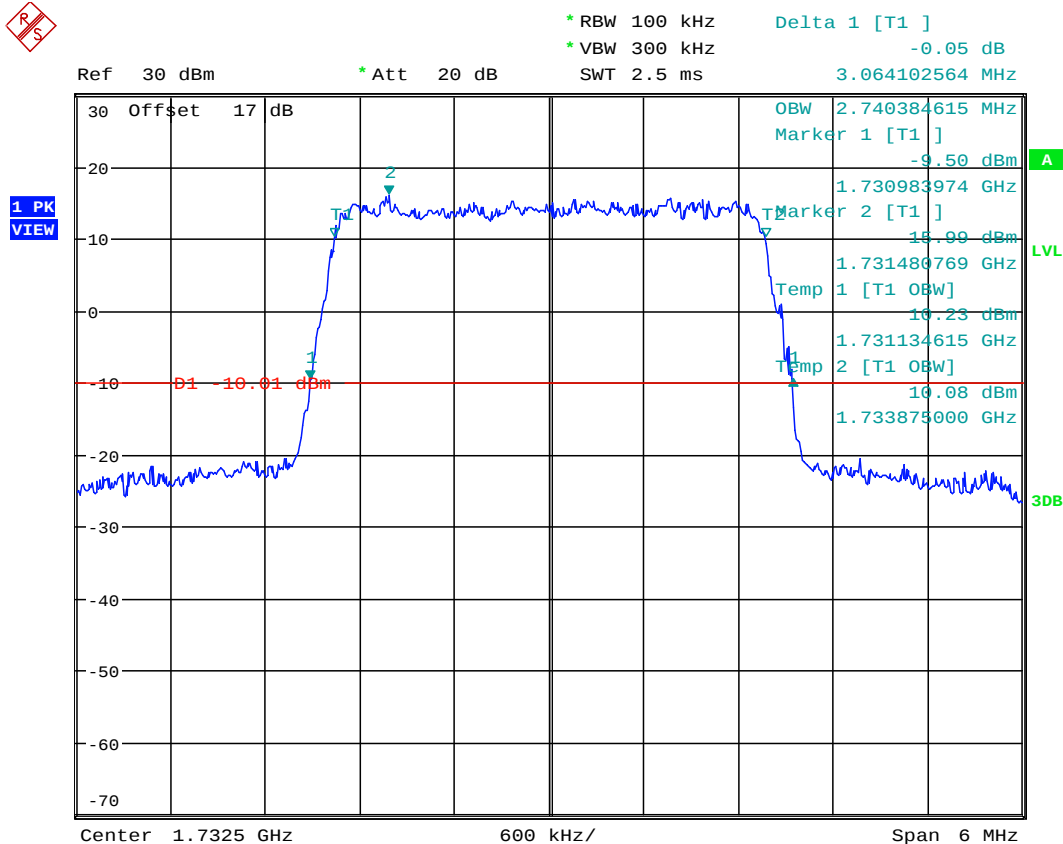
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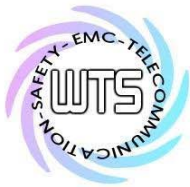
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz



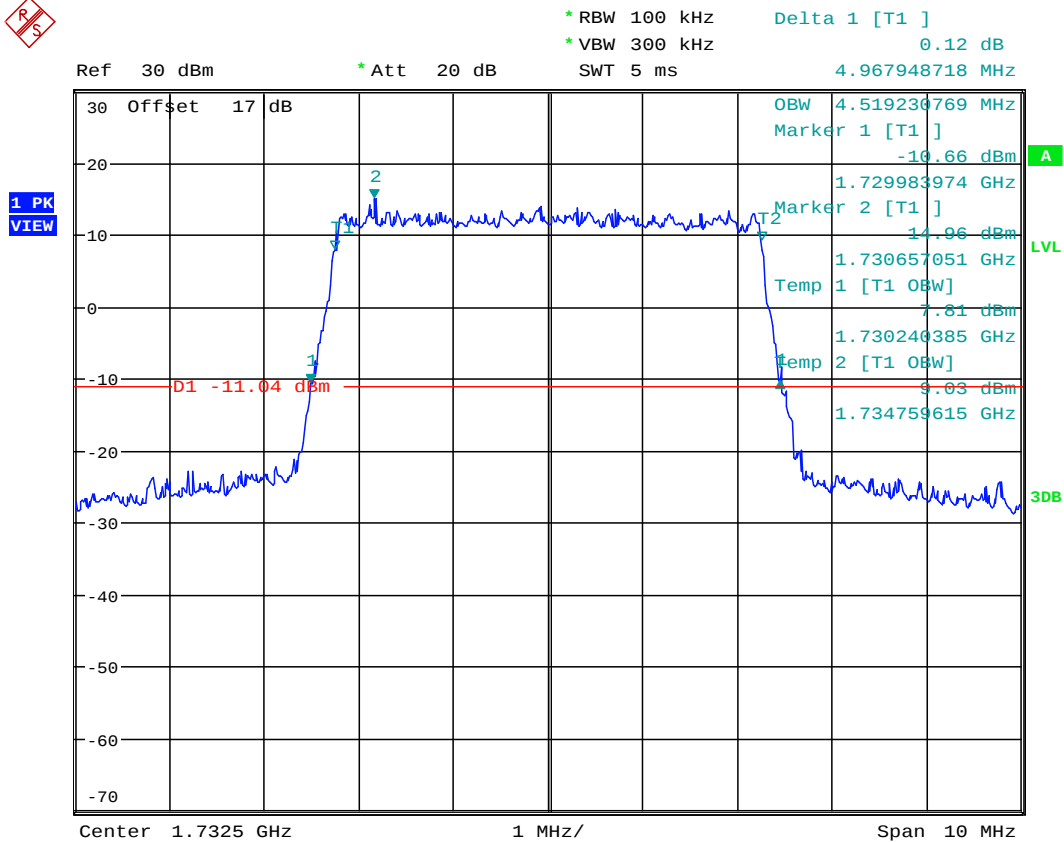
Date: 28.AUG.2019 11:06:37



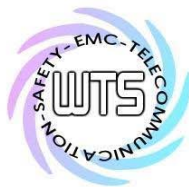
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



Date: 28.AUG.2019 11:05:31

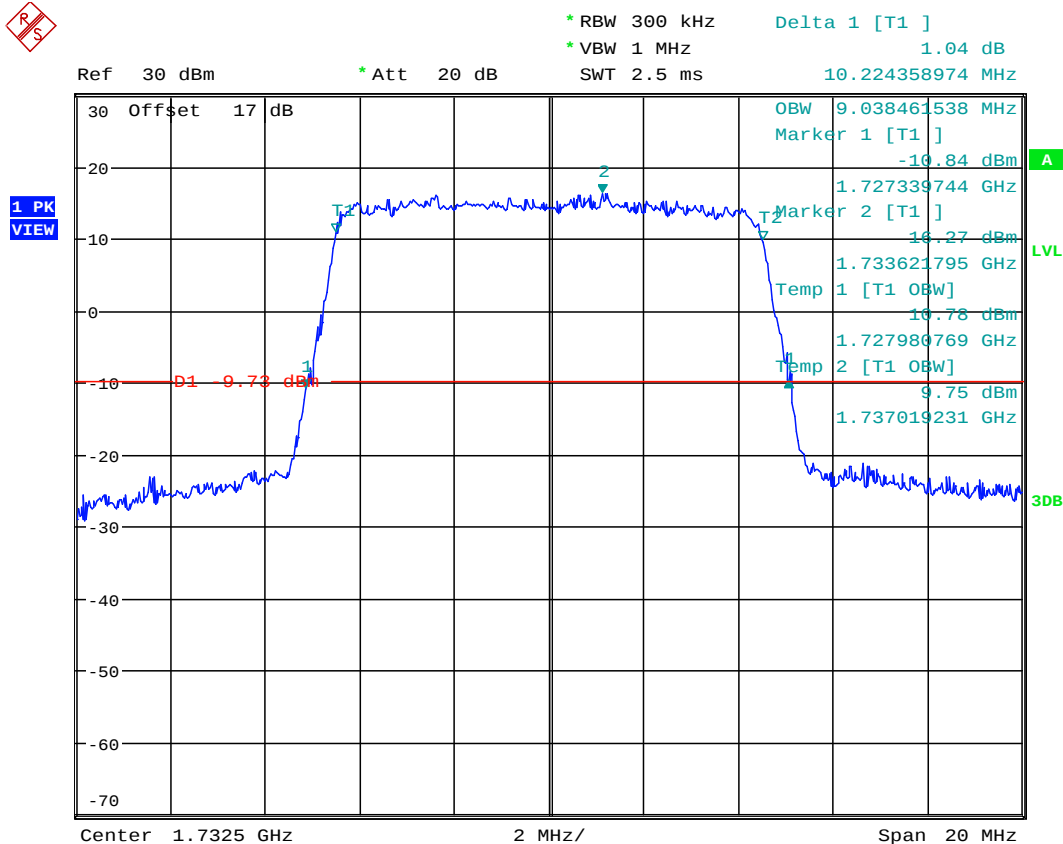


Worldwide Testing Services(Taiwan) Co., Ltd.

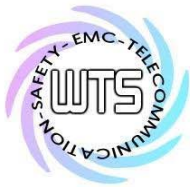
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

10MHz



Date: 24.JUL.2019 15:41:56



Worldwide Testing Services(Taiwan) Co., Ltd.

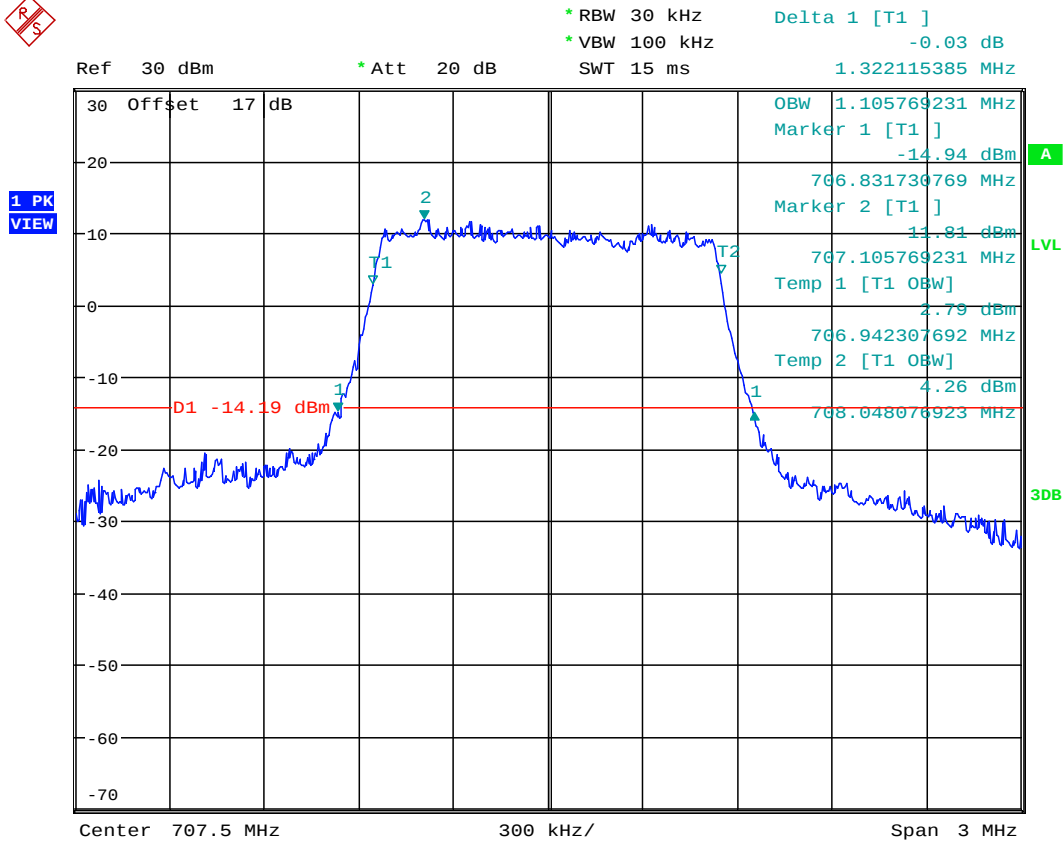
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

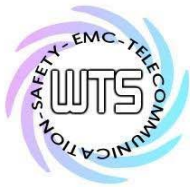
Band XII

16QAM

1.4MHz



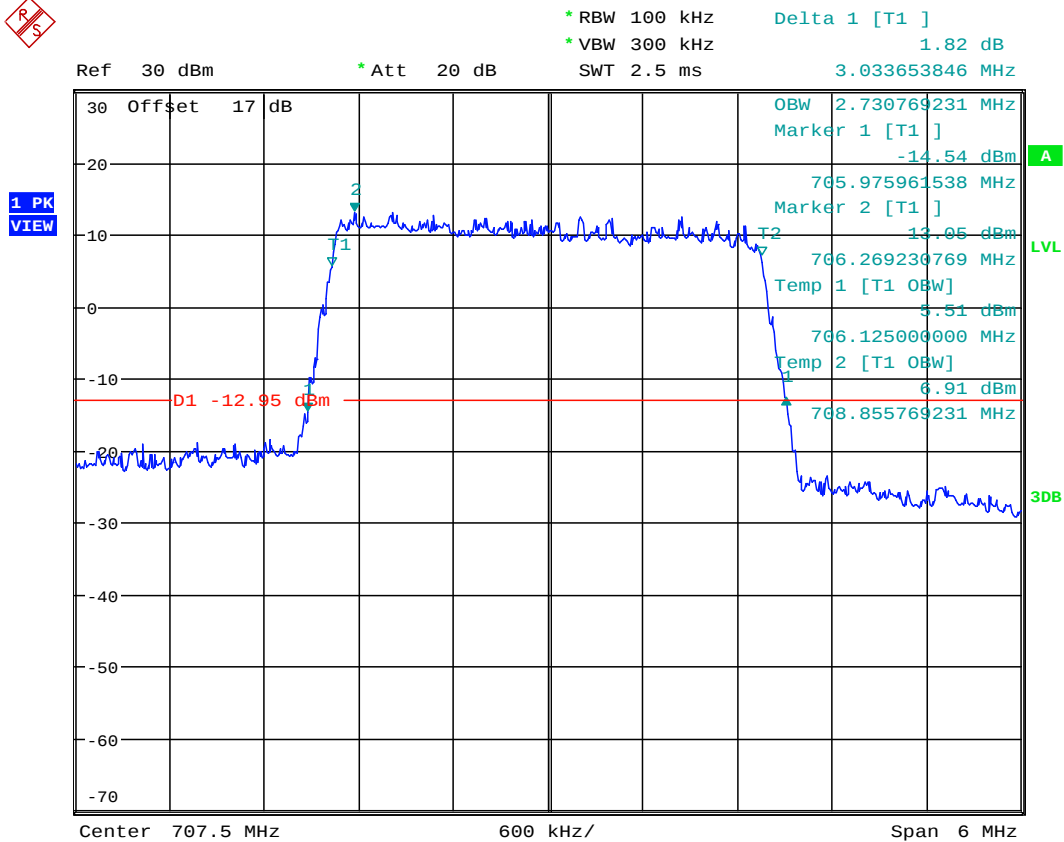
Date: 28.AUG.2019 11:14:59



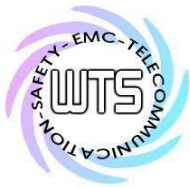
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz



Date: 28.AUG.2019 11:18:14

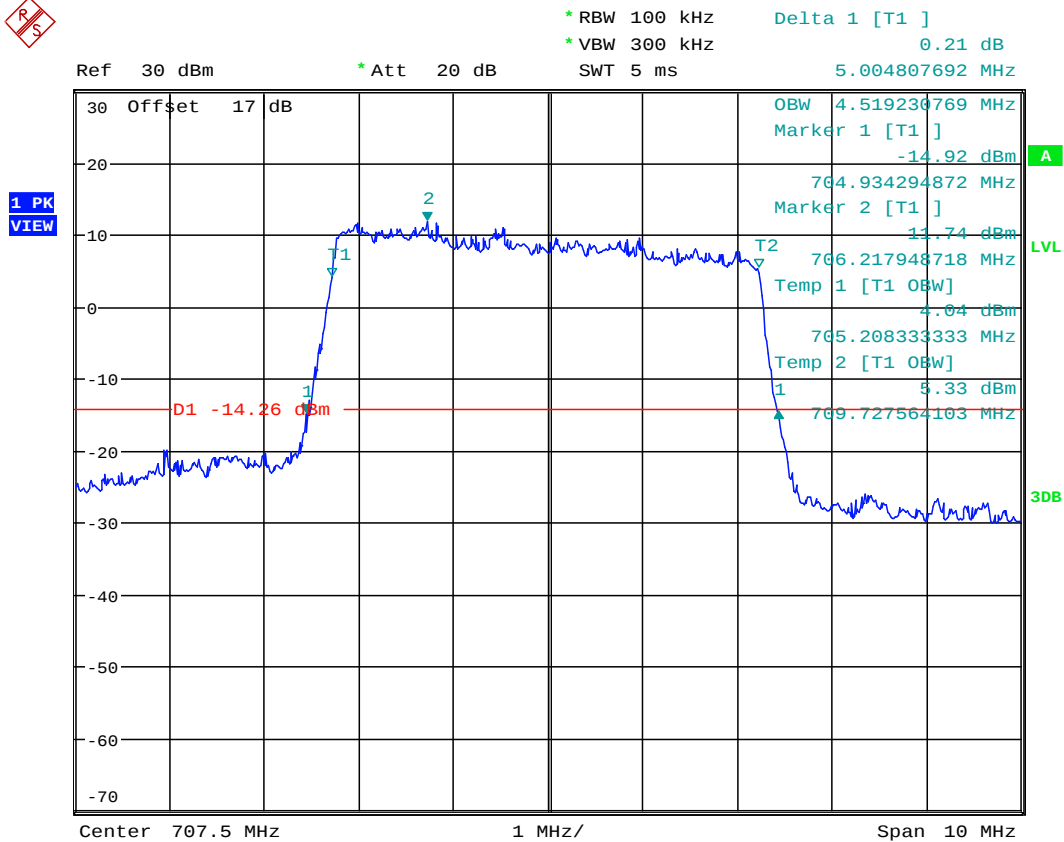


Worldwide Testing Services(Taiwan) Co., Ltd.

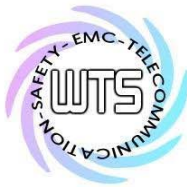
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



Date: 28.AUG.2019 11:23:51



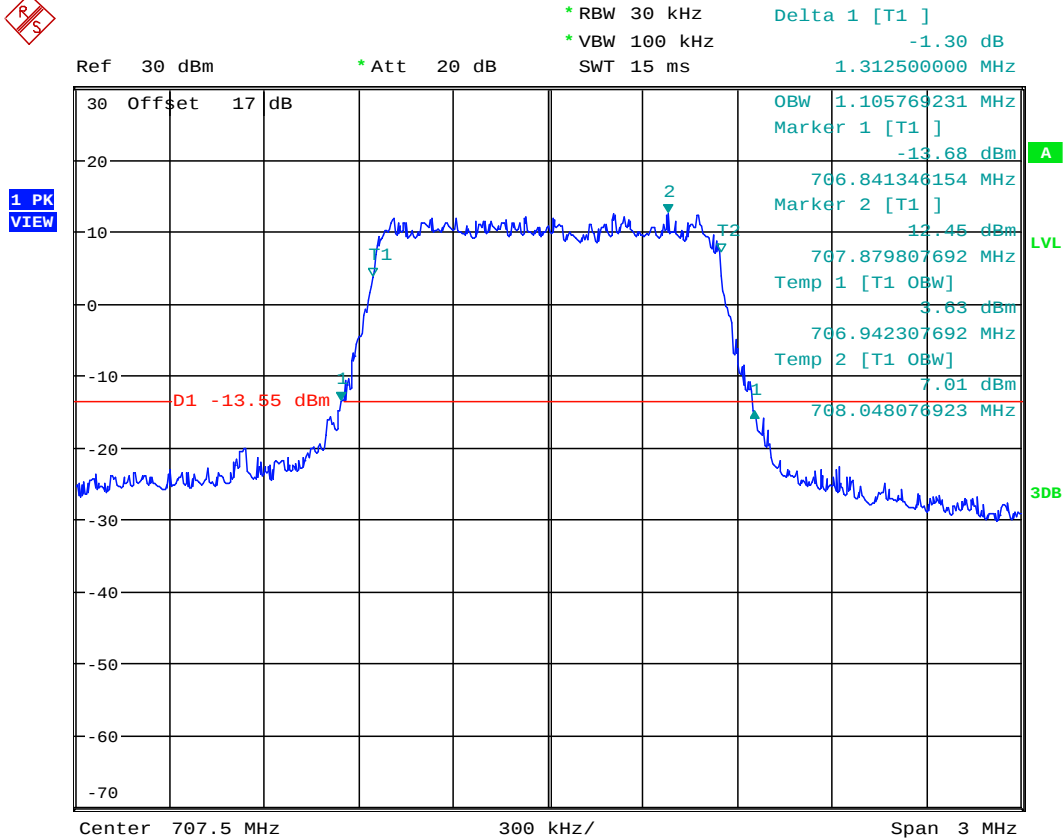
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

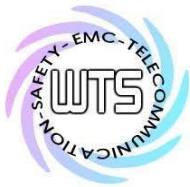
FCC ID: 2AT5JE070W1D14V2U

QPSK

1.4MHz



Date: 28.AUG.2019 11:16:00

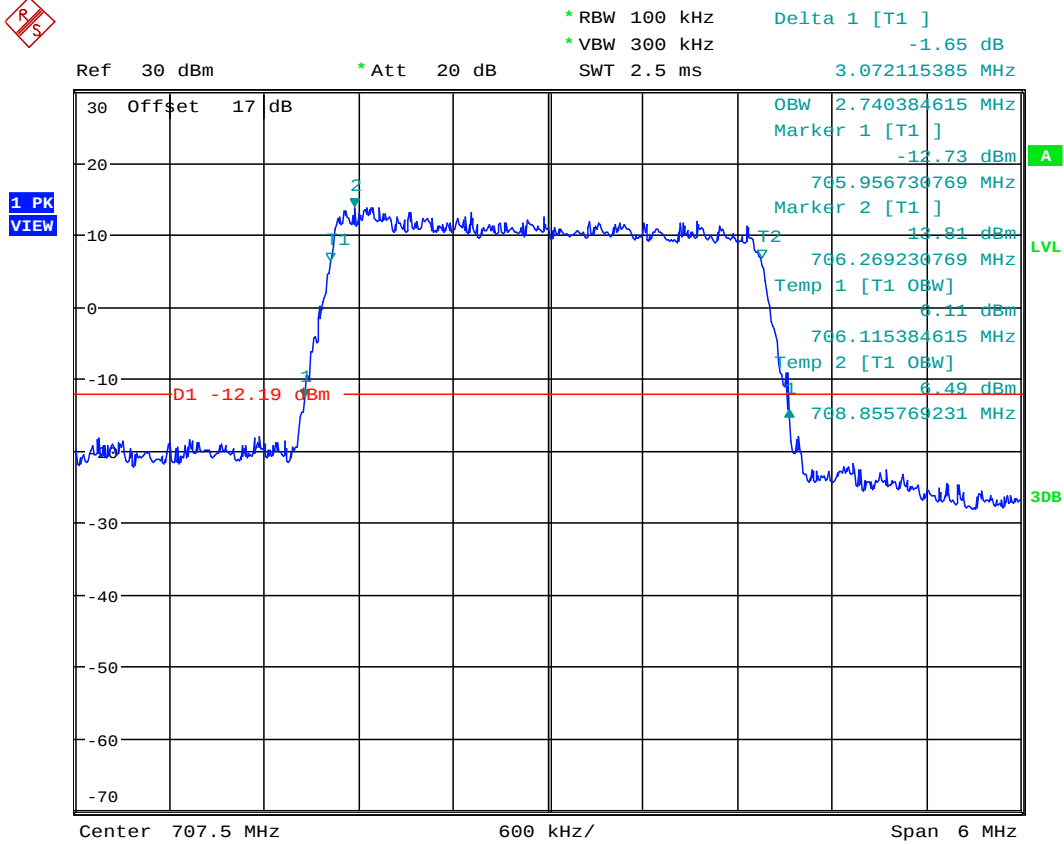


Worldwide Testing Services(Taiwan) Co., Ltd.

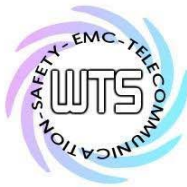
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz



Date: 28.AUG.2019 11:17:15



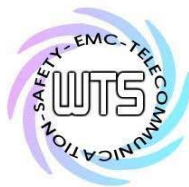
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



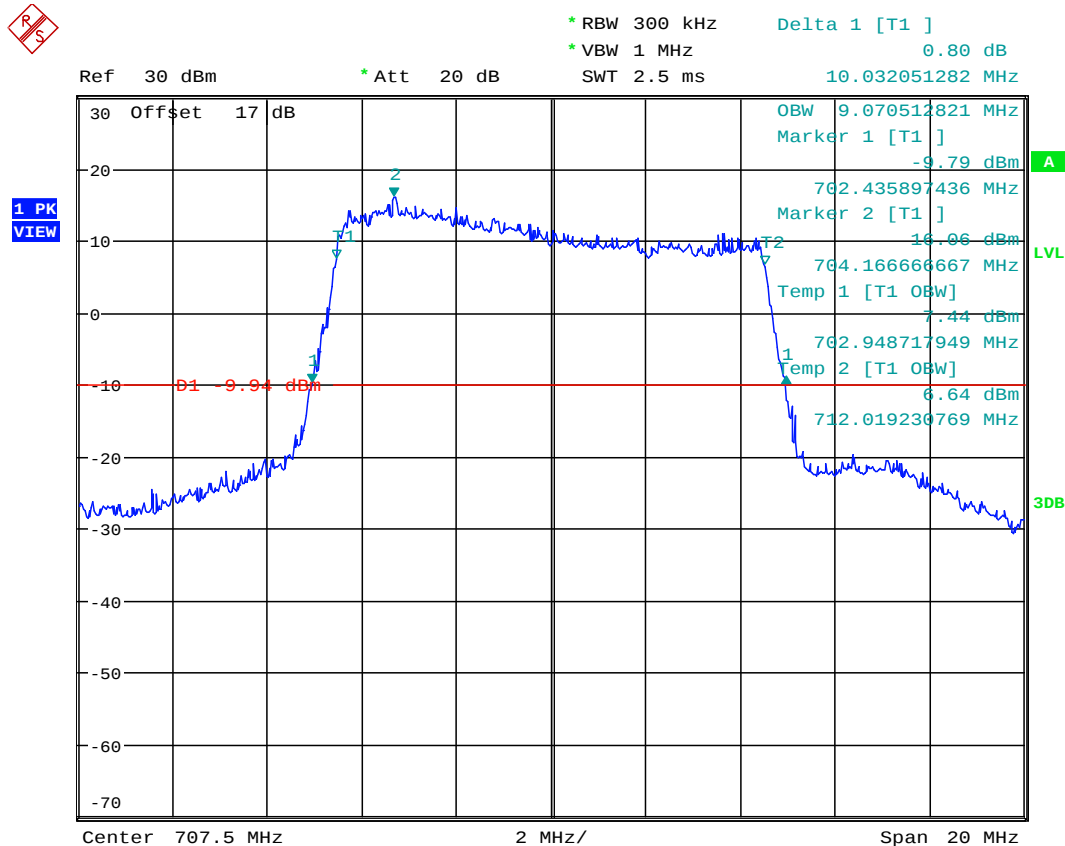
Date: 28.AUG.2019 11:22:15



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

10MHz



Date: 24.JUL.2019 15:43:41

Test equipment: ETSTW-RE 055, ETSTW-GSM 002, ETSTW-GSM 023, ETSTW-GSM 004

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

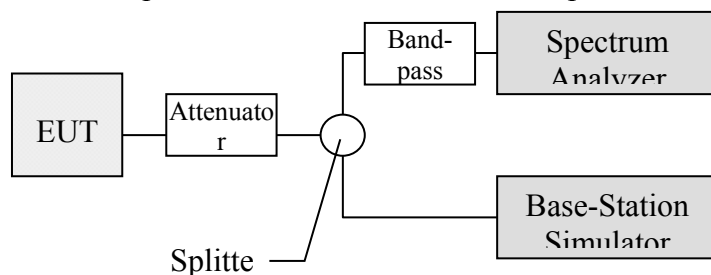
7. Spurious Emissions at Antenna Terminals

7.1 Test procedure

This transmitter output was connected to a calibrated coaxial attenuator, the other end of which was connected to a spectrum analyzer via a three-port splitter. Please refer to the following figure. Transmitter output was derived with the spectrum analyzer in dBm.

The Spurious Emissions at Antenna Terminals was measured by the spectrum analyzer with a suitable notch filter and/or Band-pass filter.

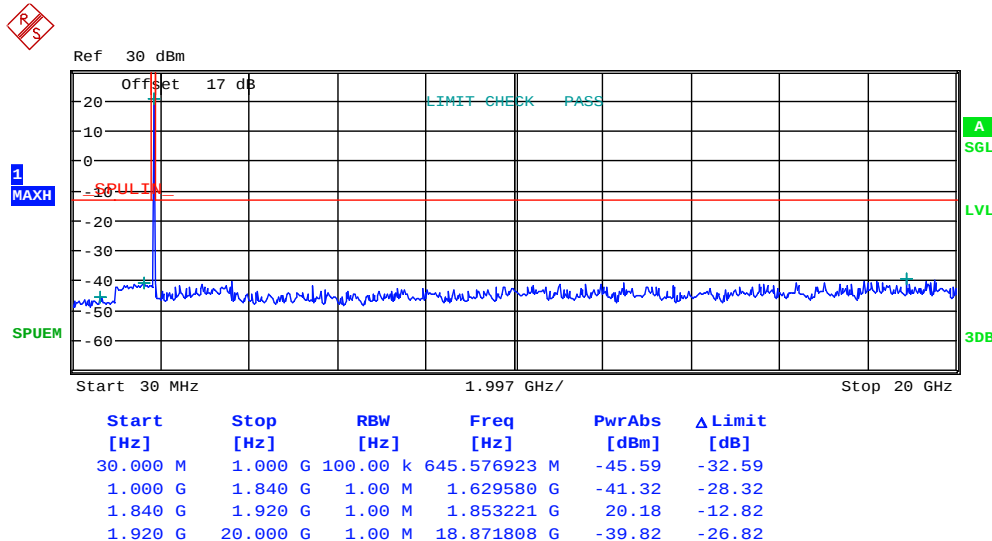
Tests were performed with an unmodulated carrier at three frequencies (low, middle and high channels) and on all power levels , which can be set-up on the transmitters.



7.2 Test Results

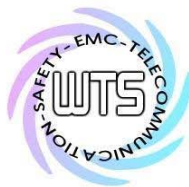
WCDMA

Band II



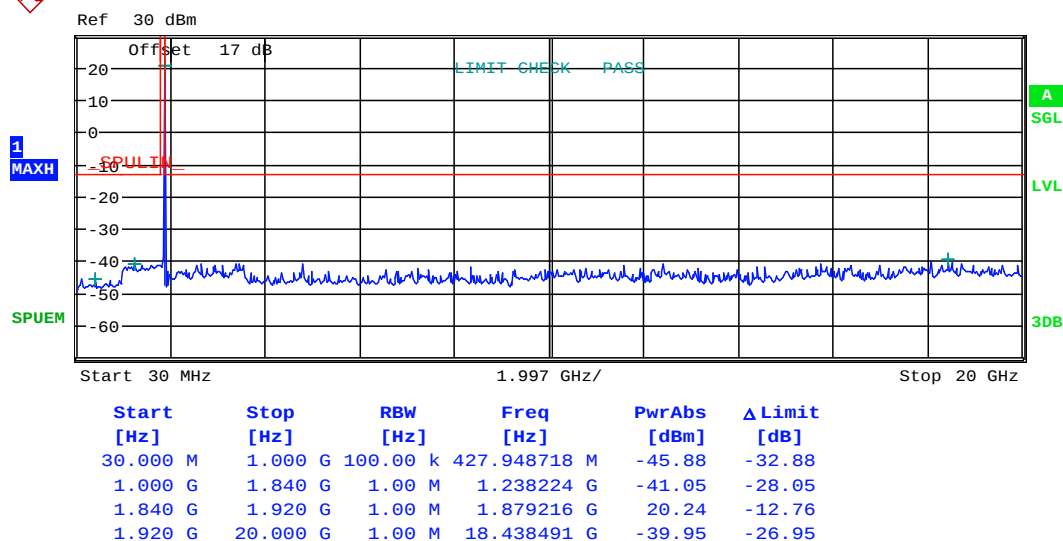
CONDUCTED SPURIOUS EMISSION WCDMA BAND2 CH9262

Date: 22.JUL.2019 16:21:55



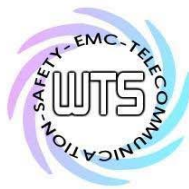
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



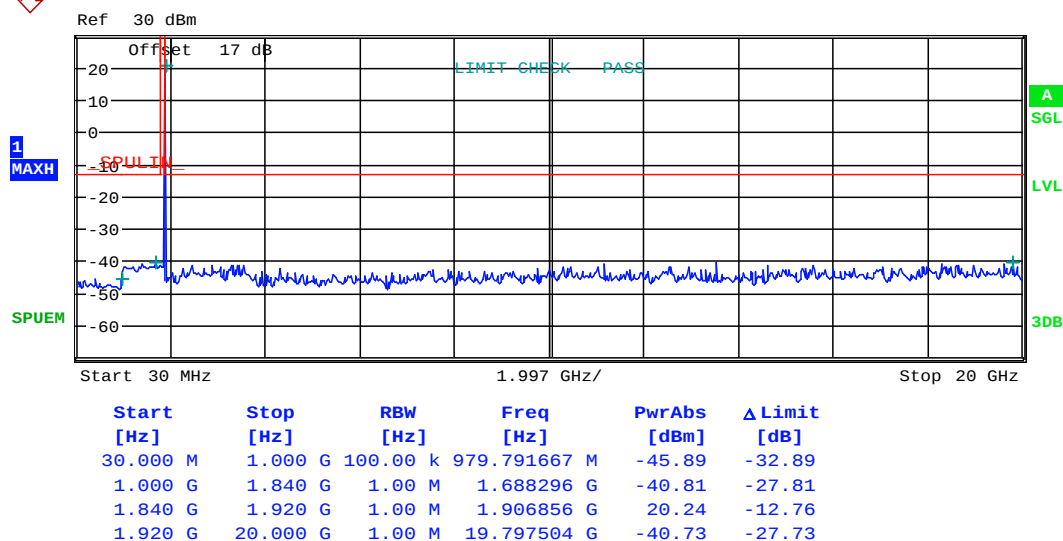
CONDUCTED SPURIOUS EMISSION WCDMA BAND2 CH9400

Date: 22.JUL.2019 16:22:26



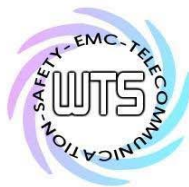
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION WCDMA BAND2 CH9538

Date: 22.JUL.2019 16:22:51

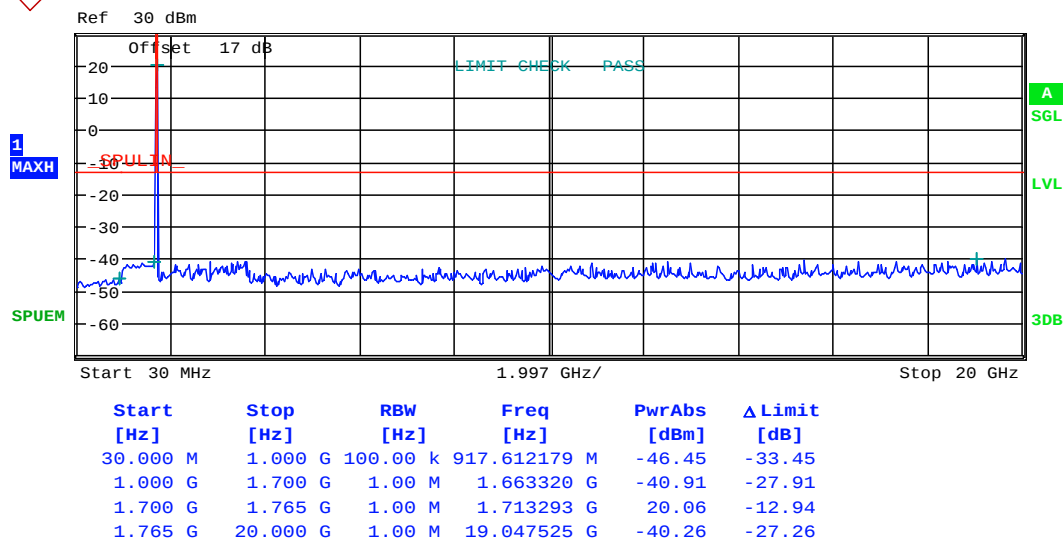


Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

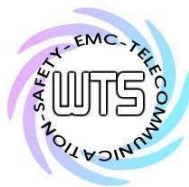
FCC ID: 2AT5JE070W1D14V2U

Band IV



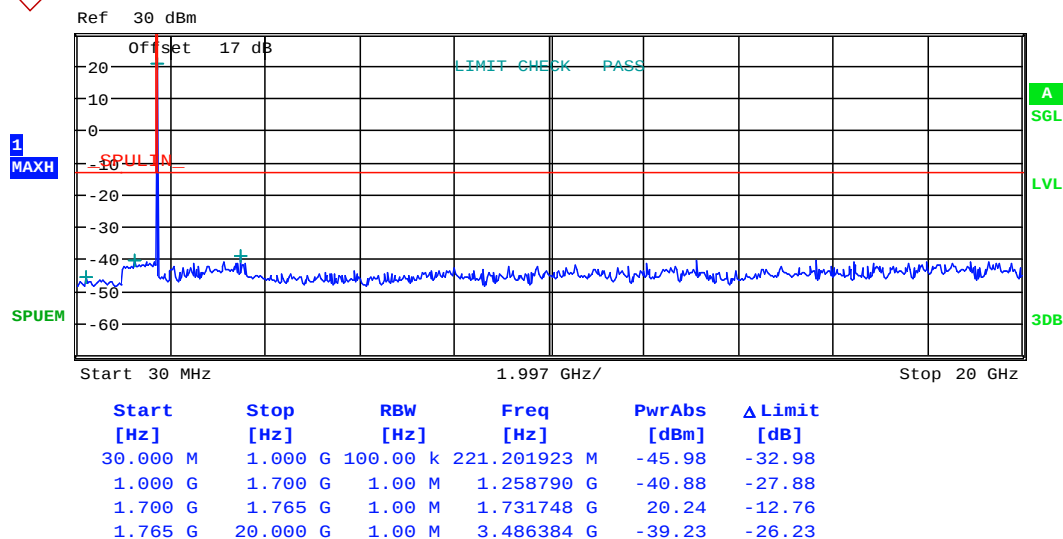
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Date: 22.JUL.2019 16:26:04



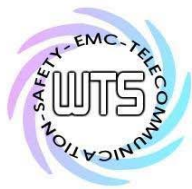
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



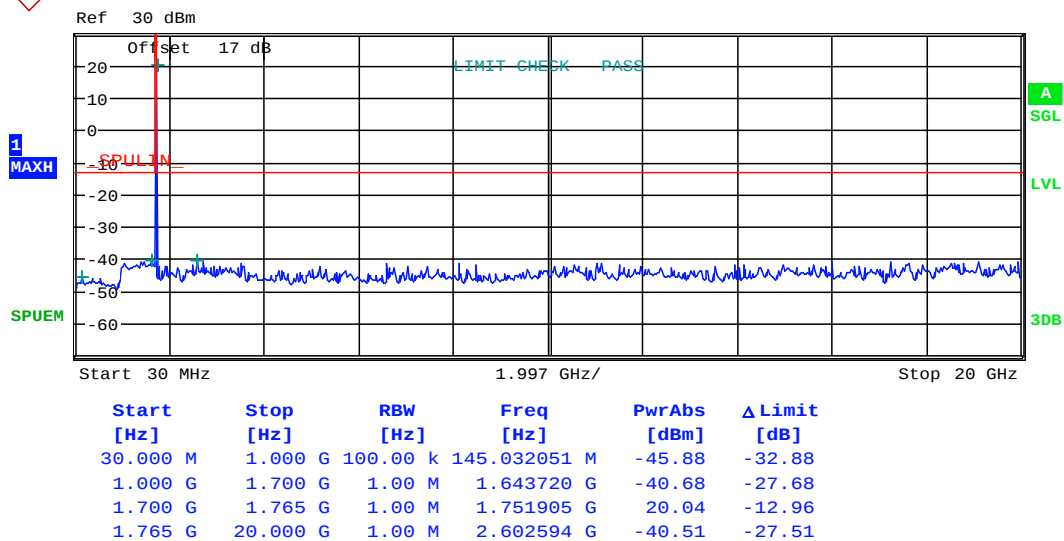
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Date: 22.JUL.2019 16:24:05



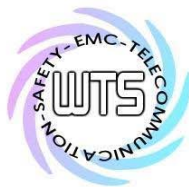
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION WCDMA BAND4 CH1513

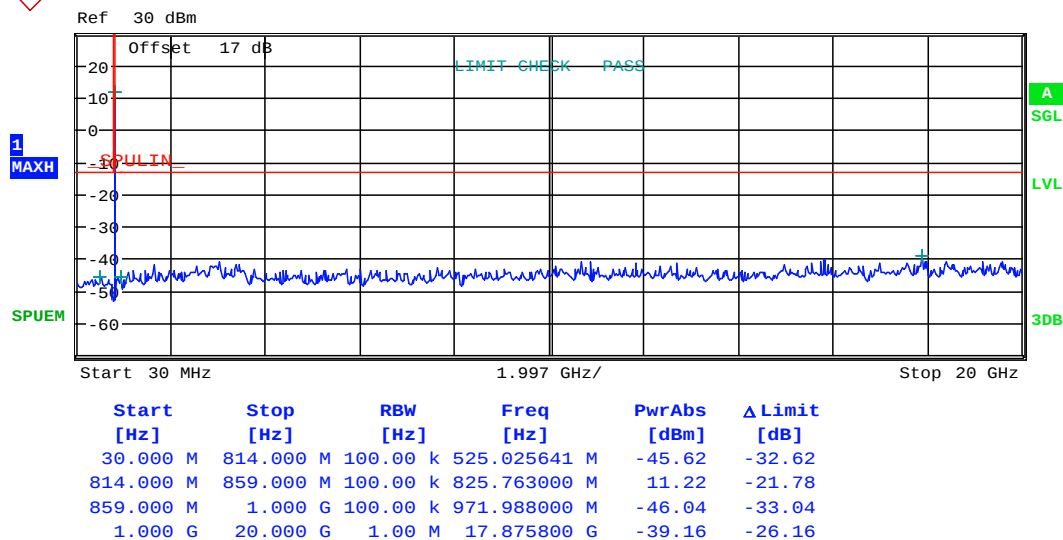
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Report Number: W6M22111-21340-P-247

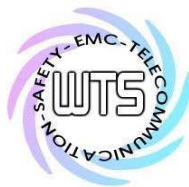
FCC ID: 2AT5JE070W1D14V2U

Band V



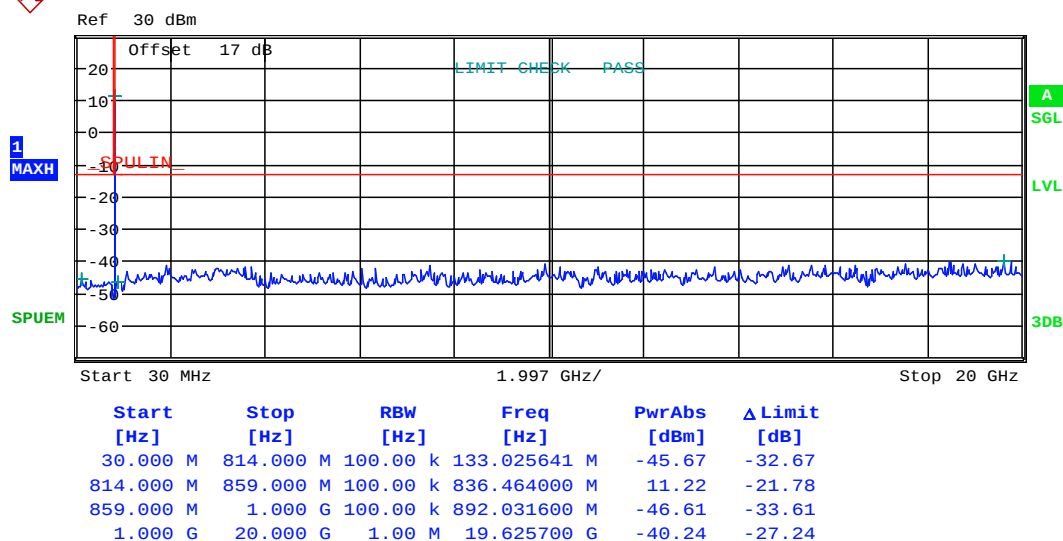
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Date: 22.JUL.2019 16:18:01



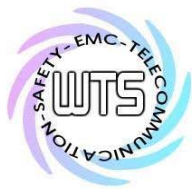
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



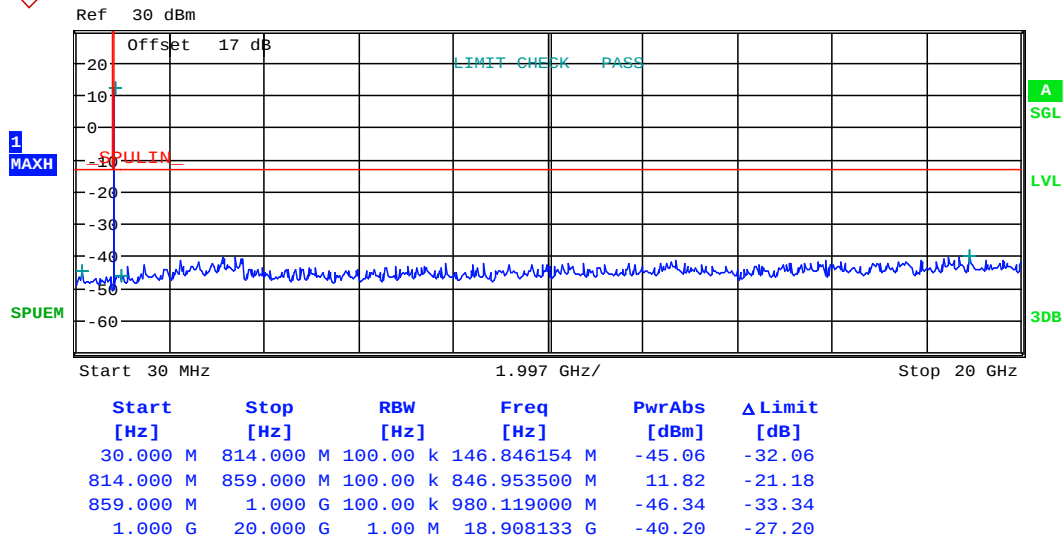
CONDUCTED SPURIOUS EMISSION WCDMA BAND5 CH4183

Date: 22.JUL.2019 16:17:32



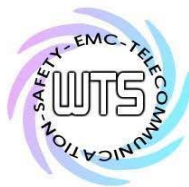
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION WCDMA BAND5 CH4233

Date: 22.JUL.2019 16:16:43



Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

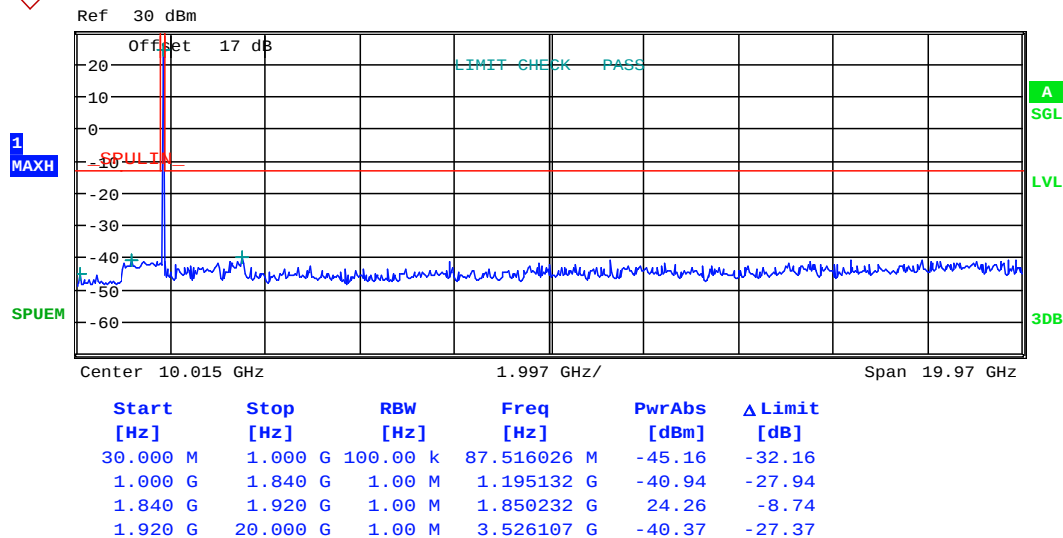
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LTE

Band II

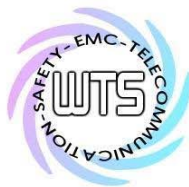
16QAM

1.4MHz



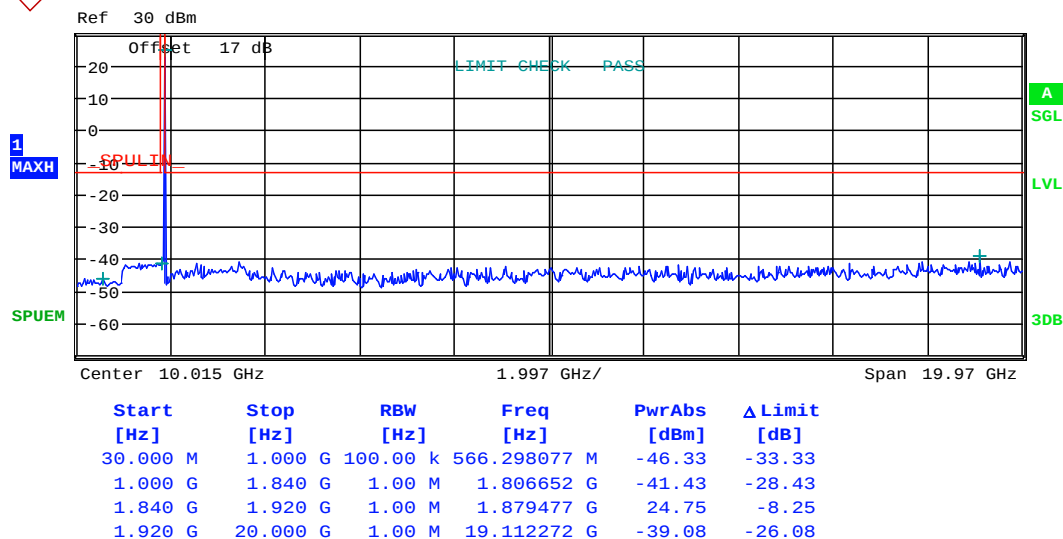
CONDUCTED SPURIOUS EMISSION BAND2 16QAM 1RB 1.4MHz CH18607

Date: 24.JUL.2019 17:12:51



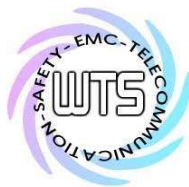
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND2 16QAM 1RB 1.4MHz CH18900

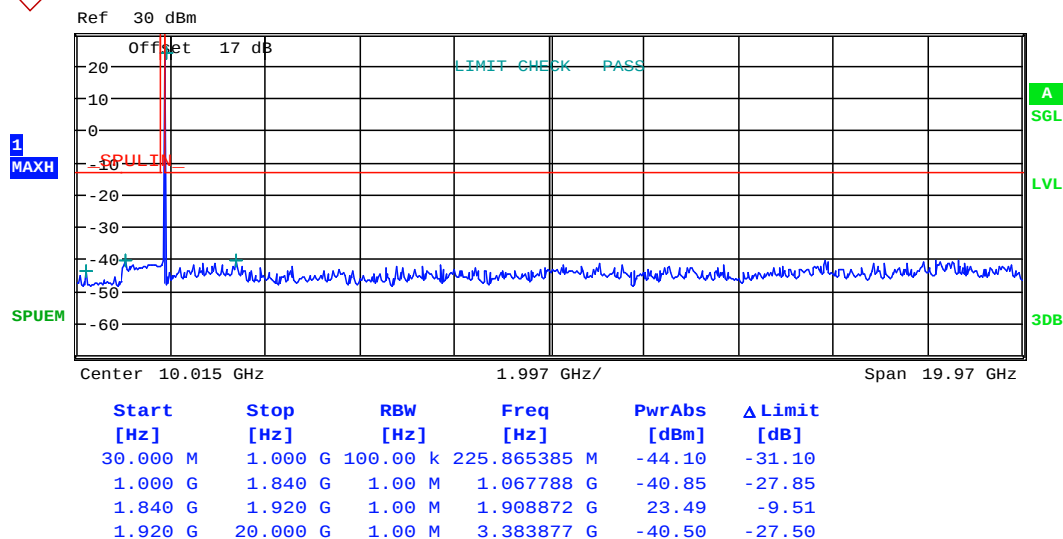
Date: 24.JUL.2019 17:11:42



Worldwide Testing Services(Taiwan) Co., Ltd.

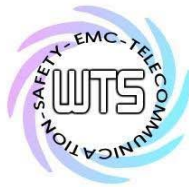
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND2 16QAM 1RB 1.4MHz CH19193

Date: 24.JUL.2019 17:13:17

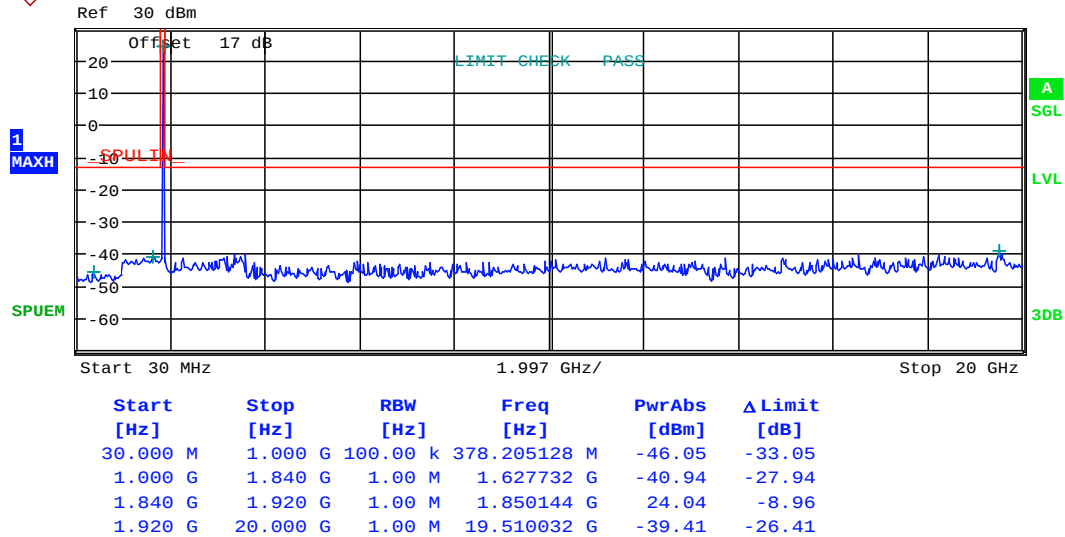


Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

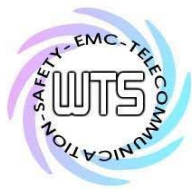
FCC ID: 2AT5JE070W1D14V2U

3MHz



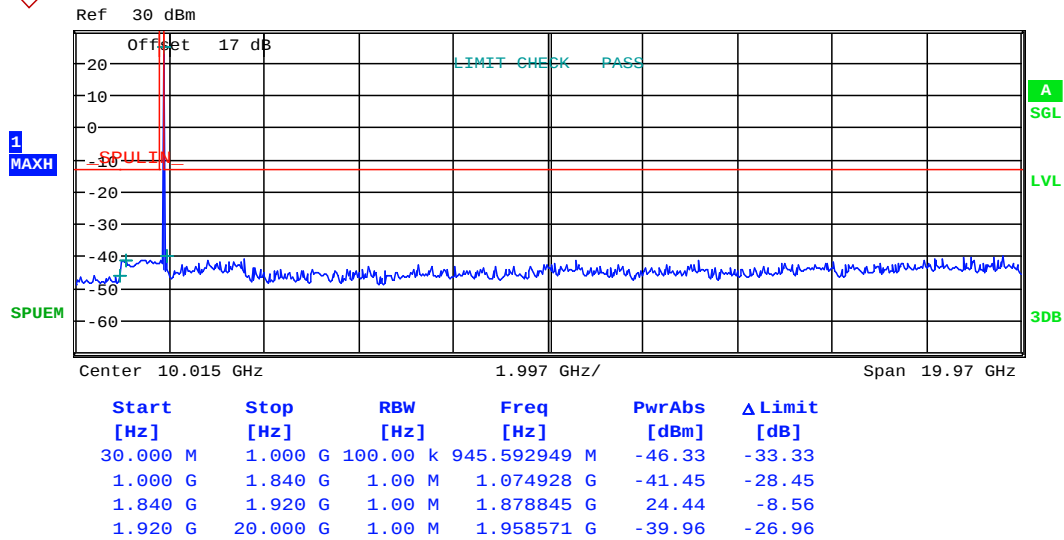
CONDUCTED SPURIOUS EMISSION BAND2 16QAM 1RB 3MHz CH18615

Date: 24.JUL.2019 16:44:16



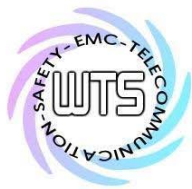
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



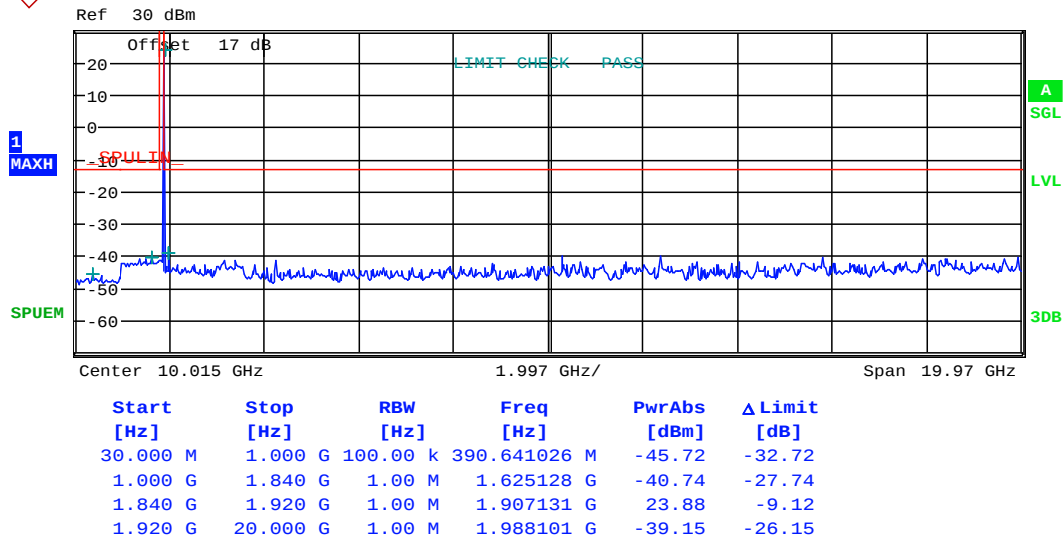
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Date: 24.JUL.2019 17:17:34



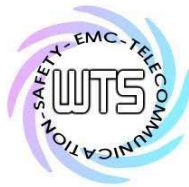
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND2 16QAM 1RB 3MHZ CH19185

Date: 24.JUL.2019 17:18:04

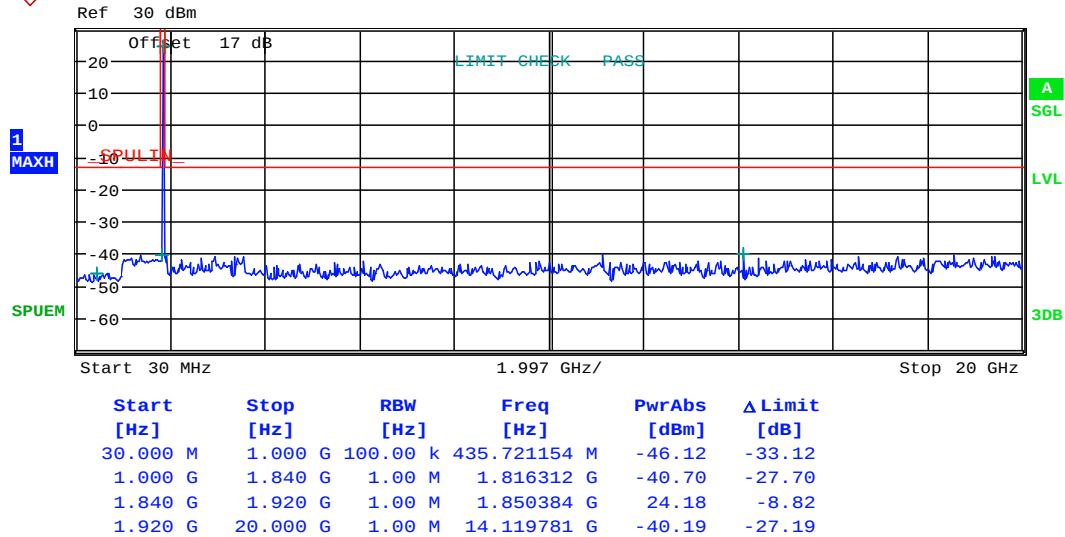


Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

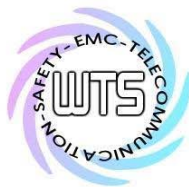
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5MHz



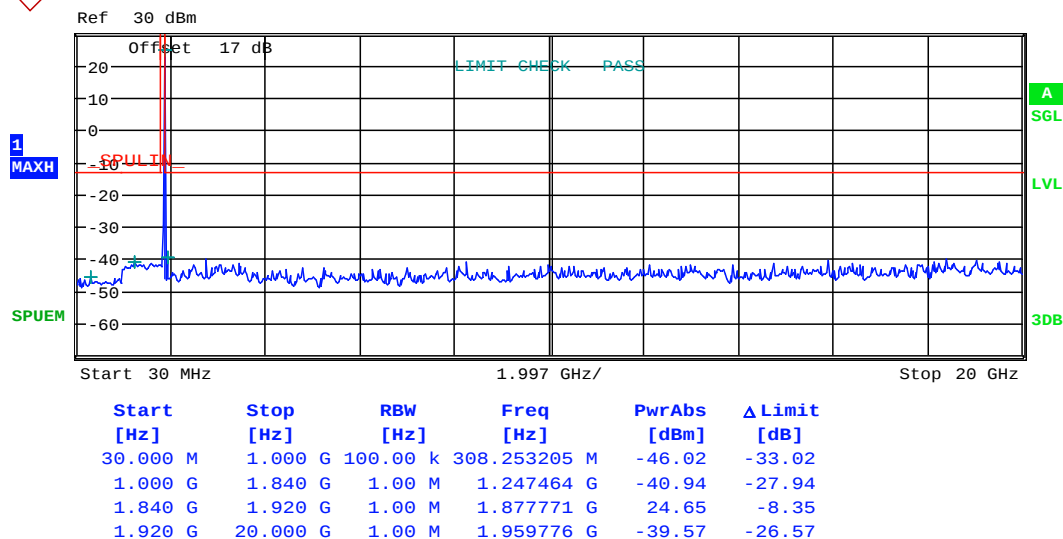
CONDUCTED SPURIOUS EMISSION BAND2 16QAM 1RB 5MHz CH18625

Date: 24.JUL.2019 16:39:57



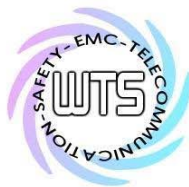
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



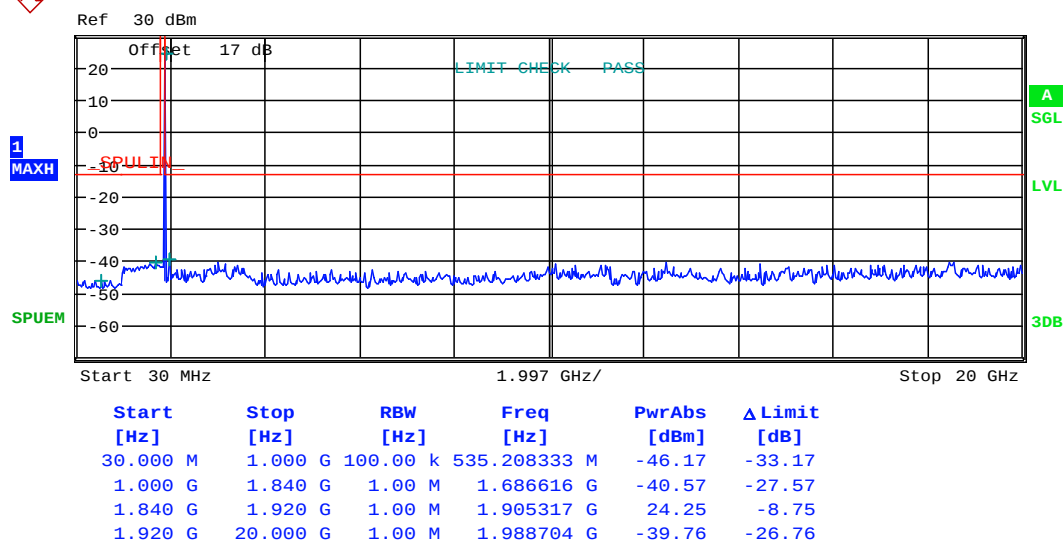
CONDUCTED SPURIOUS EMISSION BAND2 16QAM 1RB 5MHZ CH18900

Date: 24.JUL.2019 16:38:32



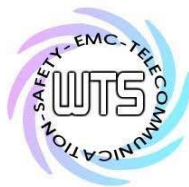
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND2 16QAM 1RB 5MHZ CH19175

Date: 24.JUL.2019 16:39:15

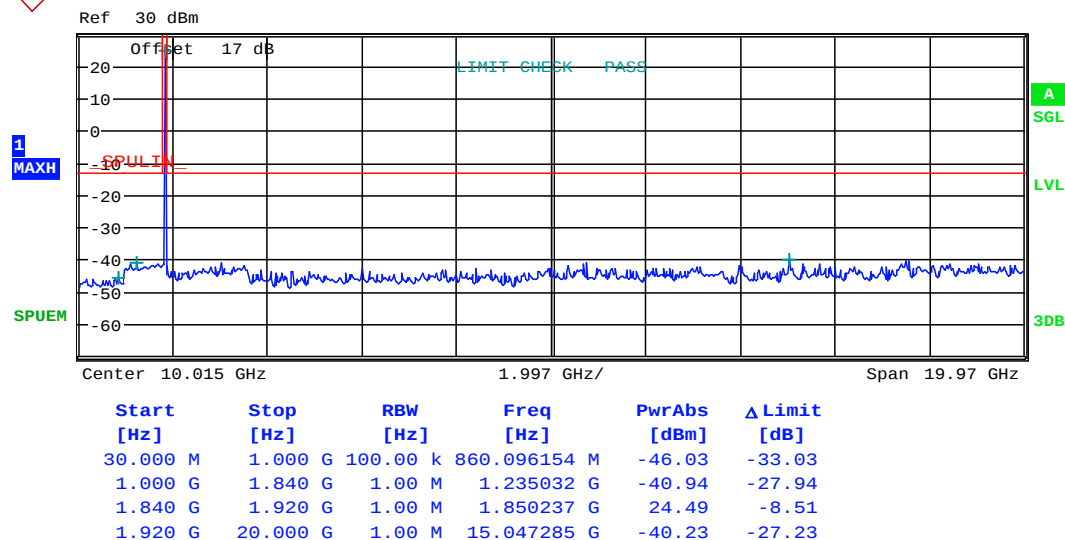


Report Number: W6M22111-21340-P-247

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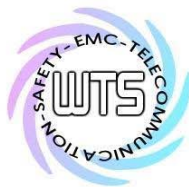
QPSK

1.4MHz



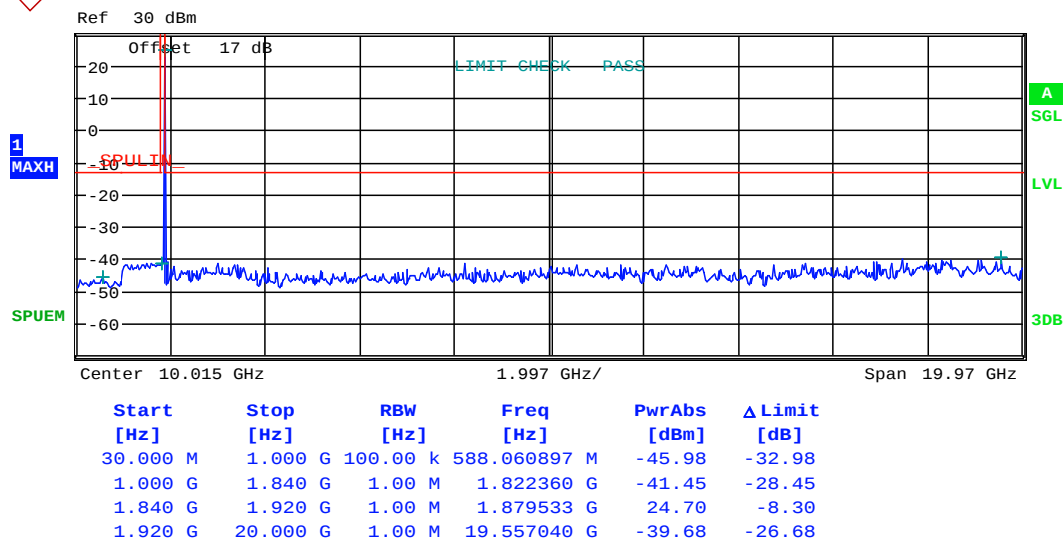
CONDUCTED SPURIOUS EMISSION BAND2 QPSK 1RB 1.4MHz CH18607

Date: 24.JUL.2019 17:14:20



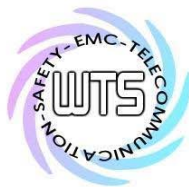
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



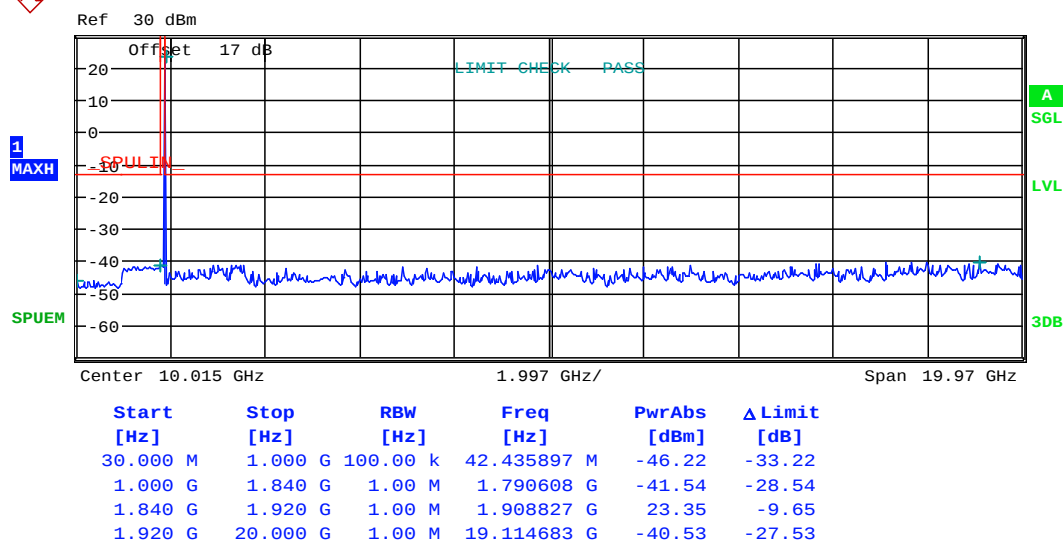
CONDUCTED SPURIOUS EMISSION BAND2 QPSK 1RB 1.4MHz CH18900

Date: 24.JUL.2019 17:14:41



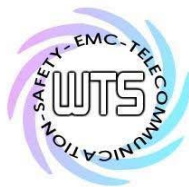
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND2 QPSK 1RB 1.4MHz CH19193

Date: 24.JUL.2019 17:13:53

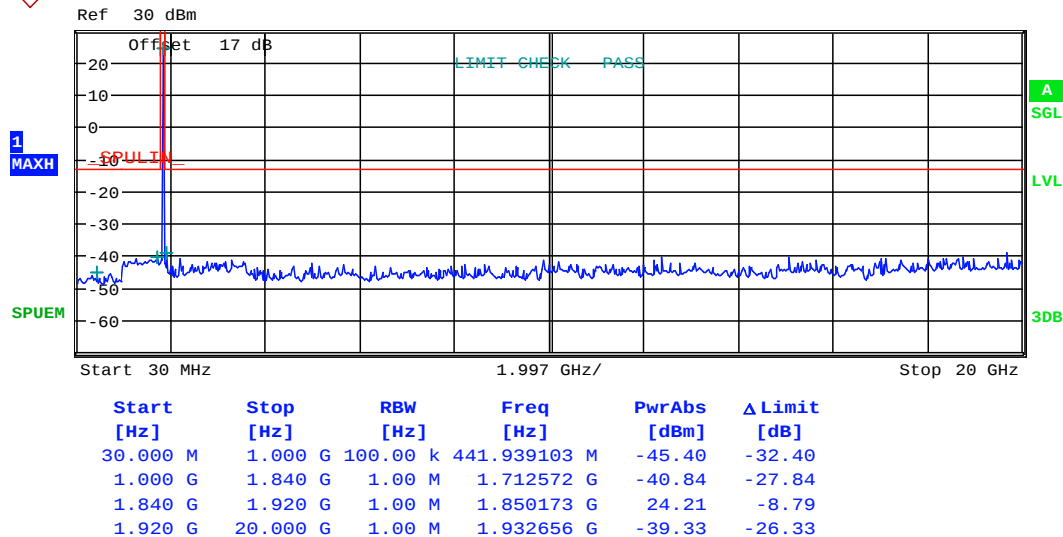


Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

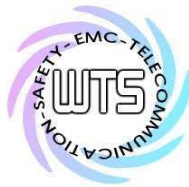
FCC ID: 2AT5JE070W1D14V2U

3MHz



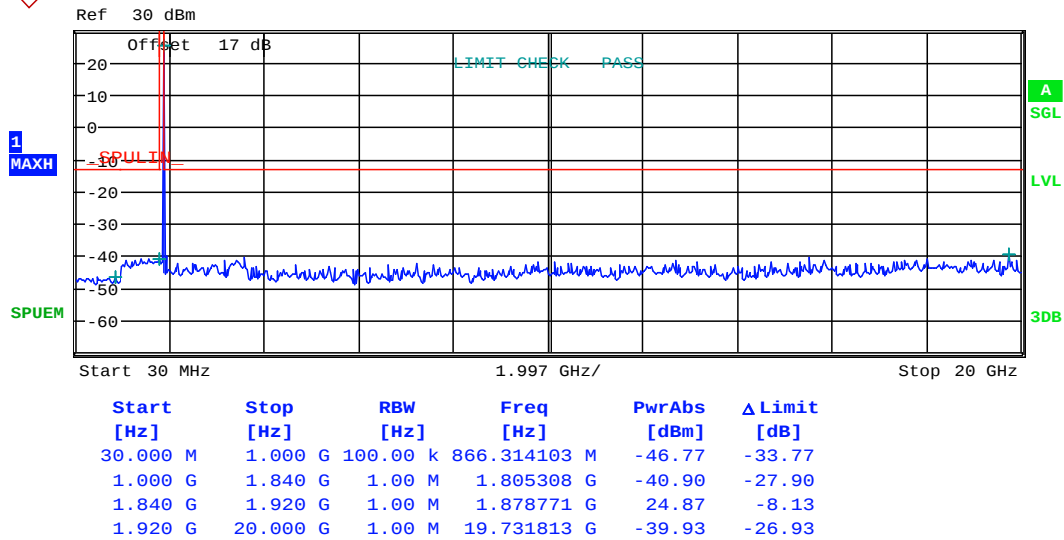
CONDUCTED SPURIOUS EMISSION BAND2 QPSK 1RB 3MHZ CH18615

Date: 24.JUL.2019 16:43:35



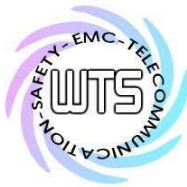
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND2 QPSK 1RB 3MHz CH18900

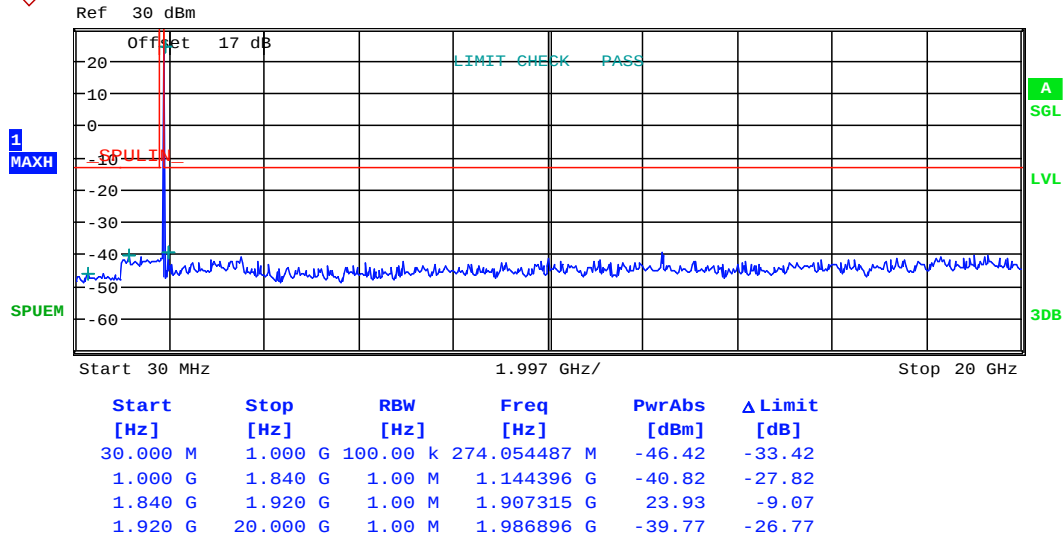
Date: 24.JUL.2019 16:42:29



Worldwide Testing Services(Taiwan) Co., Ltd.

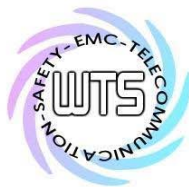
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND2 QPSK 1RB 3MHz CH19185

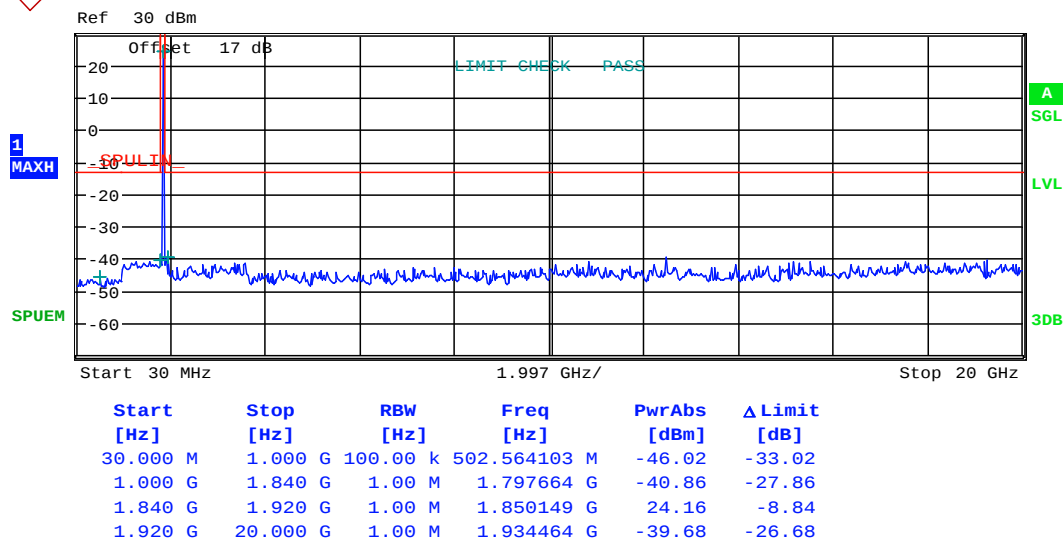
Date: 24.JUL.2019 16:43:04



Report Number: W6M22111-21340-P-247

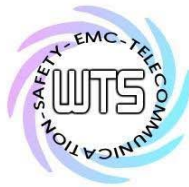
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5MHz



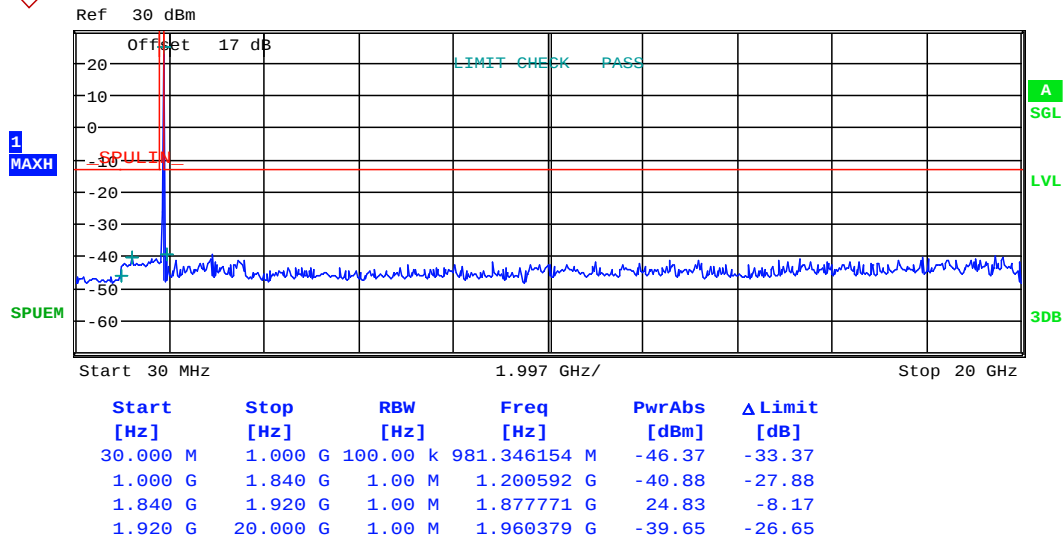
CONDUCTED SPURIOUS EMISSION BAND2 QPSK 1RB 5MHZ CH18625

Date: 24.JUL.2019 16:40:30



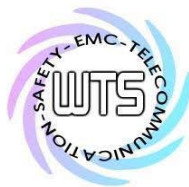
Report Number: W6M22111-21340-P-247

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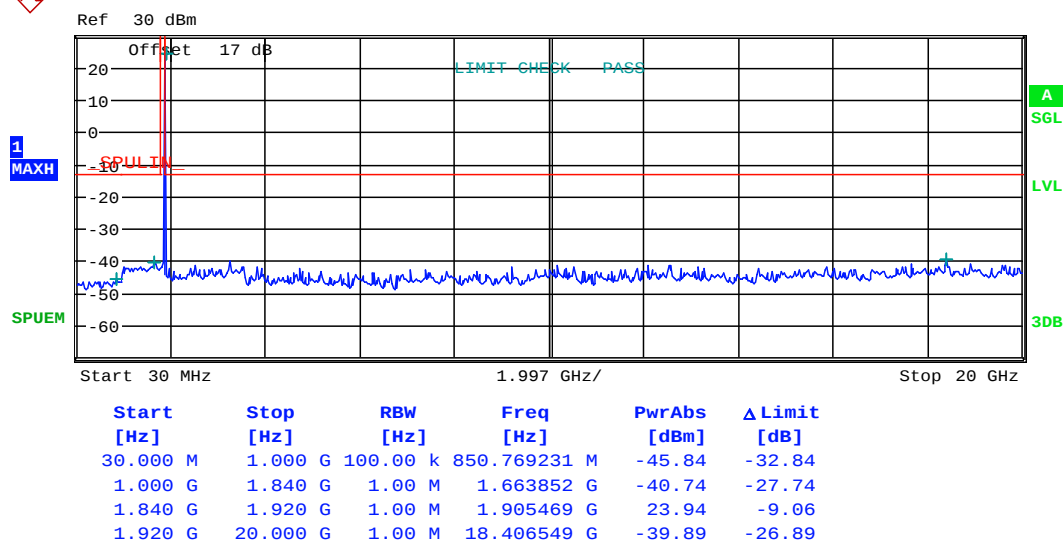
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Date: 24.JUL.2019 16:41:28



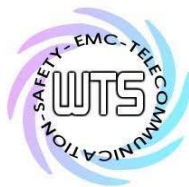
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND2 QPSK 1RB 5MHz CH19175

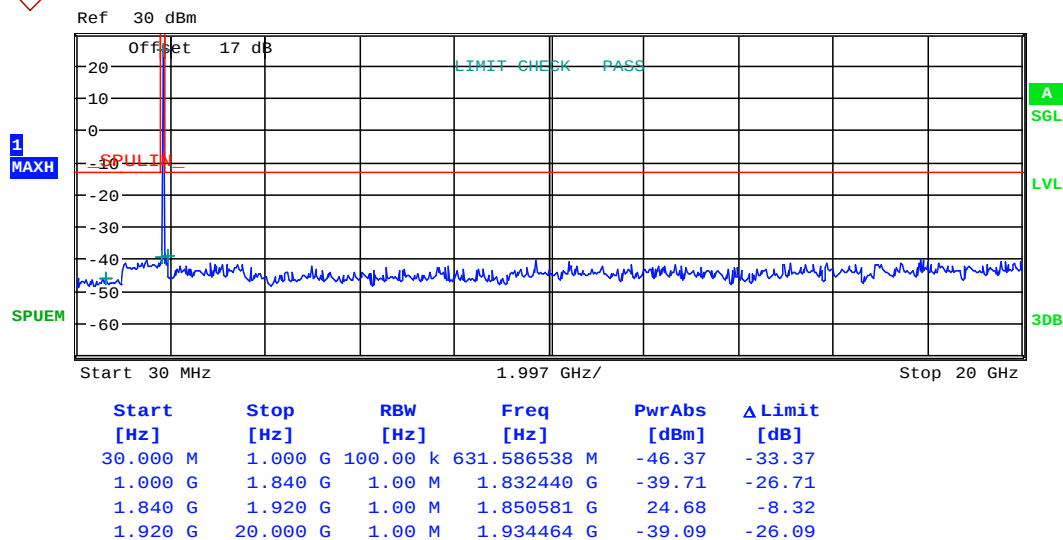
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Report Number: W6M22111-21340-P-247

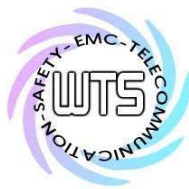
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10MHz



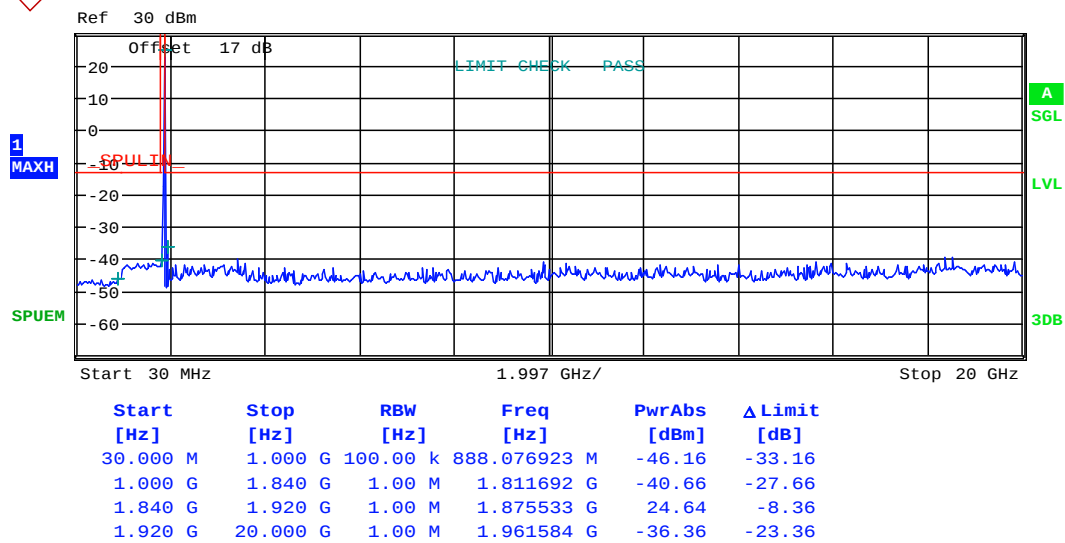
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Date: 24.JUL.2019 16:34:42



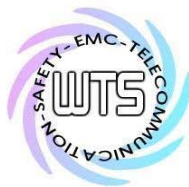
Report Number: W6M22111-21340-P-247

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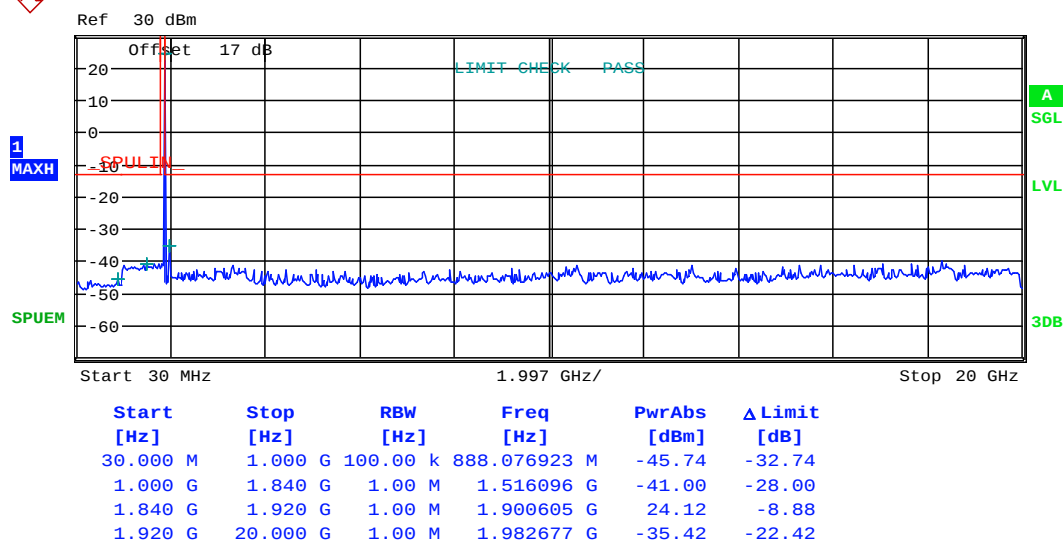
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Date: 24.JUL.2019 16:33:55



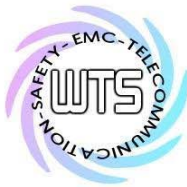
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND2 QPSK 1RB 10MHZ CH19150

Date: 24.JUL.2019 16:35:16



Worldwide Testing Services(Taiwan) Co., Ltd.

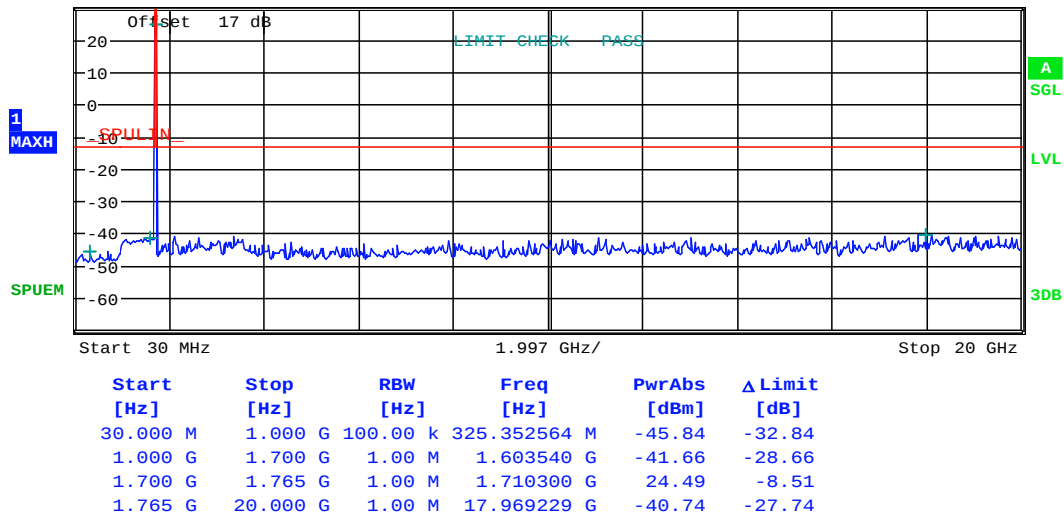
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Band IV

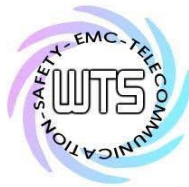
16QAM

1.4MHz



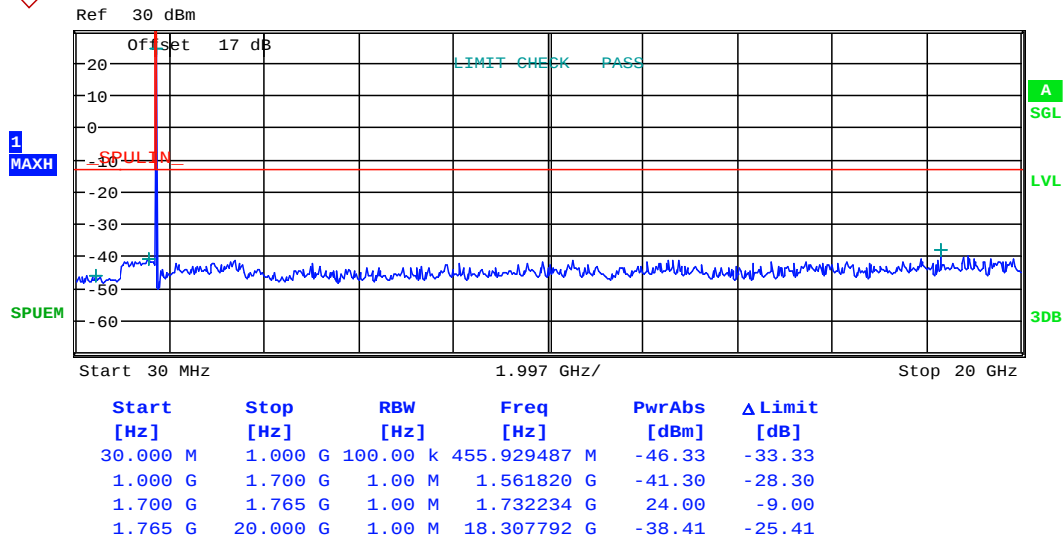
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Date: 24.JUL.2019 17:28:57



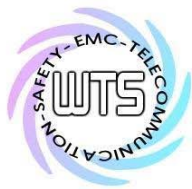
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND4 16QAM 1RB 1.4MHz CH20175

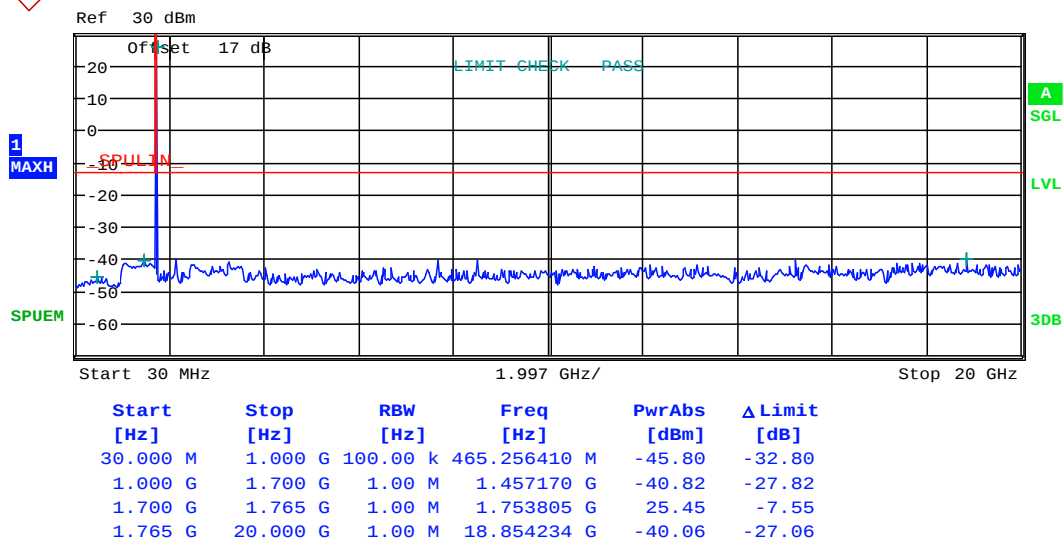
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Worldwide Testing Services(Taiwan) Co., Ltd.

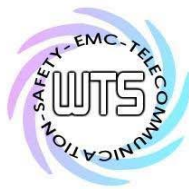
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FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND4 16QAM 1RB 1.4MHz CH20393

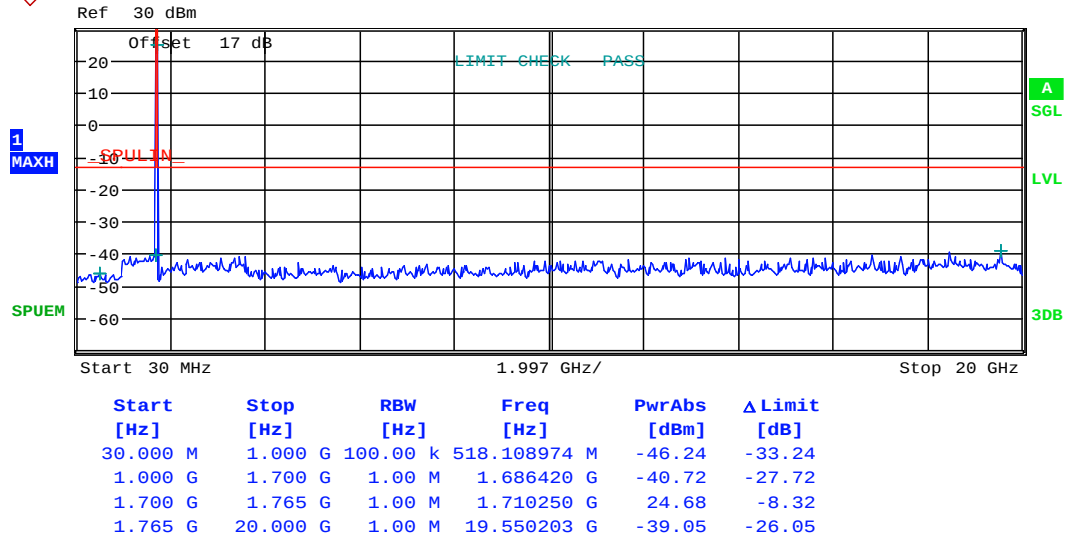
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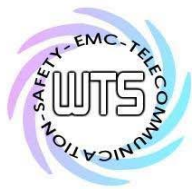
FCC ID: 2AT5JE070W1D14V2U

3MHz



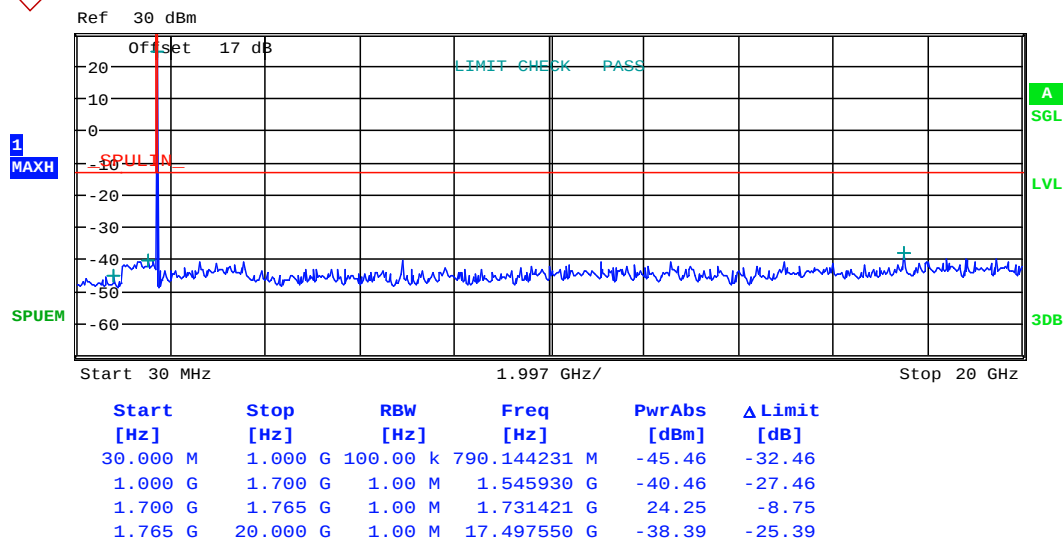
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Date: 24.JUL.2019 17:34:22



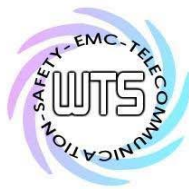
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND4 16QAM 1RB 3MHZ CH20175

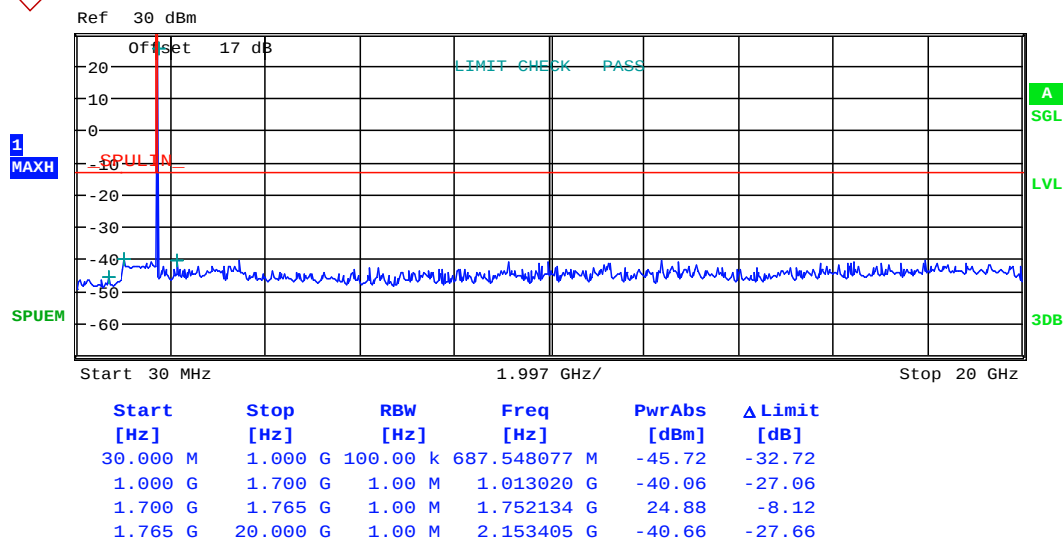
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Worldwide Testing Services(Taiwan) Co., Ltd.

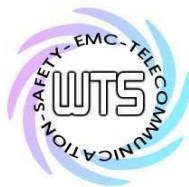
Report Number: W6M22111-21340-P-247

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CONDUCTED SPURIOUS EMISSION BAND4 16QAM 1RB 3MHZ CH20385

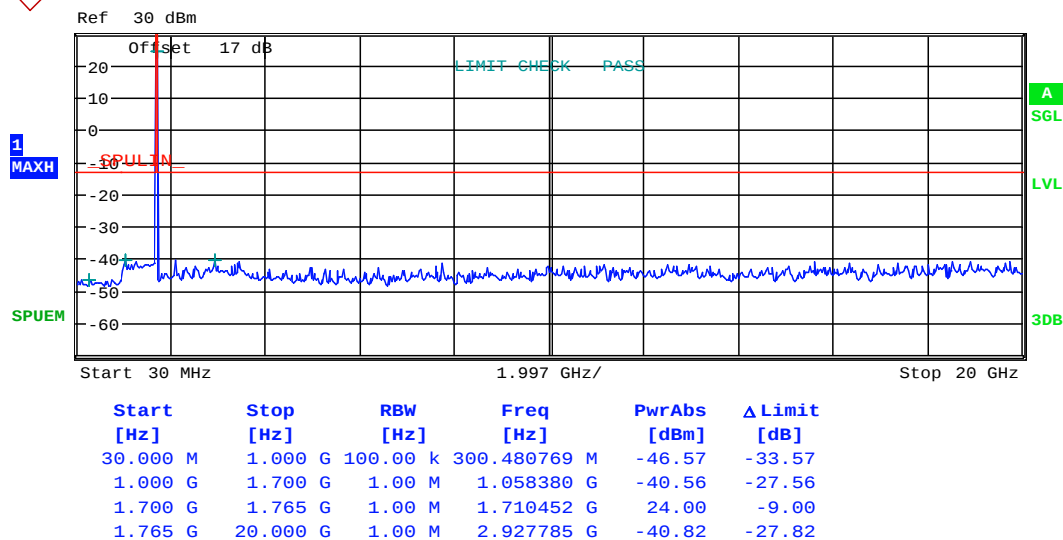
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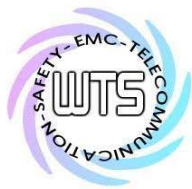
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5MHz



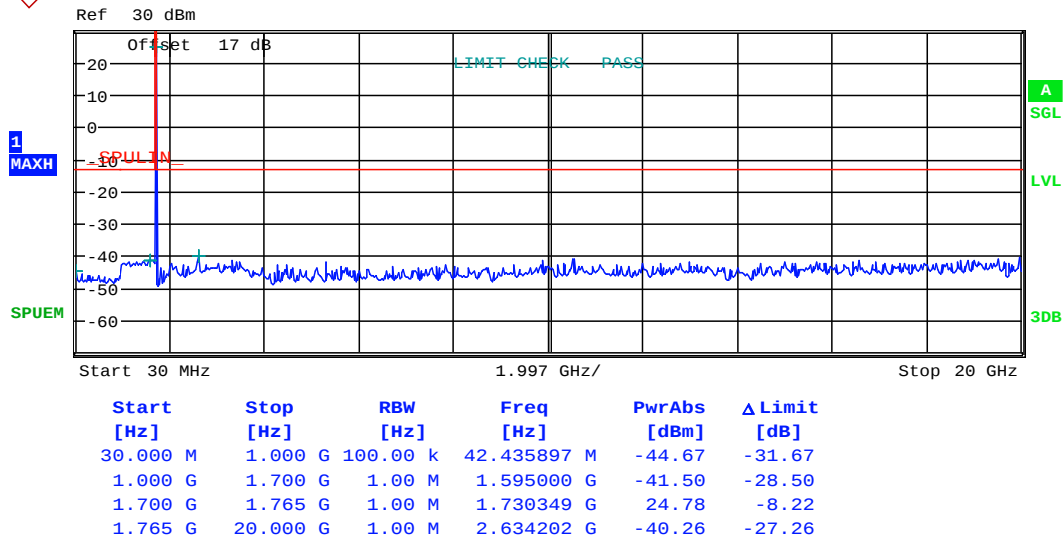
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Date: 24.JUL.2019 17:37:25



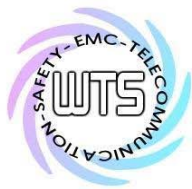
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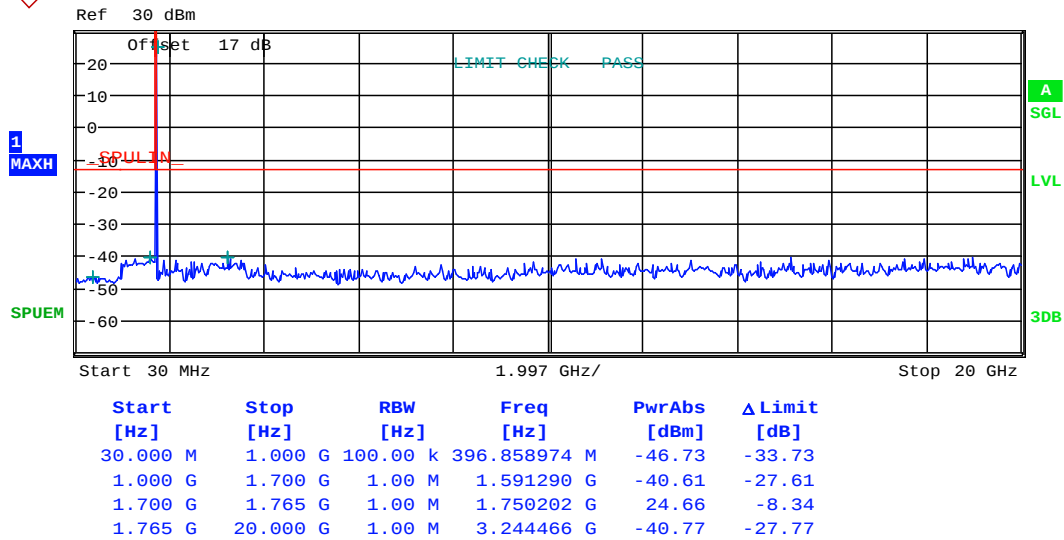
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Date: 24.JUL.2019 17:38:20



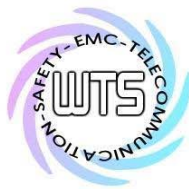
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



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Date: 24.JUL.2019 17:37:59



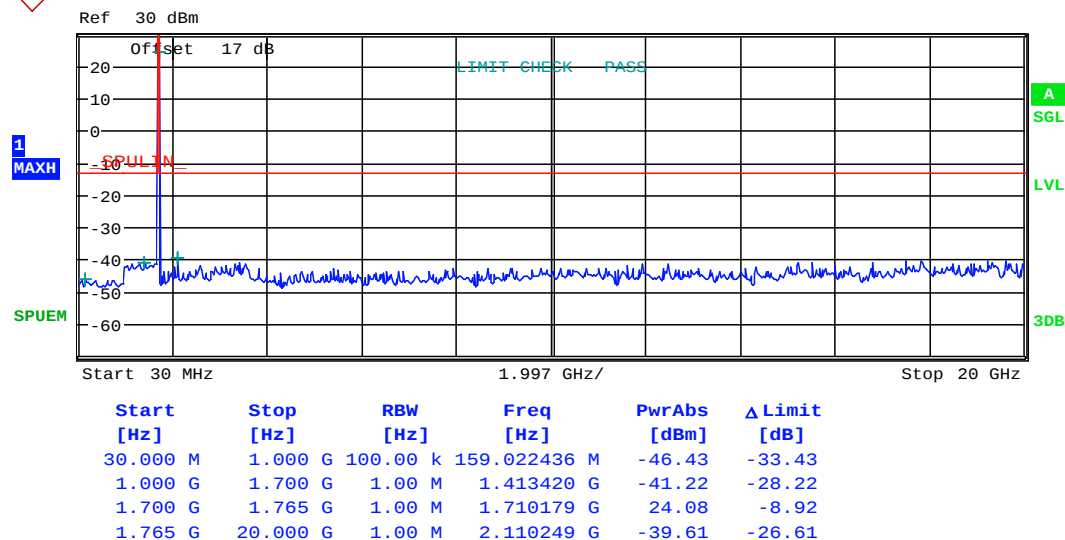
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

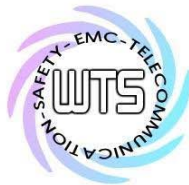
QPSK

1.4MHz



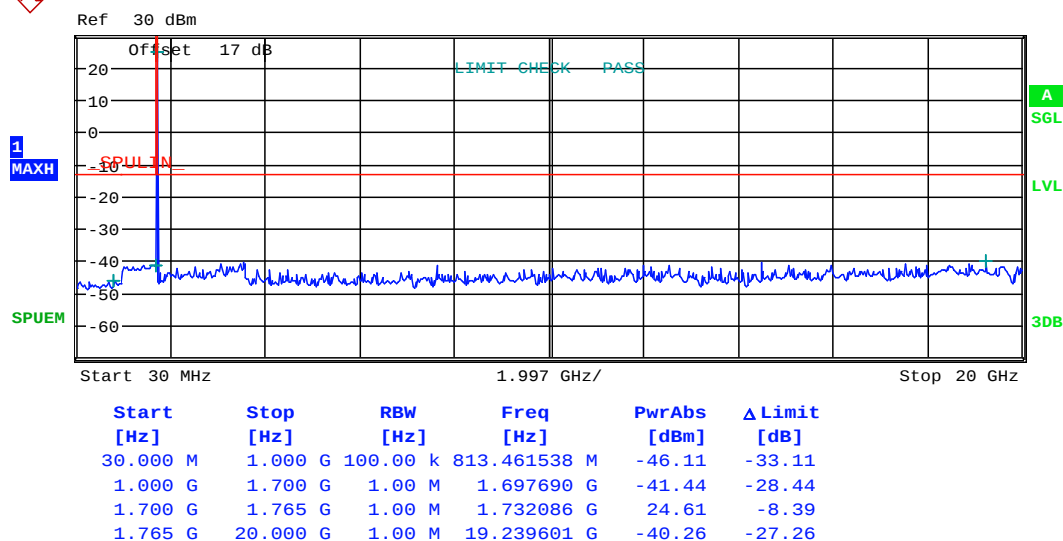
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Date: 24.JUL.2019 17:30:21



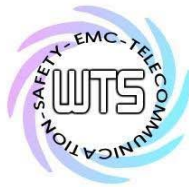
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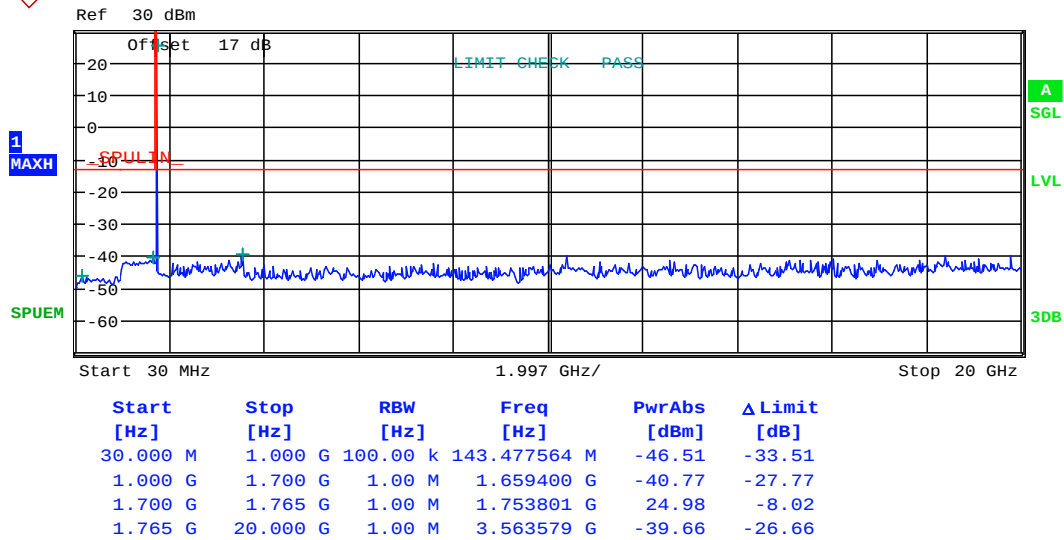
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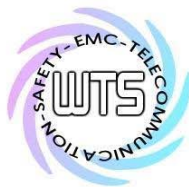
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND4 QPSK 1RB 1.4MHz CH20393

Date: 24.JUL.2019 17:29:55

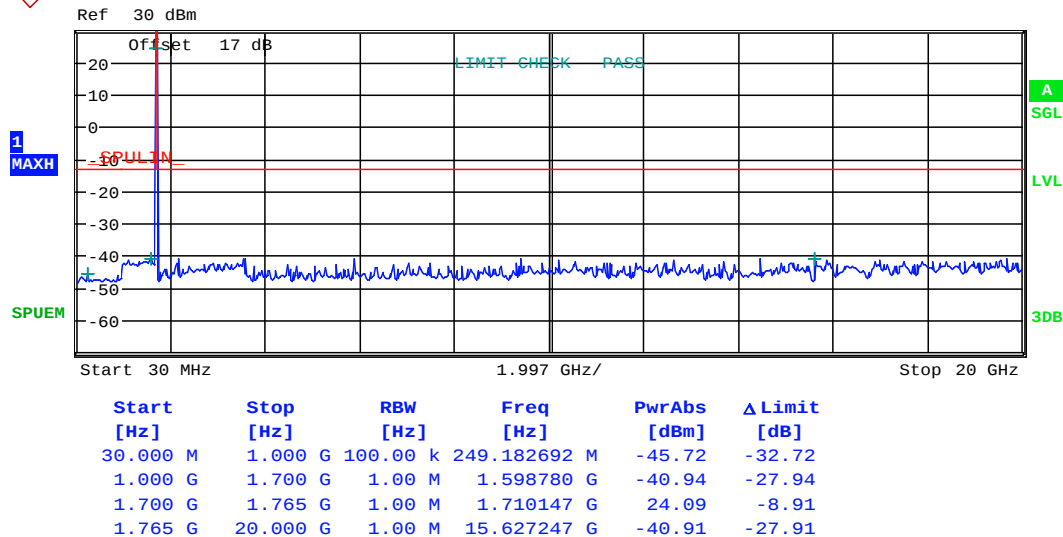


Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

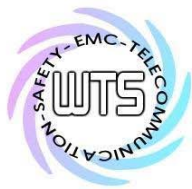
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3MHz



CONDUCTED SPURIOUS EMISSION BAND4 QPSK 1RB 3MHZ CH19965

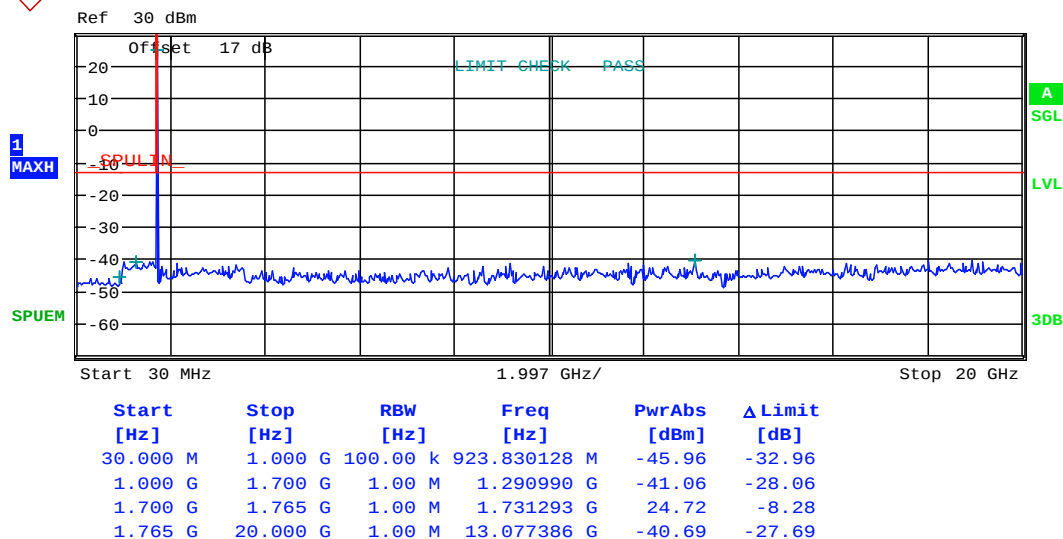
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Worldwide Testing Services(Taiwan) Co., Ltd.

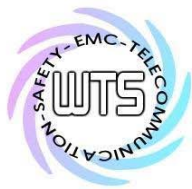
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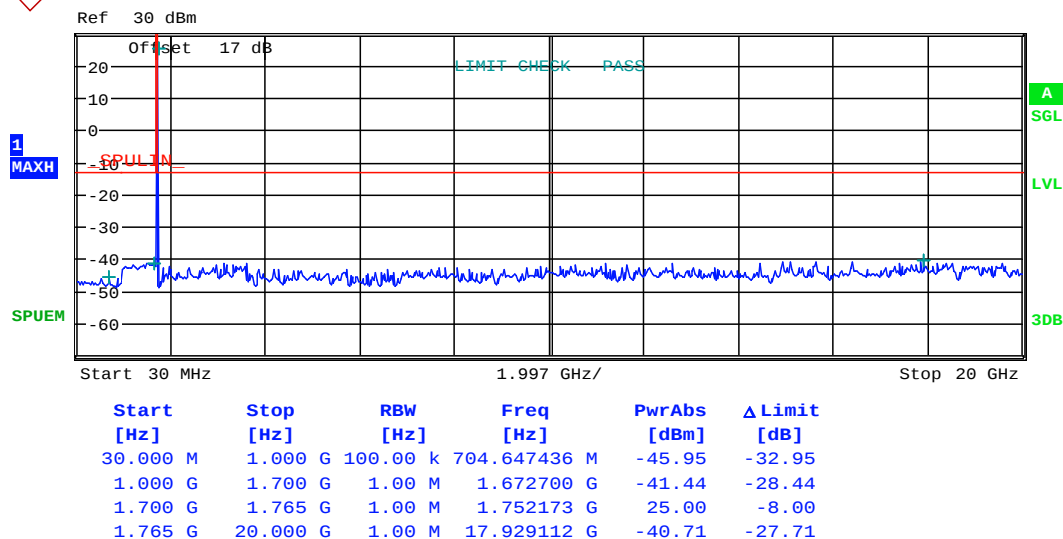
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Date: 24.JUL.2019 17:33:15



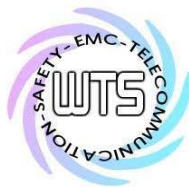
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND4 QPSK 1RB 3MHz CH20385

Date: 24.JUL.2019 17:35:19

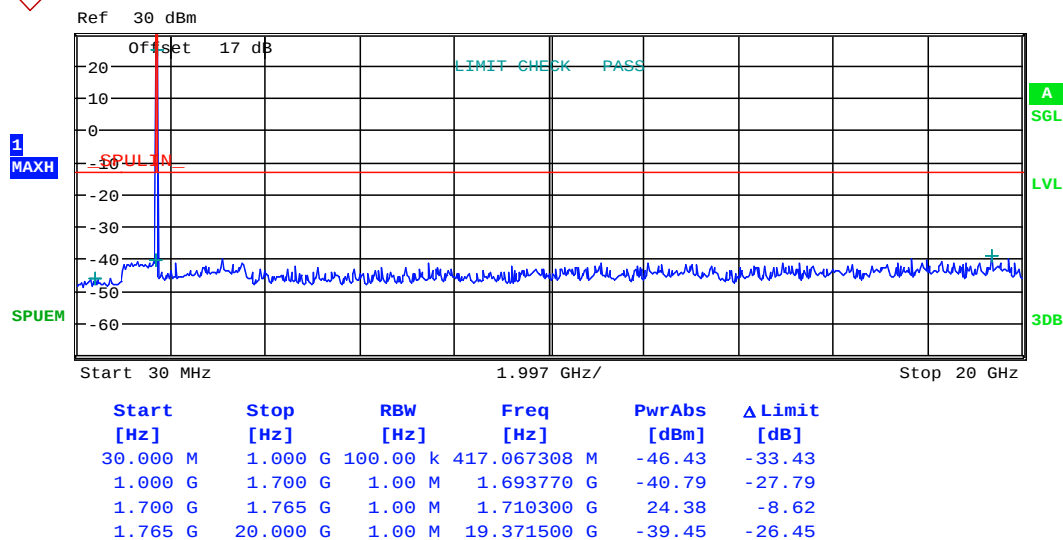


Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

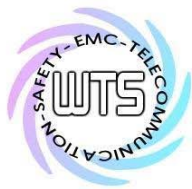
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5MHz



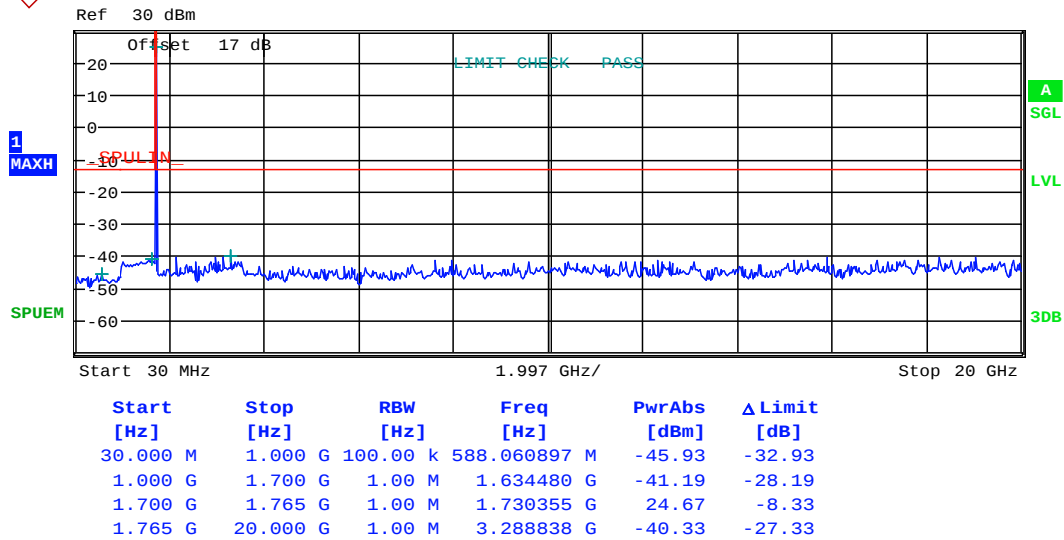
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Date: 24.JUL.2019 17:36:58



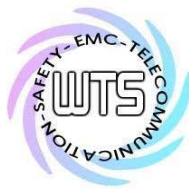
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CONDUCTED SPURIOUS EMISSION BAND4 QPSK 1RB 5MHz CH20175

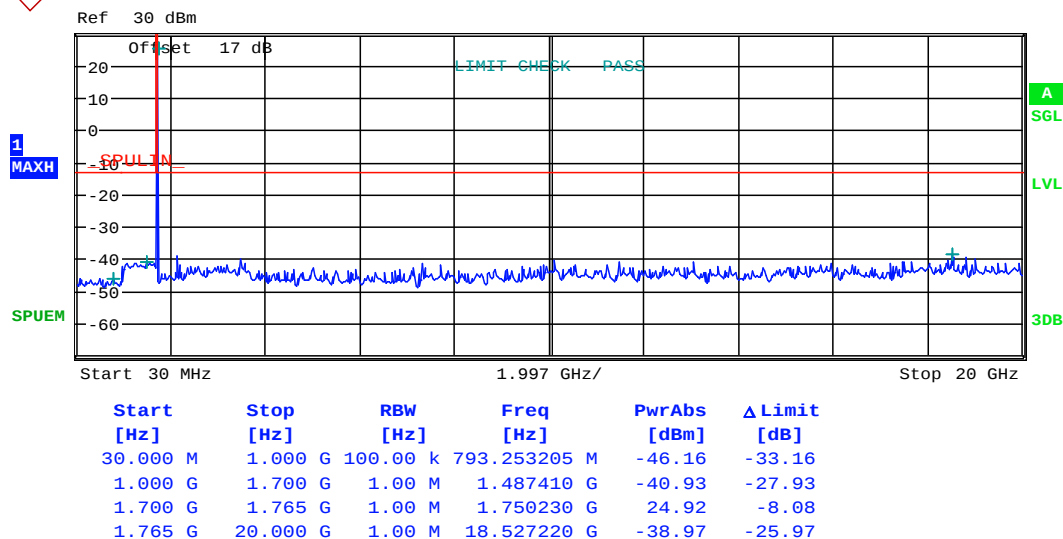
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Worldwide Testing Services(Taiwan) Co., Ltd.

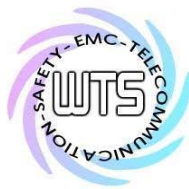
Report Number: W6M22111-21340-P-247

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Date: 24.JUL.2019 17:36:36

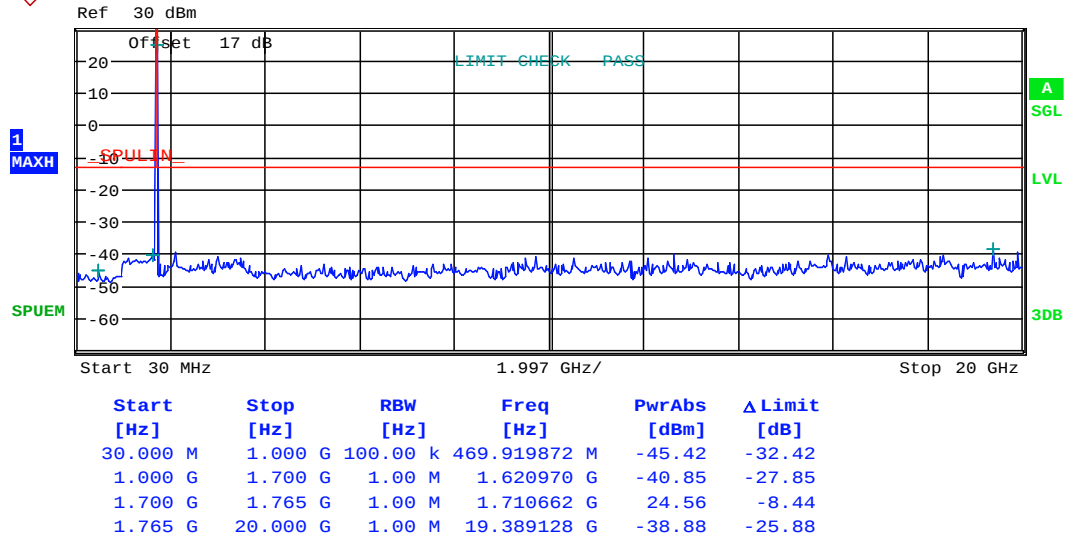


Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

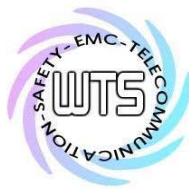
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10MHz



CONDUCTED SPURIOUS EMISSION BAND4 QPSK 1RB 10MHZ CH20000

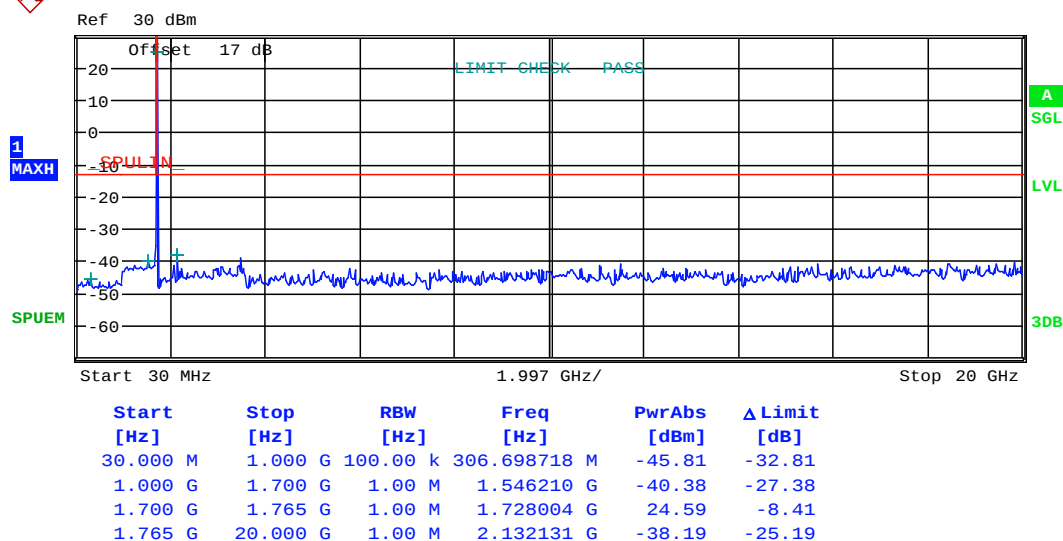
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Worldwide Testing Services(Taiwan) Co., Ltd.

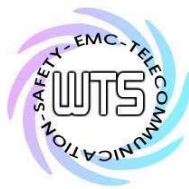
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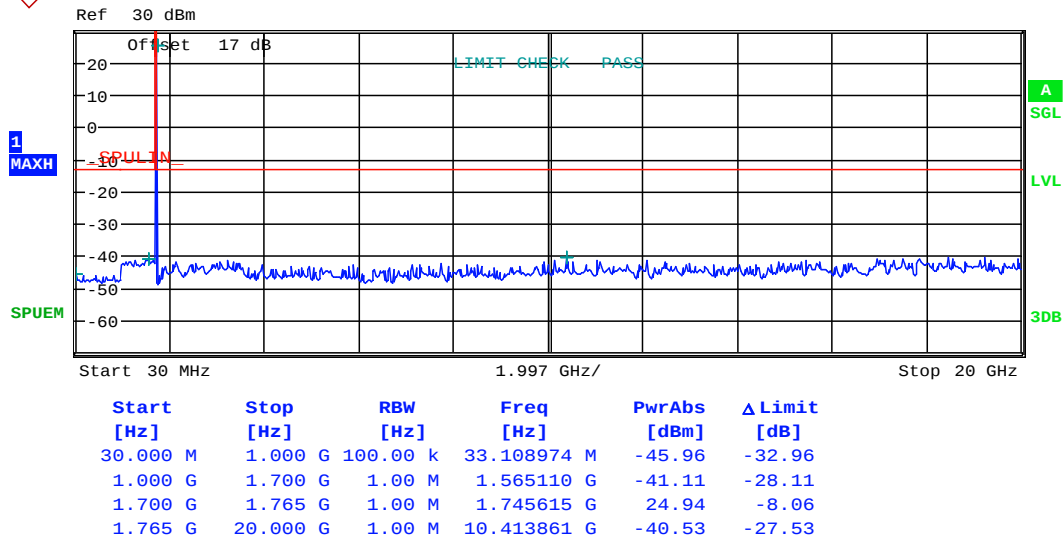
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Date: 24.JUL.2019 17:41:06



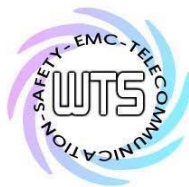
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND4 QPSK 1RB 10MHZ CH20350

Date: 24.JUL.2019 17:40:19



Worldwide Testing Services(Taiwan) Co., Ltd.

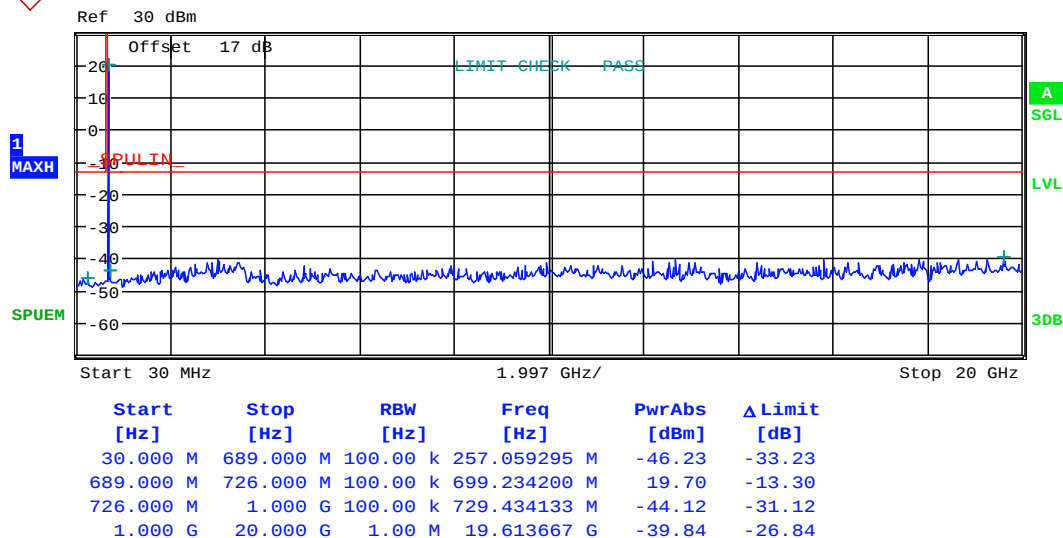
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

Band XII

16QAM

1.4MHz

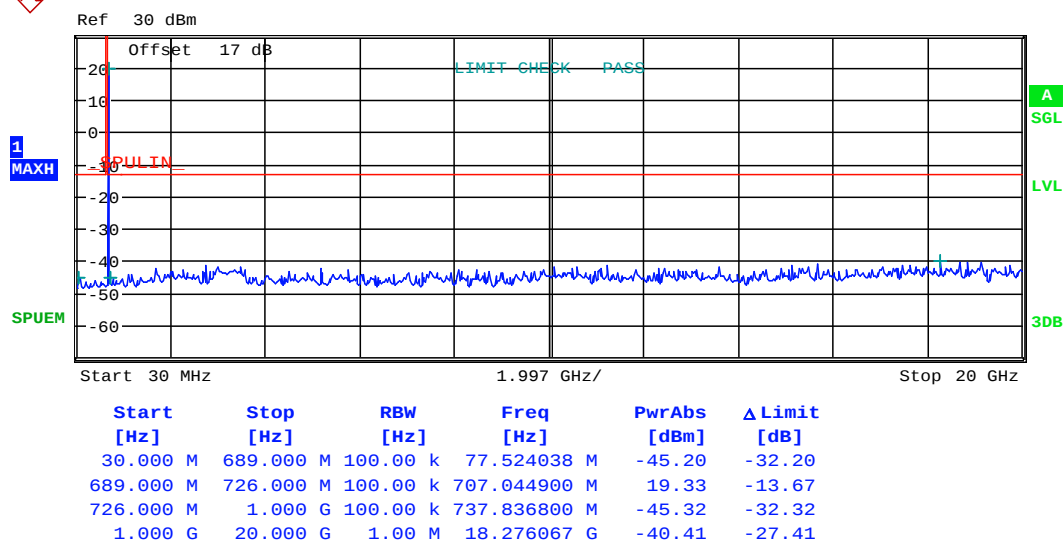


CONDUCTED SPURIOUS EMISSION BAND12 16QAM 1RB 1.4MHz CH23017

Date: 24.JUL.2019 18:01:42



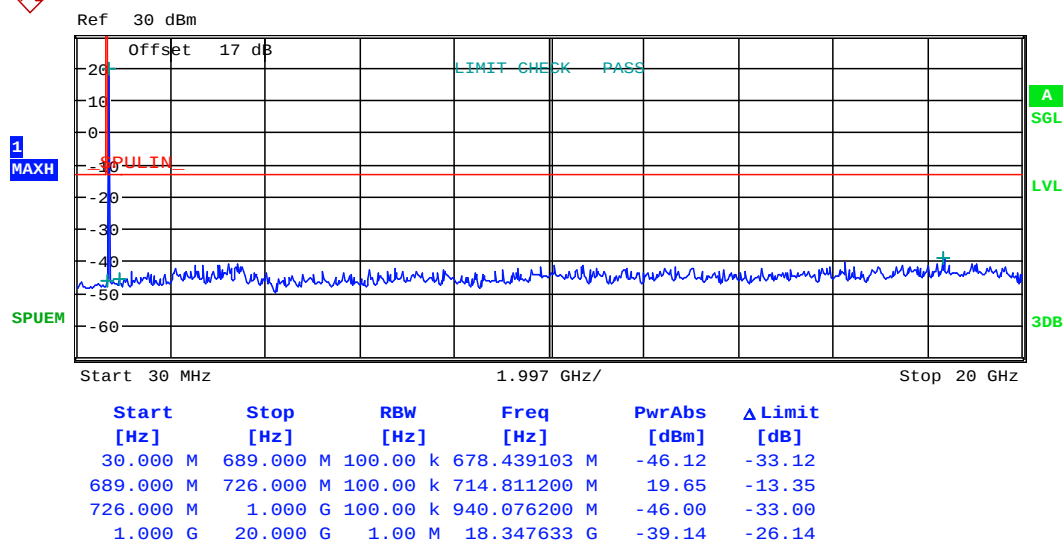
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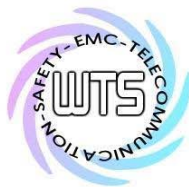
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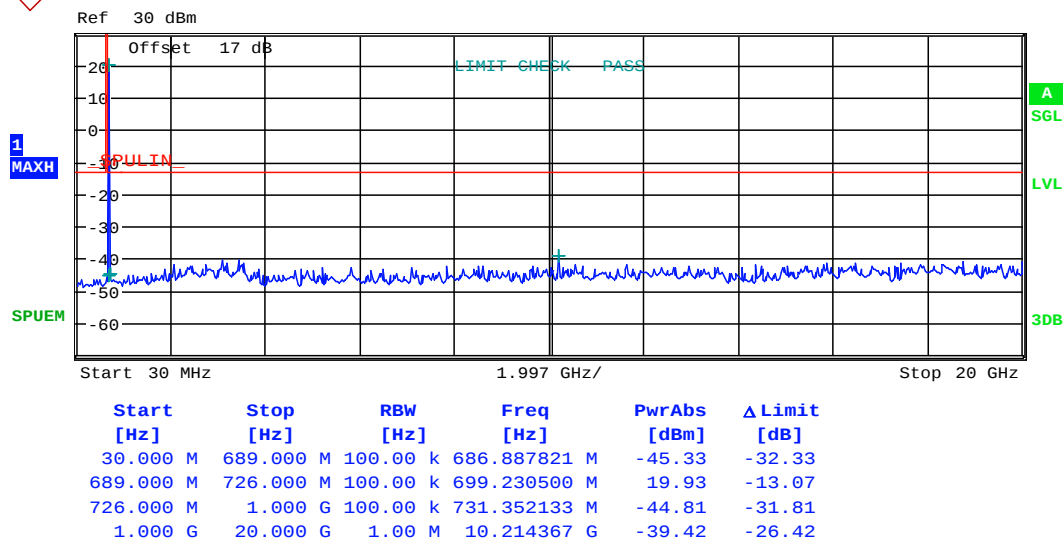
Date: 24.JUL.2019 18:01:16



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz



CONDUCTED SPURIOUS EMISSION BAND12 16QAM 1RB 3MHz CH23025

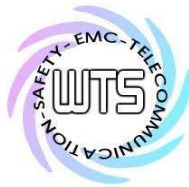
Date: 24.JUL.2019 18:04:57



FCC ID: 2AT5JE070W1D14V2U

Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	689.000 M	100.00 k	526.362179 M	-45.47	-32.47
689.000 M	726.000 M	100.00 k	706.234600 M	19.69	-13.31
726.000 M	1.000 G	100.00 k	738.330000 M	-45.10	-32.10
1.000 G	20.000 G	1.00 M	18.485700 G	-40.14	-27.14

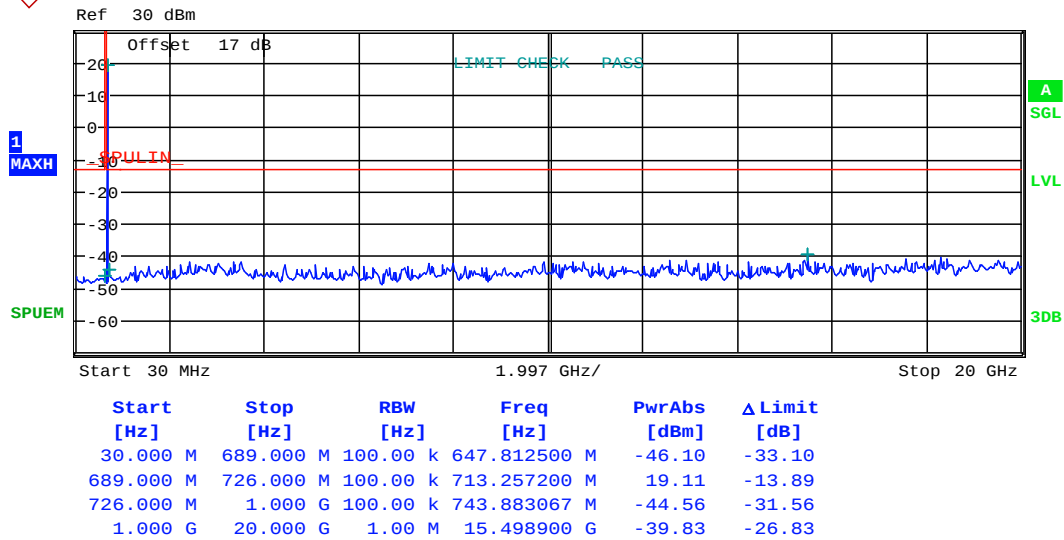
Date: 24.JUL.2019 18:05:20



Worldwide Testing Services(Taiwan) Co., Ltd.

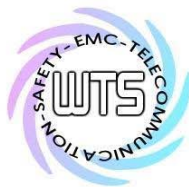
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND12 16QAM 1RB 3MHz CH23165

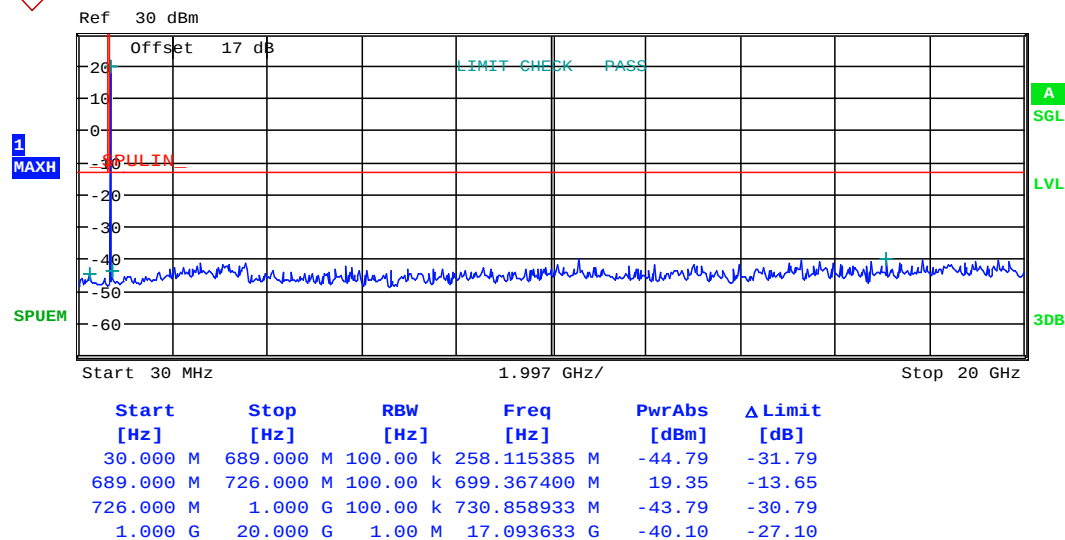
Date: 24.JUL.2019 18:04:27



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



CONDUCTED SPURIOUS EMISSION BAND12 16QAM 1RB 5MHz CH23035

Date: 24.JUL.2019 18:09:24



FCC ID: 2AT5JE070W1D14V2U

Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	689.000 M	100.00 k	494.679487 M	-46.46	-33.46
689.000 M	726.000 M	100.00 k	705.298500 M	19.08	-13.92
726.000 M	1.000 G	100.00 k	737.453200 M	-43.57	-30.57
1.000 G	20.000 G	1.00 M	2.798667 G	-48.03	-27.03

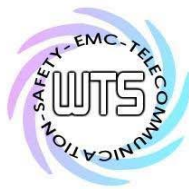
Date: 24.JUL.2019 18:09:04



FCC ID: 2AT5JE070W1D14V2U

Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	689.000 M	100.00 k	457.716346 M	-44.14	-31.14
689.000 M	726.000 M	100.00 k	711.274000 M	18.66	-14.34
726.000 M	1.000 G	100.00 k	741.453600 M	-43.78	-30.78
1.000 G	20.000 G	1.00 M	3.447200 G	-39.86	-26.86

Date: 24.JUL.2019 18:09:46



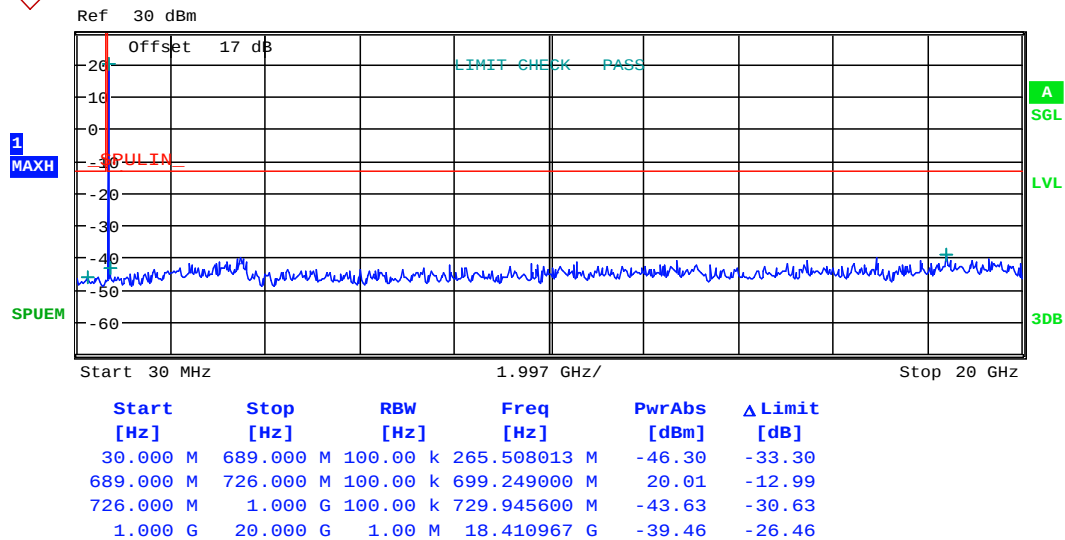
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

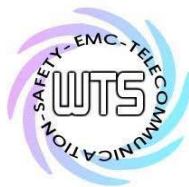
QPSK

1.4MHz



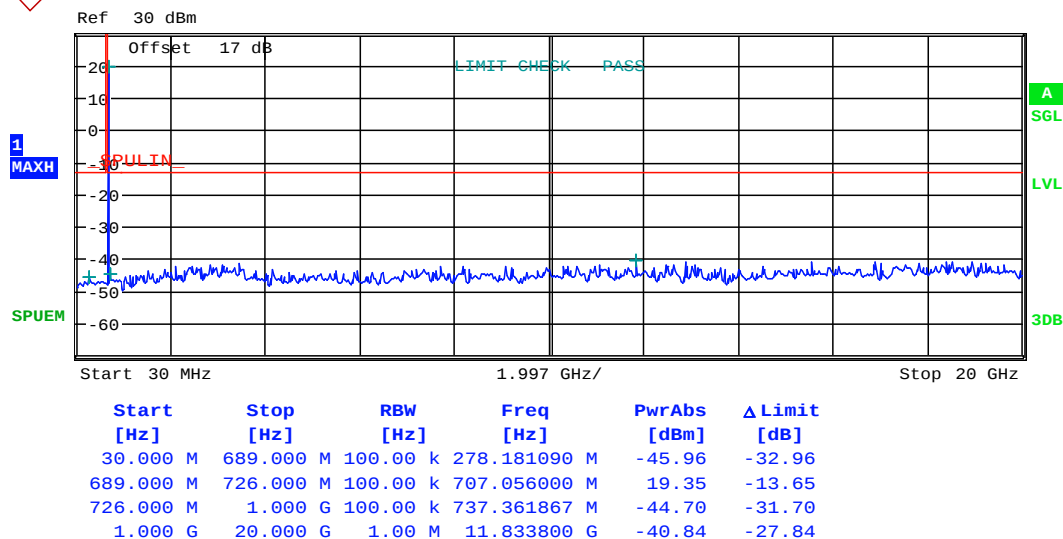
CONDUCTED SPURIOUS EMISSION BAND12 QPSK 1RB 1.4MHz CH23017

Date: 24.JUL.2019 18:00:19



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

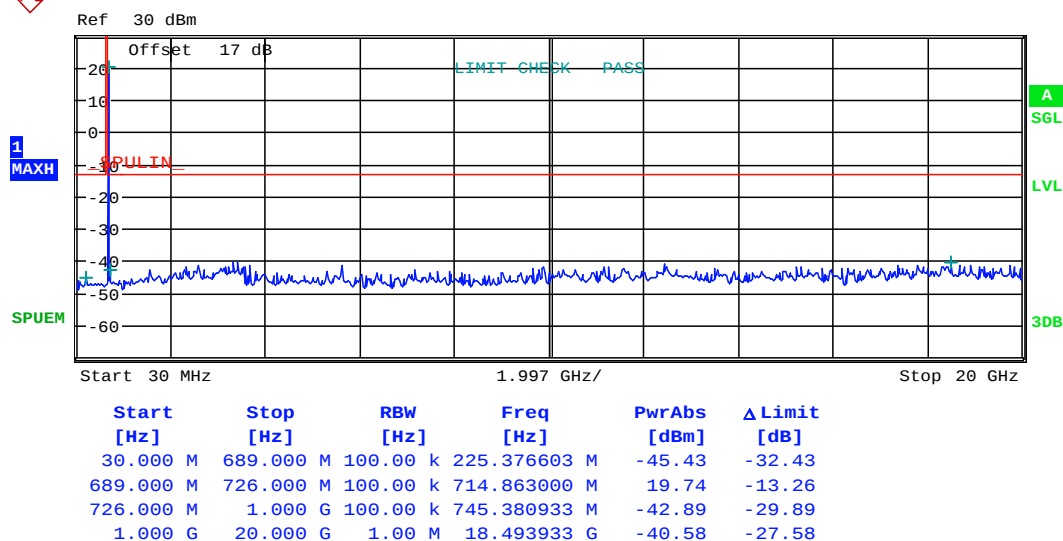


CONDUCTED SPURIOUS EMISSION BAND12 QPSK 1RB 1.4MHz CH23095

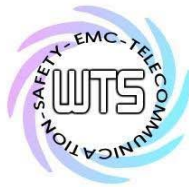
Date: 24.JUL.2019 17:59:56



FCC ID: 2AT5JE070W1D14V2U



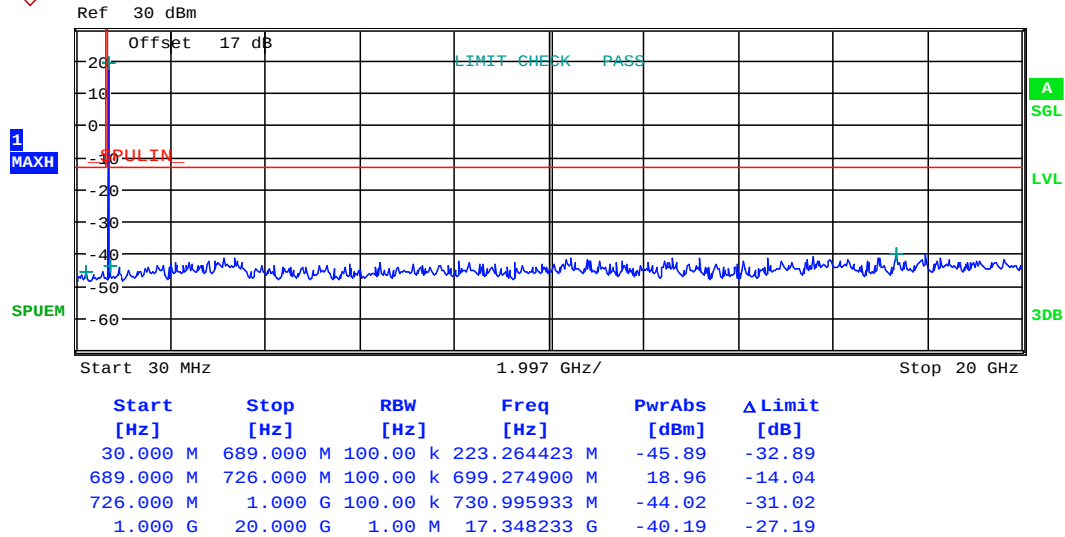
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Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz

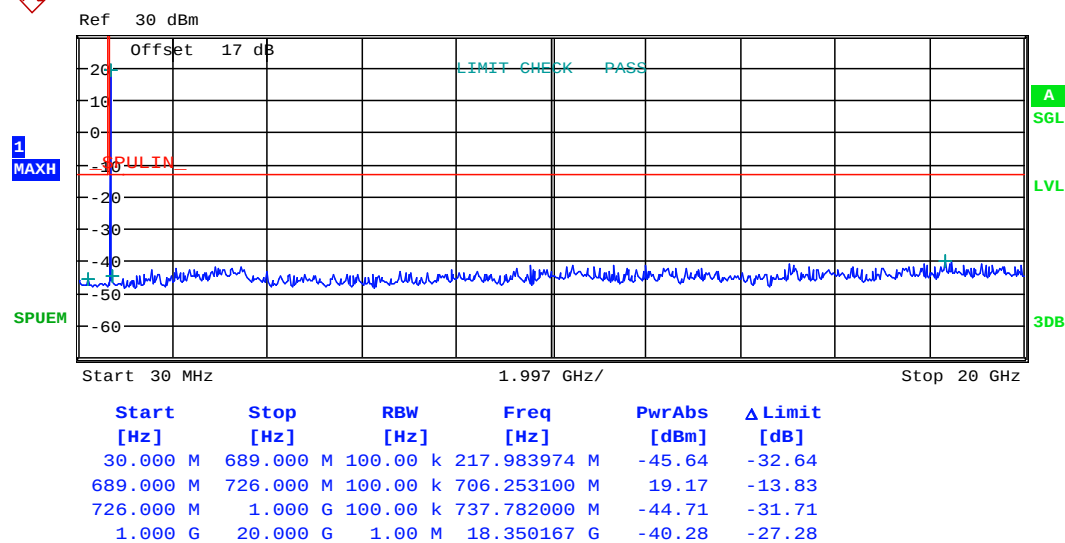


CONDUCTED SPURIOUS EMISSION BAND12 QPSK 1RB 3MHz CH23025

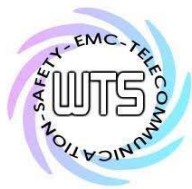
Date: 24.JUL.2019 18:03:32



FCC ID: 2AT5JE070W1D14V2U

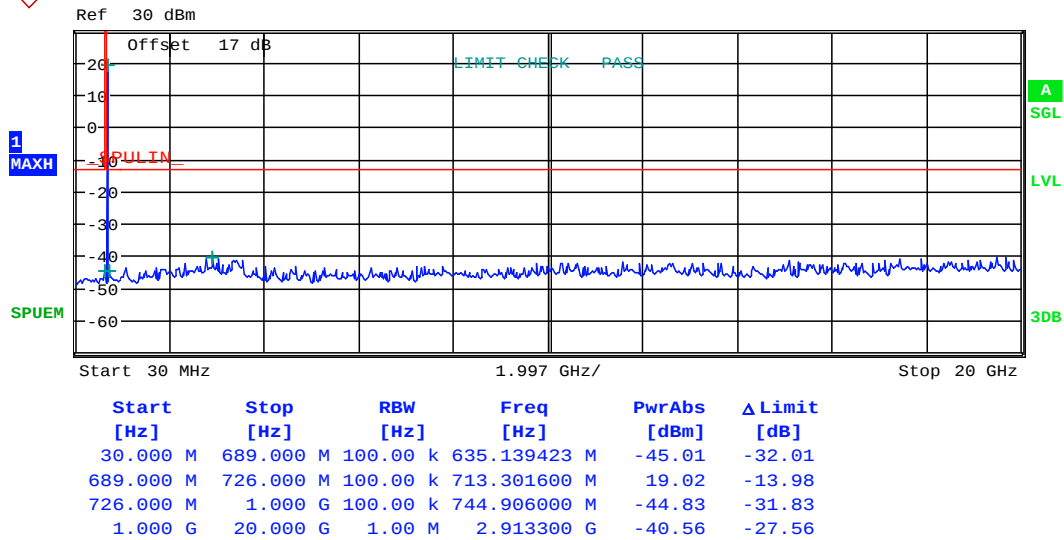


Date: 24.JUL.2019 18:03:04



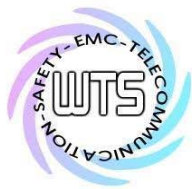
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND12 QPSK 1RB 3MHZ CH23165

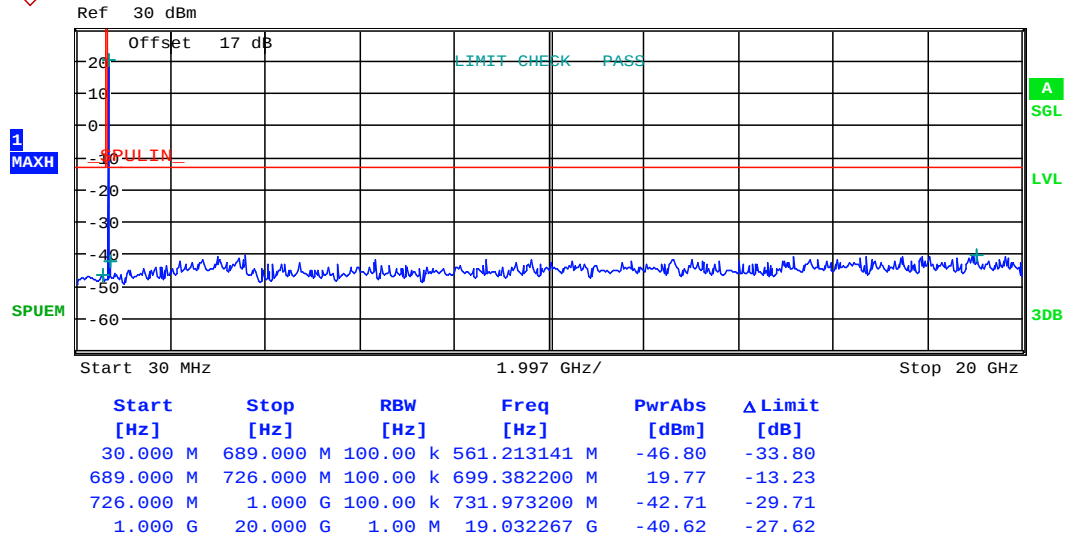
Date: 24.JUL.2019 18:03:58



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



CONDUCTED SPURIOUS EMISSION BAND12 QPSK 1RB 5MHz CH23035

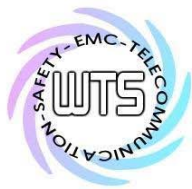
Date: 24.JUL.2019 18:11:00



FCC ID: 2AT5JE070W1D14V2U

Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	Δ Limit [dB]
30.000 M	689.000 M	100.00 k	49.009615 M	-46.07	-33.07
689.000 M	726.000 M	100.00 k	705.357700 M	19.25	-13.75
726.000 M	1.000 G	100.00 k	737.407533 M	-44.20	-31.20
1.000 G	20.000 G	1.00 M	16.931500 G	-39.26	-26.96

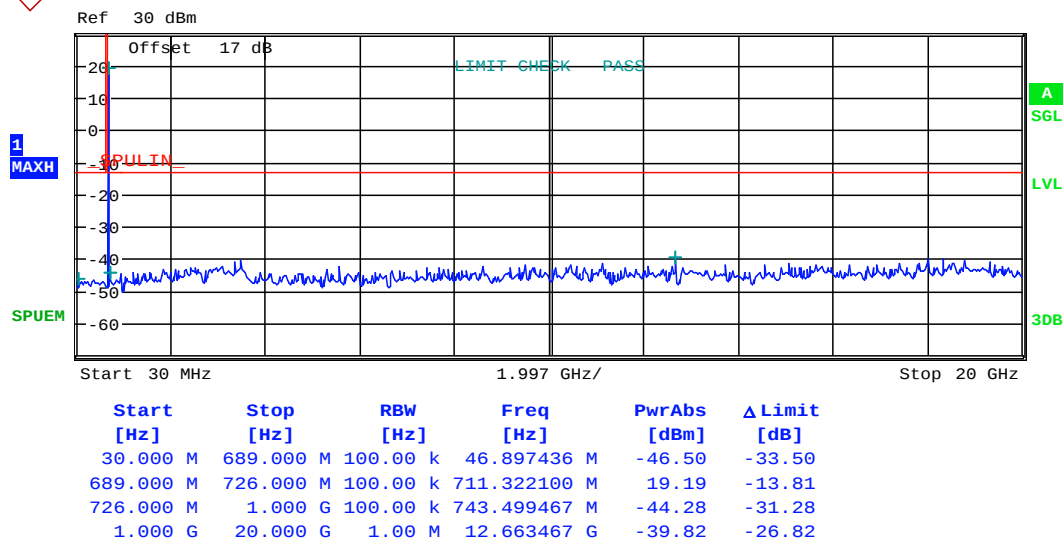
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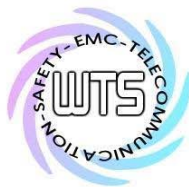
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND12 QPSK 1RB 5MHZ CH23155

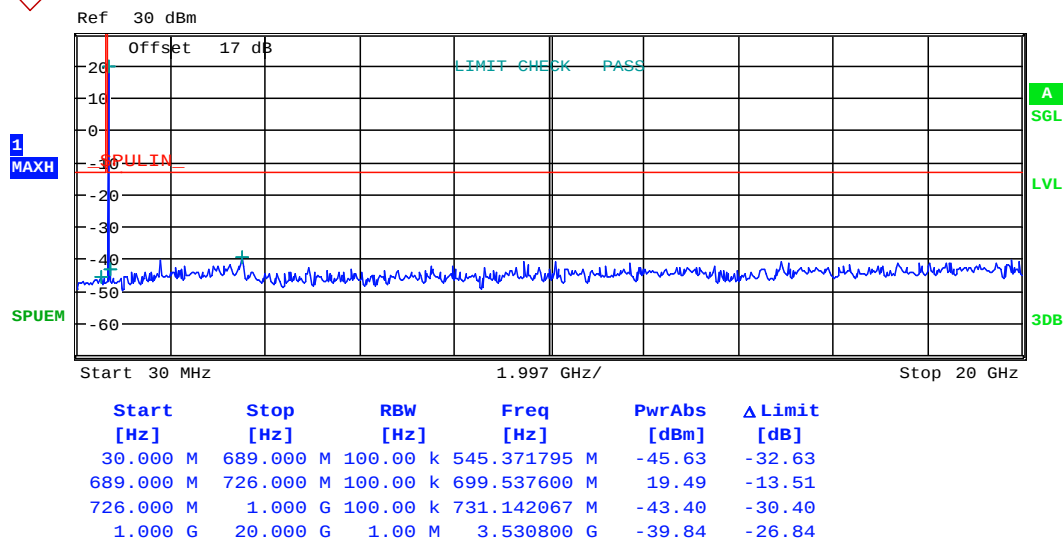
Date: 24.JUL.2019 18:10:21



Report Number: W6M22111-21340-P-247

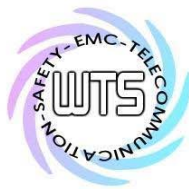
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10MHz



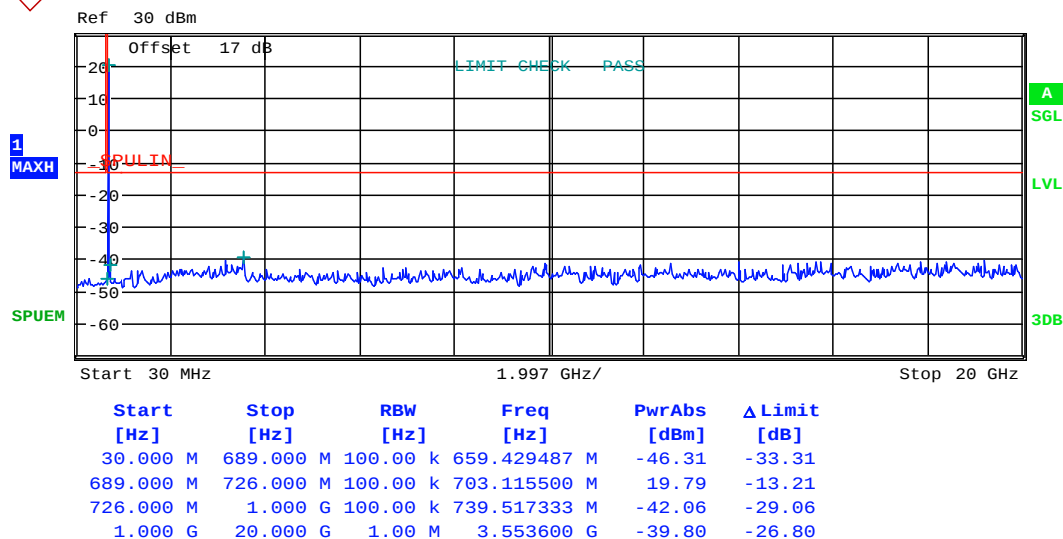
CONDUCTED SPURIOUS EMISSION BAND12 QPSK 1RB 10MHz CH23060

Date: 24.JUL.2019 18:12:25



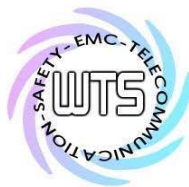
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



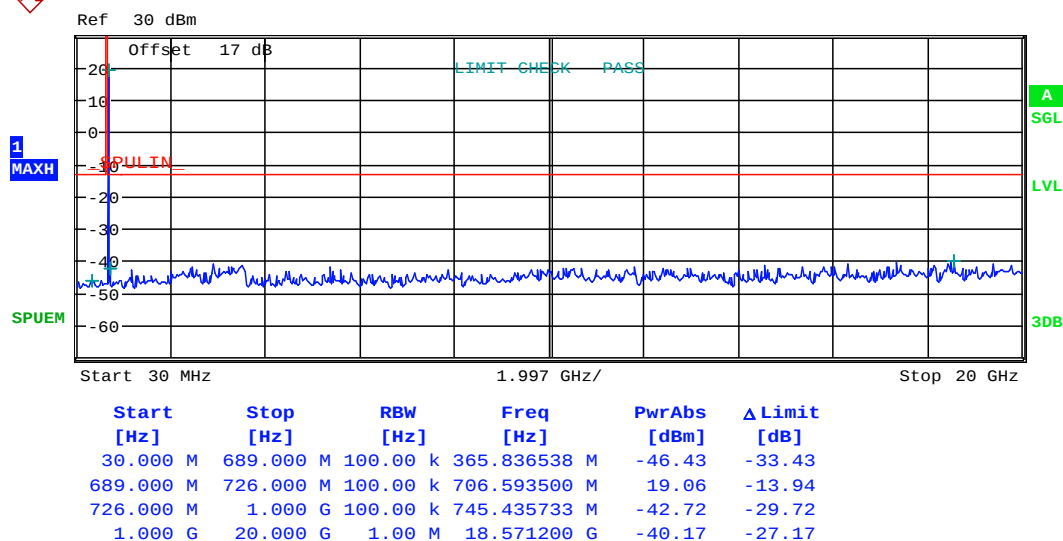
CONDUCTED SPURIOUS EMISSION BAND12 QPSK 1RB 10MHz CH23095

Date: 24.JUL.2019 18:11:52



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



CONDUCTED SPURIOUS EMISSION BAND12 QPSK 1RB 10MHz CH23130

Date: 24.JUL.2019 18:12:56

Test equipment: ETSTW-RE 055, ETSTW-GSM 002, ETSTW-GSM 023, ETSTW-GSM 004

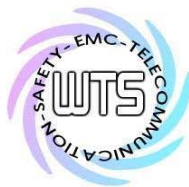
7.3 Explanation of test result

All factors like cable loss and external attenuation etc. are already included in the provided measurement results. This is done by using validated test software and calibrated test system according the accreditation requirements.

7.4 Calculation of Limit for Spurious at Antenna Terminals

Compliance with § 22.917, §24.238, §27.53 requires that any emission be attenuated below the transmitter power at least $43 + 10 \log P$ (P = transmitter power in Watts).

Limit for Spurious Emissions at Antenna Terminals: $L=P-A=-13\text{dBm}$



Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

8. Field Strength of Spurious Radiation

8.1 Test procedure

The test procedure for filed strength measurement is same as radiated power except for a notch filter or band pass filter is used to avoid the influence of fundamental to the pre-amplifier.

The measurements below 1GHz were performed with a measurement bandwidth of 100kHz, above 1GHz with a bandwidth of 1 MHz.

8.2 Test Results

The measurements of the spurious emission are at the upper, center and lower channel.

Model: E070W1D1-4 V.2U Date:

Mode: - - Temperature: - - °C Engineer: - -

Polarization: Horizontal Humidity: - - %

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
- -	- -	- -	- -	- -	- -	- -	- -
- -	- -	- -	- -	- -	- -	- -	- -

Polarization: Vertical

Frequency (MHz)	Reading (dBm) Peak	Factor (dB) Corr.	Result (dBm)	Limit (dBm)	Margin (dB)	Table Degree (Deg.)	Ant. High (cm)
- -	- -	- -	- -	- -	- -	- -	- -
- -	- -	- -	- -	- -	- -	- -	- -

- Note**
1. **Correction Factor = Antenna factor + Cable loss - Preamplifier**
 2. **The formula of measured value as: Test Result = Reading + Correction Factor**
 3. **Detector function in the form: PK = Peak, QP = Quasi Peak, AV = Average**
 4. **All not in the table noted test results are more than 20 dB below the relevant limits.**
 5. **See attached diagrams in appendix.**

8.3 Explanation of test result

Result Level = Reading Level + Corrected Factor

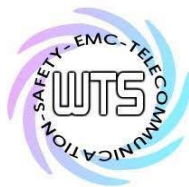
Corrected Factor = SG level – Received level-Cable loss + substitution antenna gain

8.4 Calculation of Limit for Field Strength of Spurious

Compliance with § 22.917, § 24.238, § 27.53 requires that any emission be attenuated below the transmitter power at least $43 + 10 \log P$ (P = transmitter power in Watts).

Limit for Spurious Emissions at Antenna Terminals: $L=P-A=-13\text{dBm}$

Test equipment: ETSTW-RE 004, ETSTW-RE 018, ETSTW-RE 030, ETSTW-RE 062,
ETSTW-RE 142, ETSTW-RE 147, ETSTW-GSM 004



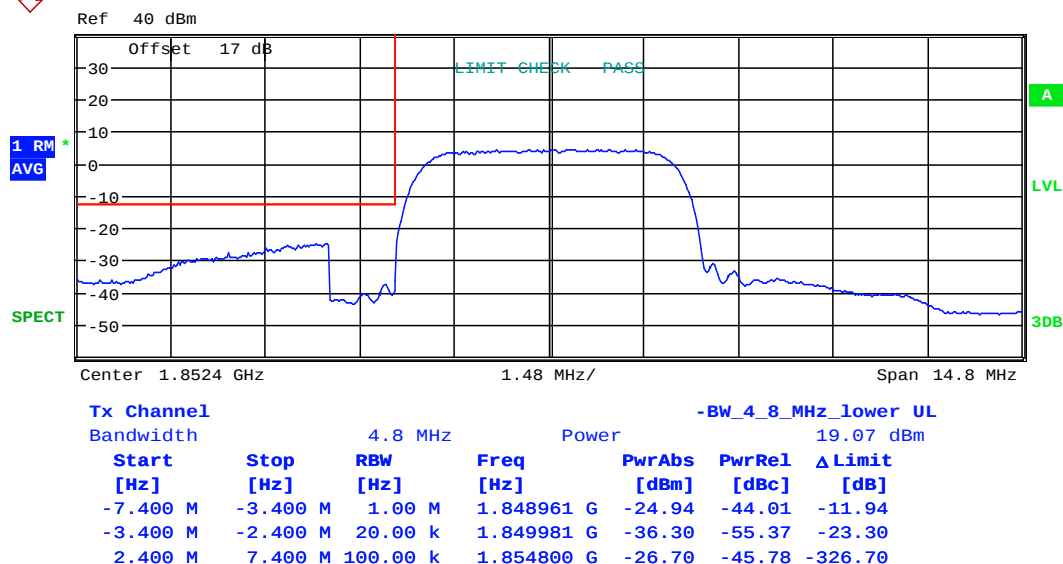
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

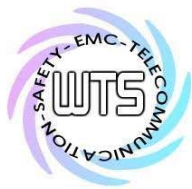
8.5 Test result of band edge emissions

WCDMA

Band II



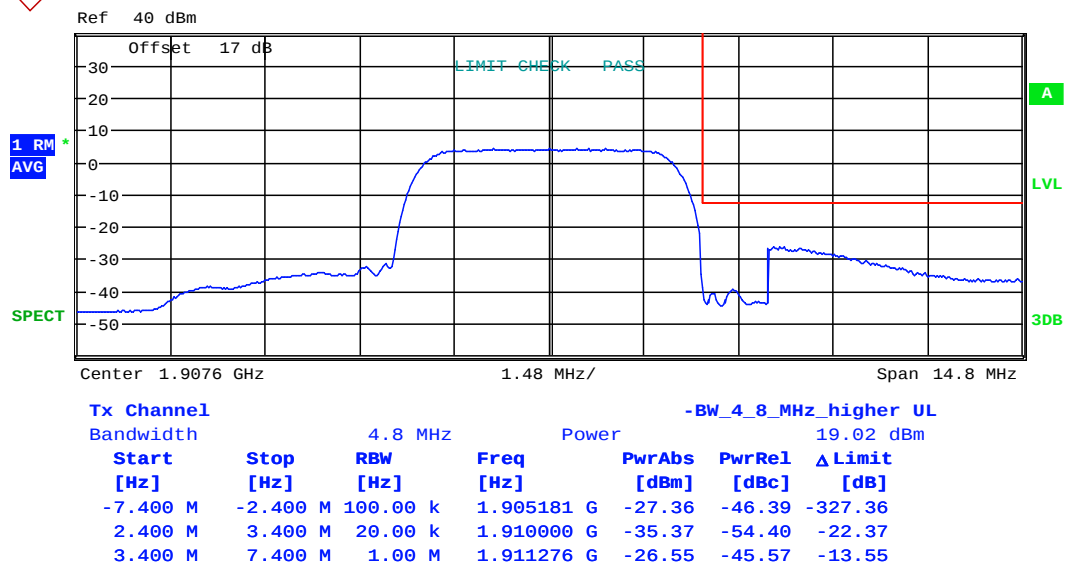
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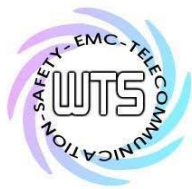
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



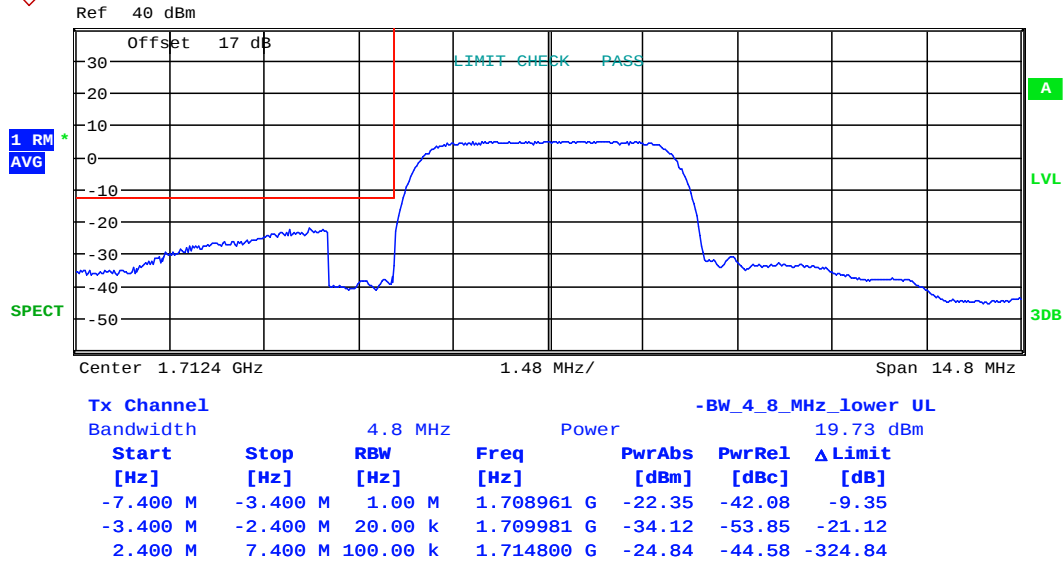
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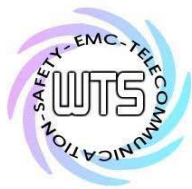
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

Band IV



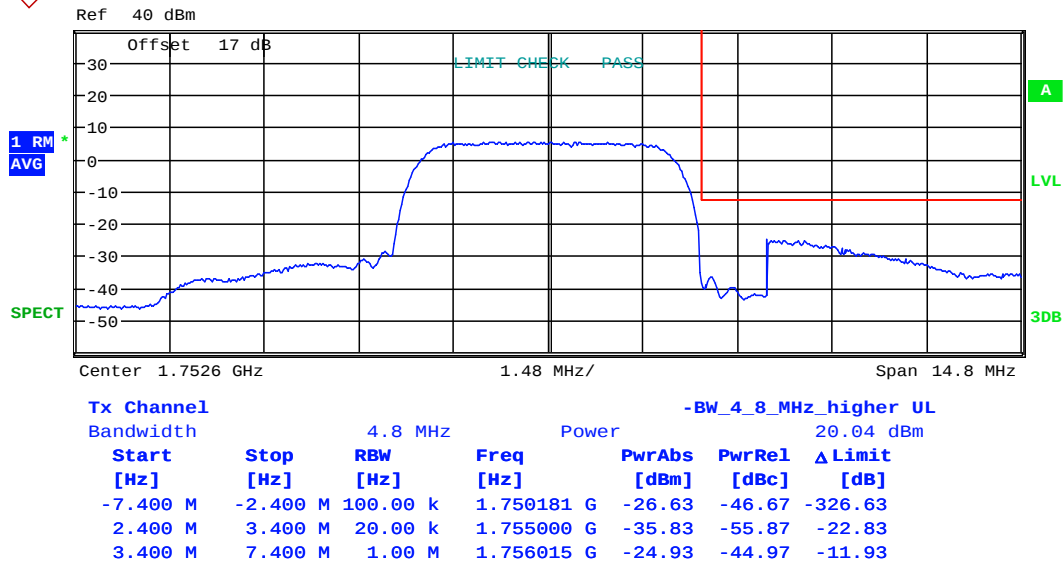
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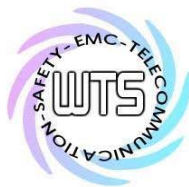
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 22.JUL.2019 14:07:08

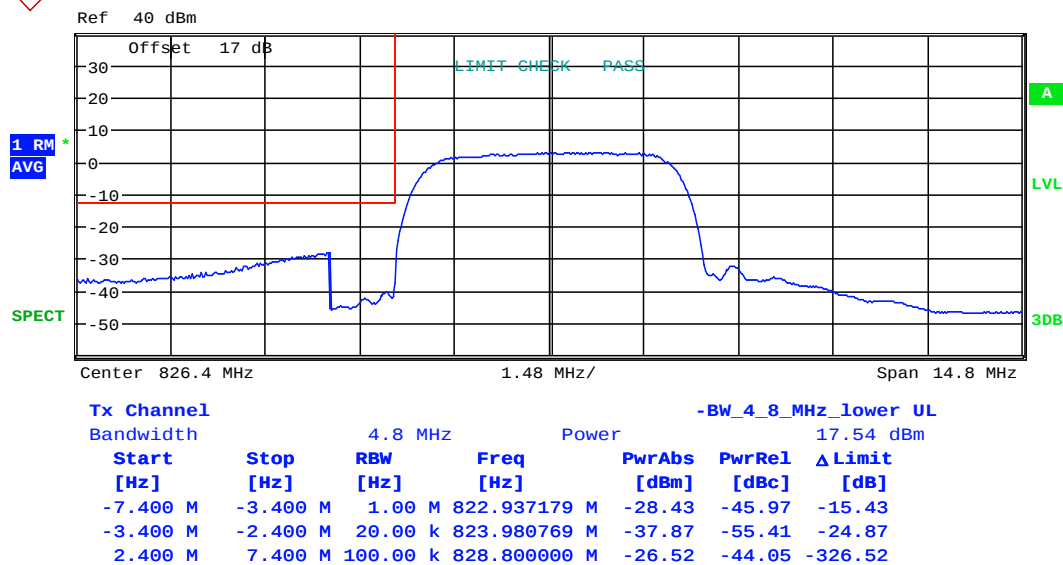


Worldwide Testing Services(Taiwan) Co., Ltd.

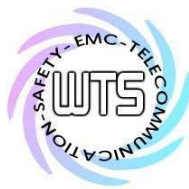
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

Band V

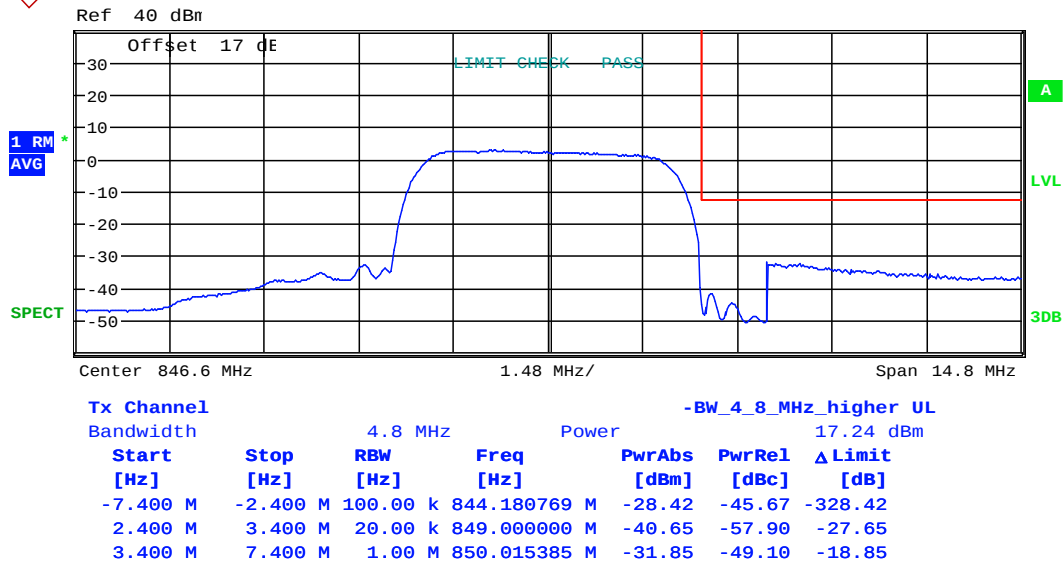


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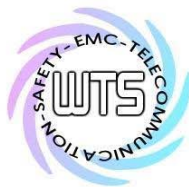


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 22.JUL.2019 13:47:20



Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

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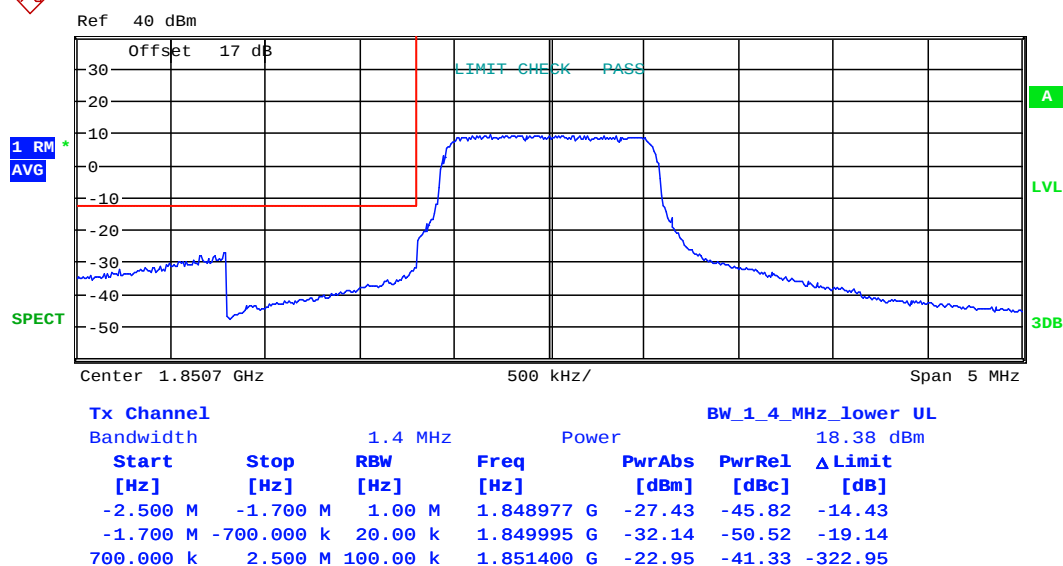
LTE

Band II

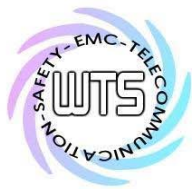
16QAM

FRB

1.4MHz

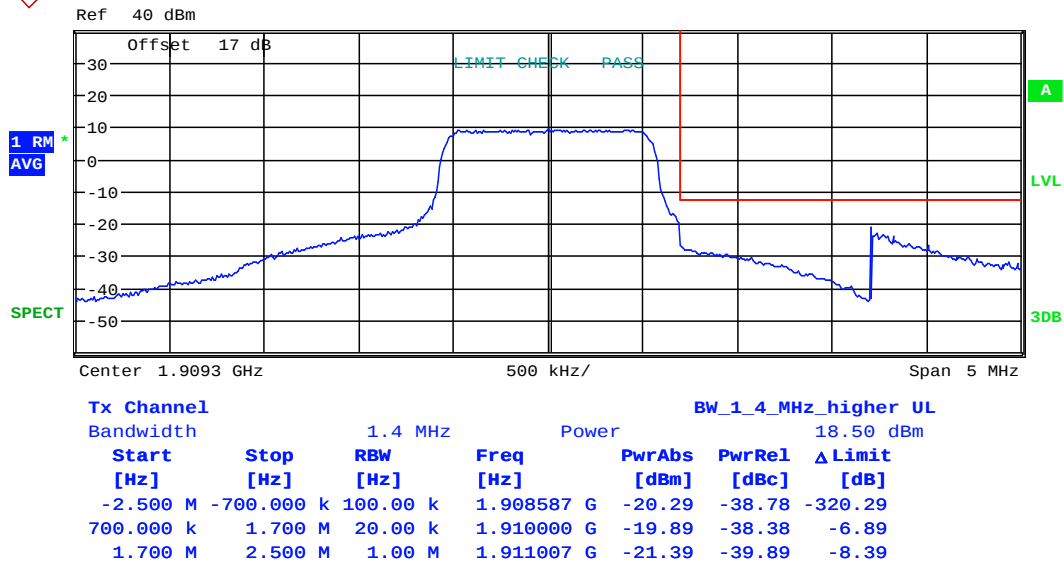


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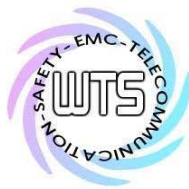


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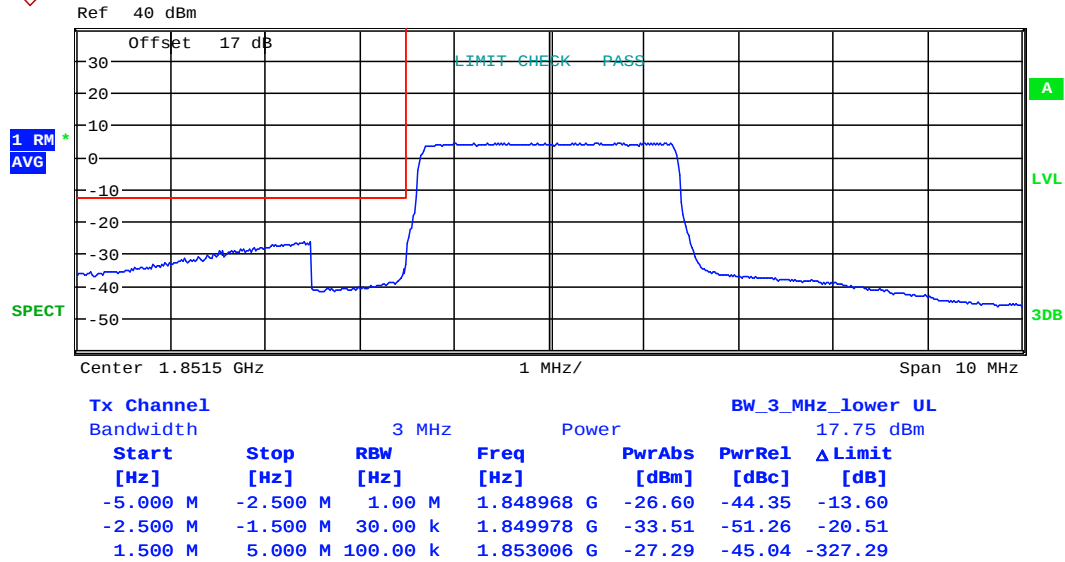


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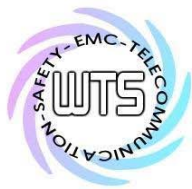
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3MHz

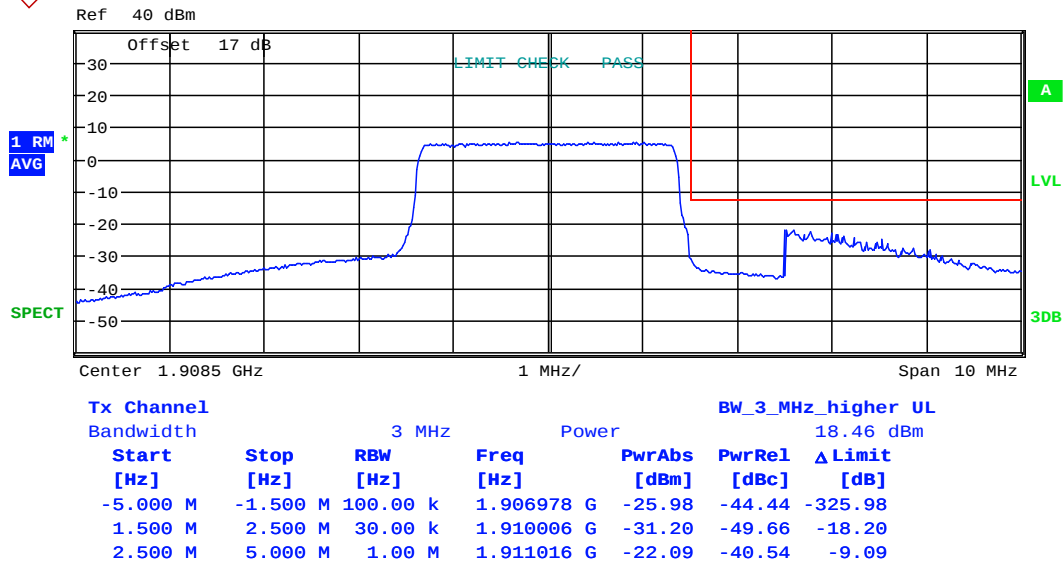


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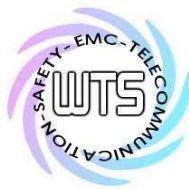


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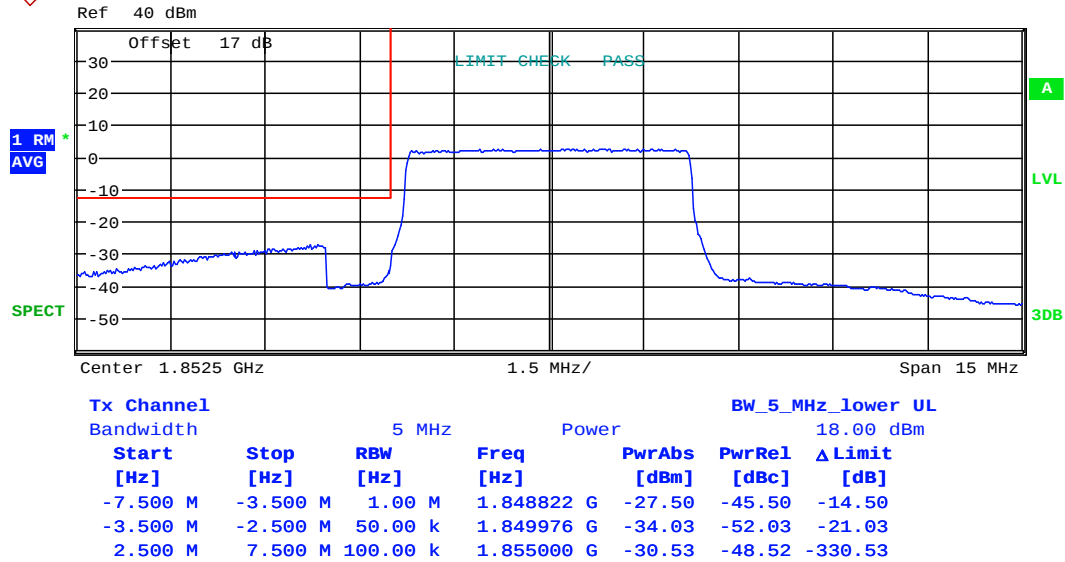


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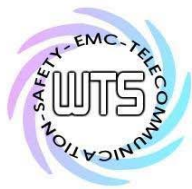
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



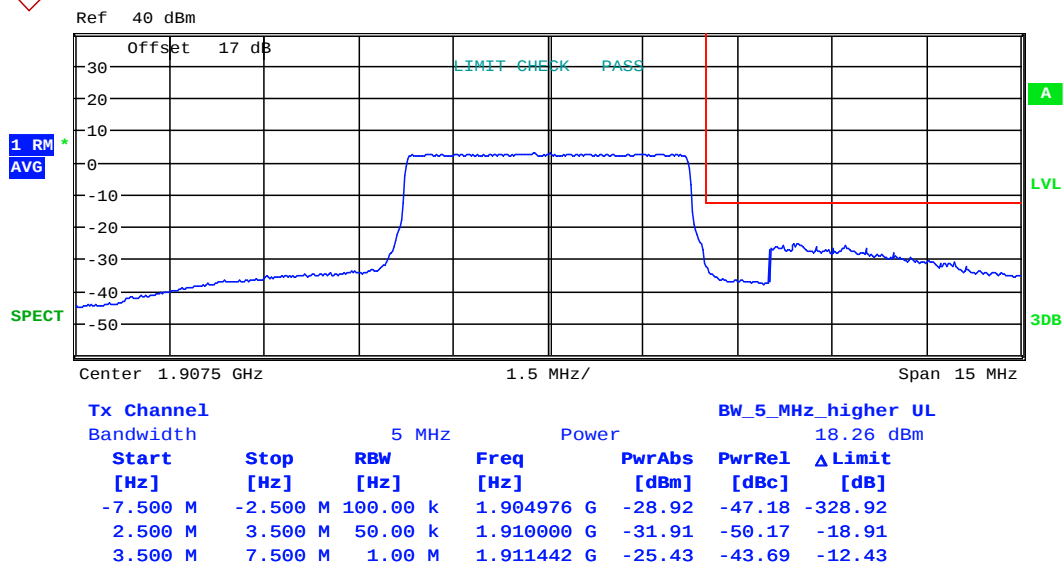
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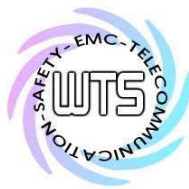
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

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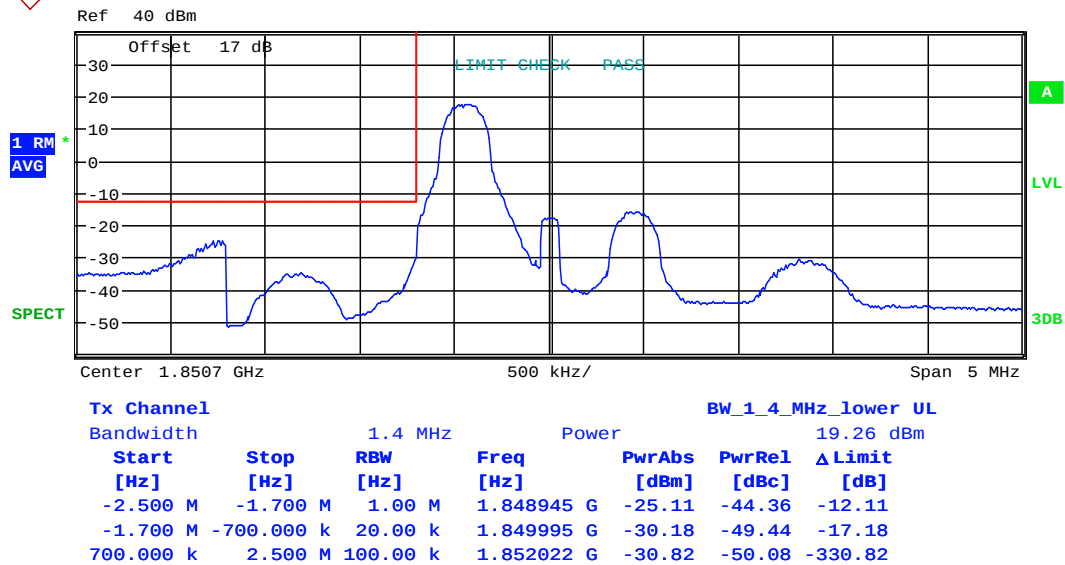
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

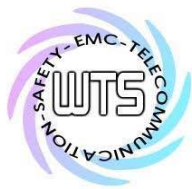
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1RB

1.4MHz

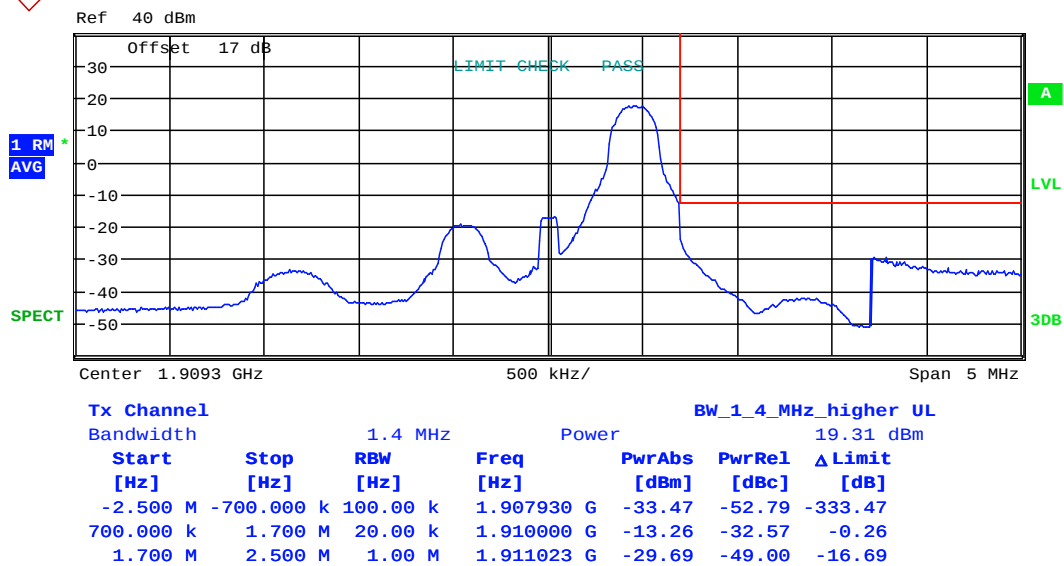


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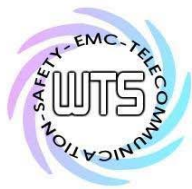


Report Number: W6M22111-21340-P-247

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Date: 24.JUL.2019 11:29:06

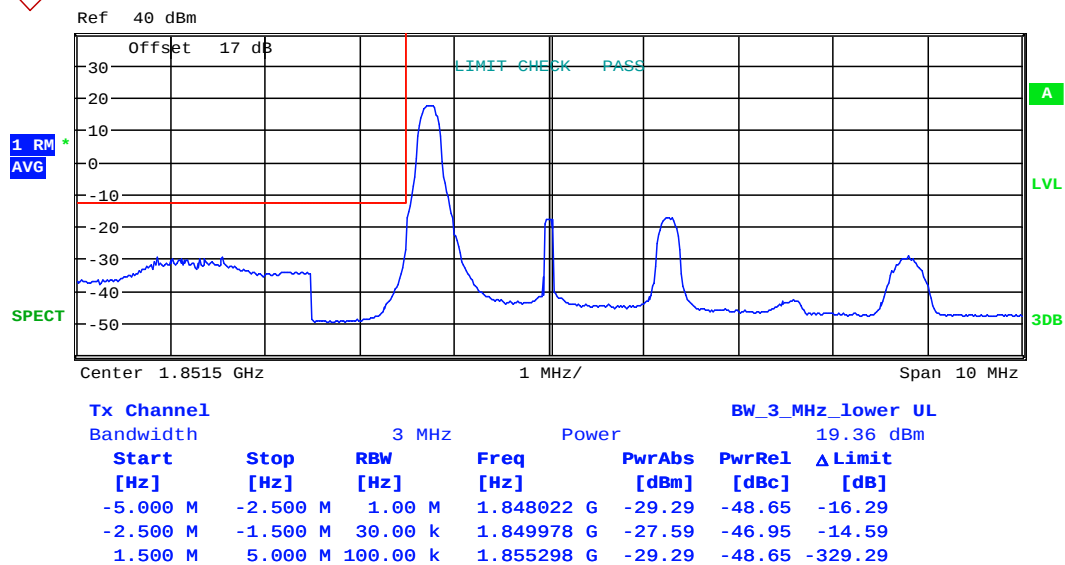


Worldwide Testing Services(Taiwan) Co., Ltd.

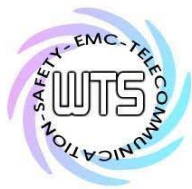
Report Number: W6M22111-21340-P-247

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3MHz

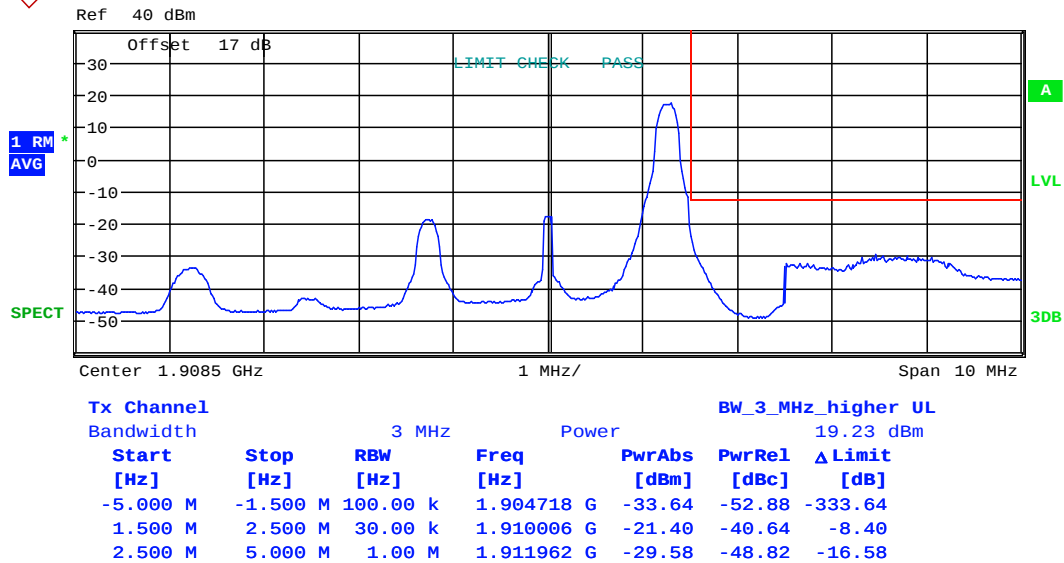


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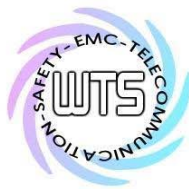


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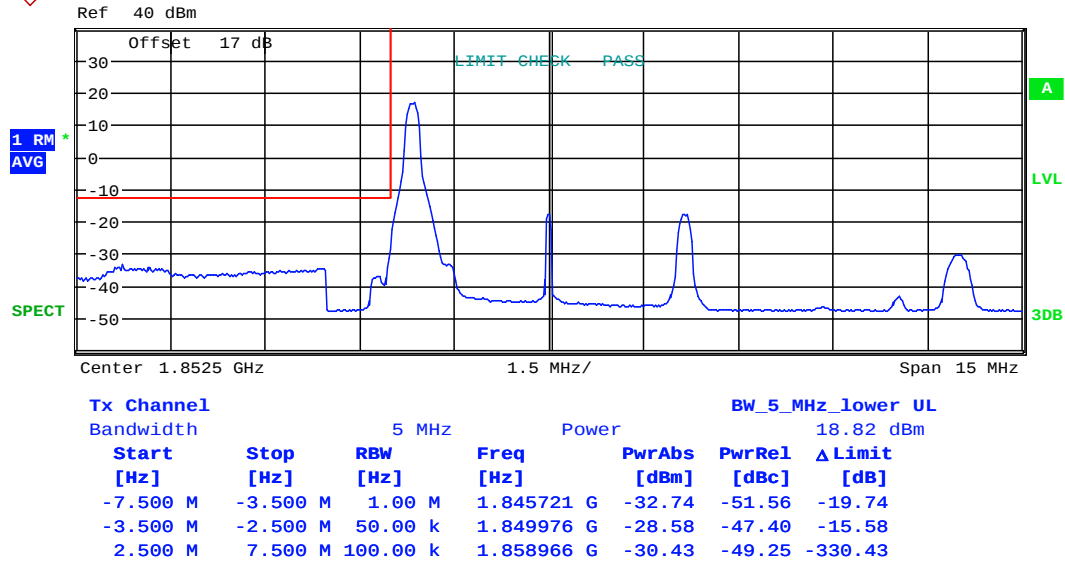


Worldwide Testing Services(Taiwan) Co., Ltd.

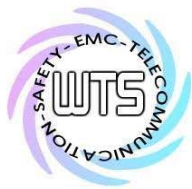
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz

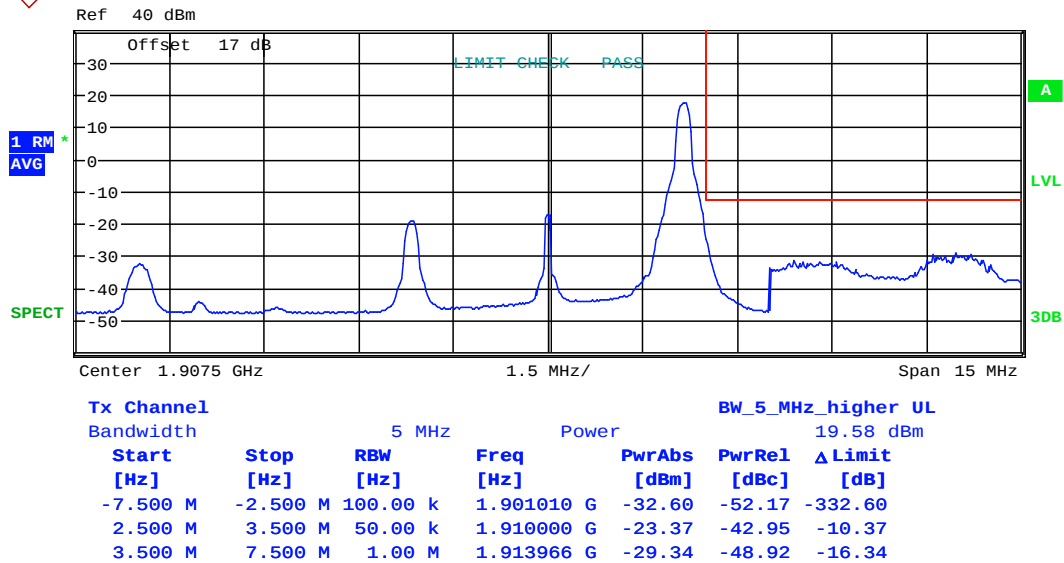


Date: 24.JUL.2019 11:49:50

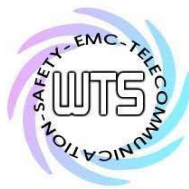


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 11:51:09



Worldwide Testing Services(Taiwan) Co., Ltd.

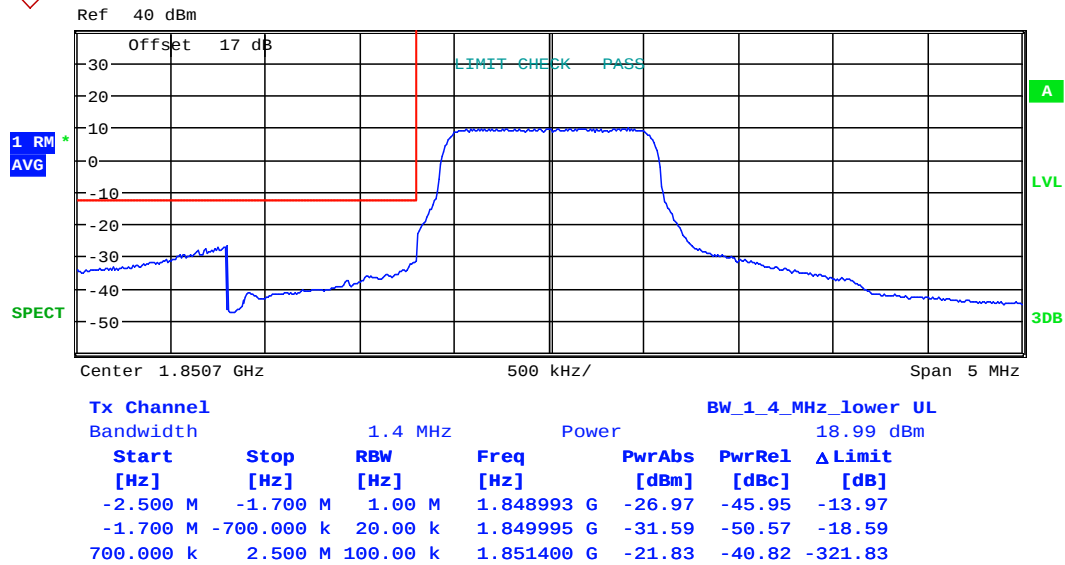
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

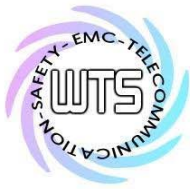
QPSK

FRB

1.4MHz



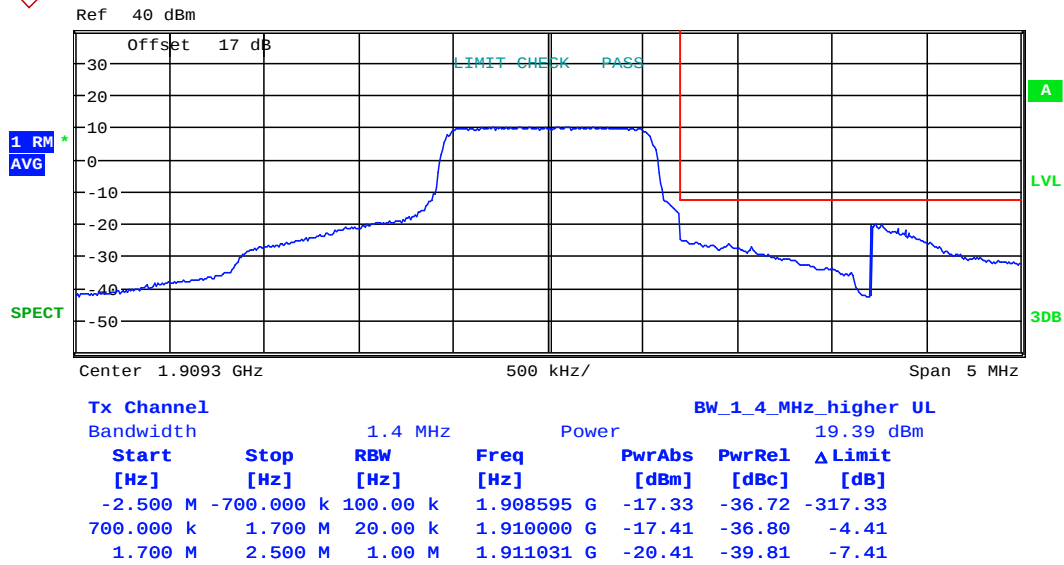
Date: 24.JUL.2019 11:12:12



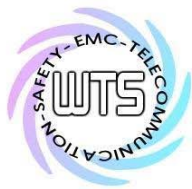
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 11:17:59

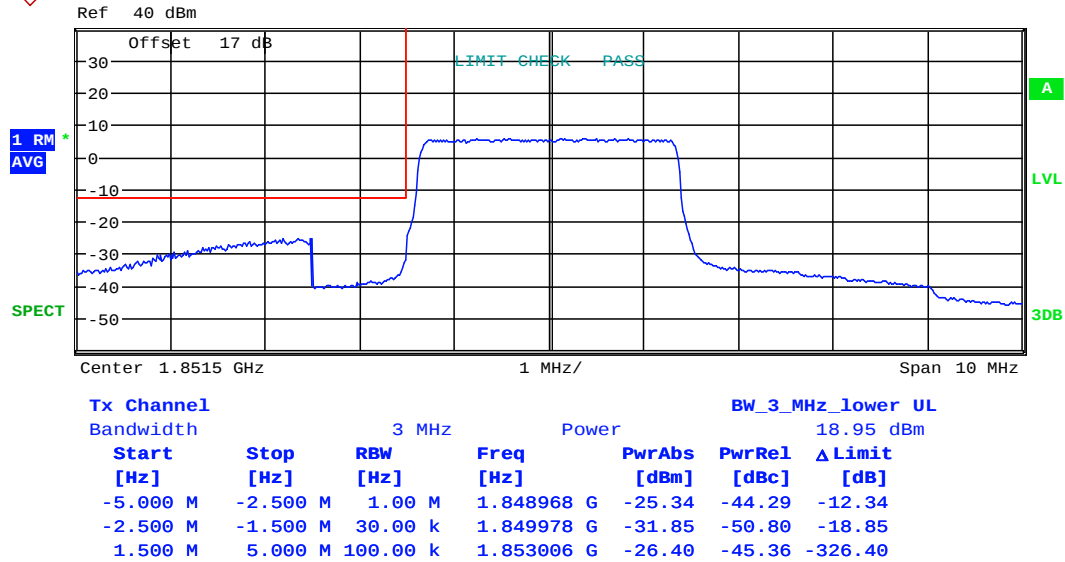


Worldwide Testing Services(Taiwan) Co., Ltd.

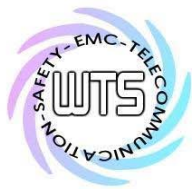
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz

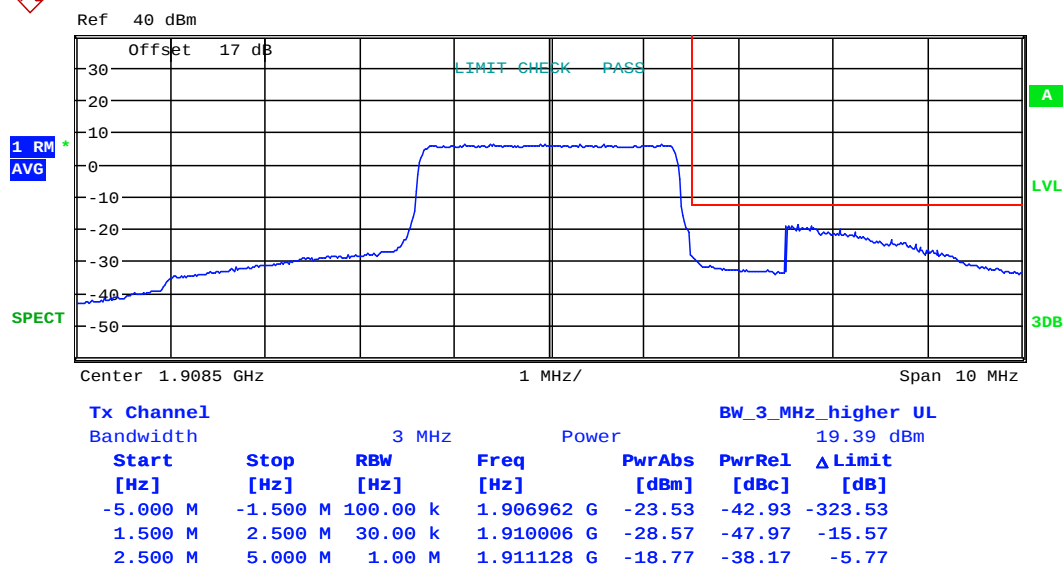


Date: 24.JUL.2019 11:44:58

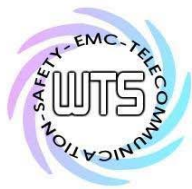


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 11:42:05

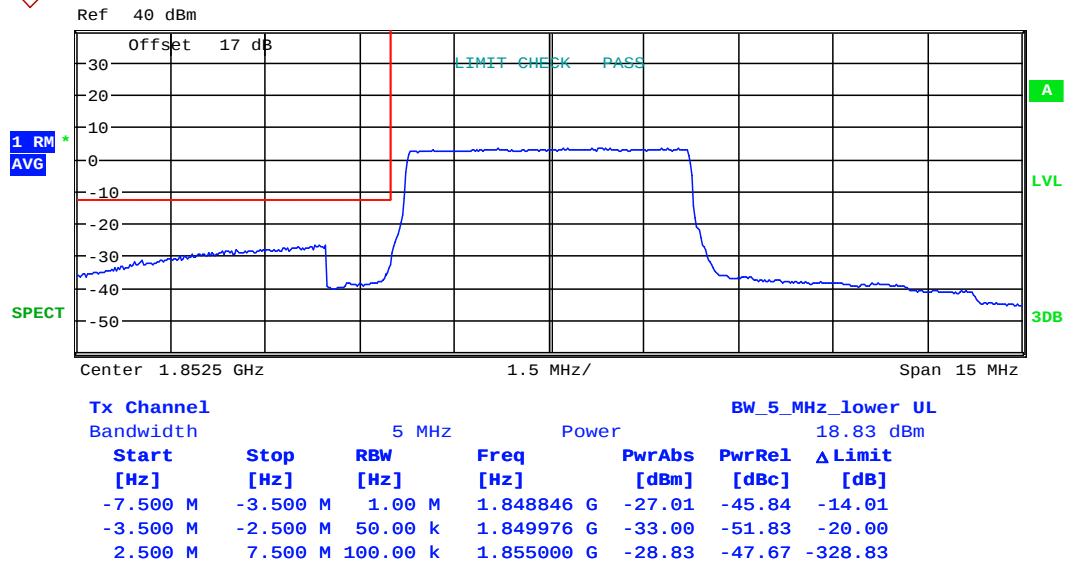


Worldwide Testing Services(Taiwan) Co., Ltd.

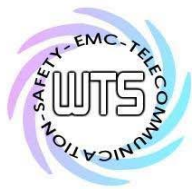
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



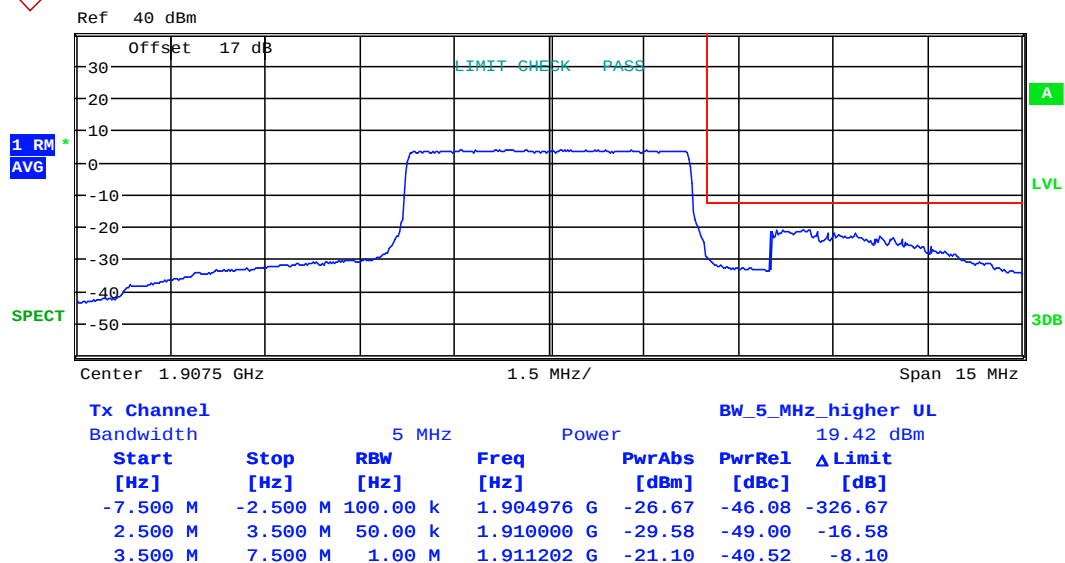
Date: 24.JUL.2019 11:49:07



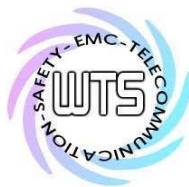
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 11:51:46

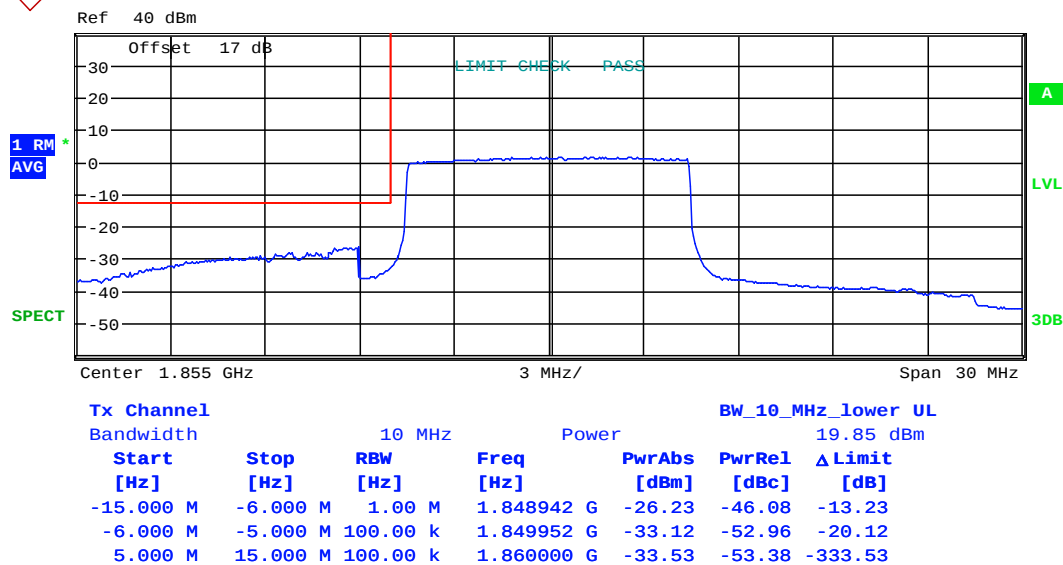


Worldwide Testing Services(Taiwan) Co., Ltd.

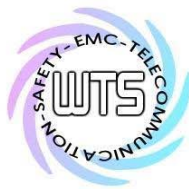
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

10MHz



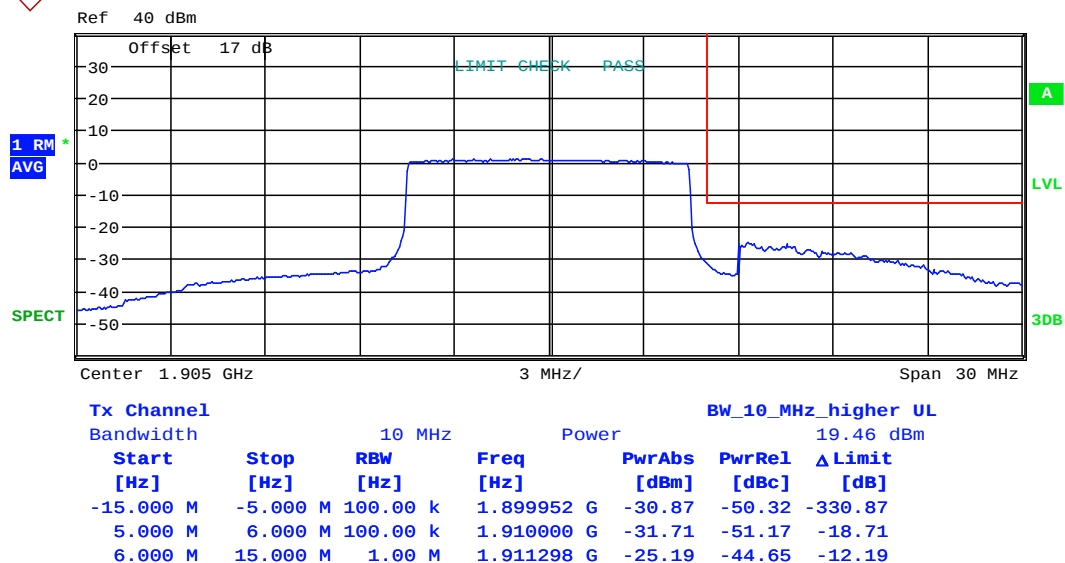
Date: 24.JUL.2019 13:06:18



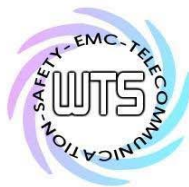
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 11:54:48



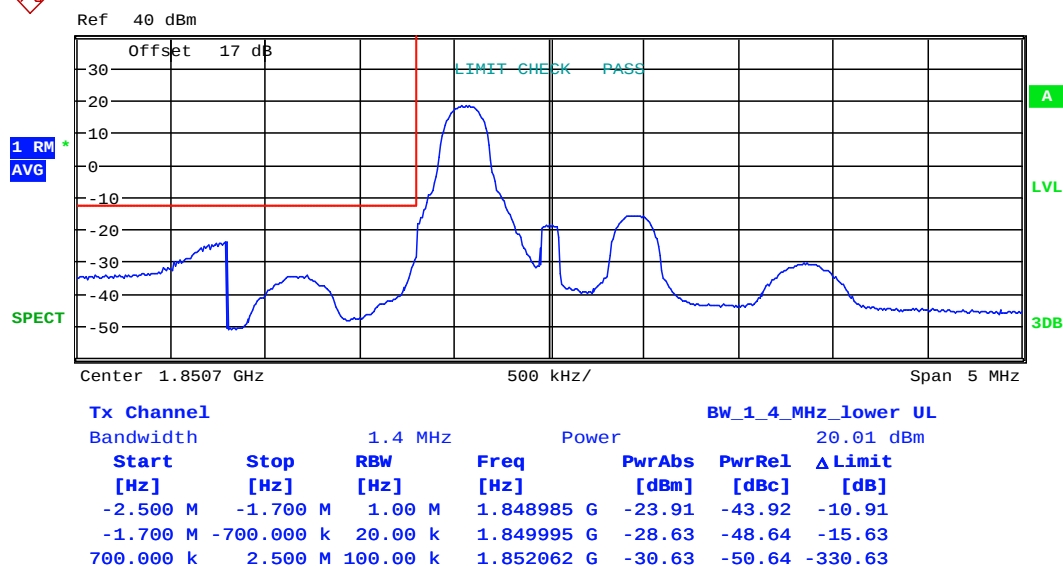
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

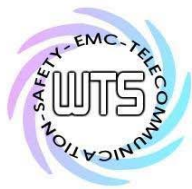
FCC ID: 2AT5JE070W1D14V2U

1RB

1.4MHz

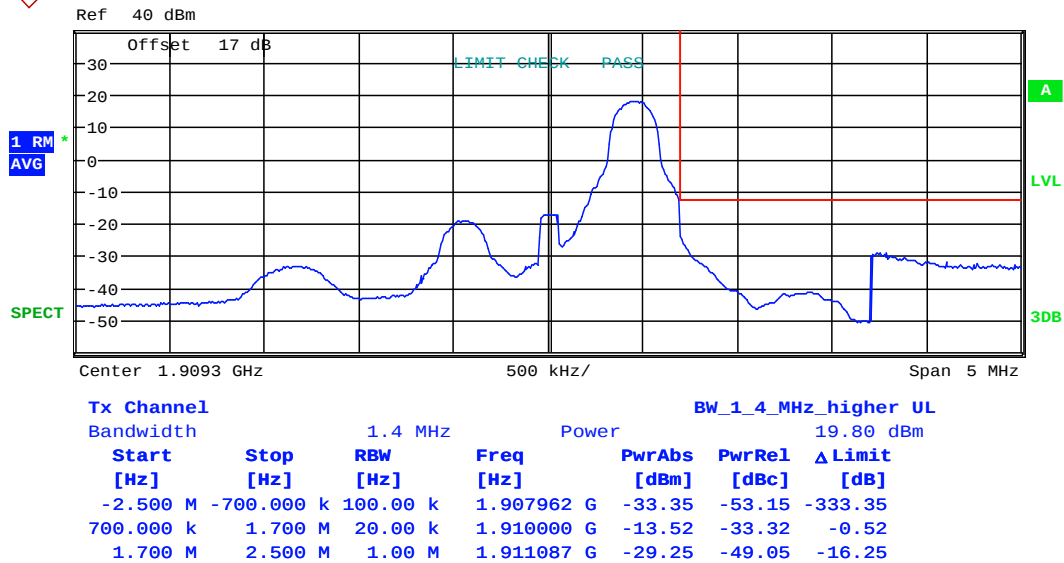


Date: 24.JUL.2019 11:13:43

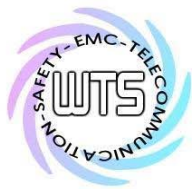


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 11:36:29

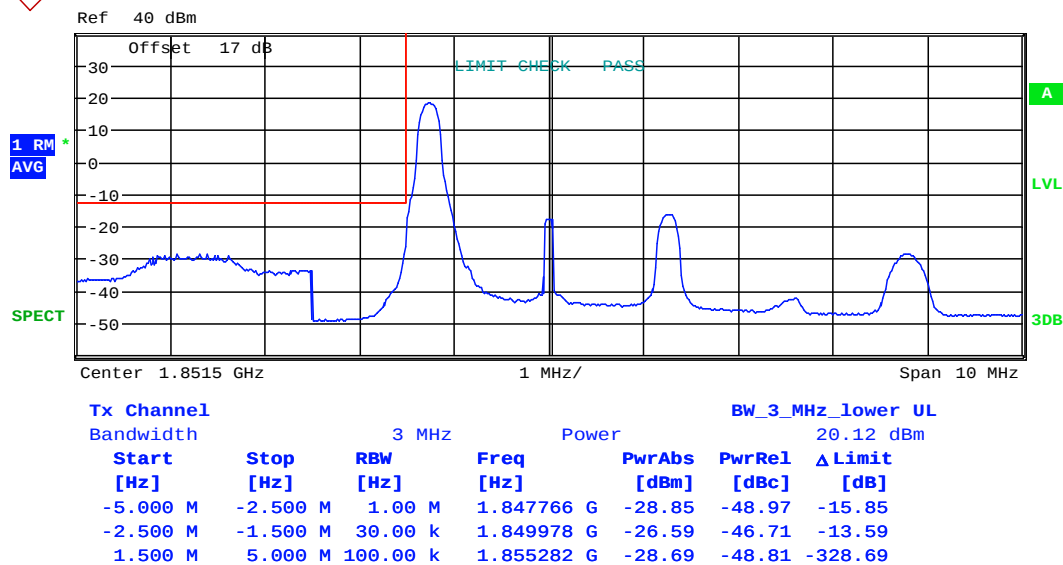


Worldwide Testing Services(Taiwan) Co., Ltd.

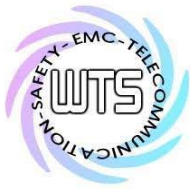
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz

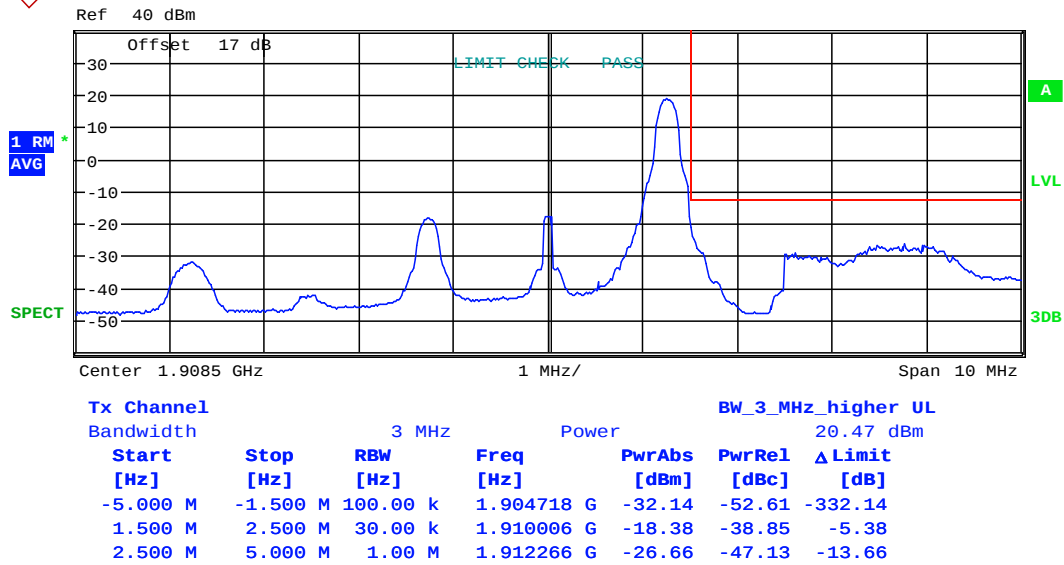


Date: 24.JUL.2019 11:44:40

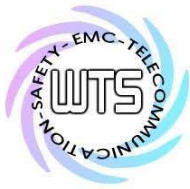


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 11:42:26

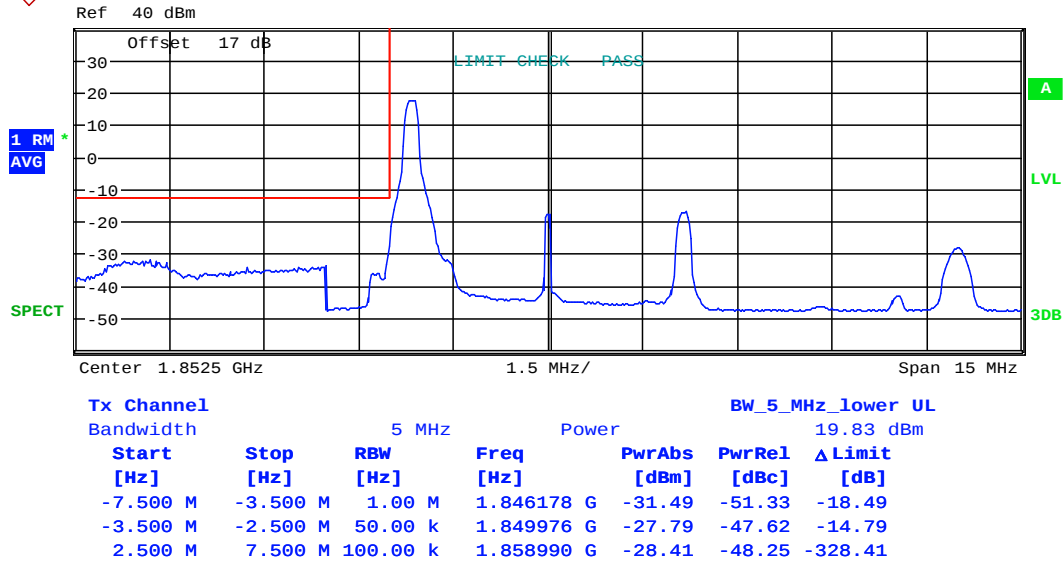


Worldwide Testing Services(Taiwan) Co., Ltd.

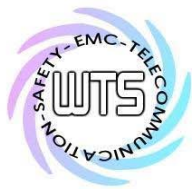
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz

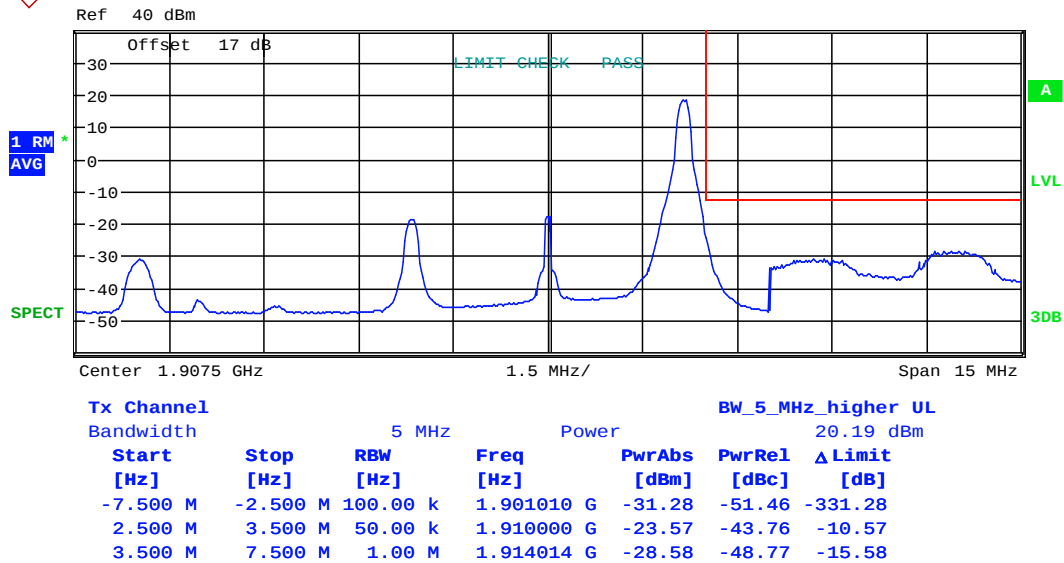


Date: 24.JUL.2019 11:49:27

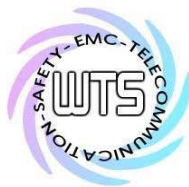


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



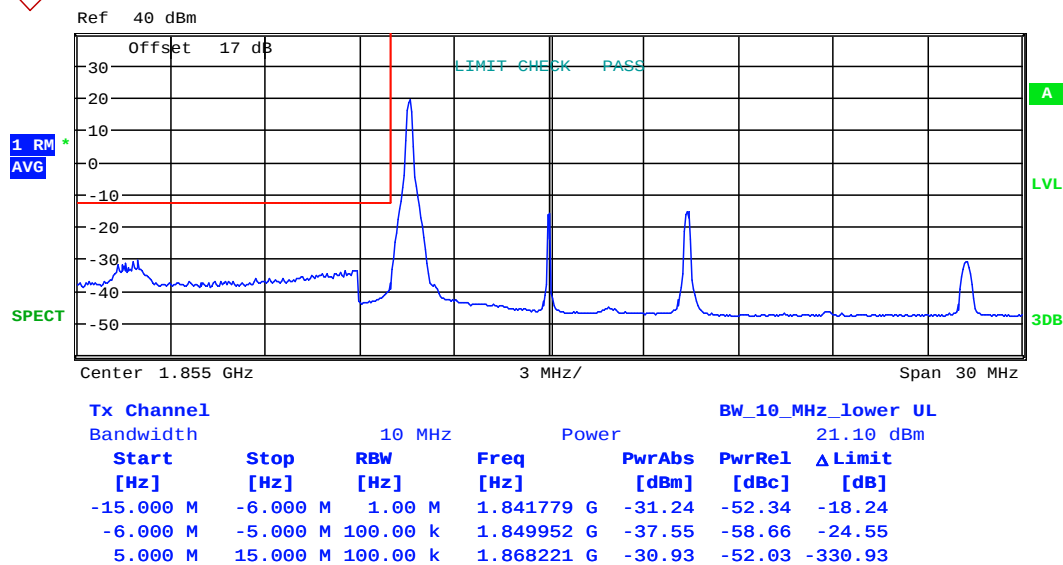
Date: 24.JUL.2019 11:51:30



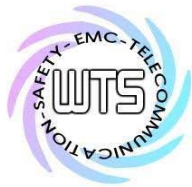
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

10MHz

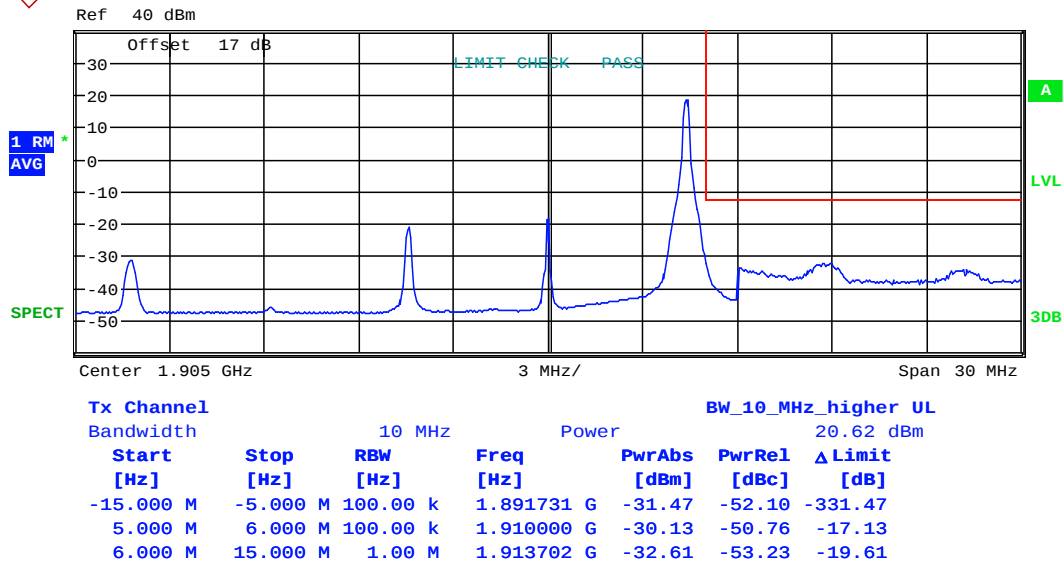


Date: 24.JUL.2019 13:06:39

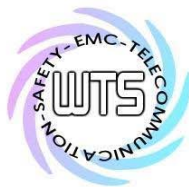


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 11:55:10



Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

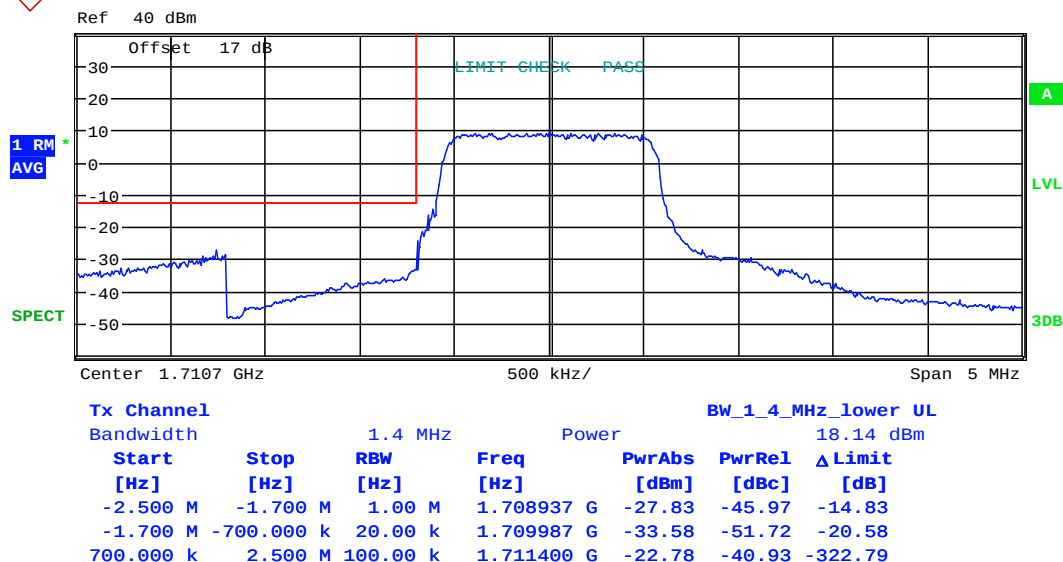
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Band IV

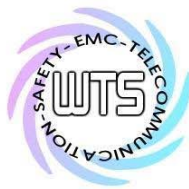
16QAM

FRB

1.4MHz

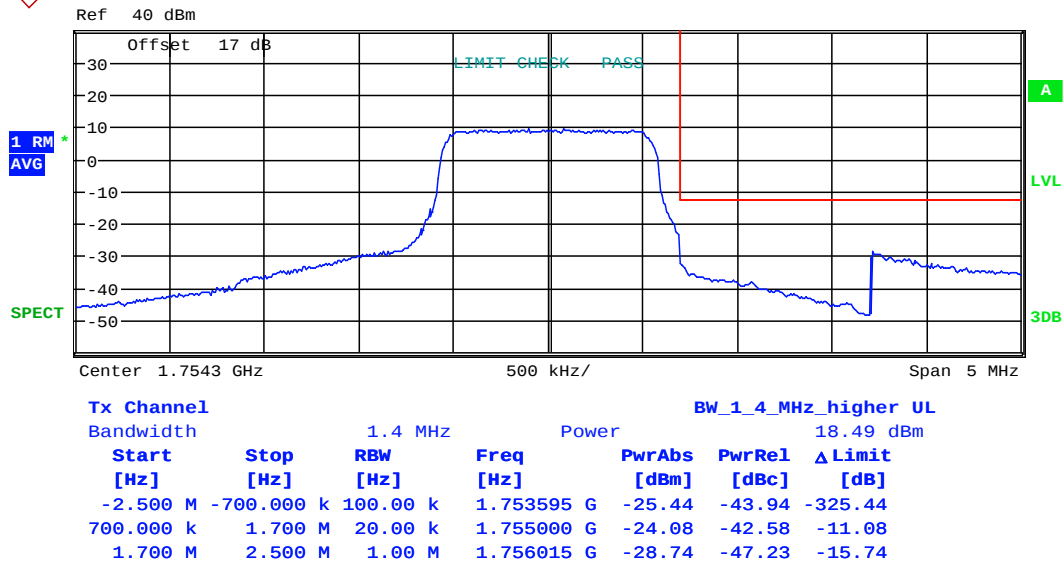


Date: 24.JUL.2019 13:57:19

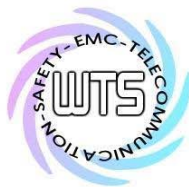


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 13:55:47

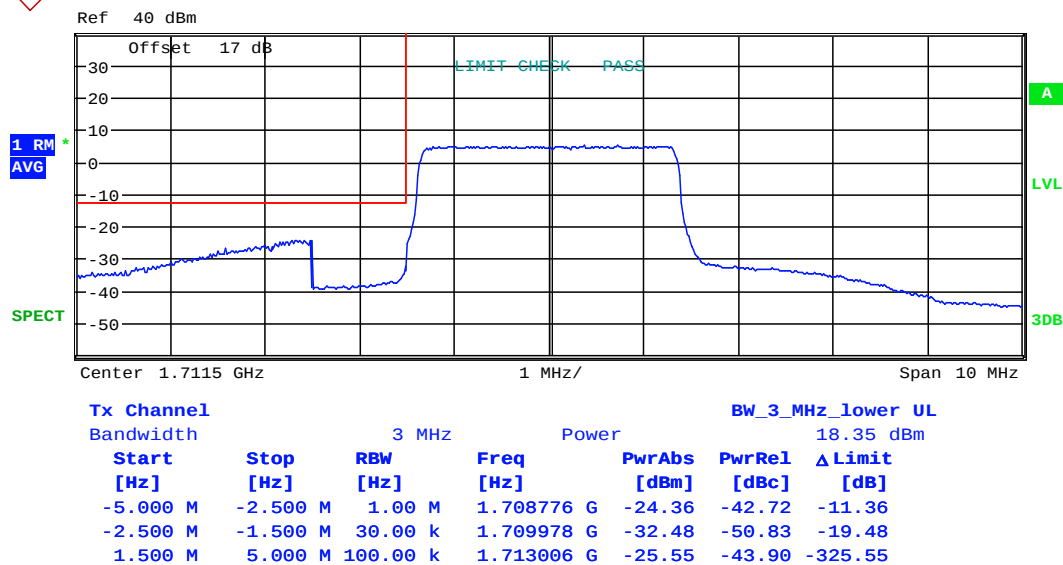


Worldwide Testing Services(Taiwan) Co., Ltd.

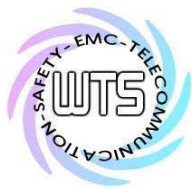
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz

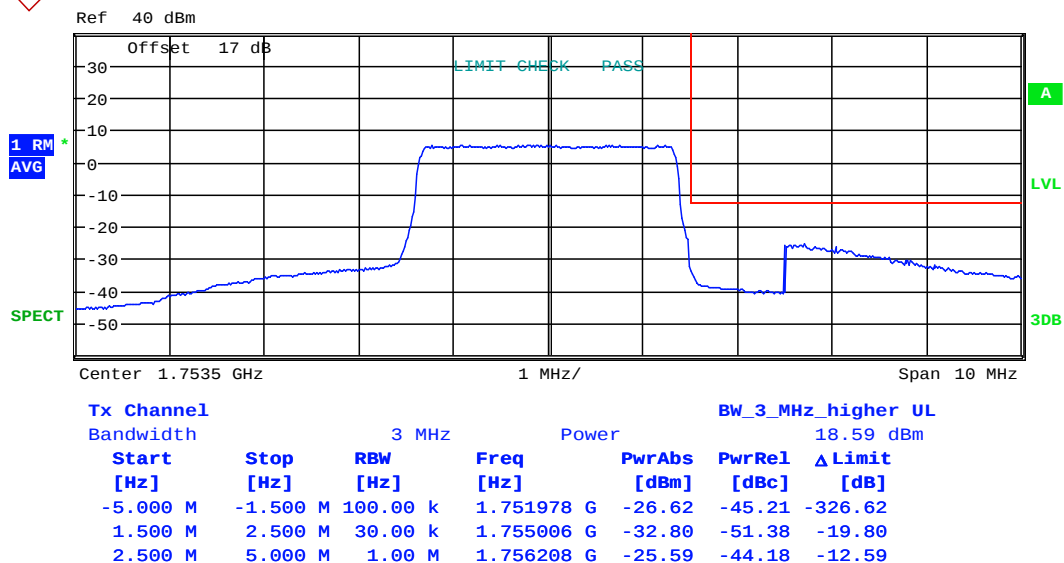


Date: 24.JUL.2019 13:50:07

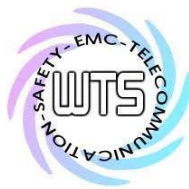


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



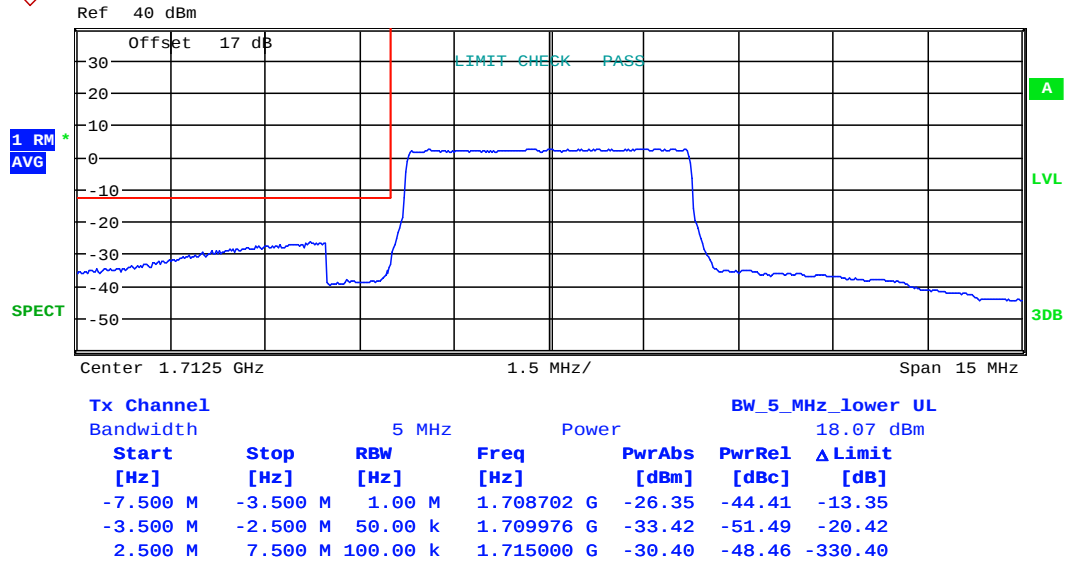
Date: 24.JUL.2019 13:51:07



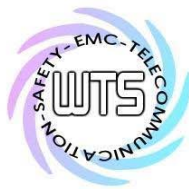
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



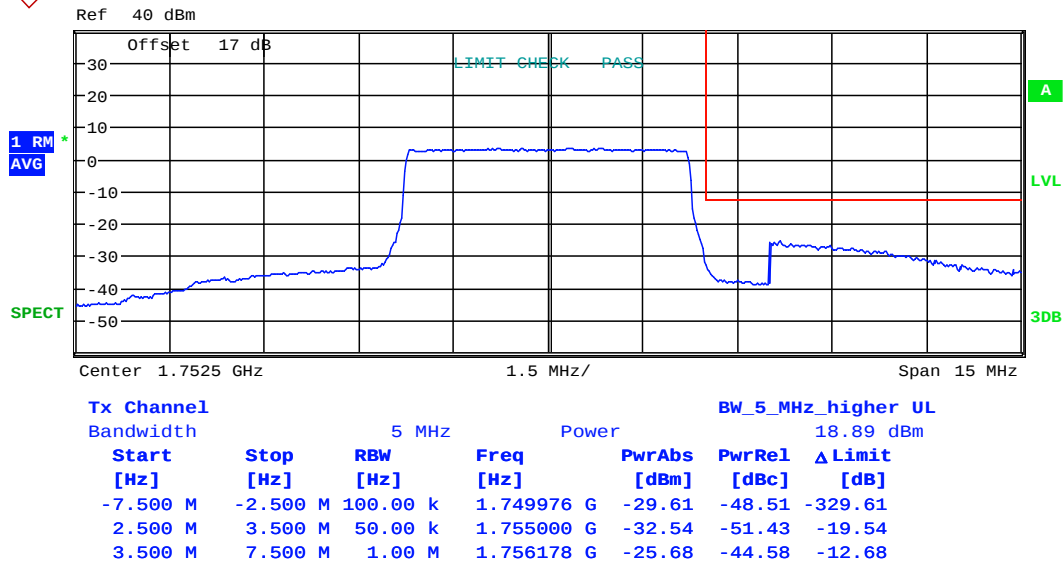
Date: 24.JUL.2019 13:46:49



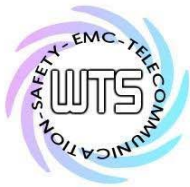
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 13:45:57

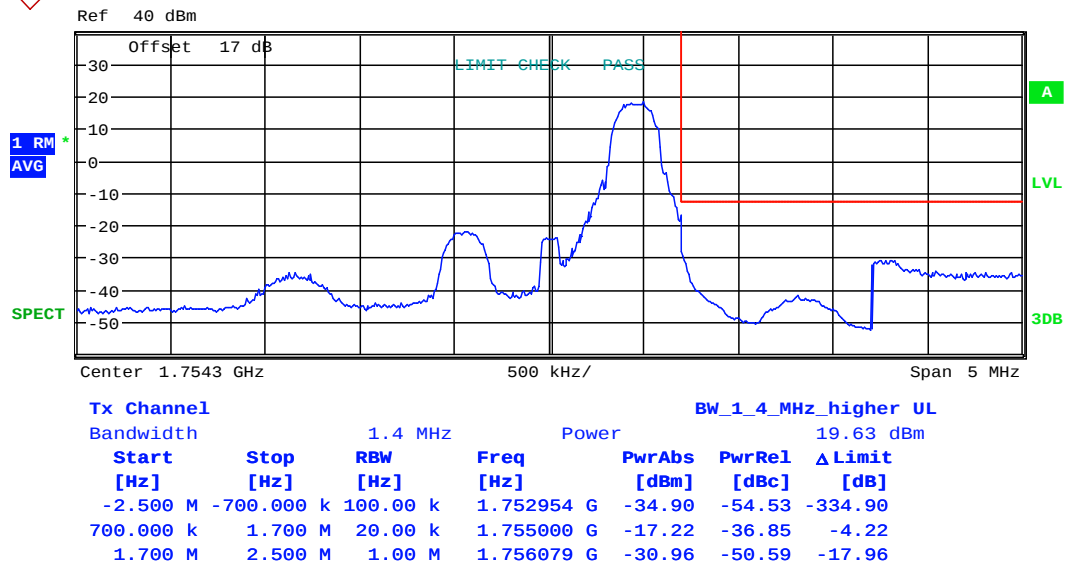


Report Number: W6M22111-21340-P-247

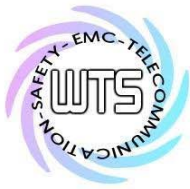
FCC ID: 2AT5JE070W1D14V2U

1RB

1.4MHz



Date: 24.JUL.2019 13:56:03

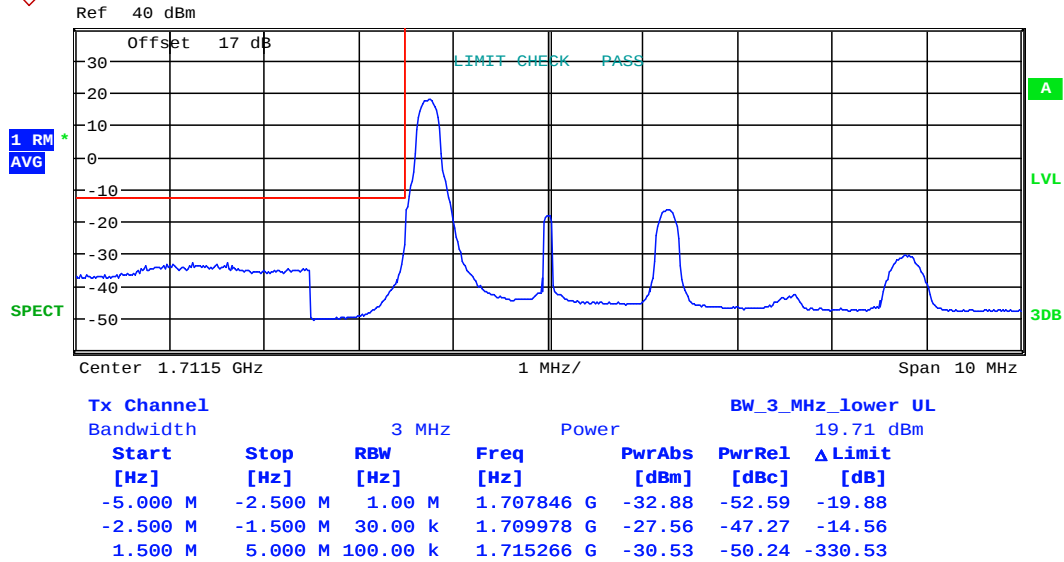


Worldwide Testing Services(Taiwan) Co., Ltd.

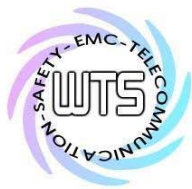
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz



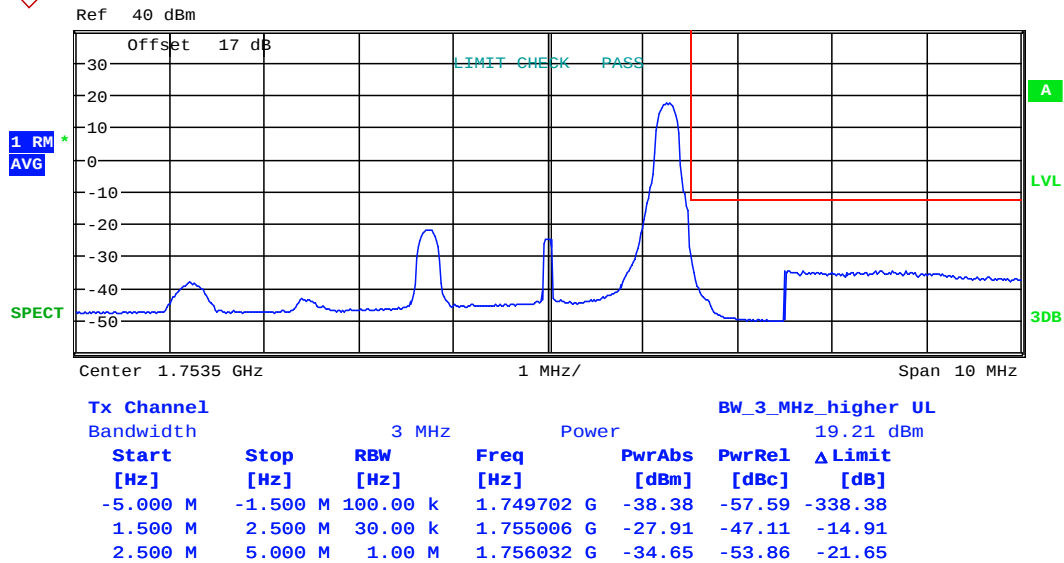
Date: 24.JUL.2019 13:49:40



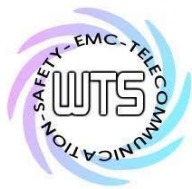
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 13:51:36

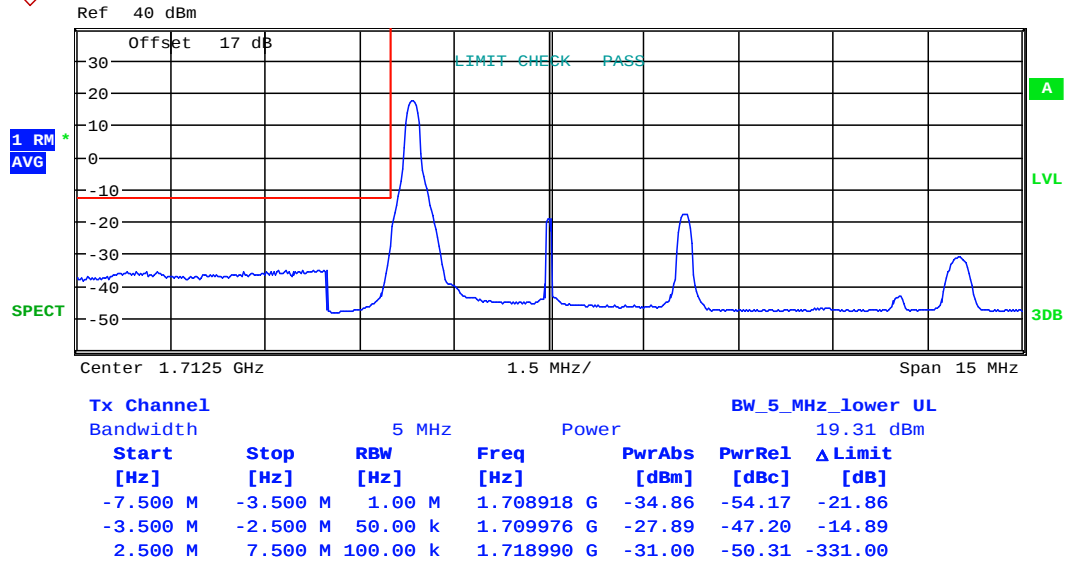


Worldwide Testing Services(Taiwan) Co., Ltd.

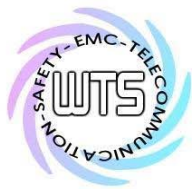
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz

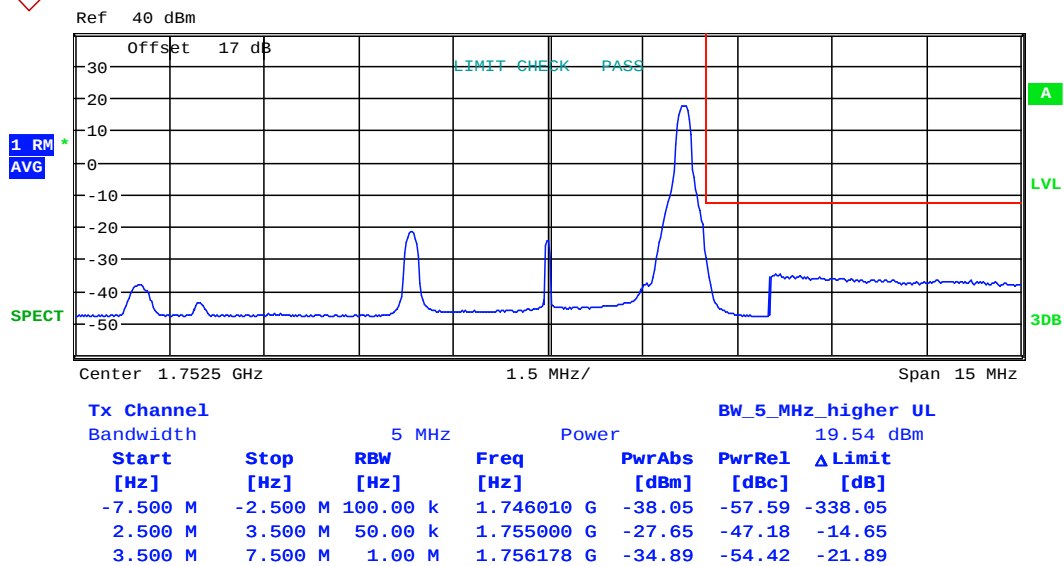


Date: 24.JUL.2019 13:47:13

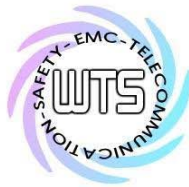


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 13:45:42



Worldwide Testing Services(Taiwan) Co., Ltd.

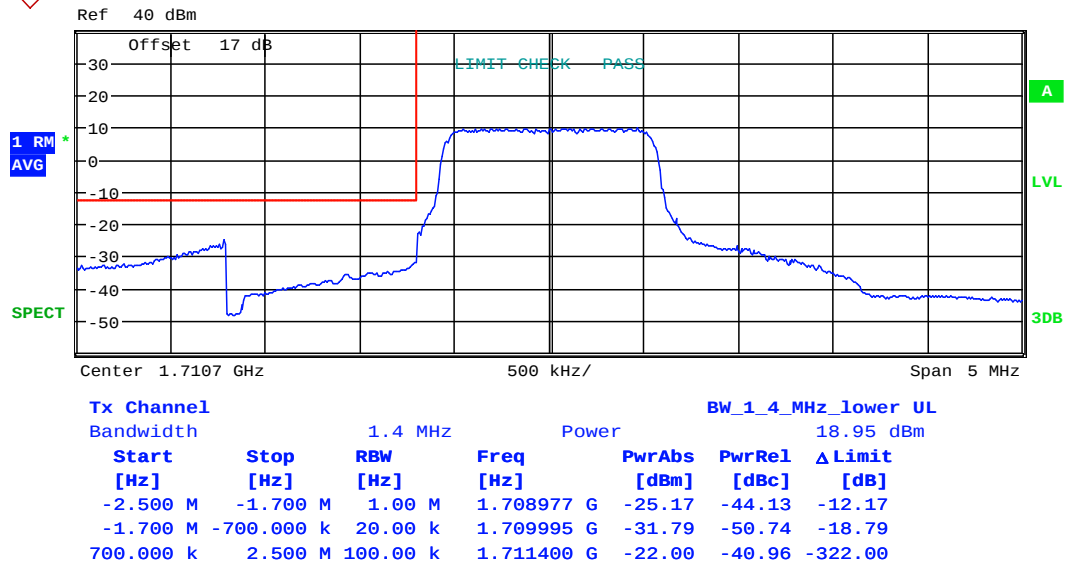
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

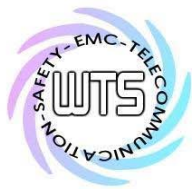
QPSK

FRB

1.4MHz

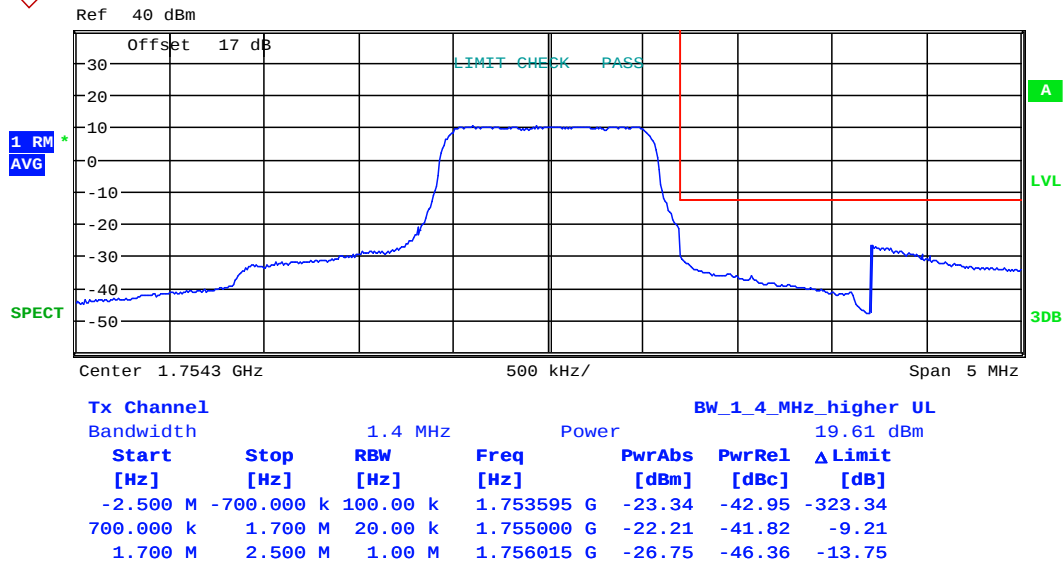


Date: 24.JUL.2019 13:57:37

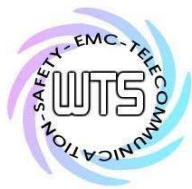


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



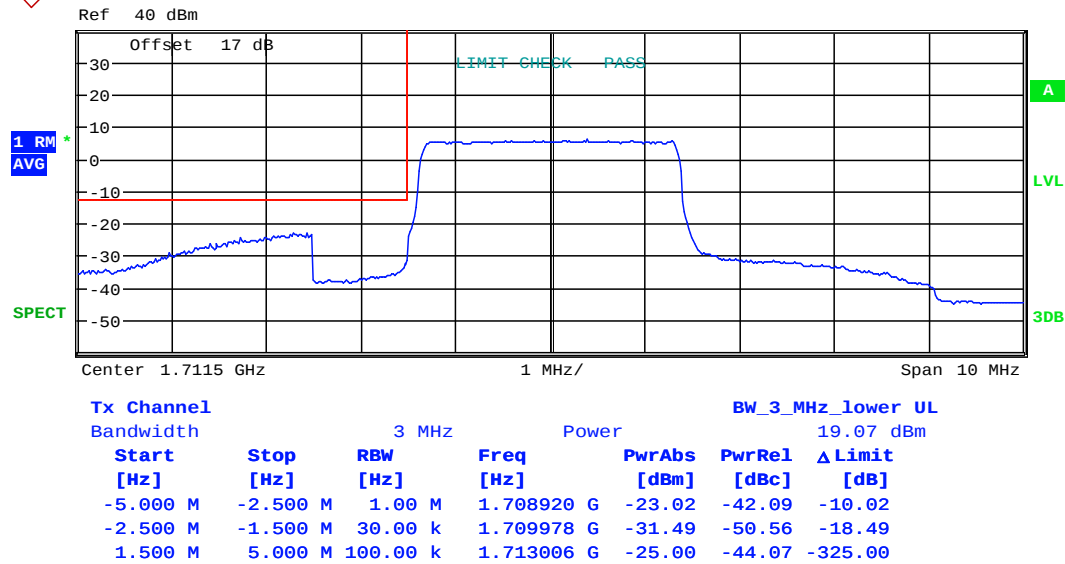
Date: 24.JUL.2019 13:55:25



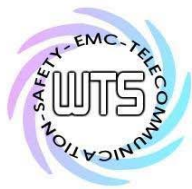
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz

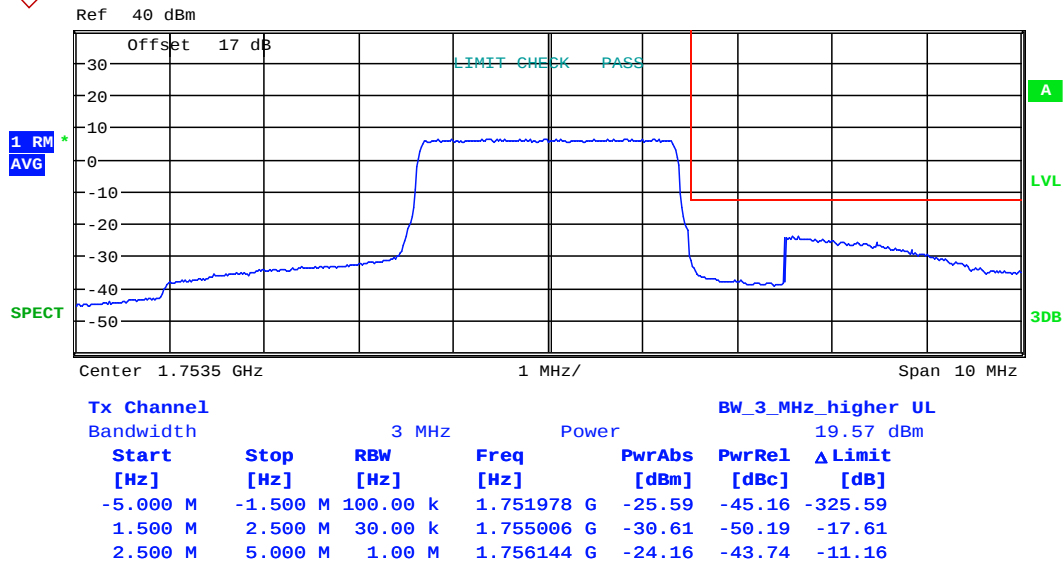


Date: 24.JUL.2019 13:48:52

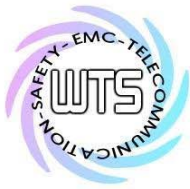


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 13:52:28

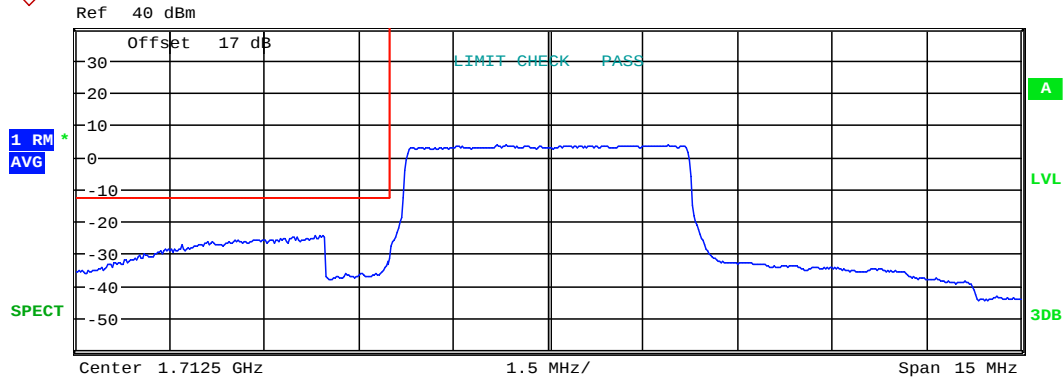


Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

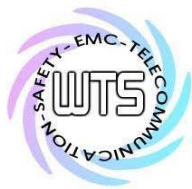
FCC ID: 2AT5JE070W1D14V2U

5MHz



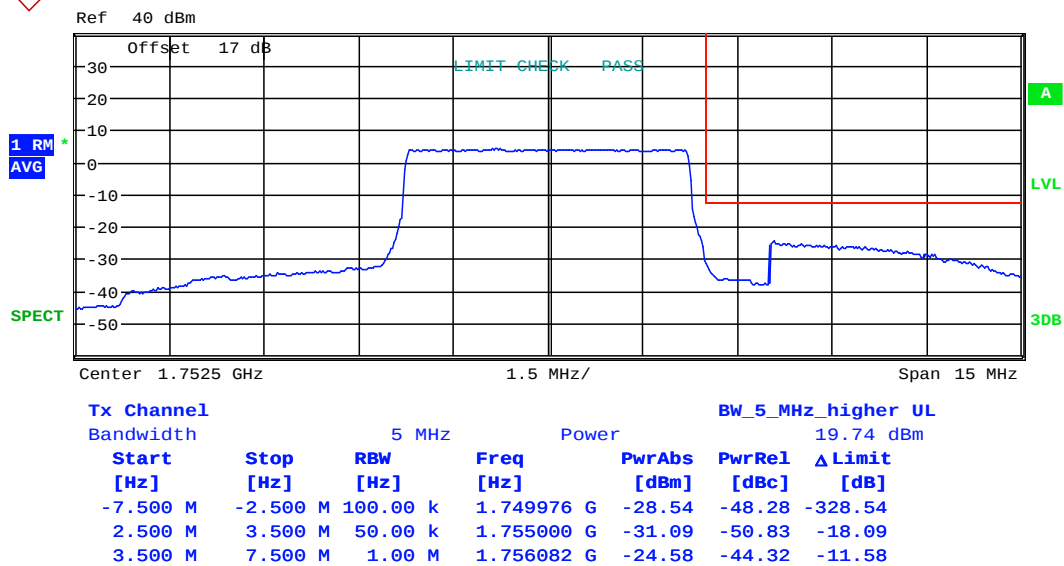
Tx Channel			BW_5_MHz_lower UL				
Bandwidth			5 MHz	Power		19.13 dBm	
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	PwrRel [dBc]	Δ Limit [dB]	
-7.500 M	-3.500 M	1.00 M	1.708798 G	-24.52	-43.65	-11.52	
-3.500 M	-2.500 M	50.00 k	1.709976 G	-31.61	-50.74	-18.61	
2.500 M	7.500 M	100.00 k	1.715000 G	-28.00	-47.13	-328.00	

Date: 24.JUL.2019 13:47:50

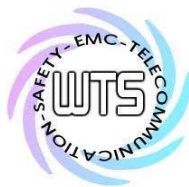


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 13:44:54

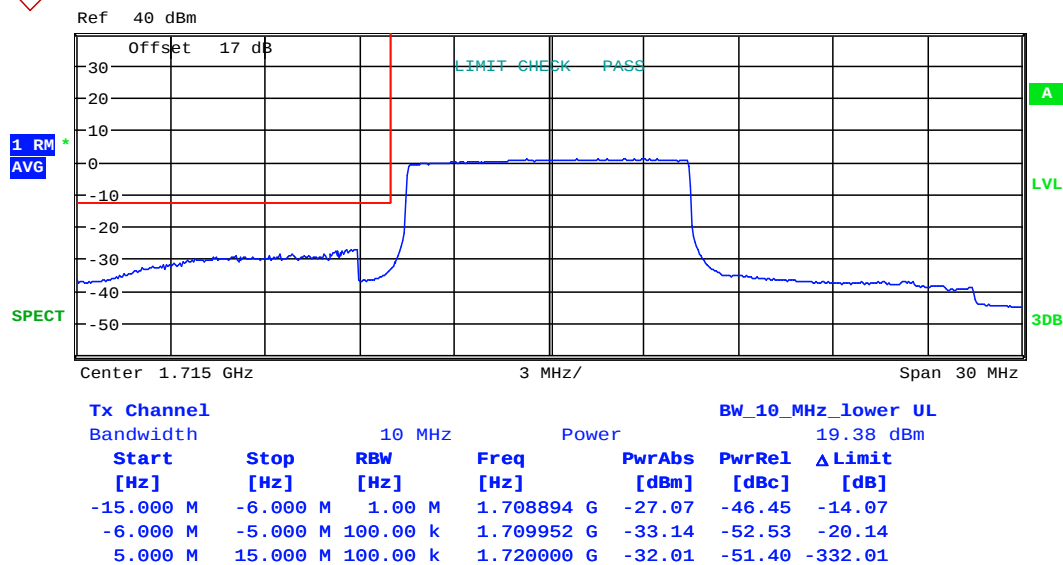


Worldwide Testing Services(Taiwan) Co., Ltd.

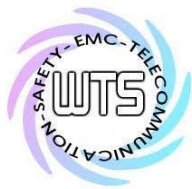
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

10MHz



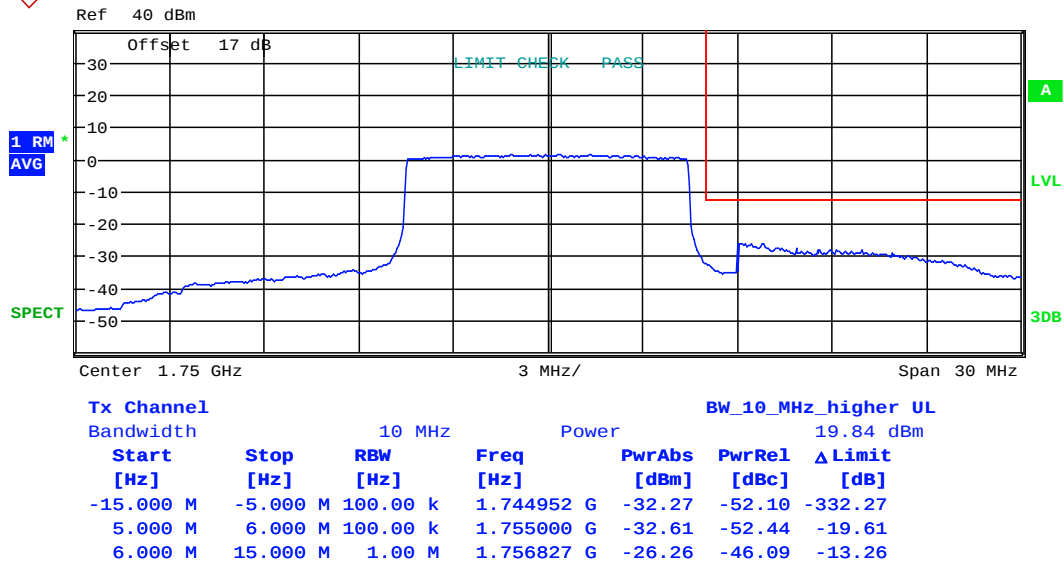
Date: 24.JUL.2019 13:38:29



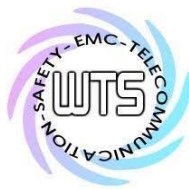
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 13:41:14

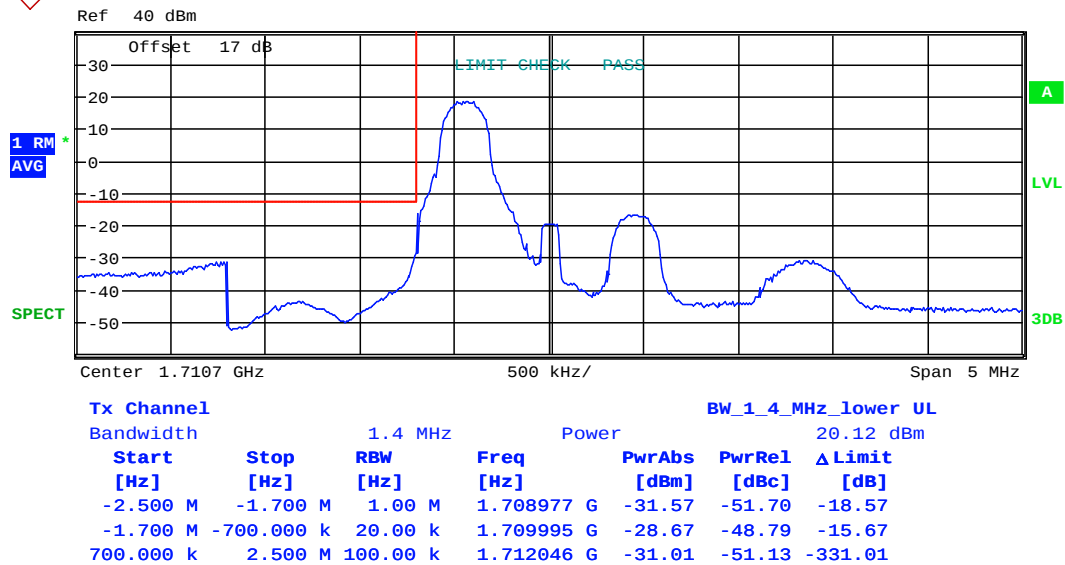


Report Number: W6M22111-21340-P-247

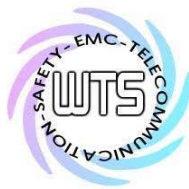
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1RB

1.4MHz

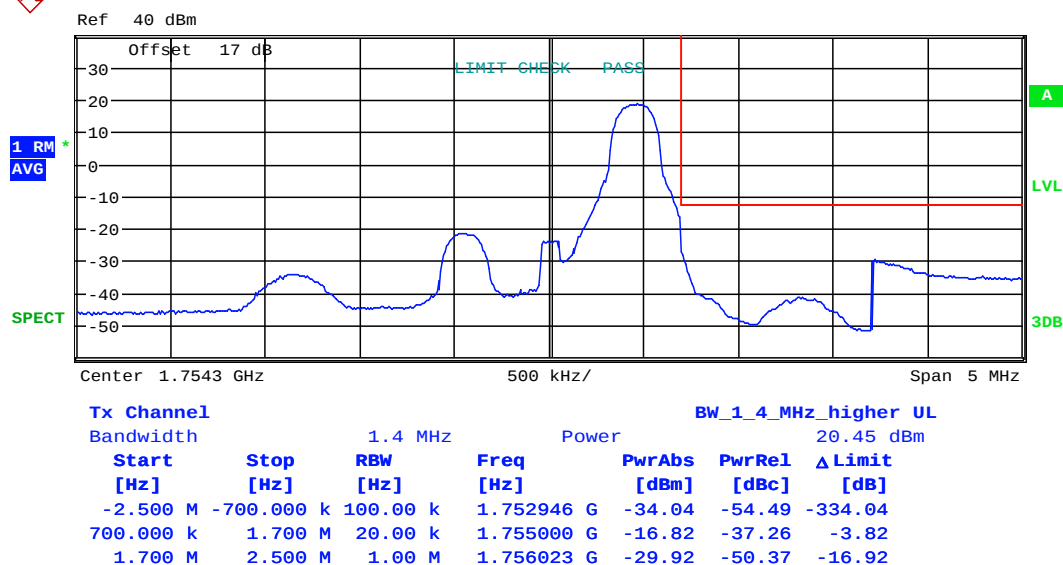


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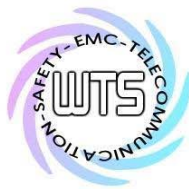


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 13:54:23

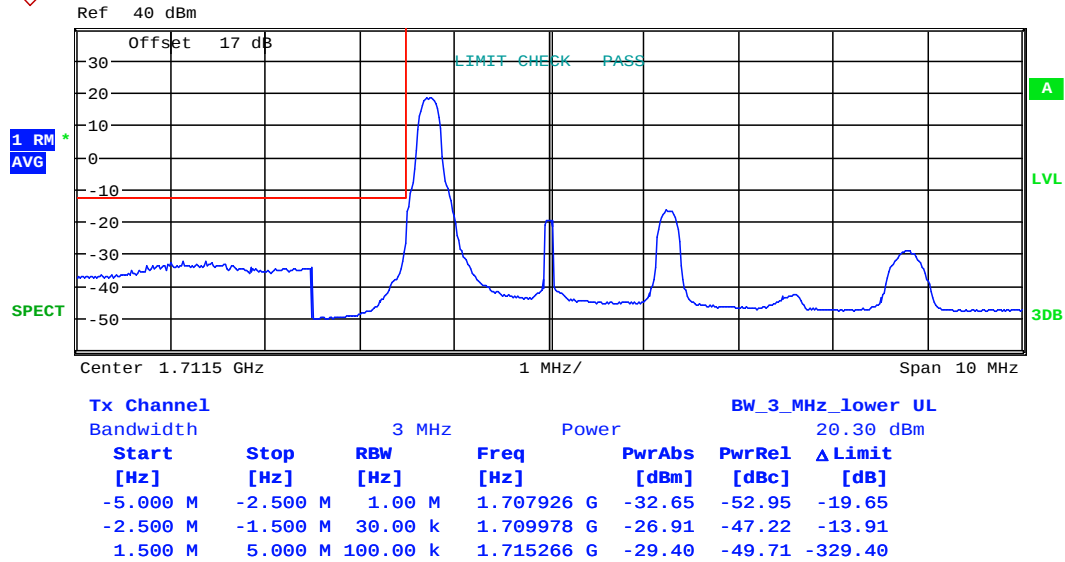


Worldwide Testing Services(Taiwan) Co., Ltd.

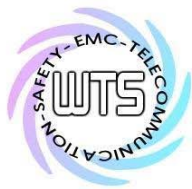
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz

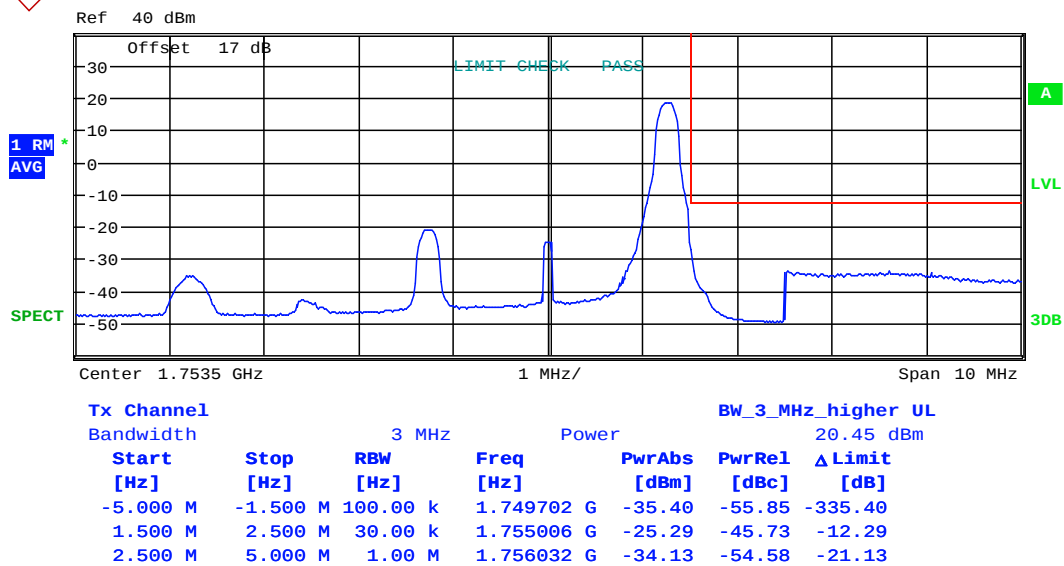


Date: 24.JUL.2019 13:49:12

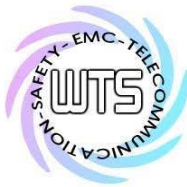


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 13:52:09

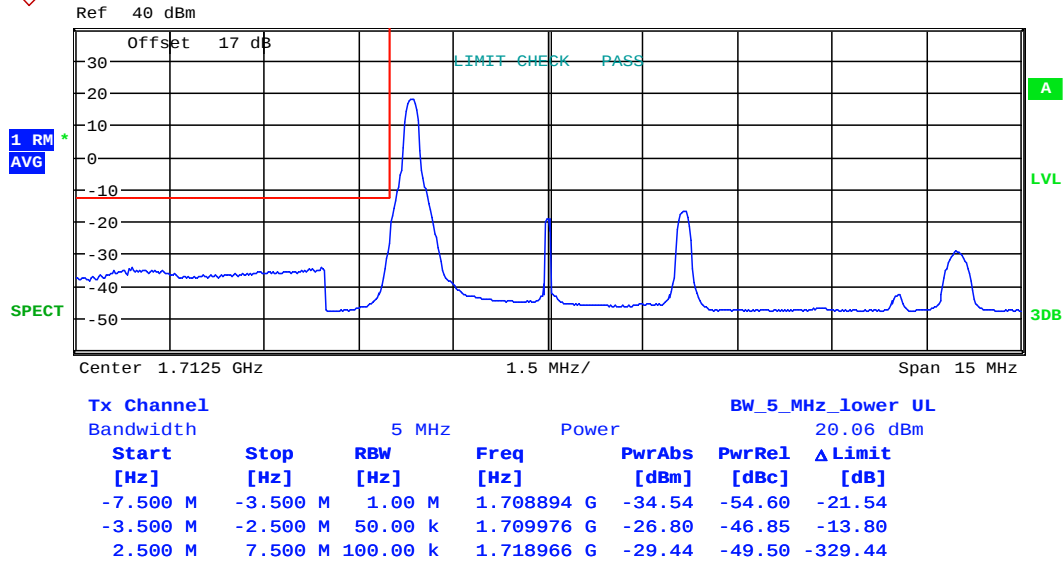


Worldwide Testing Services(Taiwan) Co., Ltd.

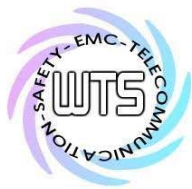
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz

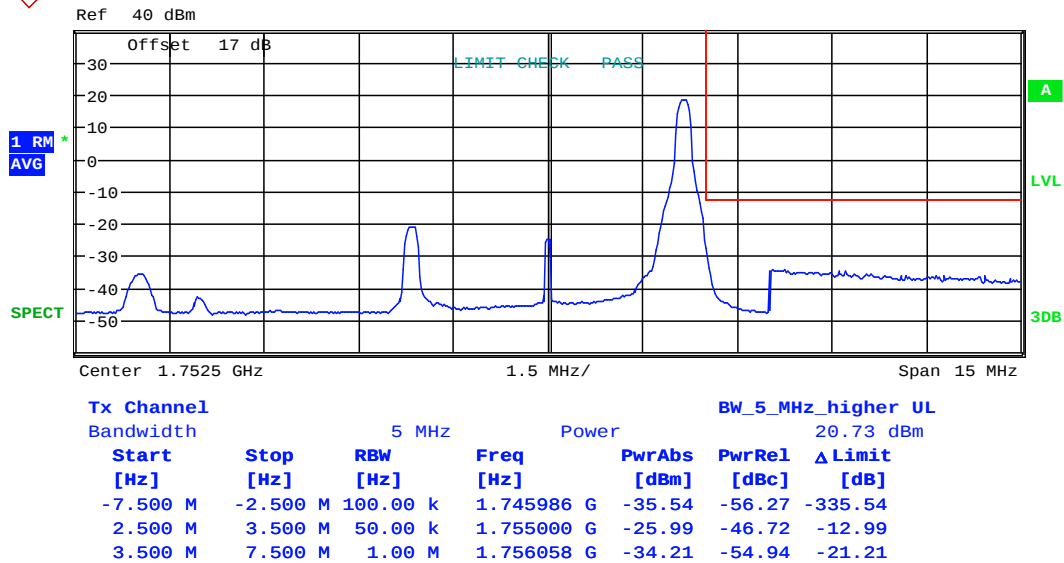


Date: 24.JUL.2019 13:47:30

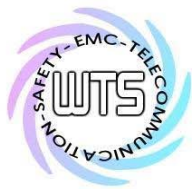


Report Number: W6M22111-21340-P-247

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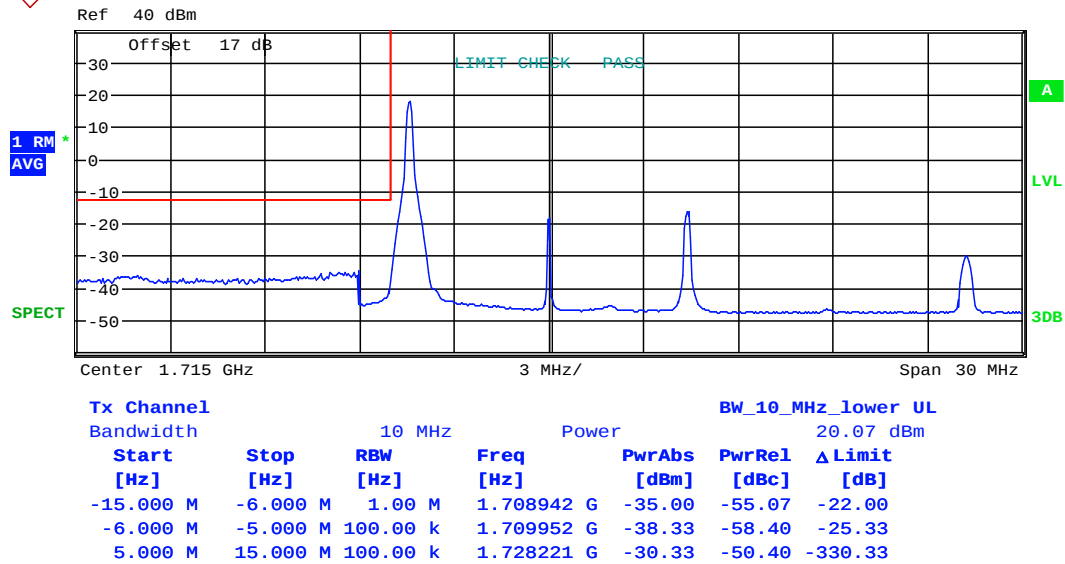
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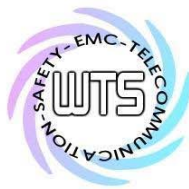
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10MHz

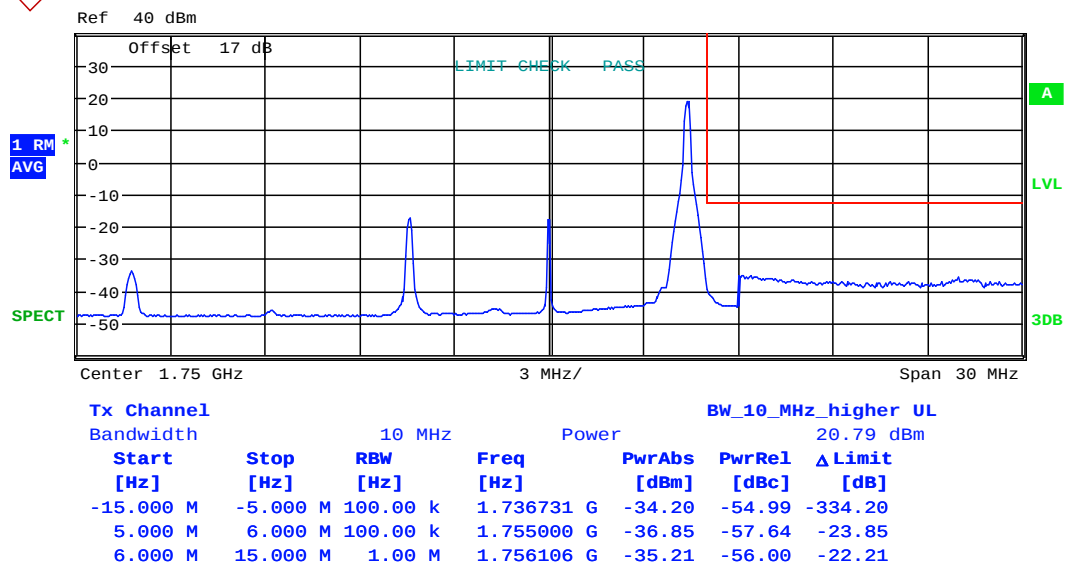


Date: 24.JUL.2019 13:38:47

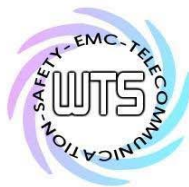


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 13:40:54



Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

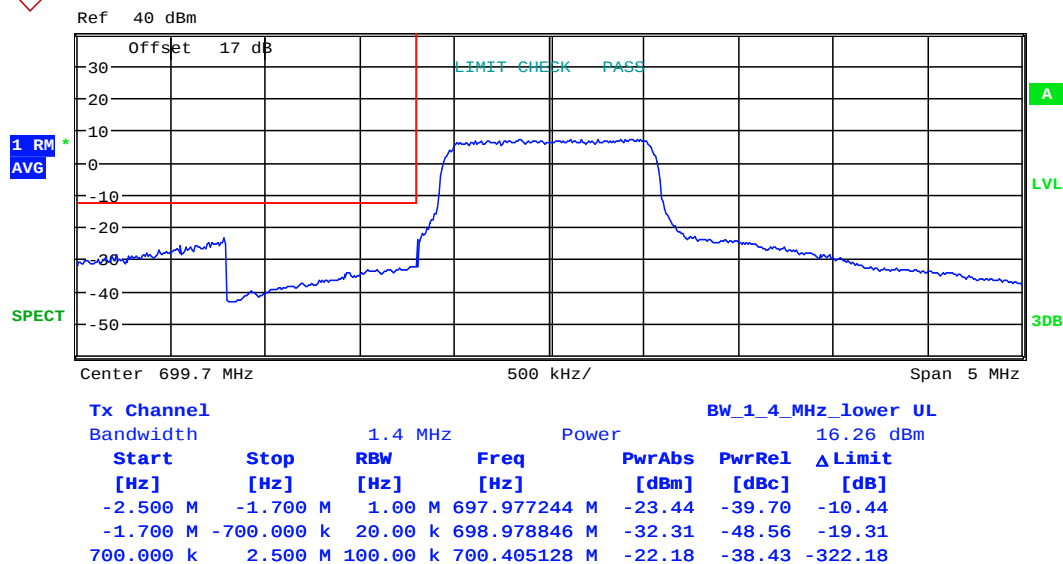
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Band XII

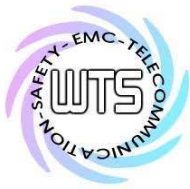
16QAM

FRB

1.4MHz

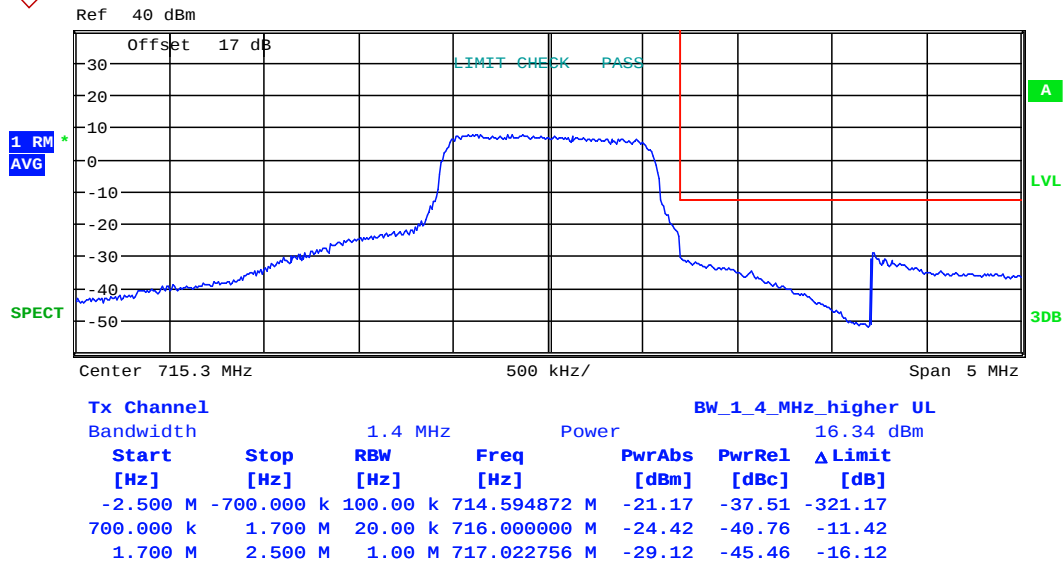


Date: 24.JUL.2019 14:25:33

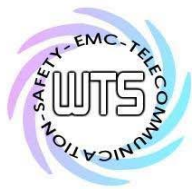


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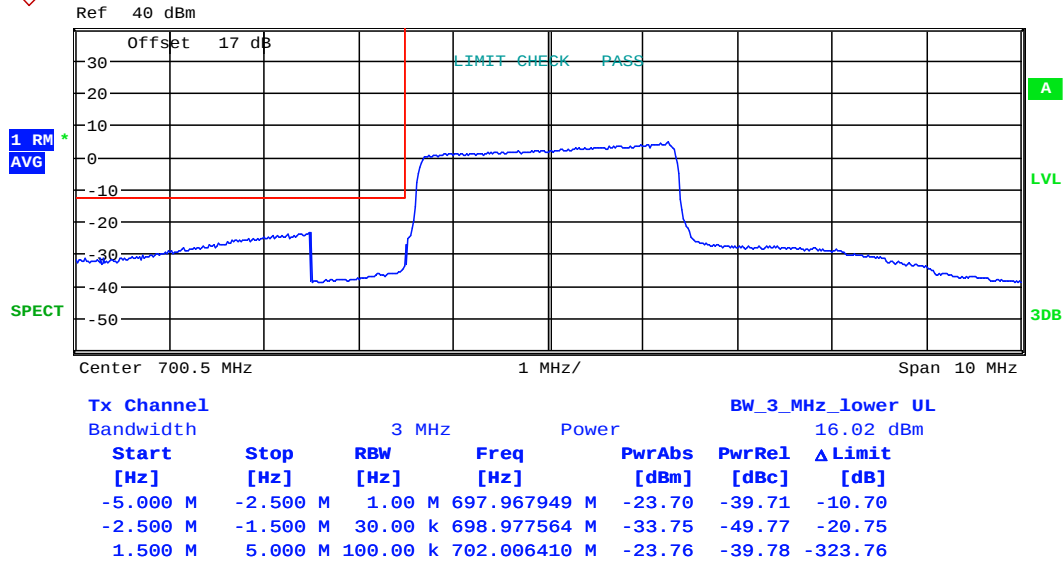
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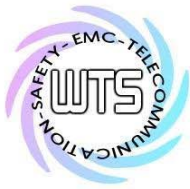
Report Number: W6M22111-21340-P-247

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3MHz



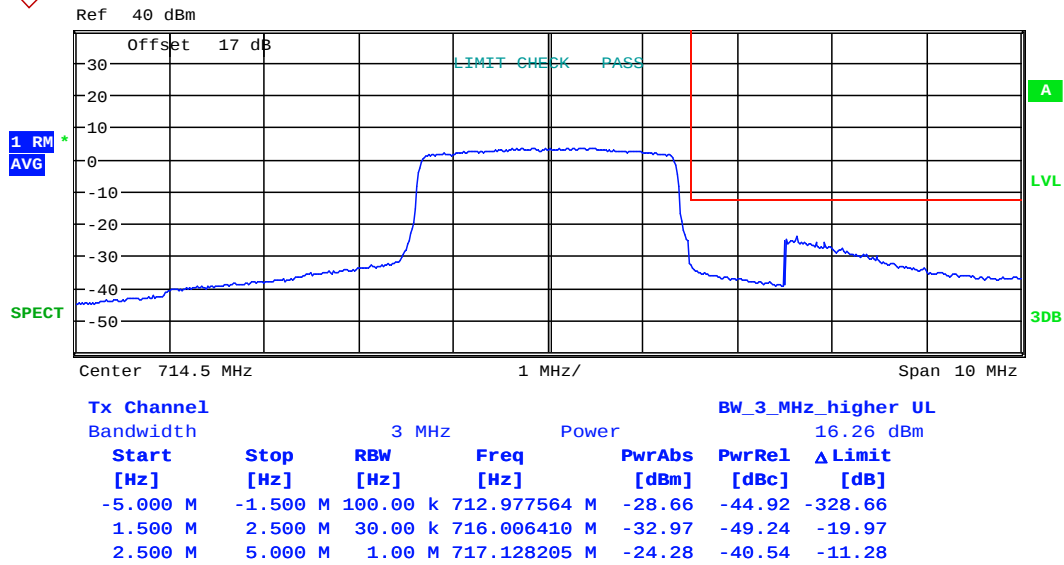
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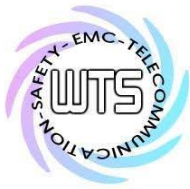
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

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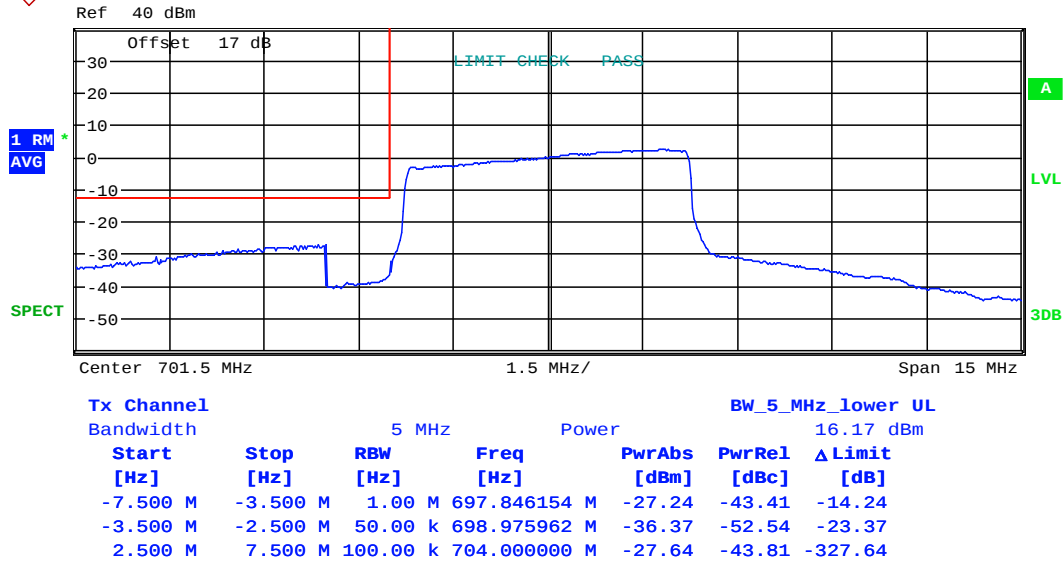
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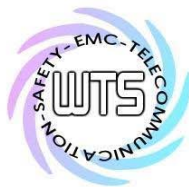
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



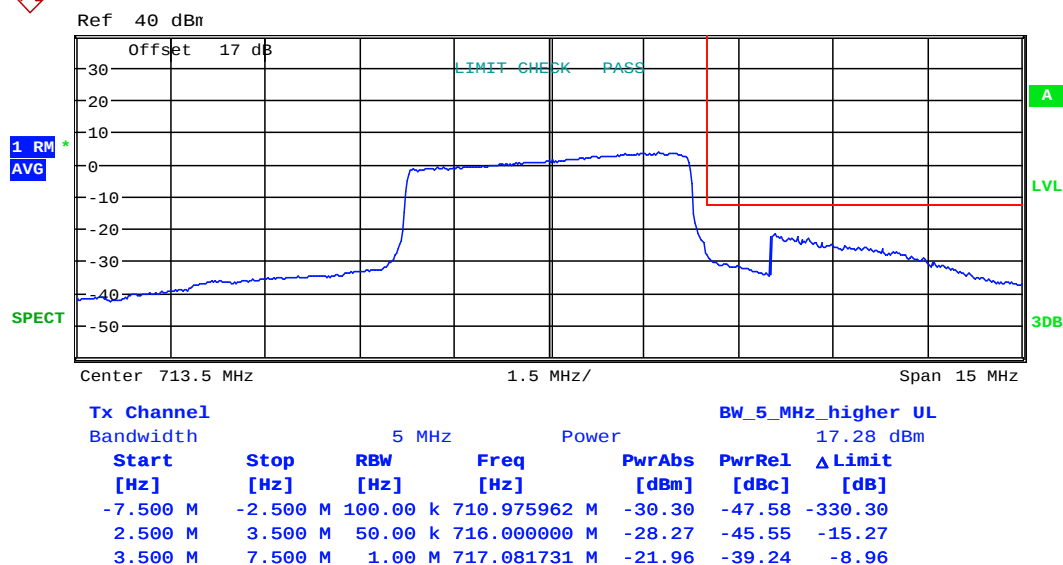
Date: 24.JUL.2019 14:36:53



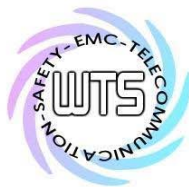
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 14:46:48

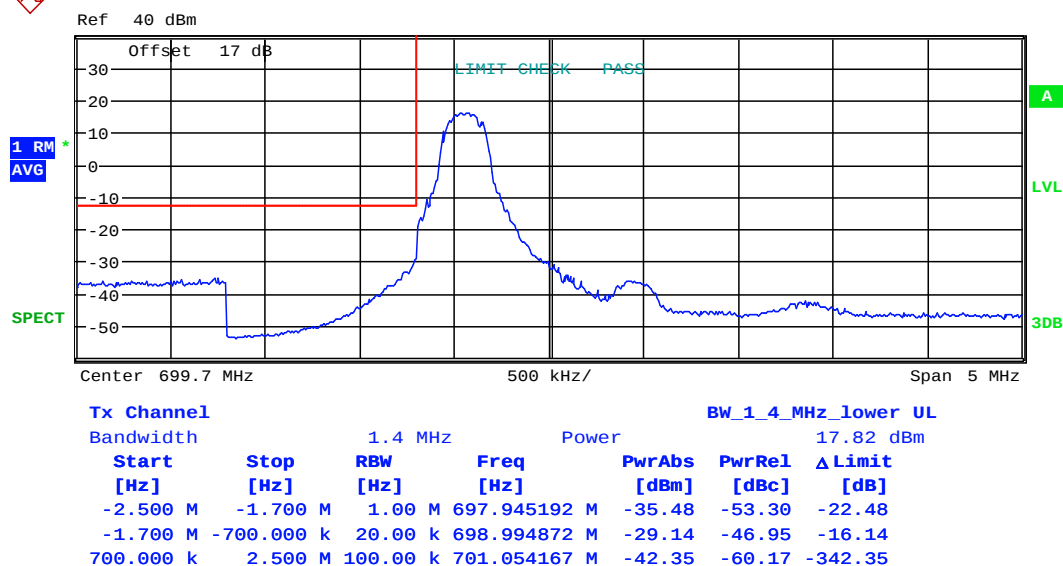


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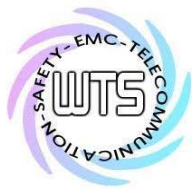
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1RB

1.4MHz

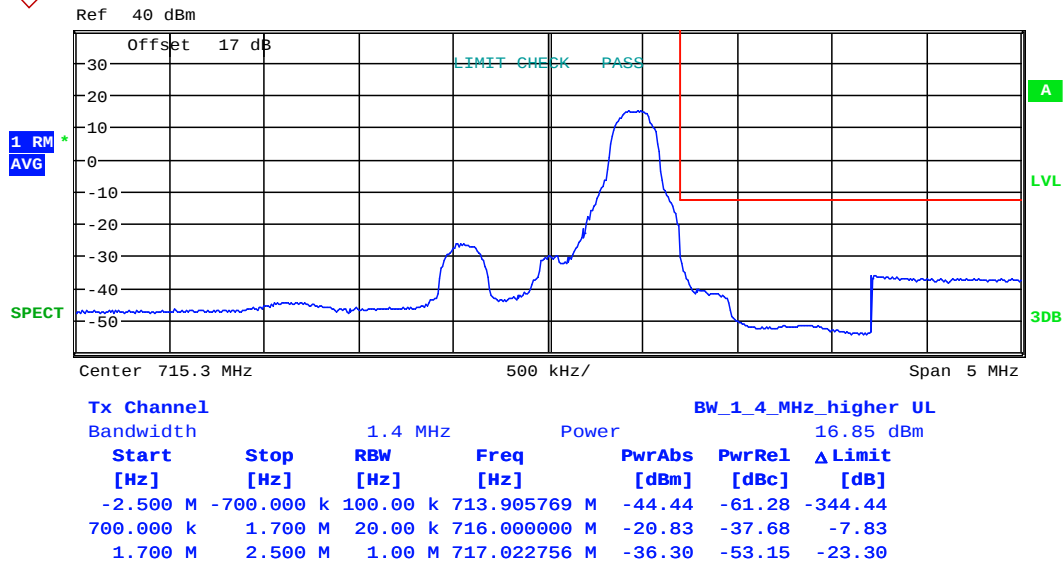


Date: 24.JUL.2019 14:25:49

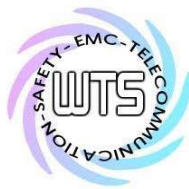


Report Number: W6M22111-21340-P-247

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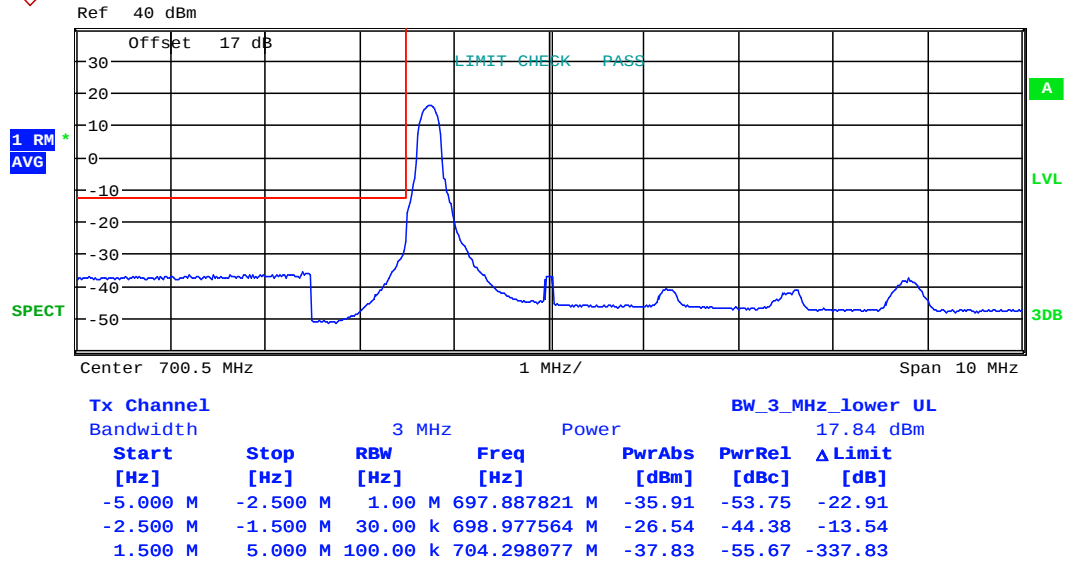
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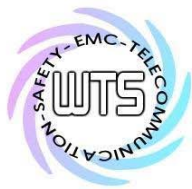
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

3MHz

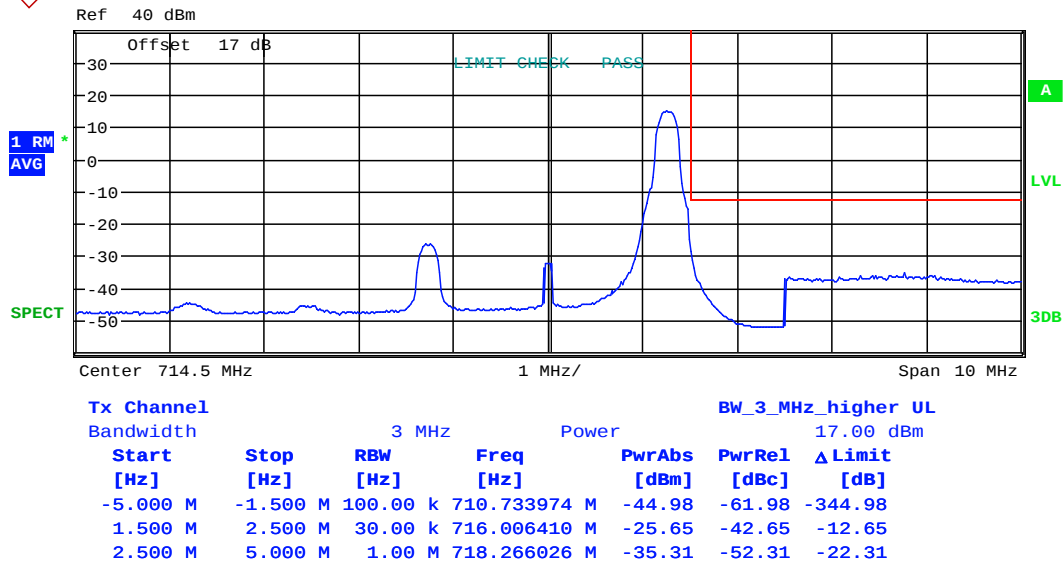


Date: 24.JUL.2019 14:32:32

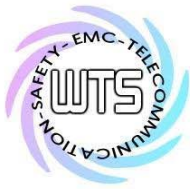


Report Number: W6M22111-21340-P-247

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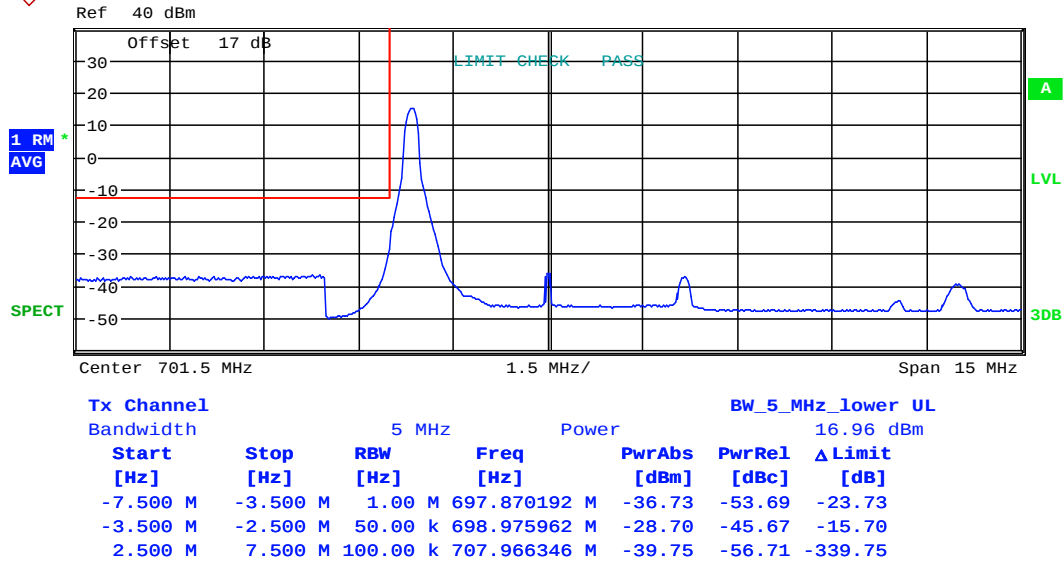


Worldwide Testing Services(Taiwan) Co., Ltd.

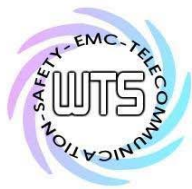
Report Number: W6M22111-21340-P-247

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5MHz



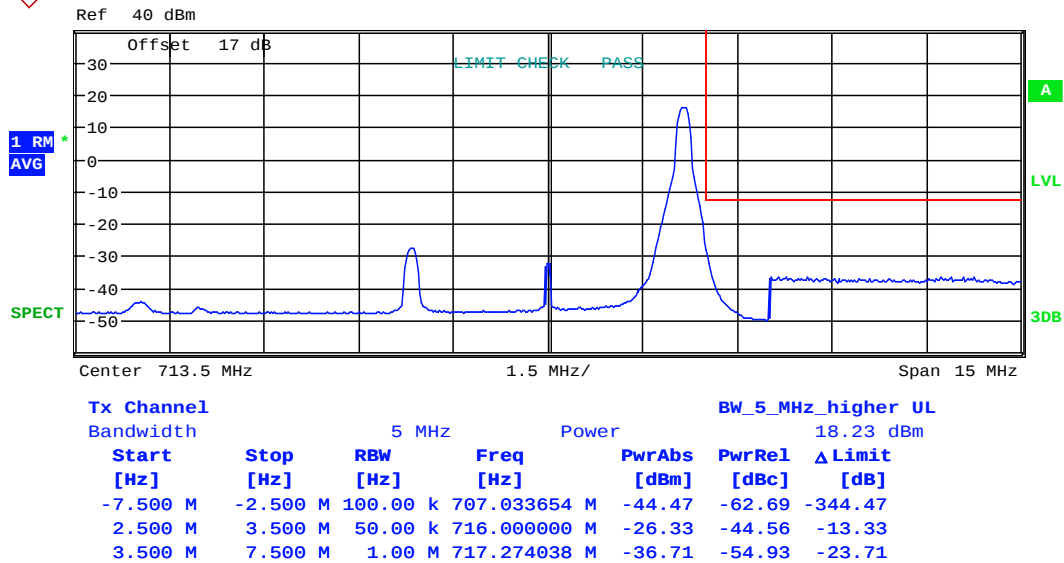
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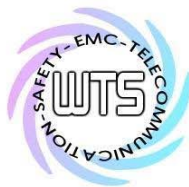
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 14:47:12



Worldwide Testing Services(Taiwan) Co., Ltd.

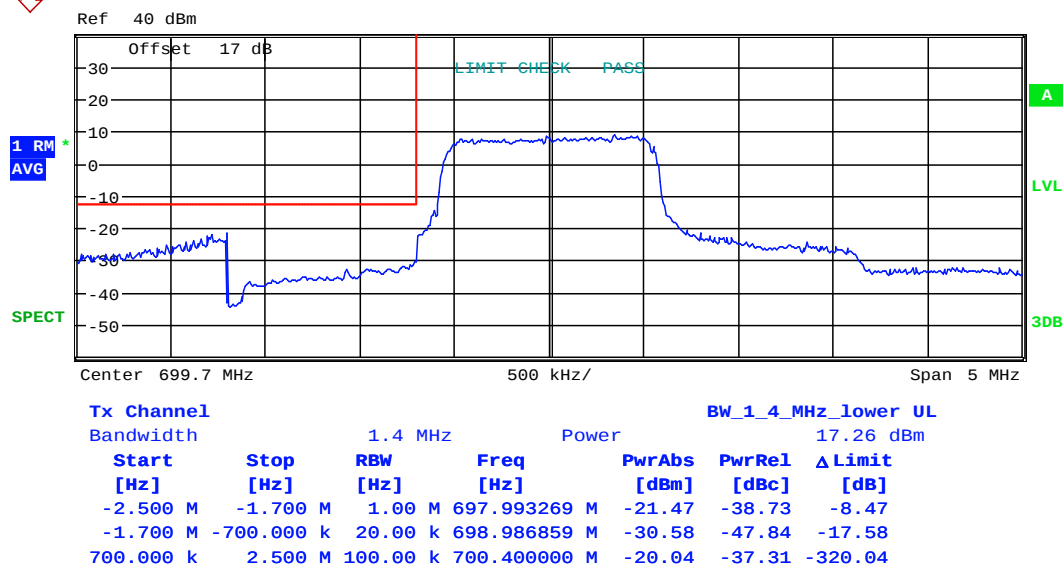
Report Number: W6M22111-21340-P-247

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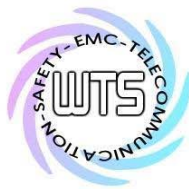
QPSK

FRB

1.4MHz

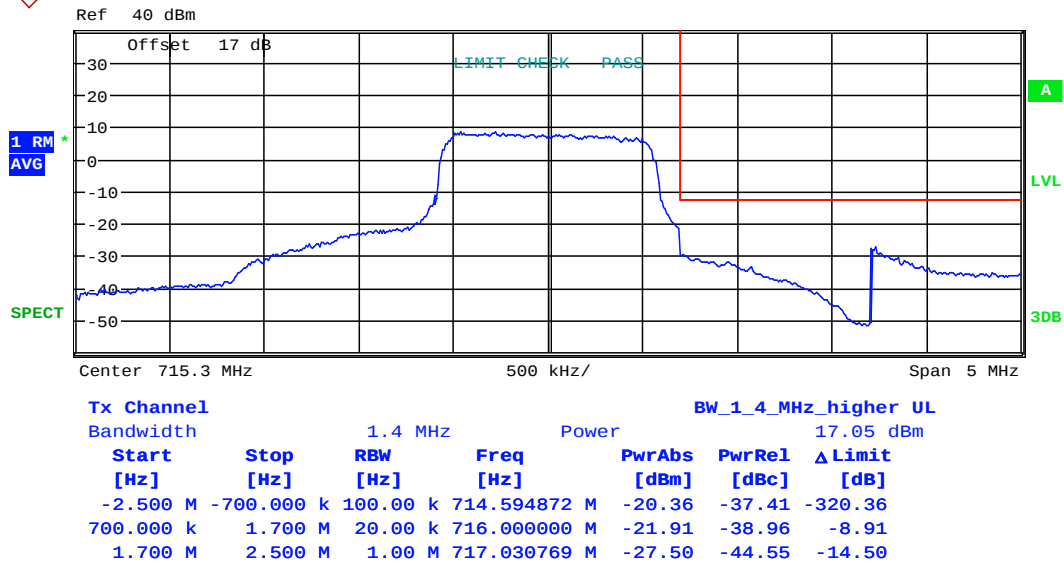


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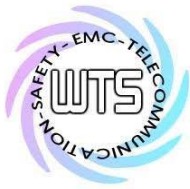


Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 14:27:24

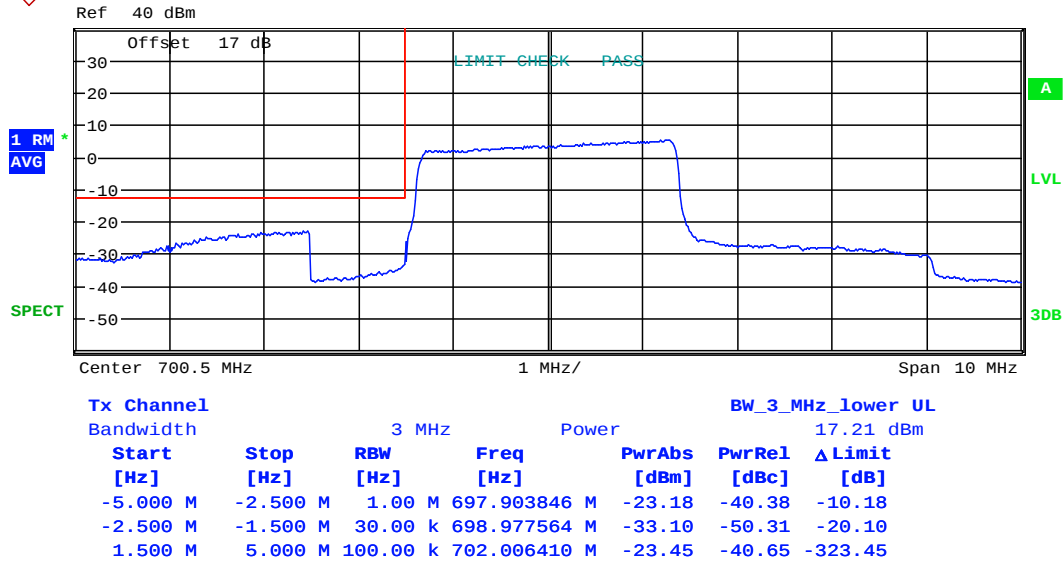


Worldwide Testing Services(Taiwan) Co., Ltd.

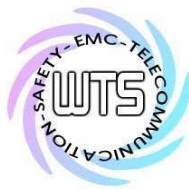
Report Number: W6M22111-21340-P-247

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3MHz



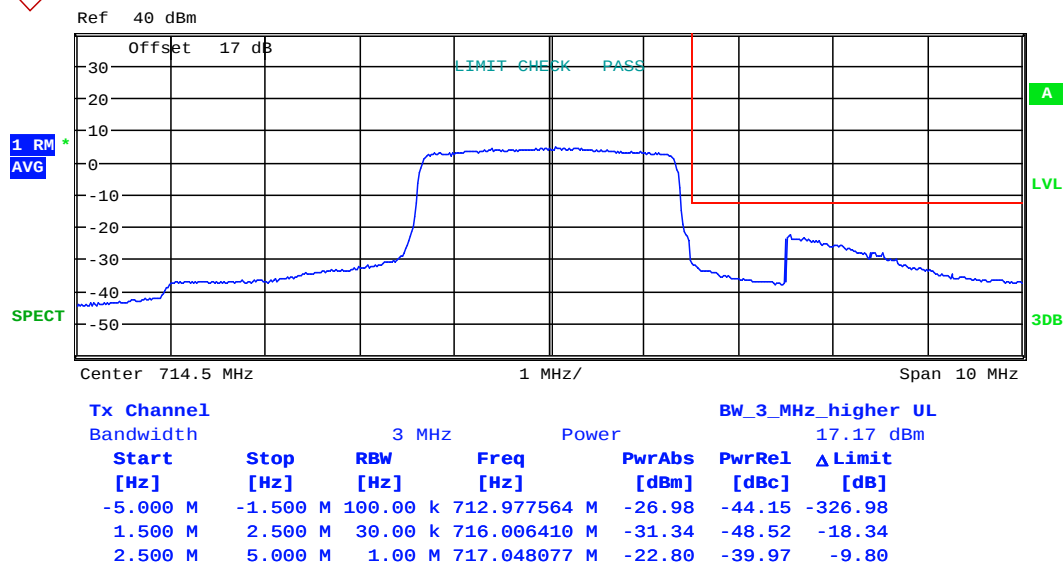
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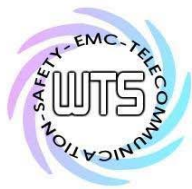
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 14:30:18

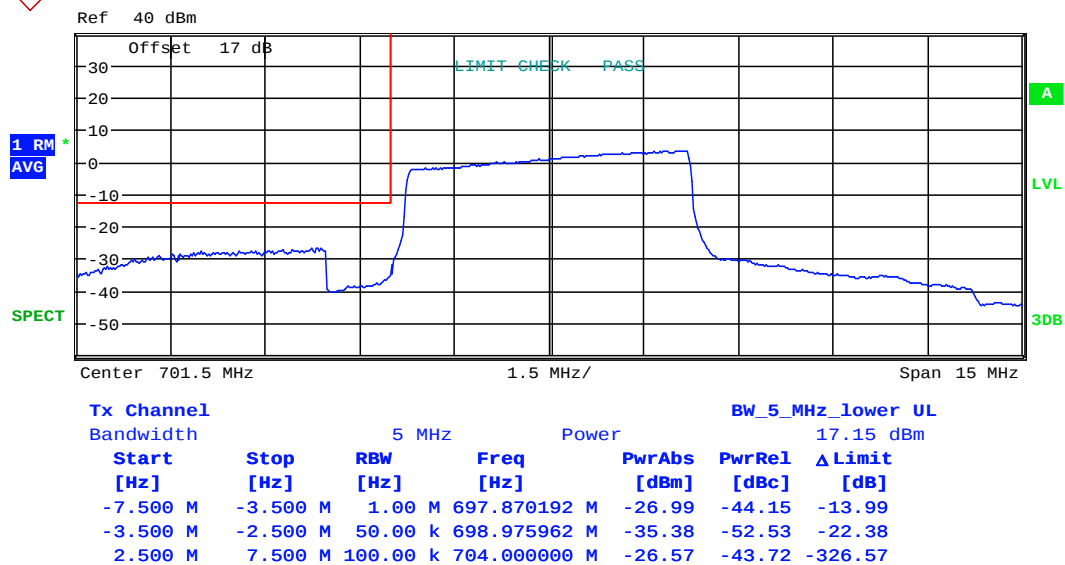


Worldwide Testing Services(Taiwan) Co., Ltd.

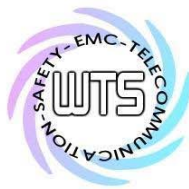
Report Number: W6M22111-21340-P-247

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5MHz



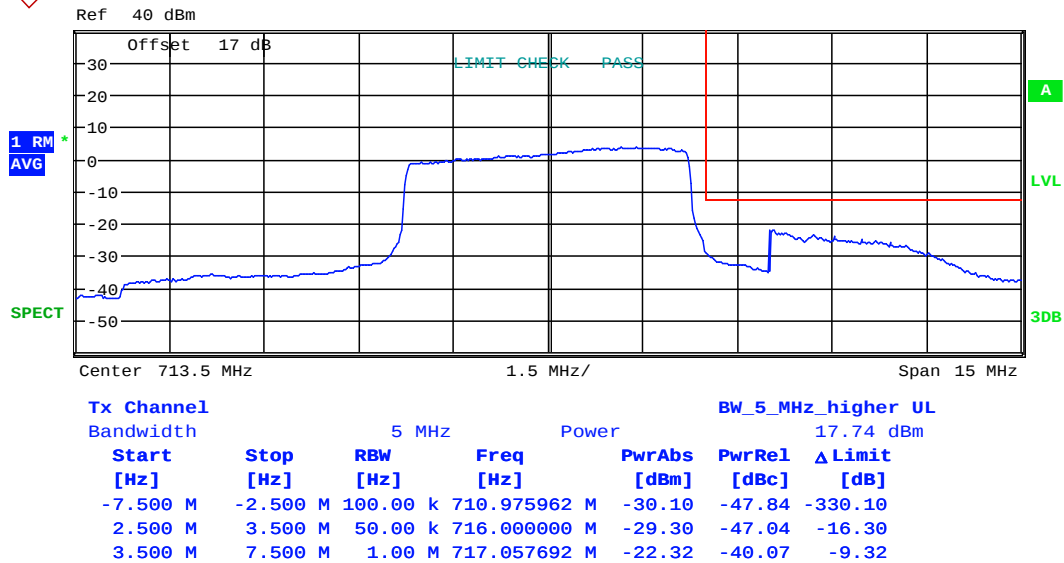
Date: 24.JUL.2019 14:35:53



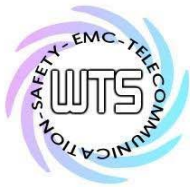
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 14:47:53

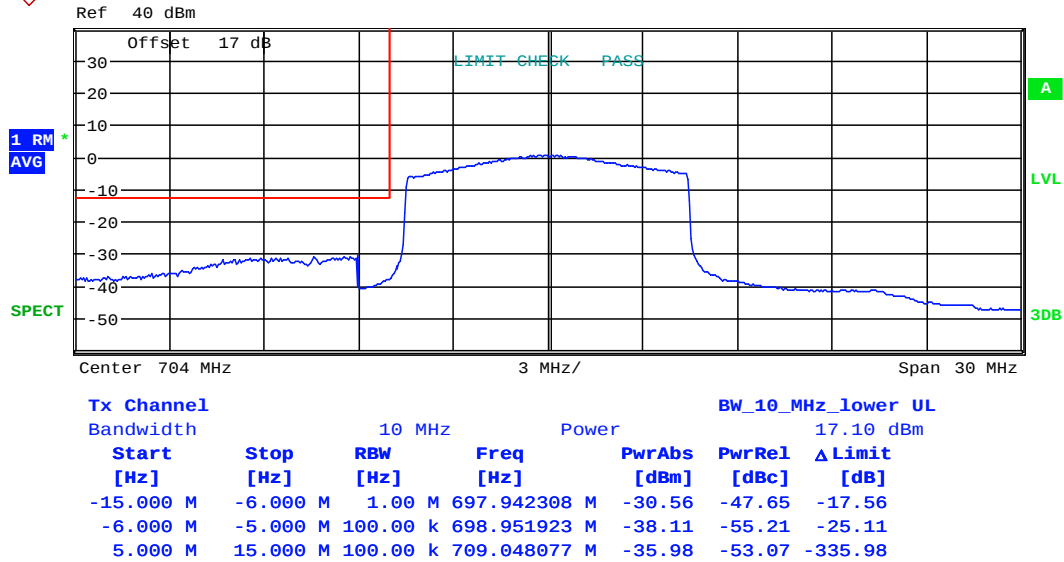


Worldwide Testing Services(Taiwan) Co., Ltd.

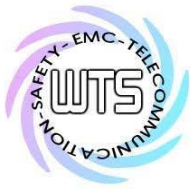
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

10MHz



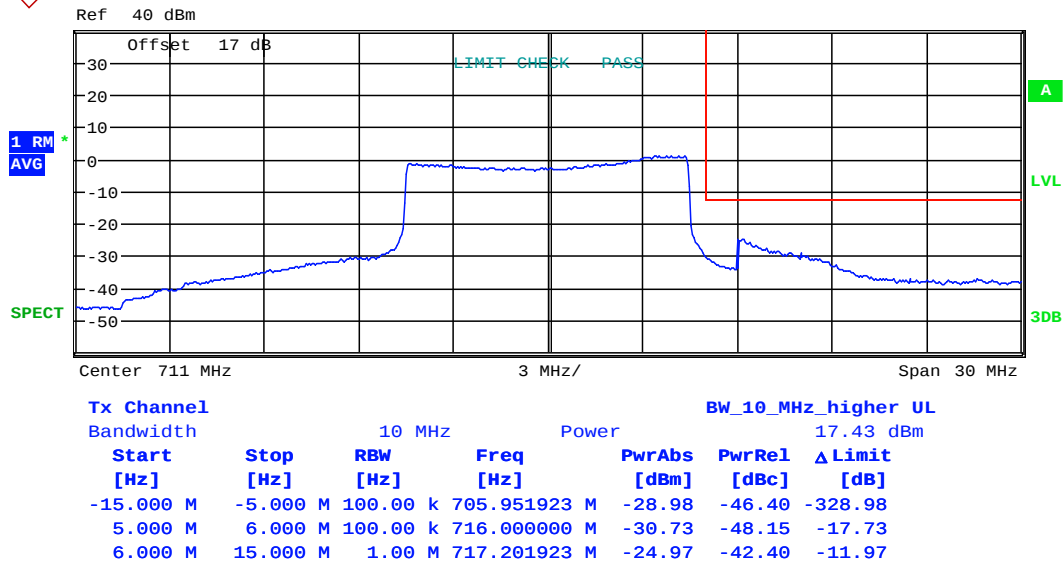
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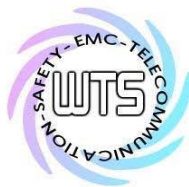
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 14:50:54



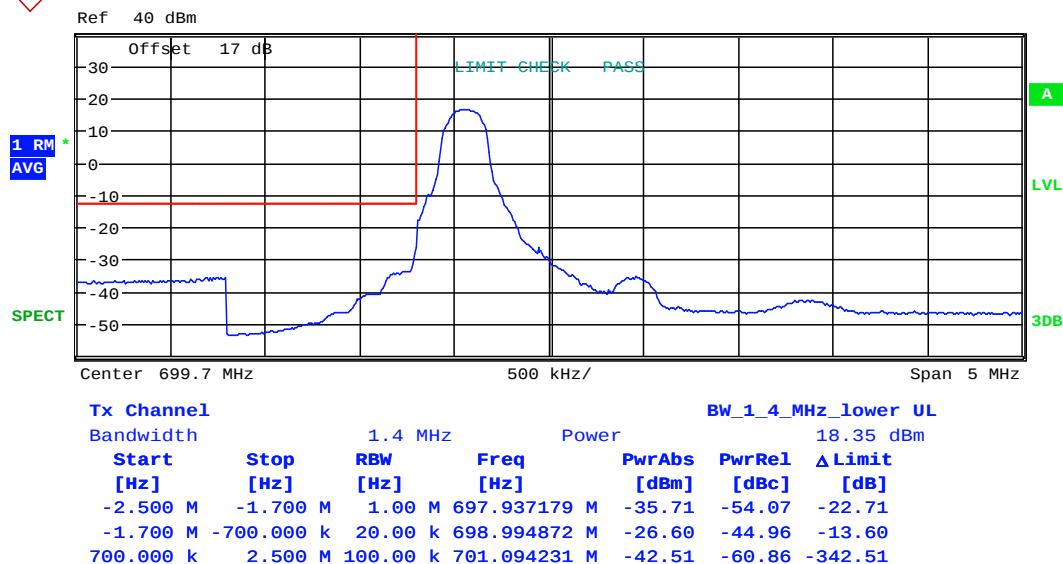
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

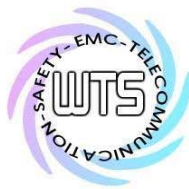
FCC ID: 2AT5JE070W1D14V2U

1RB

1.4MHz



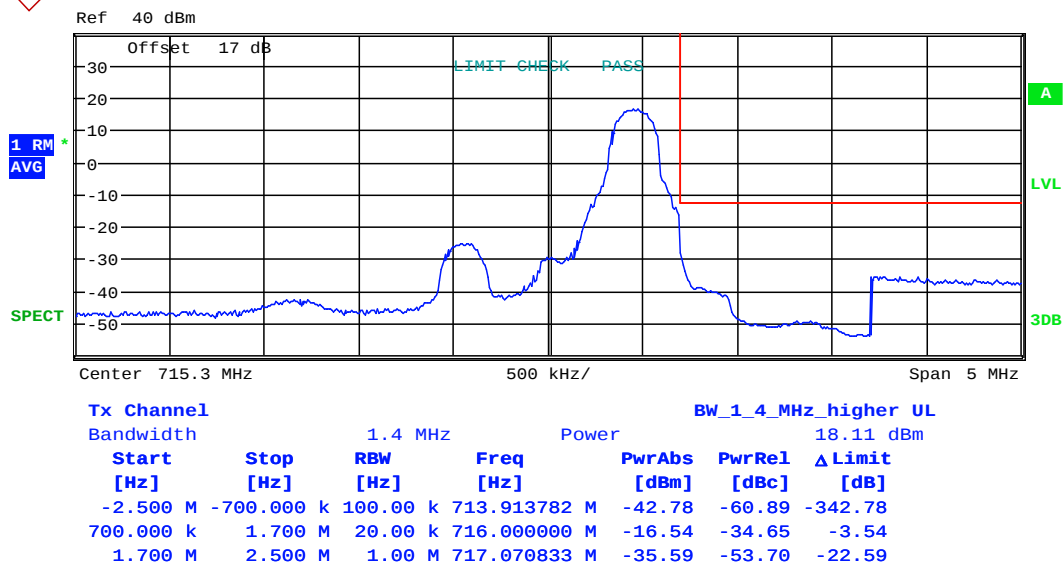
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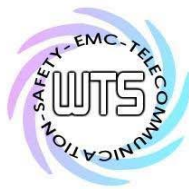
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



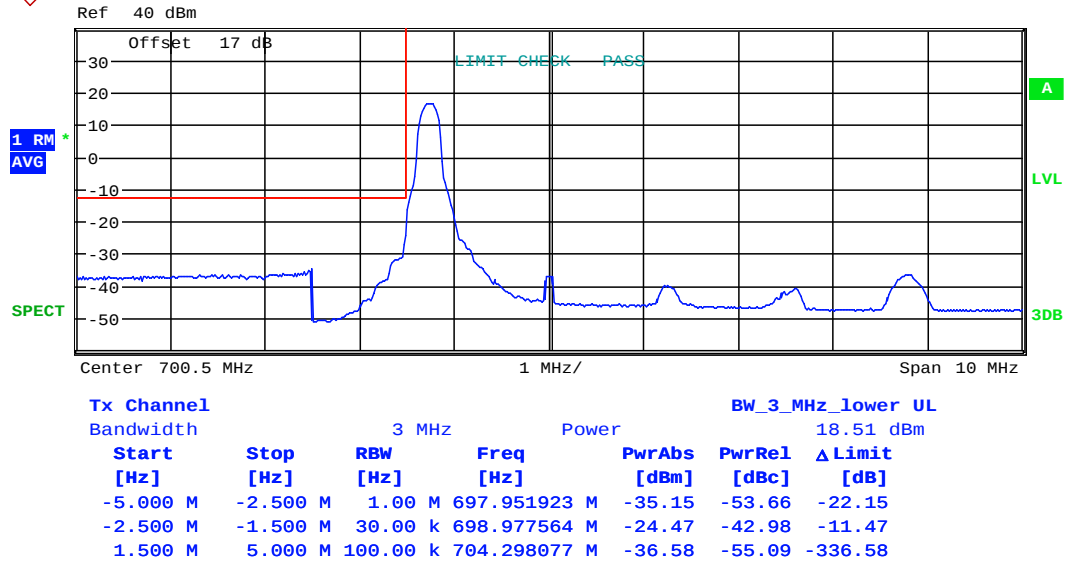
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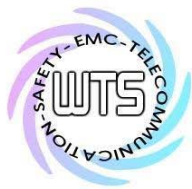
Report Number: W6M22111-21340-P-247

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3MHz



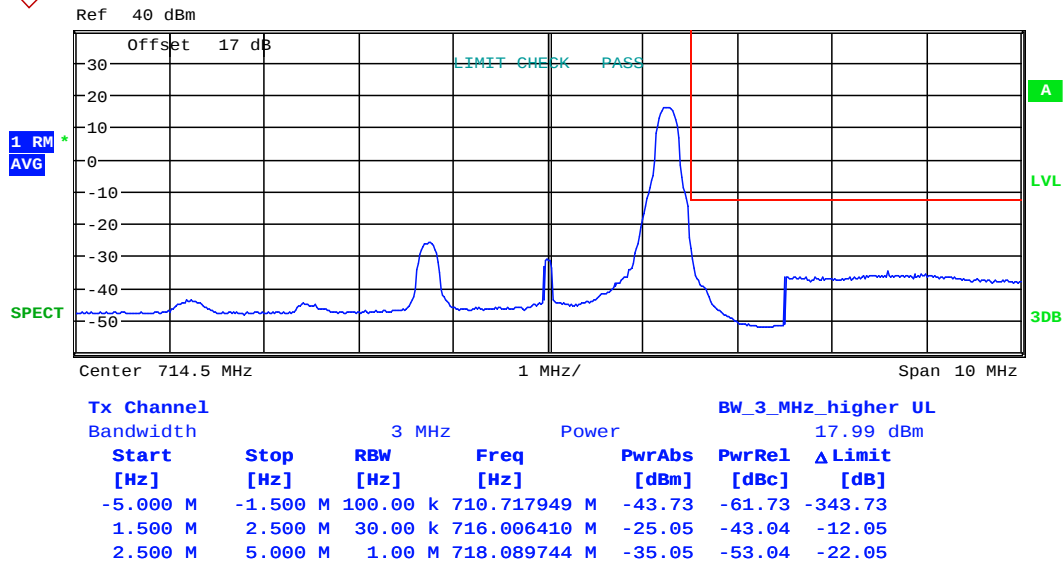
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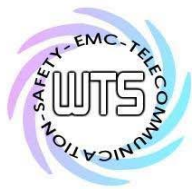
Worldwide Testing Services(Taiwan) Co., Ltd.

Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U



Date: 24.JUL.2019 14:30:39

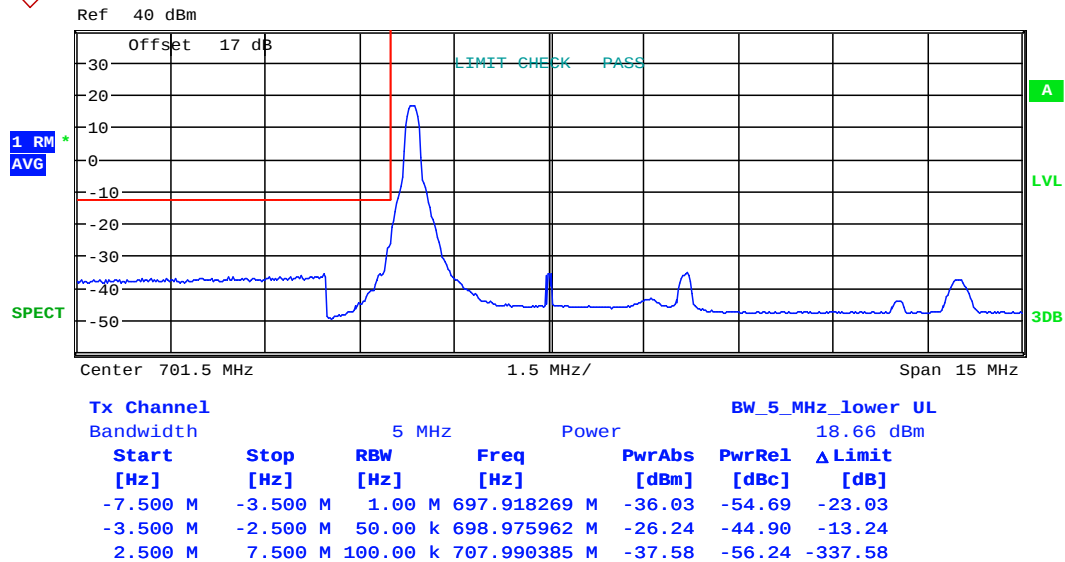


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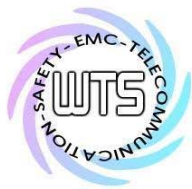
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

5MHz



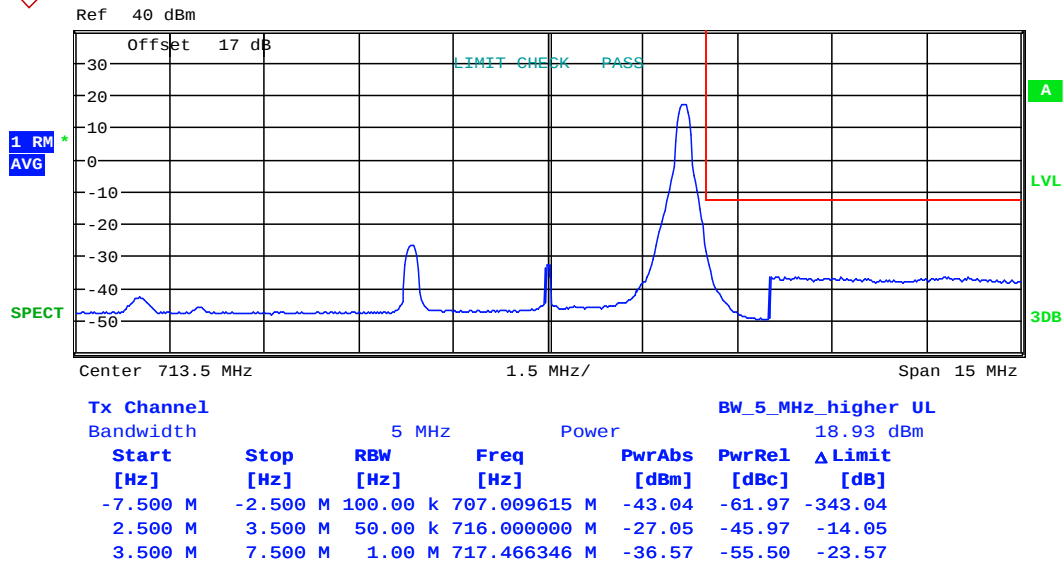
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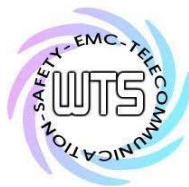
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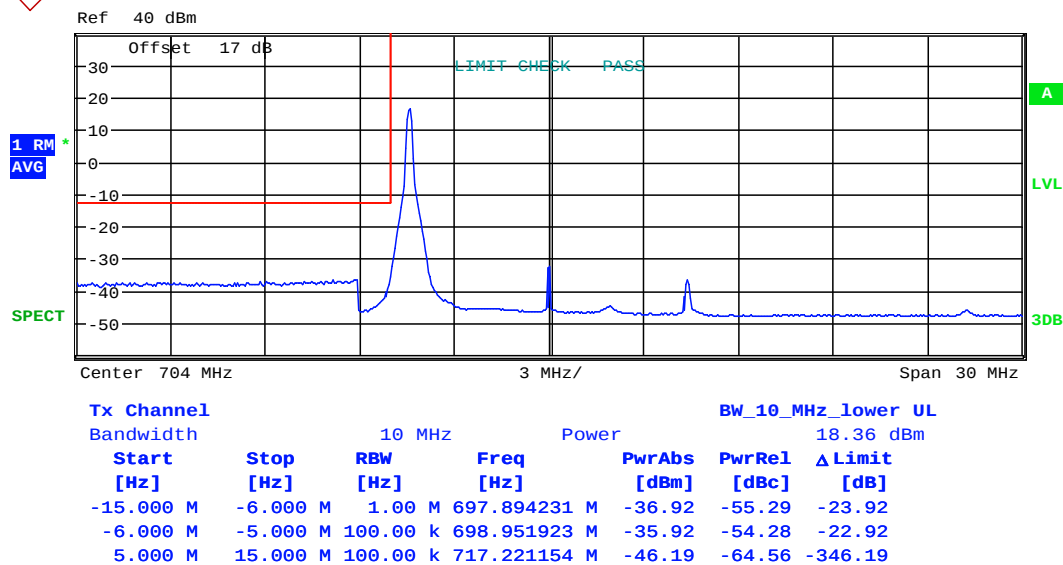


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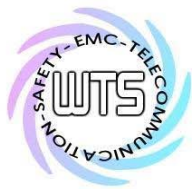
Report Number: W6M22111-21340-P-247

FCC ID: 2AT5JE070W1D14V2U

10MHz

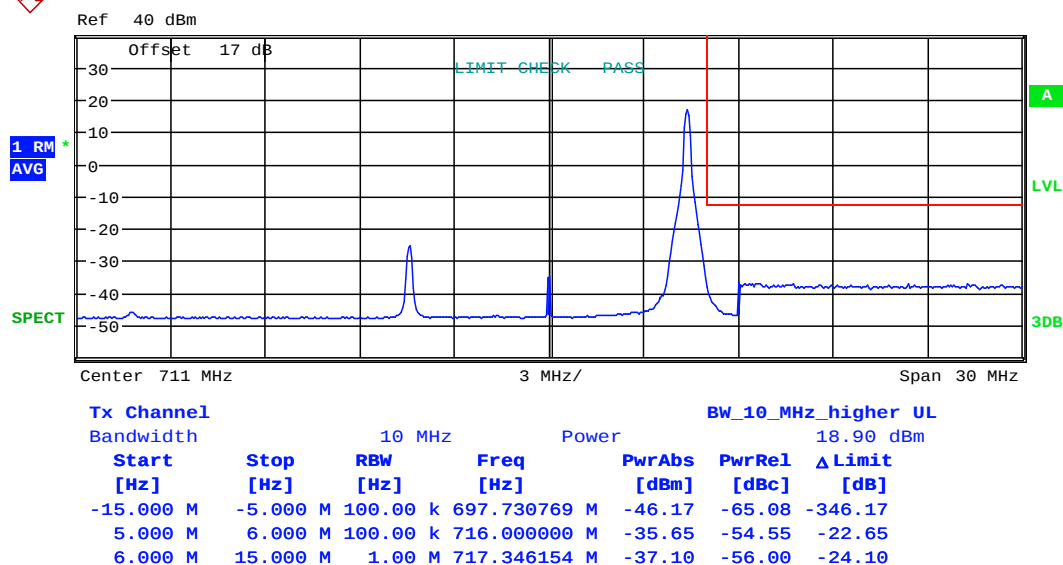


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Date: 24.JUL.2019 14:50:34

Test equipment: ETSTW-RE 055, ETSTW-GSM 002, ETSTW-GSM 023, ETSTW-GSM 004

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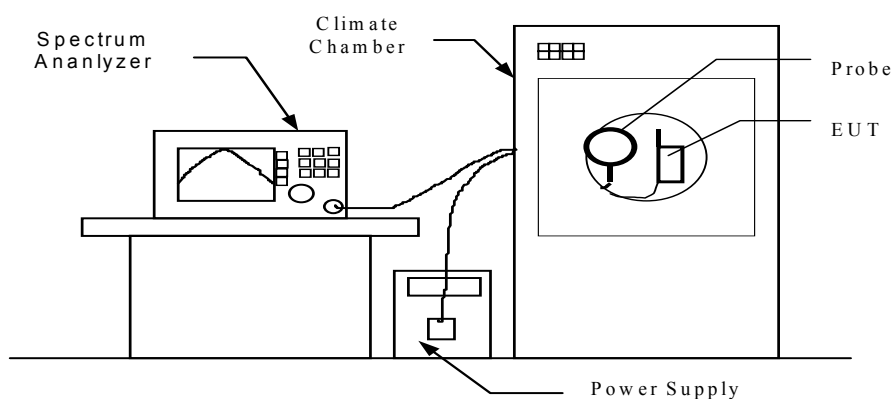
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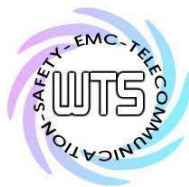
9. Frequency Stability

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintain within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

9.1 Test procedure

- ☒ The equipment under test was supplied with rated power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable, exited the chamber through an opening made for that purpose.
After the temperature stabilized the frequency output was recorded from the counter.
- ☐ An external variable power supply was used to supply nominal voltage and 85% to 115% of nominal voltage to the EUT under room temperature. Record the frequencies measured from the counter.
- ☒ End point voltage: For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer. Then record the frequencies measured from the counter.



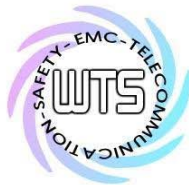


Report Number: W6M22111-21340-P-247
FCC ID: 2AT5JE070W1D14V2U

9.2 Test Results

9.2.1 Frequency Stability vs. Temperature

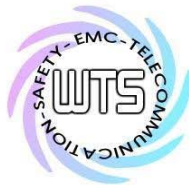
WCDMA BAND II				
CH9262	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)
	-20	-11.59	-0.006	±2.5
	-10	-9.34	-0.005	
	0	-11.00	-0.006	
	10	-8.31	-0.004	
	20	9.86	0.005	
	30	8.46	0.005	
	40	9.15	0.005	
	50	10.55	0.006	
	60	11.68	0.006	
	70	12.28	0.007	
13.2Vdc	25	9.90	0.005	±2.5
10.8Vdc	25	9.14	0.005	
CH9400	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)
	-20	-3.94	-0.002	±2.5
	-10	-2.70	-0.001	
	0	-7.84	-0.004	
	10	-4.71	-0.003	
	20	-3.05	-0.002	
	30	-3.84	-0.002	
	40	-4.55	-0.002	
	50	-5.82	-0.003	
	60	-4.32	-0.002	
	70	-2.84	-0.002	
13.2Vd.c.	25	-3.60	-0.002	±2.5
10.8Vd.c.	25	-3.50	-0.002	
CH9538	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)
	-20	10.06	0.005	±2.5
	-10	9.97	0.005	
	0	8.58	0.004	
	10	8.59	0.005	
	20	-11.17	-0.006	
	30	10.55	0.006	
	40	11.84	0.006	
	50	-7.58	-0.004	
	60	8.67	0.005	
	70	4.28	0.002	
13.2Vd.c.	25	-9.34	-0.005	±2.5
10.8Vd.c.	25	-9.63	-0.005	



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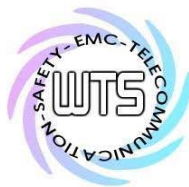
WCDMA BAND IV				
CH1312	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)
	-20	-25.95	-0.015	±2.5
	-10	-25.57	-0.015	
	0	-24.16	-0.014	
	10	-3.01	-0.002	
	20	8.94	0.005	
	30	15.58	0.009	
	40	22.78	0.013	
	50	12.68	0.007	
	60	4.55	0.003	
	70	8.88	0.005	
13.2Vdc	25	7.35	0.004	±2.5
10.8Vdc	25	9.83	0.006	
CH1413	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)
	-20	3.75	0.002	±2.5
	-10	3.54	0.002	
	0	-2.49	-0.001	
	10	4.15	0.002	
	20	-3.60	-0.002	
	30	-5.12	-0.003	
	40	4.80	0.003	
	50	3.34	0.002	
	60	2.84	0.002	
	70	-1.97	-0.001	
13.2Vd.c.	25	-3.36	-0.002	±2.5
10.8Vd.c.	25	3.32	0.002	
CH1513	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)
	-20	18.89	0.011	±2.5
	-10	17.09	0.010	
	0	13.45	0.008	
	10	7.77	0.004	
	20	-6.82	-0.004	
	30	2.85	0.002	
	40	24.08	0.014	
	50	11.58	0.007	
	60	-9.45	-0.005	
	70	-5.85	-0.003	
13.2Vd.c.	25	-9.26	-0.005	±2.5
10.8Vd.c.	25	-6.82	-0.004	



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WCDMA BAND V				
CH4132	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)
	-20	-5.26	-0.006	±2.5
	-10	-4.92	-0.006	
	0	-5.02	-0.006	
	10	-2.92	-0.004	
	20	5.22	0.006	
	30	6.61	0.008	
	40	5.50	0.007	
	50	5.85	0.007	
	60	4.65	0.006	
	70	4.28	0.005	
13.2Vd.c.	25	4.12	0.005	±2.5
10.8Vd.c.	25	4.74	0.006	
CH4183	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)
	-20	-1.87	-0.002	±2.5
	-10	-2.00	-0.002	
	0	2.55	0.003	
	10	2.11	0.003	
	20	-1.78	-0.002	
	30	2.21	0.003	
	40	-1.85	-0.002	
	50	-2.48	-0.003	
	60	-1.95	-0.002	
	70	-3.33	-0.004	
13.2Vd.c.	25	1.67	0.002	±2.5
10.8Vd.c.	25	-1.80	-0.002	
CH4233	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)
	-20	6.20	0.007	±2.5
	-10	4.89	0.006	
	0	4.69	0.006	
	10	4.53	0.005	
	20	-3.83	-0.005	
	30	-4.55	-0.005	
	40	5.48	0.006	
	50	6.48	0.008	
	60	5.84	0.007	
	70	4.68	0.006	
13.2Vdc	25	-3.61	-0.004	±2.5
10.8Vdc	25	-4.79	-0.006	



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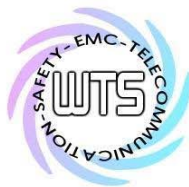
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LTE BAND II QPSK 10MHz FRB					LTE BAND IV QPSK 10MHz FRB				
CH18900	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)	CH20175	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)
	-20	-6.08	-0.003	±2.5		-20	5.58	0.003	±2.5
	-10	-6.72	-0.004			-10	5.39	0.003	
	0	-9.94	-0.005			0	6.74	0.004	
	10	-7.65	-0.004			10	4.12	0.002	
	20	-11.76	-0.006			20	-5.05	-0.003	
	30	-8.28	-0.004			30	3.30	0.002	
	40	-9.97	-0.005			40	3.89	0.002	
	50	-6.25	-0.003			50	4.52	0.003	
	60	-7.58	-0.004			60	4.96	0.003	
	70	-8.65	-0.005			70	5.44	0.003	
13.2Vd.c.	25	-7.35	-0.004	±2.5	13.2Vd.c.	25	3.96	0.002	±2.5
10.8Vd.c.	25	-9.17	-0.005		10.8Vd.c.	25	5.25	0.003	

LTE BAND XII QPSK 10MHz FRB				
CH23095	Temp	Frequency drift (Hz)	Frequency drift (ppm)	Limit (ppm)
	-20	2.95	0.004	±2.5
	-10	-2.75	-0.004	
	0	-4.05	-0.006	
	10	3.40	0.005	
	20	-3.45	-0.005	
	30	-3.36	-0.005	
	40	-3.10	-0.004	
	50	-3.43	-0.005	
	60	-2.79	-0.004	
	70	-2.92	-0.004	
13.2Vd.c.	25	-2.98	-0.004	±2.5
10.8Vd.c.	25	3.36	0.005	

Test equipment: ETSTW-CE 009, ETSTW-GSM 002, ETSTW-GSM 004



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10 Maximum Permissible Exposure

10.1 Exemption Limits for Routine Evaluation according to 47 CFR FCC Part 2 Subpart J, section 2.1091

FCC OET Bulletin 65 Edition 97.01 determines the equations for predicting RF fields and applicable limits. The prediction for power density in the far-field but will over-predict power density in the near field, where it could be used for walking a “worst case” or conservative prediction.

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 20 cm normally can be maintained between the user and the device.

MPE Calculation Method

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz

*Plane-wave equivalent power density

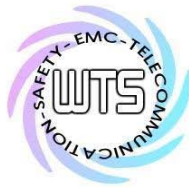
E = Electric field (V/m) P = output power (W) G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

The formula can be changed to

mW/cm².



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Frequency	Max output power		Antenna Gain	Power Density(S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
	(dBm)	(W)				
WCDMA Band 2	21.68	147.23	1.54	0.0417	1	Complies
WCDMA Band 4	22.33	171.00	2.06	0.0547	1	Complies
WCDMA Band 5	21.05	127.35	-1.81	0.0167	0.5644	Complies
LTE Band 2	21.76	149.97	1.69	0.0440	1	Complies
LTE Band 4	22.80	190.55	2.06	0.0609	1	Complies
LTE Band 12	20.30	107.15	-6.94	0.0043	0.4769	Complies

From the peak EUT RF output power, the minimum mobile separation distance, $d=0.2$ m, as well as the gain of the used antenna, the RF power density can be obtained.