

FCC Radio Test Report

FCC ID: 2AG7C-SPEED3S

This report concerns: Original Grant

Project No. : 2001H004
Equipment : CAMERA
Brand Name : N/A
Test Model : speed 3S

Test Model : speed 3S **Series Model** : Speed 3C

Applicant: Hangzhou Meari Technology Co., Ltd.

Address : No.91, Chutian Road, Xixing Block, Binjiang, Hangzhou, China 310051

Manufacturer : Hangzhou Meari Technology Co., Ltd.

Address : No.91, Chutian Road, Xixing Block, Binjiang, Hangzhou, China 310051

Factory: Hangzhou Meari Technology Co., Ltd.

Address : No.91, Chutian Road, Xixing Block, Binjiang, Hangzhou, China 310051

Date of Receipt : Jan. 07, 2020

Date of Test : Jan. 07, 2020~Apr. 20, 2020

Issued Date : Apr. 30, 2020

Report Version : R00

Test Sample : Engineering Sample No.: SH202001072,SH202001071-1,

SH2020031348-1

Standard(s): FCC Part15, Subpart C (15.247)

ANSI C63.10-2013

KDB 558074 D01 15.247 Meas Guidance v05r02

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

Prepared by : Krain Wu

Approved by: Ryan Wang

ACCREDITED

Certificate # 5123.03

Add: No. 29, Jintang Road, Tangzhen Industry Park, Pudong New Area, Shanghai 201210, China

TEL: +86-021-61765666 Web: www.newbtl.com



Declaration

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

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

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

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

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.



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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	Apr. 30, 2020



1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part15, Subpart C (15.247)					
Standard(s) Section	Test Item	Test Result	Judgment	Remark	
15.207	AC Power Line Conducted Emissions	APPENDIX A	PASS		
15.247(d) 15.205(a) 15.209(a)	Radiated Emissions	APPENDIX B APPENDIX C APPENDIX D	PASS		
15.247(a)(2)	Bandwidth	APPENDIX E	PASS		
15.247(b)(3)	Maximum Output Power	APPENDIX F	PASS		
15.247(d)	Conducted Spurious Emissions	APPENDIX G	PASS		
15.247(e)	Power Spectral Density	APPENDIX H	PASS		
15.203	Antenna Requirement		PASS	Note(2)	

Note:

- (1) "N/A" denotes test is not applicable in this test report.
- (2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.



1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 29, Jintang Road, Tangzhen Industry Park, Pudong New Area, Shanghai 201210, China

BTL's Test Firm Registration Number for FCC: 476765

BTL's Designation Number for FCC: CN1241

1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)) The BTL measurement uncertainty as below table:

A. Radiated emissions test:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
		9 KHz~30 MHz	V	3.79
		9 KHz~30 MHz	Н	3.57
		30 MHz~200 MHz	V	4.04
		30 MHz~200 MHz	Τ	3.76
SH-CB01	CISPR	200 MHz~1,000 MHz	V	4.24
311-0601	CISER	200 MHz~1,000 MHz	Τ	3.84
		1 GHz~18 GHz	V	4.46
		1 GHz~18 GHz	Τ	4.40
		18 GHz~40 GHz	V	3.95
		18 GHz~40 GHz	Н	3.95

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

1.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
AC Power Line Conducted Emissions	19°C	46%	AC 120V/60Hz	Forest Li
Radiated Emissions-9K-30MHz	20°C	45%	AC 120V/60Hz	Forest Li
Radiated Emissions-30 MHz to 1GHz	20°C	45%	AC 120V/60Hz	Forest Li
Radiated Emissions-Above 1000 MHz	20°C	40%	AC 120V/60Hz	Forest Li
Bandwidth	19°C	46%	AC 120V/60Hz	Forest Li
Maximum output power & e.i.r.p.	19°C	46%	AC 120V/60Hz	Forest Li
Conducted Spurious Emissions	19°C	46%	AC 120V/60Hz	Forest Li
Power Spectral Density	19°C	46%	AC 120V/60Hz	Forest Li



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	CAMERA
Brand Name	N/A
Test Model	speed 3S
Series Model	Speed 3C
Model Difference(s)	Only differs in model name.
Software Version	ppstrong-c51-tuya2_std-2.9.5
Hardware Version	N/A
Power Source	DC voltage supplied from AC/DC adapter. Brand/Model: SZTY/TPA-46B050100UU
Power Rating	I/P: 100-240V ~ 50/60Hz,0.2A O/P: 5V/1000mA
Operation Frequency	2412 MHz ~ 2462 MHz
Modulation Type	IEEE 802.11b: DSSS IEEE 802.11g: OFDM IEEE 802.11n: OFDM
Bit Rate of Transmitter	IEEE 802.11b: 11/5.5/2/1 Mbps IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps IEEE 802.11n: up to 150 Mbps
Maximum Output Power Non-Beamforming	IEEE 802.11b: 18.01 dBm (0.0632 W) IEEE 802.11g: 24.44 dBm (0.2780 W) IEEE 802.11n (HT20): 24.14 dBm (0.2594 W) IEEE 802.11n (HT40): 24.37 dBm (0.2735 W)

Note:

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

2. Channel List:

CH01 - CH11 for IEEE 802.11b, IEEE 802.11g, IEEE 802.11n (HT20) CH03 - CH09 for IEEE 802.11n (HT40)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

For 1T1R

3. Antenna Specification:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	Integral	N/A	3	N/A



2.2 DESCRIPTION OF TEST MODES

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

Pretest Mode	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09
Mode 5	TX N40 Mode Channel 09

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

AC power line conducted emissions test		
Final Test Mode:	Description	
Mode 5	TX N40 Mode Channel 09	

Radiated emissions test - Below 1GHz	
Final Test Mode:	Description
Mode 5	TX N40 Mode Channel 09

Radiated emissions test- Above 1GHz		
Final Test Mode:	Description	
Mode 1	TX B Mode Channel 01/06/11	
Mode 2	TX G Mode Channel 01/06/11	
Mode 3	TX N-20 MHz Mode Channel 01/06/11	
Mode 4	TX N-40 MHz Mode Channel 03/06/09	

Conducted test	
Final Test Mode:	Description
Mode 1	TX B Mode Channel 01/06/11
Mode 2	TX G Mode Channel 01/06/11
Mode 3	TX N-20 MHz Mode Channel 01/06/11
Mode 4	TX N-40 MHz Mode Channel 03/06/09



NOTE:

(1) The measurements are performed at the high, middle, low available channels.

(2) 802.11b mode: CCK (1 Mbps) 802.11g mode: OFDM (6 Mbps)

802.11n HT20 mode : BPSK (6.5 Mbps) 802.11n HT40 mode : BPSK (13.5 Mbps)

For radiated emission tests, the highest output powers were set for final test.

 $\hbox{(3) For radiated emission below 1 GHz test, the IEEE 802.11n40 Channel 09 is found to be the worst case}\\$

and recorded.

2.3 PARAMETERS OF TEST SOFTWARE

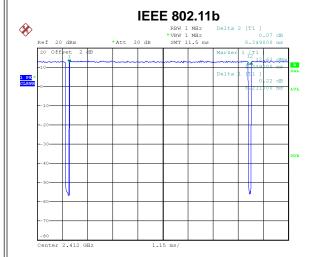
Test Software		MPTOOL	
Frequency (MHz)	2412	2437	2462
IEEE 802.11b	35	35	37
IEEE 802.11g	54	51	54
IEEE 802.11n (HT20)	51	51	54
Frequency (MHz)	2422	2437	2452
IEEE 802.11n (HT40)	50	51	50





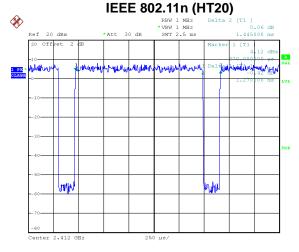
2.4 DUTY CYCLE

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

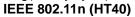


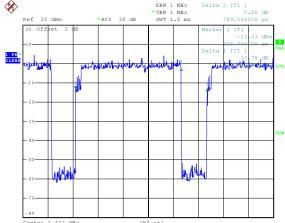
Date: 23.APR.2020 14:52:14

Duty cycle = 8.211 ms / 8.349 ms = 98.35%Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.00$



Duty cycle = 1.360 ms / 1.515 ms = 89.77%Duty Factor = $10 \log(1/\text{Duty cycle}) = 0.47$





Date: 23.APR.2020 14:57:27

Duty cycle = 1.270 ms / 1.445 ms = 87.89% Duty Factor = 10 log(1/Duty cycle) = 0.56, Date: 23.APR.2020 15:10:08

Date: 23.APR.2020 14:56:53

Duty cycle = 0.634 ms / 0.789 ms = 80.35% Duty Factor = 10 log(1/Duty cycle) = 0.95

NOTE:

For IEEE 802.11b:

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 0.01 kHz (Duty cycle > 98%).

For IEEE 802.11g and IEEE 802.11n (HT20):

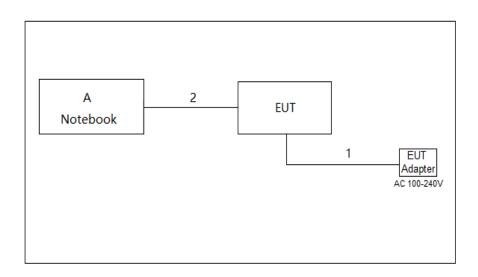
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle < 98%).

For IEEE 802.11n (HT40):

For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 2 kHz (Duty cycle < 98%).



2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.6 SUPPORT UNITS

Item	Equipment	Brand	Model No.	Series No.
Α	Notebook	Lenovo	#P152014	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	DC Cable	NO	NO	1.5m
2	USB	NO	NO	0.2m



3. AC POWER LINE CONDUCTED EMISSIONS TEST

3.1 LIMIT

Fraguency of Emission (MHz)	Limit (dBμV)		
Frequency of Emission (MHz)	Quasi-peak	Average	
0.15 - 0.50	66 to 56*	56 to 46*	
0.50 - 5.0	56	46	
5.0 - 30.0	60	50	

NOTE:

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

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.2 TEST PROCEDURE

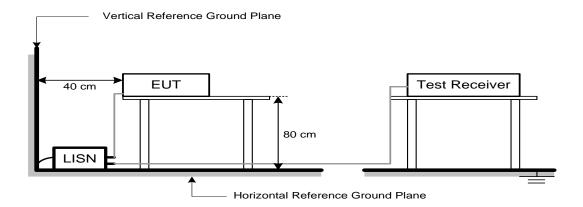
- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.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

3.3 DEVIATION FROM TEST STANDARD

No deviation



3.4 TEST SETUP



3.5 EUT OPERATION CONDITIONS

EUT was programmed to be in continuously transmitting mode.

3.6 TEST RESULTS

Please refer to the APPENDIX A.



4. RADIATED EMISSIONS TEST

4.1 LIMIT

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

LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-1000 MHz)

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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000 MHz)

Fragues ov (MHz)	(dBuV/n	n at 3 m)
Frequency (MHz)	Peak	Average
Above 1000	74	54

NOTE:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4) The test result calculated as following: Measurement Value = Reading Level + Correct Factor Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use) Margin Level = Measurement Value - Limit Value



Spectrum Parameter	Setting	
Attenuation	Auto	
Start Frequency	1000 MHz	
Stop Frequency	10th carrier harmonic	
RBW / VBW	1 MHz / 3 MHz for Peak,	
(Emission in restricted band)	1 MHz / 1/T for Average	

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9 kHz~90 kHz for PK/AVG detector
Start ~ Stop Frequency	90 kHz~110 kHz for QP detector
Start ~ Stop Frequency	110 kHz~490 kHz for PK/AVG detector
Start ~ Stop Frequency	490 kHz~30 MHz for QP detector
Start ~ Stop Frequency	30 MHz~1000 MHz for QP detector

4.2 TEST PROCEDURE

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

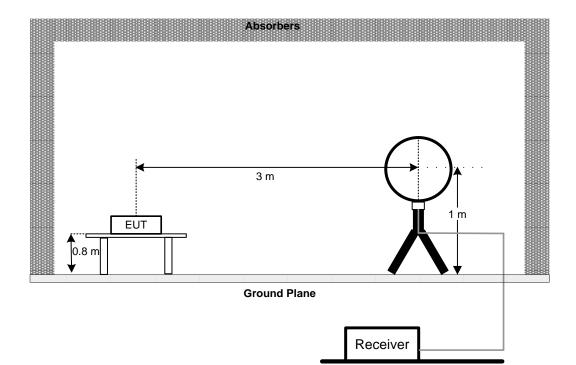
4.3 DEVIATION FROM TEST STANDARD

No deviation

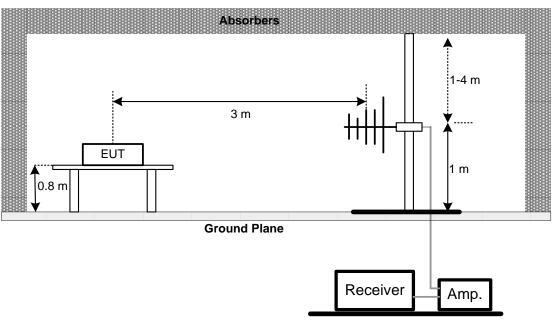


4.4 TEST SETUP

9 kHz-30 MHz

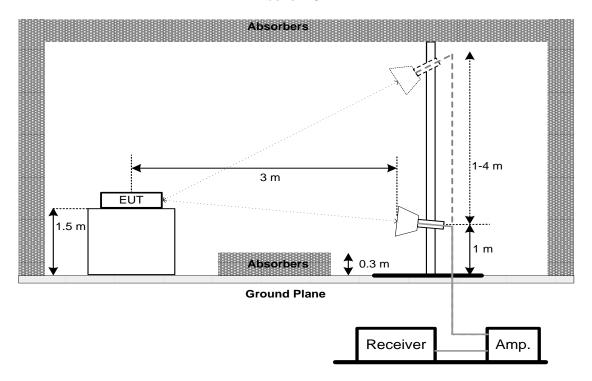


30 MHz to 1 GHz





Above 1 GHz



4.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

4.6 TEST RESULTS - 9 KHZ TO 30 MHZ

Please refer to the APPENDIX B.

Remark:

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

4.7 TEST RESULTS - 30 MHZ TO 1000 MHZ

Please refer to the APPENDIX C.

4.8 TEST RESULTS - ABOVE 1000 MHZ

Please refer to the APPENDIX D.

Remark:

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



5. BANDWIDTH TEST

5.1 LIMIT

FCC Part15, Subpart C (15.247)					
Section Test Item Limit					
45.047(0)(0)	6 dB Bandwidth	Minimum 500 kHz			
15.247(a)(2)	99% Emission Bandwidth	-			

5.2 TEST PROCEDURE

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

For 6 dB Bandwidth: RBW= 100 kHz, VBW=300 kHz, Sweep time = auto.

For 99% Emission Bandwidth B/G/N-20 Mode: RBW= 300 KHz, VBW=1 MHz, Sweep time = 2.5 ms.

For 99% Emission Bandwidth N-40 Mode: RBW= 1 MHz, VBW=3 MHz, Sweep time = 2.5 ms.

c. The bandwidth was performed in accordance with method 11.8.1 of ANSI C63.10-2013.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP

EUT	SPECTRUM	
	ANALYZER	

5.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

5.6 TEST RESULTS

Please refer to the APPENDIX E.



6. MAXIMUM OUTPUT POWER TEST

6.1 LIMIT

FCC Part15, Subpart C (15.247)					
Section Test Item Limit					
15.247(b)(3) Maximum Output Power 1 Watt or 30dBm					

6.2 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- b. The maximum conducted output power was performed in accordance with method 11.9.1.3 (for peak power) or 11.9.2.3.1 (for AVG power) of ANSI C63.10-2013.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP

EUT	Power Meter
	1 ower weter

6.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

6.6 TEST RESULTS

Please refer to the APPENDIX F.



7. CONDUCTED SPURIOUS EMISSIONS

7.1 LIMIT

For FCC

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required.

For ISED

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak Output Power limits. If the transmitter complies with the Output Power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

7.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW= 100 kHz, VBW=300 kHz, Sweep time = Auto.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP

EUT	SPECTRUM	
	ANALYZER	

7.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULTS

Please refer to the APPENDIX G.



8. POWER SPECTRAL DENSITY TEST

8.1 LIMIT

FCC Part15, Subpart C (15.247)					
Section Test Item Limit					
15.247(e)	Power Spectral Density	8 dBm (in any 3 kHz)			

8.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW=3 kHz, VBW=10 kHz, Sweep time = Auto.
- c. The Power Spectral Density was performed in accordance with method 11.10.2 of ANSI C63.10-2013.

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP

EUT		SPECTRUM	
		ANALYZER	

8.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

8.6 TEST RESULTS

Please refer to the APPENDIX H.



9. MEASUREMENT INSTRUMENTS LIST

	AC Power Line Conducted Emissions					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Line Impedance Stabilisation Network	Schwarzbeck	NNLK 8121	8121-822	Mar. 29, 2020	
2	Line Impedance Stabilisation Network	Schwarzbeck	NNLK 8121	8121-822	Mar. 21, 2021	
3	TWO-LINE V-NETWORK	R&S	ENV216	101340	Sep. 01, 2020	
4	Test Cable	emci	EMCRG400-BM-N M-10000	170628	Jul. 15, 2020	
5	EMI Test Receiver	R&S	ESCI	100082	Mar. 29, 2020	
6	EMI Test Receiver	R&S	ESCI	100082	Mar. 28, 2021	
7	50Ω Terminator	SHX	TF2-1G-A	17051602	Mar. 29, 2020	
8	50Ω Terminator	SHX	TF2-1G-A	17051602	Mar. 21, 2021	
9	50Ω coaxial switch	Anritsu	MP59B	6201750902	Mar. 29, 2020	
10	50Ω coaxial switch	Anritsu	MP59B	6201750902	Mar. 21, 2021	
11	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	

	Radiated Emissions - 9 kHz to 30 MHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Loop Antenna	EMCI	EMCI LPA600	275	Mar. 29, 2020	
2	Loop Antenna	EMCI	EMCI LPA600	275	Mar. 28, 2021	
3	EMI Test Receiver	R&S	ESCI	100082	Mar. 29, 2020	
4	EMI Test Receiver	R&S	ESCI	100082	Mar. 28, 2021	
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	

	Radiated Emissions - 30 MHz to 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	719	Mar. 29, 2020	
2	TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	719	Mar. 28, 2021	
3	Pre-Amplifier	emci	EMC9135	980400	Mar. 29, 2020	
4	Pre-Amplifier	emci	EMC9135	980400	Mar. 21, 2021	
5	MXE EMI Receiver	Keysight	N9038A	MY57150106	Mar. 29, 2020	
6	MXE EMI Receiver	Keysight	N9038A	MY57150106	Mar. 21, 2021	
7	Test Cable	emci	EMC104-SM-SM-7 000	170330	Apr. 17, 2020	
8	Test Cable	emci	EMC104-SM-SM-7 000	170330	Apr. 16, 2021	
9	Test Cable	emci	EMC104-SM-SM-1 000	170331	Apr. 17, 2020	
10	Test Cable	emci	EMC104-SM-SM-1 000	170331	Apr. 16, 2021	
11	Test Cable	emci	EMC104-SM-NM-3 500	170621	Apr. 17, 2020	
12	Test Cable	emci	EMC104-SM-NM-3 500	170621	Apr. 16, 2021	
13	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	



	De l'ete I Facte d'en e. About 4 Olle					
	Radiated Emissions - Above 1 GHz					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until	
1	Double-Ridged Waveguide Horn Antenna	ETS-Lindgren	9120D	00206960	Mar. 29, 2020	
2	Double-Ridged Waveguide Horn Antenna	ETS-Lindgren	9120D	00206960	Mar. 28, 2021	
3	Pre-Amplifier	emci	EMC012645SE	980421	Mar. 29, 2020	
4	Pre-Amplifier	emci	EMC012645SE	980421	Mar. 28, 2021	
5	EXA Spectrum Analyzer	Keysight	N9010A	MY56480545	Mar. 29, 2020	
6	EXA Spectrum Analyzer	Keysight	N9010A	MY56480545	Mar. 21, 2021	
7	Test Cable	emci	EMC104-SM-SM-7 000	170330	Apr. 17, 2020	
8	Test Cable	emci	EMC104-SM-SM-7 000	170330	Apr. 16, 2021	
9	Test Cable	emci	EMC104-SM-SM-1 000	170331	Apr. 17, 2020	
10	Test Cable	emci	EMC104-SM-SM-1 000	170331	Apr. 16, 2021	
11	Test Cable	emci	EMC104-SM-NM-3 500	170621	Apr. 17, 2020	
12	Test Cable	emci	EMC104-SM-NM-3 500	170621	Apr. 16, 2021	
13	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A	
14	MXE EMI Receiver	Keysight	N9038A	MY57150106	Mar. 29, 2020	
15	MXE EMI Receiver	Keysight	N9038A	MY57150106	Mar. 28, 2021	

	Bandwidth						
Item	Item Kind of Equipment Manufacturer Type No. Serial No. Calibrated until						
1	Spectrum Analyzer	R&S	FSP40	100626	Mar. 29, 2020		
2	Spectrum Analyzer	R&S	FSP40	100626	Mar. 21, 2021		

	Maximum Output Power										
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until						
1	Peak Power Analyze	Keysight	8990B	MY51000507	Mar. 29, 2020						
2	Peak Power Analyze	Keysight	8990B	MY51000507	Mar. 21, 2021						
3	Wideband Power Sensor	Keysight	N9123A	MY58310003	Mar. 29, 2020						
4	Wideband Power Sensor	Keysight	N9123A	MY58310003	Mar. 21, 2021						

	Antenna Conducted Spurious Emissions											
Item	Kind of Equipment Manufacturer Type No. Serial No. Calibrated unti											
1	Spectrum Analyzer	R&S	FSP40	100626	Mar. 29, 2020							
2	Spectrum Analyzer R&S		FSP40	100626	Mar. 21, 2021							

	Power Spectral Density											
Item	Kind of Equipment Manufacturer Type No. Serial No. Calibrated ur											
1	Spectrum Analyzer	R&S	FSP40	100626	Mar. 29, 2020							
2	Spectrum Analyzer	R&S	FSP40	100626	Mar. 21, 2021							

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

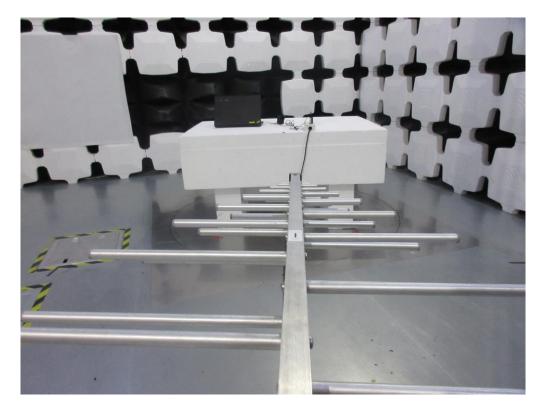
All calibration period of equipment list is one year.

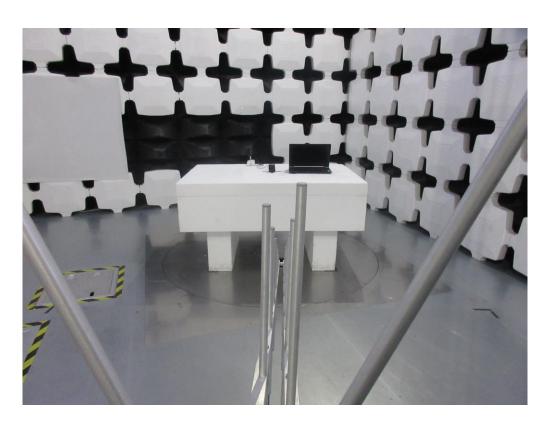


10. EUT TEST PHOTO

Radiated Emissions Test Photos

30 MHz to 1 GHz







Radiated Emissions Test Photos

Above 1 GHz



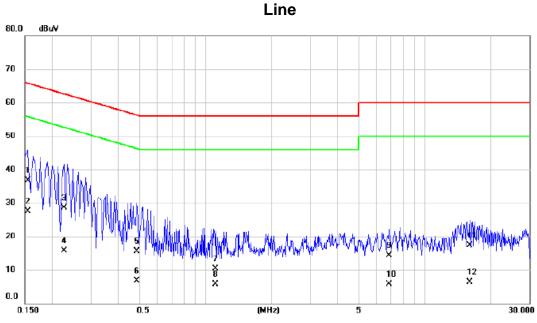




APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS



Test Mode: TX N40 Mode Channel 09



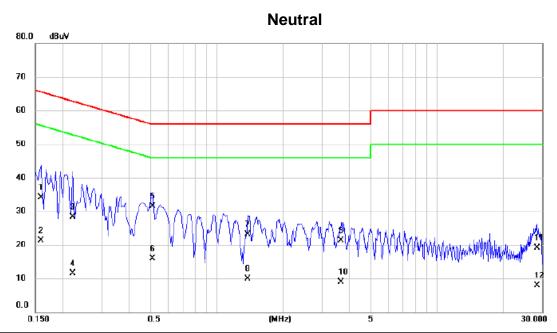
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBu∀	dB	dBu∀	dBu∀	dB	Detector	Comment
1		0.1545	27.00	9.73	36.73	65.75	-29.02	QP	
2	*	0.1545	17.80	9.73	27.53	55.75	-28.22	AVG	
3		0.2265	18.70	9.79	28.49	62.58	-34.09	QP	
4		0.2265	5.90	9.79	15.69	52.58	-36.89	AVG	
5		0.4875	5.70	9.90	15.60	56.21	-40.61	QP	
6		0.4875	-3.10	9.90	6.80	46.21	-39.41	AVG	
7		1.1130	0.60	9.75	10.35	56.00	-45.65	QP	
8		1.1130	-4.10	9.75	5.65	46.00	-40.35	AVG	
9		6.8865	4.30	10.08	14.38	60.00	-45.62	QP	
10		6.8865	-4.40	10.08	5.68	50.00	-44.32	AVG	
11		16.0170	7.10	10.27	17.37	60.00	-42.63	QP	
12		16.0170	-4.00	10.27	6.27	50.00	-43.73	AVG	

REMARKS:

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







No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBu∀	dB	dBuV	dBu∀	dB	Detector	Comment
1		0.1590	24.40	9.61	34.01	65.52	-31.51	QP	
2		0.1590	11.60	9.61	21.21	55.52	-34.31	AVG	
3		0.2220	18.60	9.63	28.23	62.74	-34.51	QP	
4		0.2220	1.90	9.63	11.53	52.74	-41.21	AVG	
5	*	0.5100	21.90	9.69	31.59	56.00	-24.41	QP	
6		0.5100	6.20	9.69	15.89	46.00	-30.11	AVG	
7		1.3875	13.40	9.74	23.14	56.00	-32.86	QP	
8		1.3875	0.10	9.74	9.84	46.00	-36.16	AVG	
9		3.6645	11.50	9.89	21.39	56.00	-34.61	QP	
10		3.6645	-0.90	9.89	8.99	46.00	-37.01	AVG	
11		28.4325	8.50	10.65	19.15	60.00	-40.85	QP	
12		28.4325	-2.70	10.65	7.95	50.00	-42.05	AVG	

REMARKS:

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

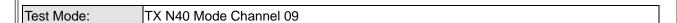


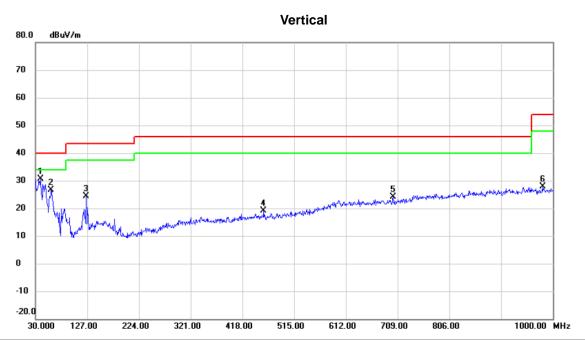
APPENDIX B - RADIATED EMISSION - 9 KHZ TO 30 MHZ Note: Below 30MHz, The measured value have enough margin over 20dB than the limit, therefore they are not reported



APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ







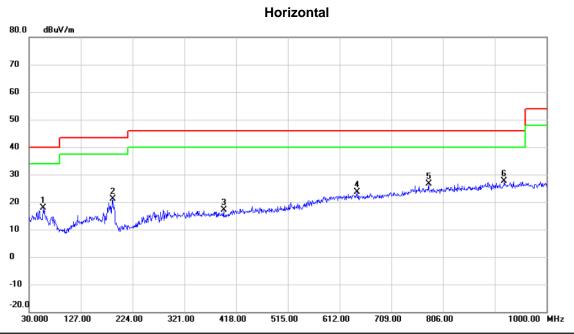
	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
_	1	*	39.2150	48.33	-17.58	30.75	40.00	-9.25	peak	
	2		59.5850	45.43	-18.90	26.53	40.00	-13.47	peak	
	3	•	125.5450	43.32	-18.83	24.49	43.50	-19.01	peak	
	4	4	157.7700	33.79	-14.72	19.07	46.00	-26.93	peak	
	5	7	700.7550	34.24	-10.07	24.17	46.00	-21.83	peak	
_	6	Ç	980.6000	34.16	-6.37	27.79	54.00	-26.21	peak	

REMARKS:

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



Test Mode: TX N40 Mode Channel 09



No	. Mł	c. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		56.1900	36.59	-18.66	17.93	40.00	-22.07	peak	
2		187.6250	41.19	-20.18	21.01	43.50	-22.49	peak	
3		394.7200	32.89	-15.85	17.04	46.00	-28.96	peak	
4		644.4950	33.71	-10.12	23.59	46.00	-22.41	peak	
5		778.8400	34.70	-8.06	26.64	46.00	-19.36	peak	
6	*	920.9450	34.17	-6.64	27.53	46.00	-18.47	peak	

REMARKS:

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

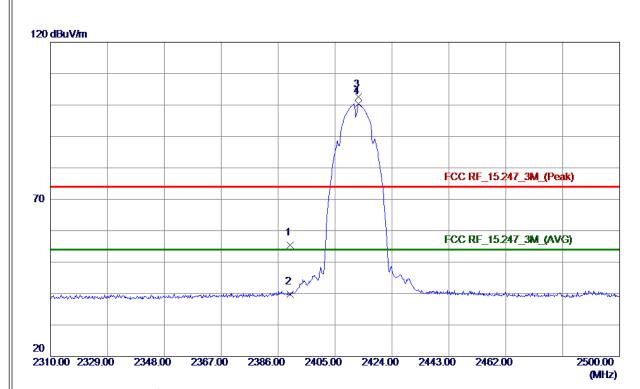


APPENDIX D - RADIATED EMISSION- ABOVE 1000 MHZ



Test Mode: TX B Mode 2412 MHz

Vertical



No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23. 09	32. 39	55. 48	74.00	-18. 52	Peak	
2	2390.0000	7. 38	32. 39	39. 77	54.00	-14.23	AVG	
3	2412.7709	70. 23	32. 46	102.69	74.00	28. 69	Peak	no limit
4 *	2412.7709	67. 95	32. 46	100.41	54.00	46.41	AVG	no limit

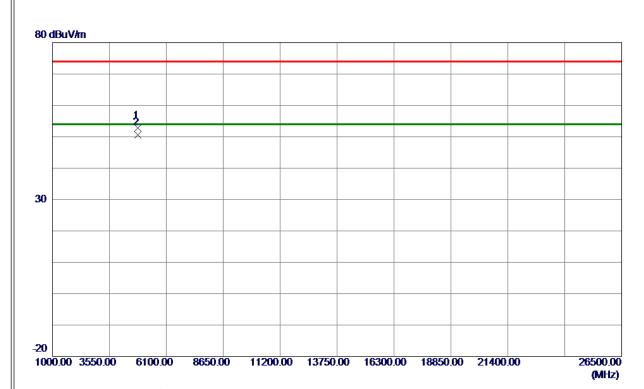
REMARKS:

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



Test Mode: TX B Mode 2412 MHz

Vertical



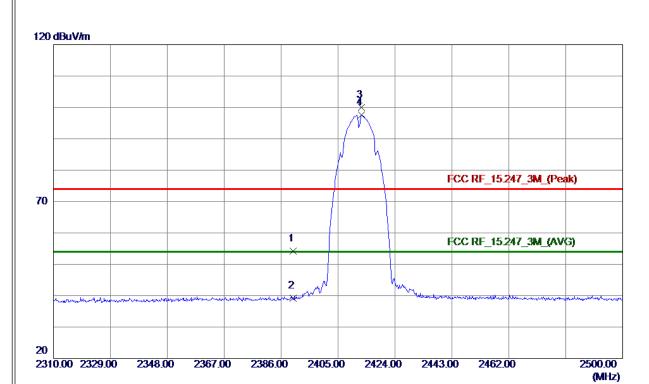
No.	Freq.	Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4825. 0000	62. 56	-9. 69	52.87	74.00	-21. 13	Peak	
2 *	4825. 0000	60. 37	-9. 69	50. 68	54.00	-3. 32	AVG	

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



Test Mode: TX B Mode 2412 MHz

Horizontal



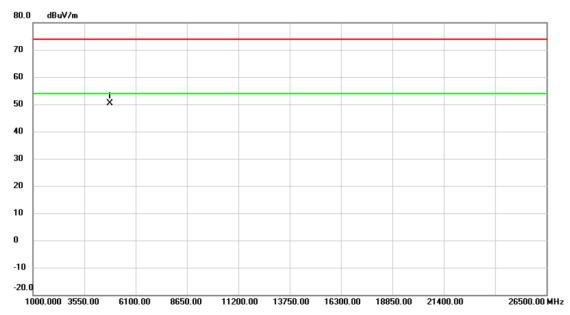
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	21.72	32. 39	54.11	74.00	-19.89	Peak	
2	2390. 0000	6. 77	32. 39	39. 16	54.00	-14.84	AVG	
3	2412.7900	67.44	32.46	99. 90	74.00	25. 90	Peak	no limit
4 *	2412. 7900	65. 13	32. 46	97. 59	54.00	43. 59	AVG	no limit

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



Test Mode: TX B Mode 2412 MHz

Horizontal



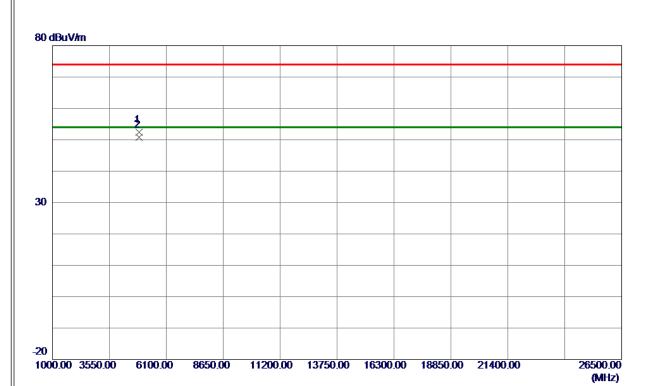
No. Mi	k. Freq.	Reading Level		Measure- ment	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4825.000	60.15	-9.69	50.46	74.00	-23.54	peak	

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



Test Mode: TX B Mode 2437 MHz

Vertical



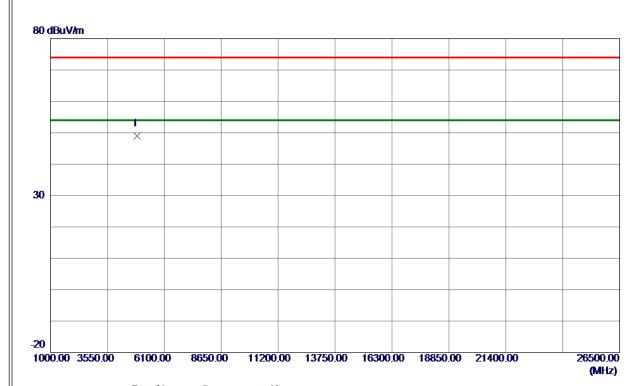
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873. 4500	61.86	-9.50	52. 36	74.00	-21.64	Peak	
2 *	4873. 4500	60. 37	-9. 50	50.87	54.00	-3. 13	AVG	

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



Test Mode: TX B Mode 2437 MHz

Horizontal



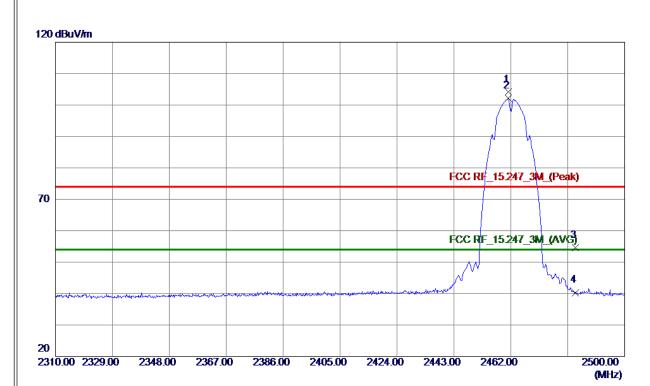
No.	Freq.	Keading Level	Correct Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4873. 4500	58. 50	-9. 50	49.00	74.00	-25.00	Peak	

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



Test Mode: TX B Mode 2462 MHz

Vertical



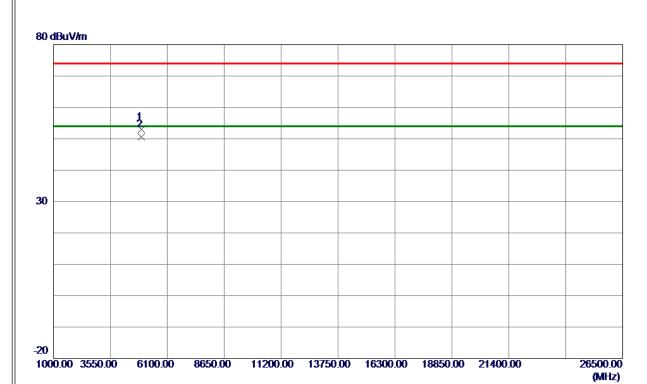
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2461. 2400	71.67	32.60	104. 27	74.00	30. 27	Peak	no limit
2 *	2461. 2400	69. 57	32.60	102. 17	54.00	48. 17	AVG	no limit
3	2483. 5000	21.89	32.66	54. 55	74.00	-19.45	Peak	
4	2483. 5000	7. 64	32. 66	40. 30	54.00	-13.70	AVG	

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



Test Mode: TX B Mode 2462 MHz

Vertical



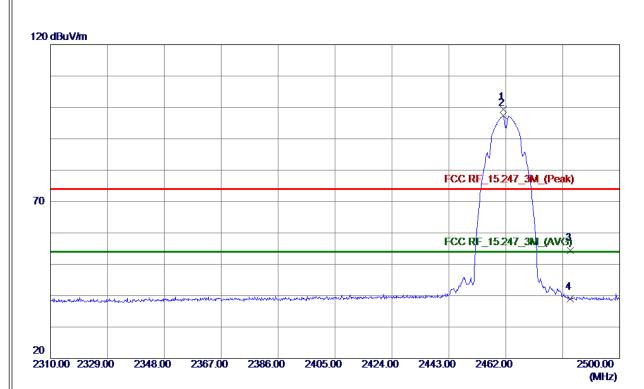
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4924. 4500	62. 29	-9. 31	52. 98	74.00	-21.02	Peak	
2 *	4924. 4500	59. 89	-9. 31	50 . 58	54.00	-3.42	AVG	

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



Test Mode: TX B Mode 2462 MHz

Horizontal



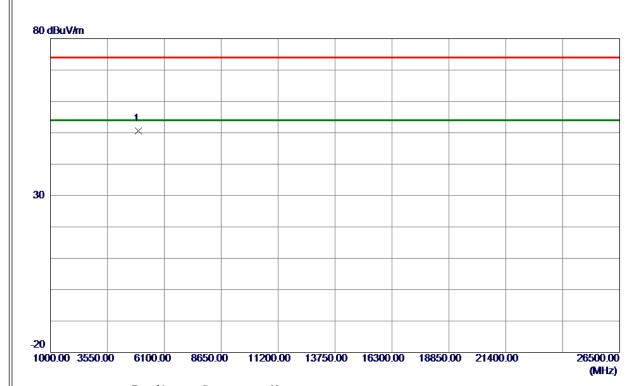
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2461. 2400	66.89	32.60	99. 49	74.00	25. 49	Peak	no limit
2 *	2461. 2400	64.79	32. 60	97. 39	54.00	43.39	AVG	no limit
3	2483. 5000	21.71	32.66	54. 37	74.00	-19.63	Peak	
4	2483. 5000	6. 24	32. 66	38. 90	54.00	-15. 10	AVG	

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



Test Mode: TX B Mode 2462 MHz

Horizontal



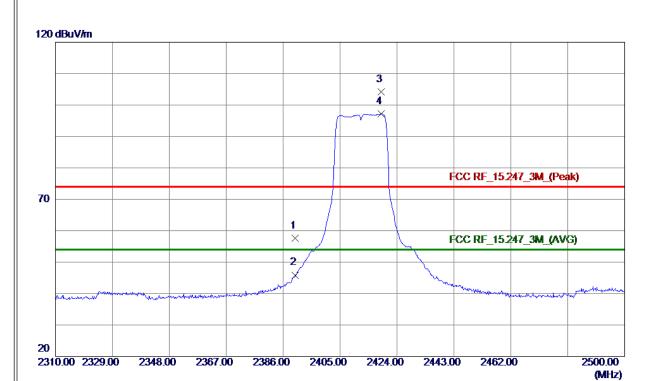
No.	Freq.	Keading Level	Correct Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4924. 4500	59. 94	-9. 31	50.63	74.00	-23. 37	Peak	

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



Test Mode: TX G Mode 2412 MHz

Vertical



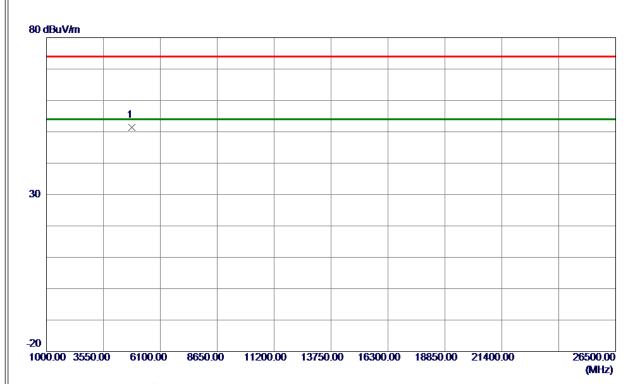
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	25. 27	32. 39	57.66	74.00	-16. 34	Peak	
2	2390. 0000	13. 51	32. 39	45. 90	54.00	-8. 10	AVG	
3	2418.6800	71.68	32.48	104. 16	74.00	30. 16	Peak	no limit
4 *	2418. 6800	64. 79	32. 48	97. 27	54.00	43. 27	AVG	no limit

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



Test Mode: TX G Mode 2412 MHz

Vertical



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4827, 5500	0 61.06	-9. 68	51, 38	74.00	-22, 62	Peak		

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

(MHz)



Test Mode: TX G Mode 2412 MHz

Horizontal

120 dBuV/m 3 FCC RF_15247_3M_(Peak) 70 FCC RF_15247_3M_(AVG) 20 2310.00 2329.00 2348.00 2367.00 2386.00 2405.00 2424.00 2443.00 2462.00 2500.00

No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23. 59	32. 39	55. 98	74.00	-18.02	Peak	
2	2390.0000	9. 28	32. 39	41.67	54.00	-12. 33	AVG	
3	2418.6800	68. 42	32.48	100.90	74.00	26. 90	Peak	no limit
4 *	2418.6800	61.02	32. 48	93. 50	54.00	39. 50	AVG	no limit

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



Test Mode: TX G Mode 2412 MHz

Horizontal



No.	Freq.	Keading Level	Correct Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4825. 0000	60.08	-9.69	50. 39	74.00	-23. 61	Peak	

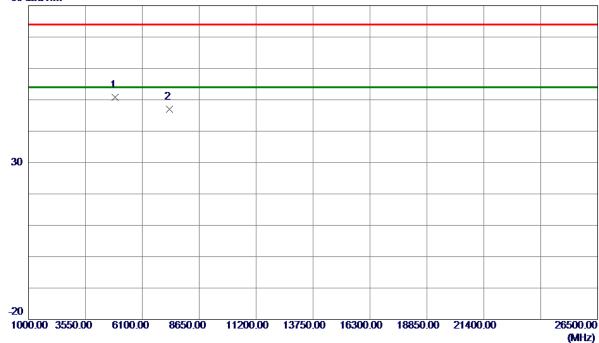
- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



Test Mode: TX G Mode 2437 MHz

Vertical





No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4881. 1000	60.32	-9.47	50. 85	74.00	-23. 15	Peak	
2	7311. 0000	49.71	-2.74	46. 97	74.00	-27.03	Peak	

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



Test Mode: TX G Mode 2437 MHz

Horizontal



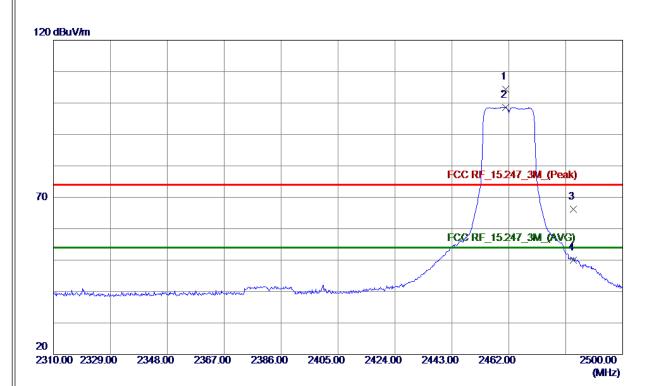
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4876.0000	59. 52	-9.49	50.03	74.00	-23.97	Peak	
2 *	7303. 6000	52. 85	-2.75	50. 10	74.00	-23. 90	Peak	

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



Test Mode: TX G Mode 2462 MHz

Vertical



No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2460.8600	71.87	32.60	104.47	74.00	30. 47	Peak	no limit
2 *	2460.8600	66. 09	32.60	98. 69	54.00	44.69	AVG	no limit
3	2483. 5000	33. 59	32.66	66. 25	74.00	-7.75	Peak	
4	2483. 5000	17. 33	32.66	49. 99	54.00	-4.01	AVG	

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

26500.00 (MHz)



Test Mode: TX G Mode 2462 MHz

Vertical



Reading Correct Measure ${\bf Limit}$ No. Freq. Margin Level Factor ment MHzdBuV/mdB dBuV/m dBuV/m dB Detector Comment 4921. 9000 60. 66 -9.3251.34 74.00 -22.66Peak 2 7375. 0000 52. 12 -2.6249.50 74.00 -24.50Peak

16300.00 18850.00 21400.00

11200.00 13750.00

REMARKS:

-20

1000.00 3550.00

6100.00

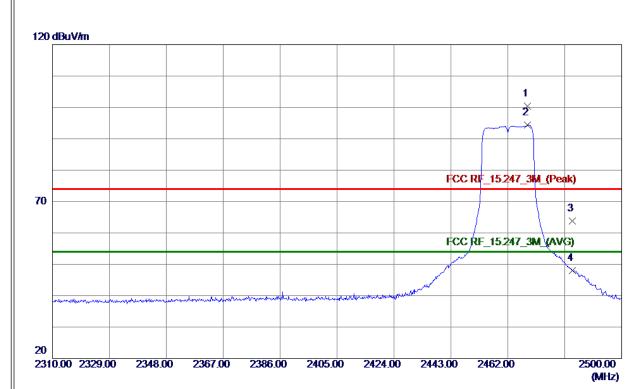
8650.00

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



Test Mode: TX G Mode 2462 MHz

Horizontal



No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2468. 4600	67.75	32.62	100. 37	74.00	26. 37	Peak	no limit
2 *	2468. 4600	61.82	32. 62	94.44	54.00	40.44	AVG	no limit
3	2483. 5000	31.07	32.66	63.73	74.00	-10. 27	Peak	
4	2483. 5000	15. 29	32. 66	47.95	54.00	-6. 05	AVG	

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



Test Mode: TX G Mode 2462 MHz

Horizontal

80 dBuV/m



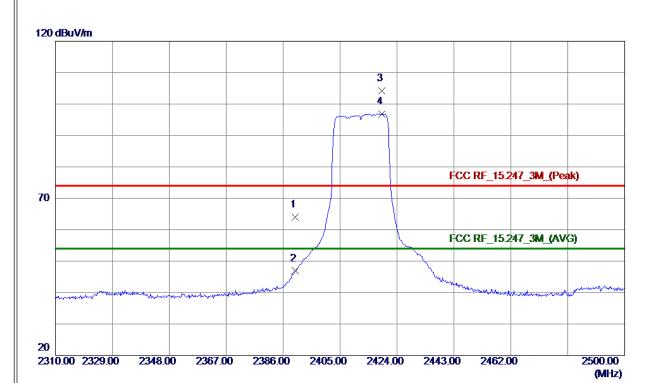
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4927.0000	58. 0 2	-9. 30	48.72	74.00	-25.28	Peak	
2 *	7377. 5500	53. 89	-2.62	51. 27	74.00	-22.73	Peak	

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



Test Mode: TX N-20M Mode 2412 MHz

Vertical



No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	31.67	32. 39	64.06	74.00	-9.94	Peak	
2	2390.0000	14. 51	32. 39	46. 90	54.00	-7.10	AVG	
3	2418.8700	71.73	32.48	104. 21	74.00	30. 21	Peak	no limit
4 *	2418.8700	64.41	32. 48	96. 89	54.00	42.89	AVG	no limit

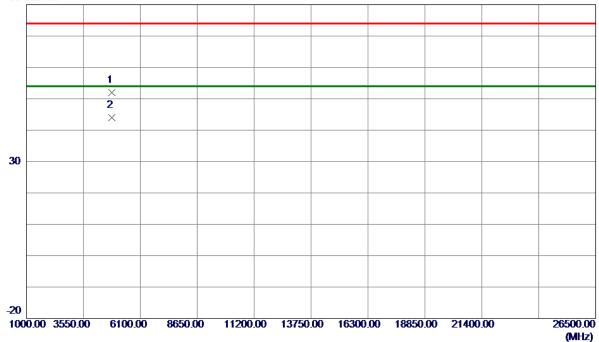
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



Test Mode: TX N-20M Mode 2412 MHz

Vertical

80 dBuV/m



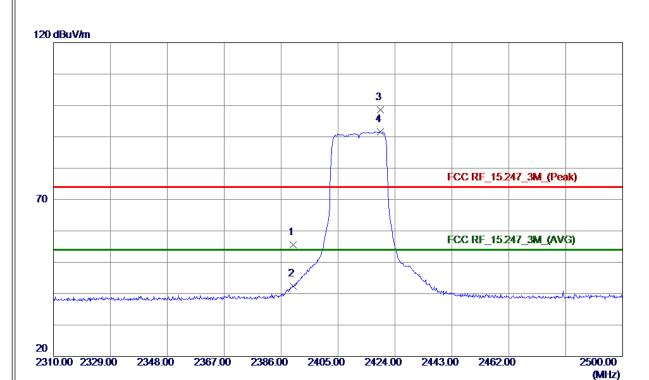
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4812. 2500	61.67	-9.73	51.94	74.00	-22.06	Peak	
2 *	4812. 2500	53. 81	-9. 73	44. 08	54.00	-9. 92	AVG	

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



Test Mode: TX N-20M Mode 2412 MHz

Horizontal



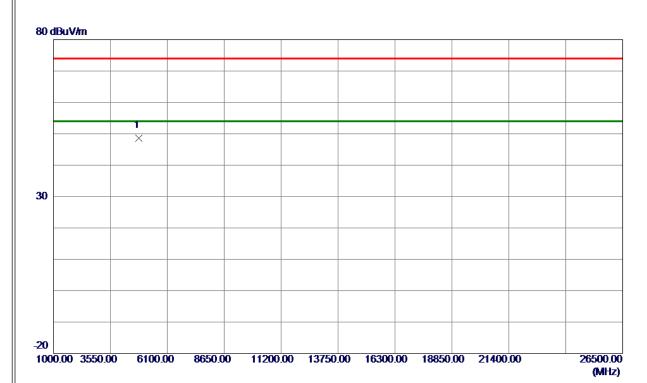
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	23. 28	32. 39	55. 67	74.00	-18. 33	Peak	
2	2390. 0000	10.09	32. 39	42.48	54.00	-11. 52	AVG	
3	2419.0600	66. 06	32.48	98. 54	74.00	24.54	Peak	no limit
4 *	2419. 0600	59. 09	32. 48	91. 57	54.00	37. 57	AVG	no limit

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



Test Mode: TX N-20M Mode 2412 MHz

Horizontal



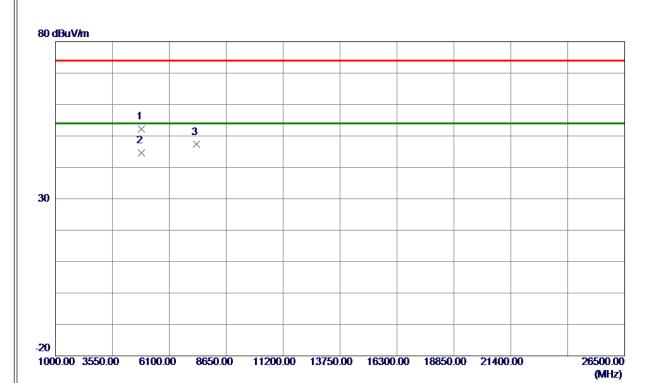
No.	Freq.	Keading Level	Correct Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4817.3500	58.41	-9.71	48.70	74.00	-25.30	Peak	

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



Test Mode: TX N-20M Mode 2437 MHz

Vertical



No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4863. 2500	61.83	-9. 54	52. 29	74.00	-21.71	Peak	
2 *	4863. 2500	54. 12	-9. 54	44. 58	54.00	-9.42	AVG	
3	7311. 0000	50.04	-2.74	47. 30	74.00	-26. 70	Peak	

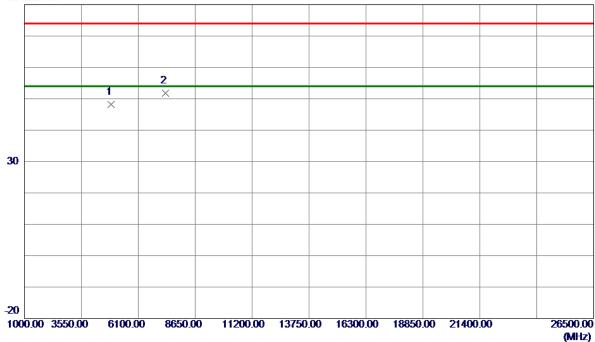
- (1) Measurement Value = Reading Level + Correct Factor.
 (2) Margin Level = Measurement Value Limit Value.



Test Mode: TX N-20M Mode 2437 MHz

Horizontal

80 dBuV/m



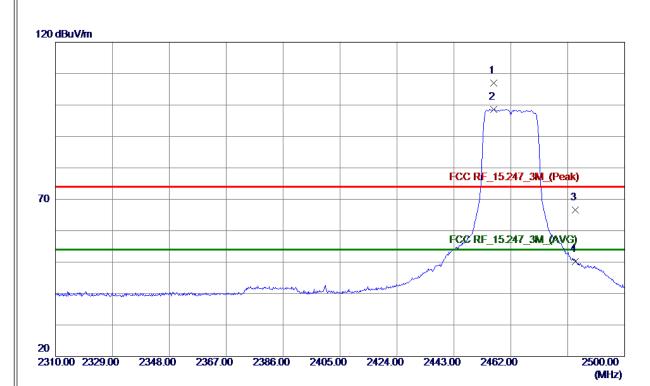
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4873. 4500	57. 76	-9.50	48. 26	74.00	-25.74	Peak	
2 *	7316. 3500	54. 50	-2.73	51.77	74.00	-22. 23	Peak	

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



Test Mode: TX N-20M Mode 2462 MHz

Vertical



No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2456. 3000	74. 37	32. 58	106. 95	74.00	32.95	Peak	no limit
2 *	2456. 3000	65. 98	32. 58	98. 56	54.00	44. 56	AVG	no limit
3	2483. 5000	33. 93	32.66	66. 59	74.00	-7.41	Peak	
4	2483. 5000	17. 51	32. 66	50. 17	54.00	-3.83	AVG	

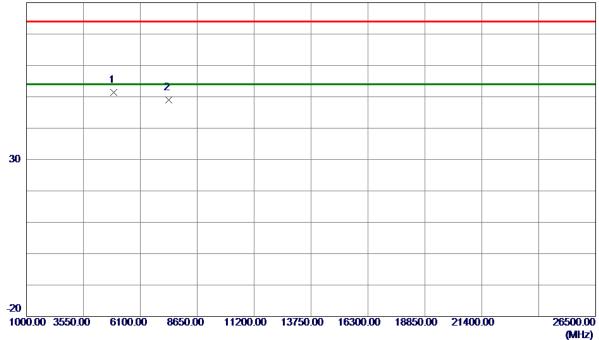
- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value Limit Value.



Test Mode: TX N-20M Mode 2462 MHz

Vertical

80 dBuV/m



No.	Freq.	Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4919. 3500	60.70	-9. 33	51. 37	74.00	-22.63	Peak	
2	7382.6500	51.70	-2. 61	49. 09	74.00	-24.91	Peak	

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



Test Mode: TX N-20M Mode 2462 MHz

Horizontal

120 dBuV/m 2 FCC RF_15.247_3M_(Peak) **70** FCC RF_15.247_3M_(AVG);

No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2469. 0300	75. 68	32.62	108. 30	74.00	34. 30	Peak	no limit
2 *	2469. 0300	61.07	32.62	93. 69	54.00	39. 69	AVG	no limit
3	2483. 5000	24. 11	32.66	56.77	74.00	-17. 23	Peak	
4	2483. 5000	15. 06	32.66	47.72	54.00	-6. 28	AVG	

2405.00

2424.00

2443.00

2462.00

2500.00 (MHz)

REMARKS:

20

2310.00 2329.00

2348.00

2367.00

2386.00

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



Test Mode: TX N-20M Mode 2462 MHz

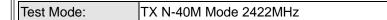
Horizontal



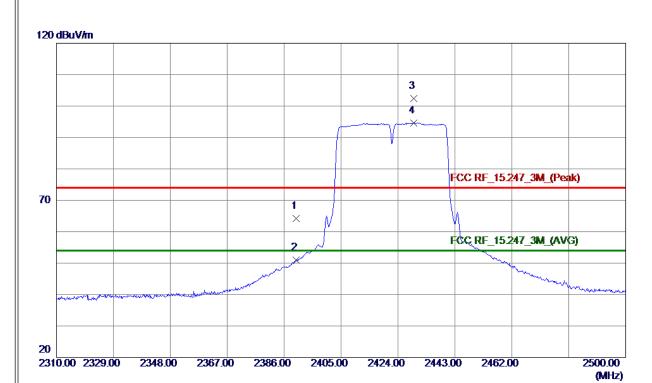
No.	Freq.	Keading Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	4927.0000	56. 70	-9. 30	47.40	74.00	-26.60	Peak	
2 *	7375. 0000	53. 33	-2.62	50.71	74.00	-23. 29	Peak	

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





Vertical



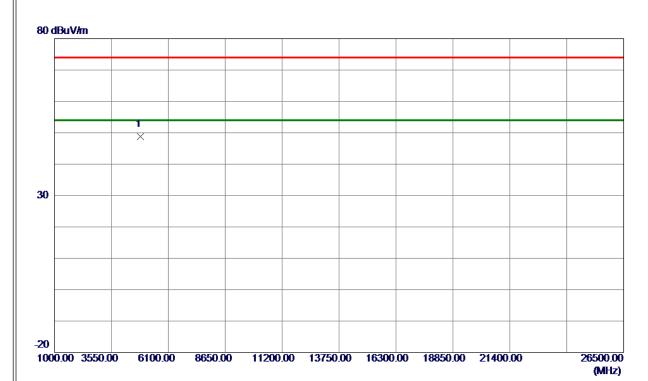
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	31. 76	32. 39	64. 15	74.00	-9.85	Peak	
2	2390.0000	18. 67	32. 39	51.06	54.00	-2.94	AVG	
3	2429. 3200	69.84	32. 51	102. 35	74.00	28. 35	Peak	no limit
4 *	2429. 3200	62. 14	32. 51	94.65	54.00	40.65	AVG	no limit

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



Test Mode: TX N-40M Mode 2422MHz

Vertical



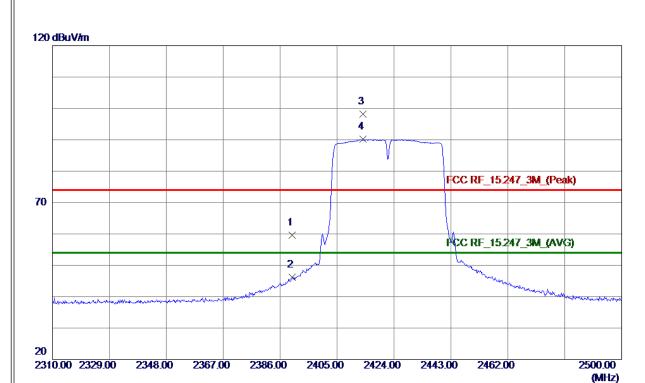
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4850. 5000	58. 40	-9. 59	48.81	74.00	-25. 19	Peak	

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



Test Mode: TX N-40M Mode 2422MHz

Horizontal



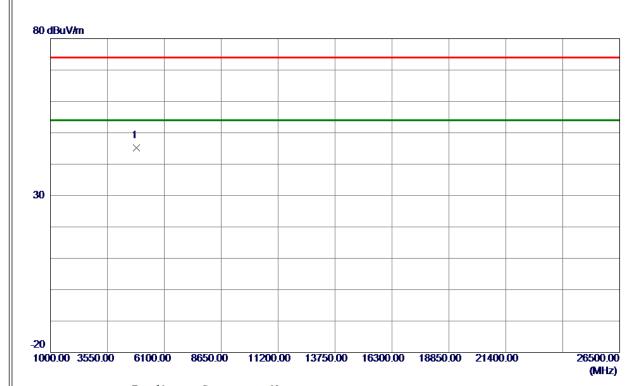
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2390.0000	27. 20	32. 39	59. 59	74.00	-14.41	Peak	
2	2390. 0000	13.83	32. 39	46. 22	54.00	-7.78	AVG	
3	2413.7400	65. 69	32.46	98. 15	74.00	24. 15	Peak	no limit
4 *	2413. 7400	57.65	32. 46	90. 11	54.00	36. 11	AVG	no limit

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



Test Mode: TX N-40M Mode 2422MHz

Horizontal



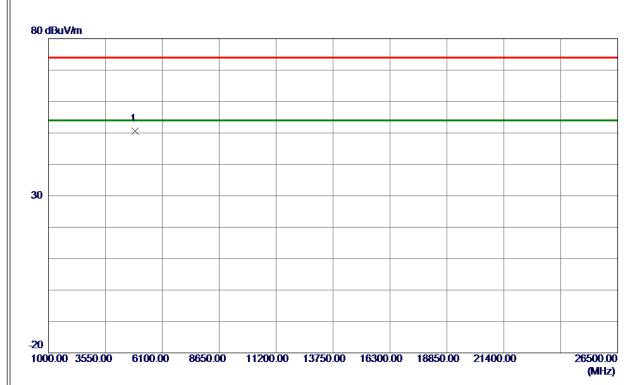
No.	Freq.	Keading Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4847.9500	54.87	-9. 60	45. 27	74.00	-28.73	Peak	

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



Test Mode: TX N-40M Mode 2437 MHz

Vertical



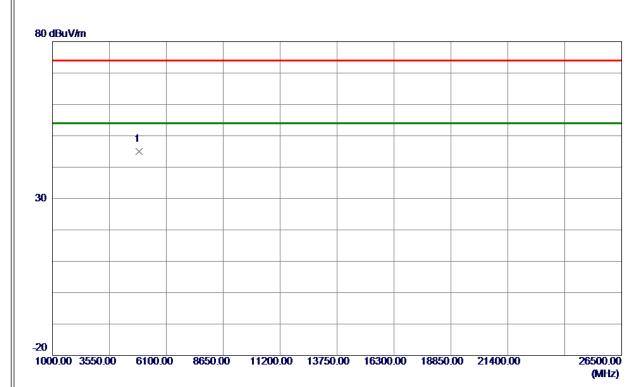
No.	Freq.	Reading Level	Correct Factor	Measure ment	Limit	Margin			
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1 *	4876 0000	60 17	-9 49	50 68	74 00	-23 32	Peak		

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



Test Mode: TX N-40M Mode 2437 MHz

Horizontal



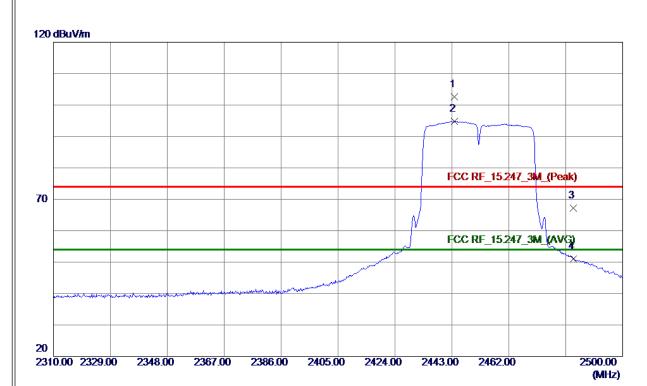
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4868. 3500	54. 45	-9. 52	44.93	74.00	-29.07	Peak	

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



Test Mode: TX N-40M Mode 2452 MHz

Vertical



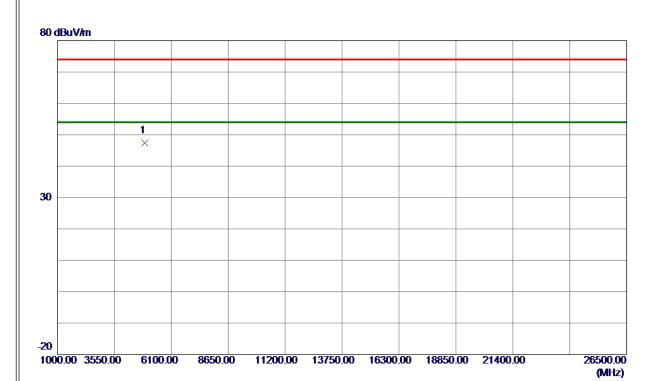
No.	Freq.	Keading Level	Correct Factor	Measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	2443.7600	70.08	32. 55	102.63	74.00	28.63	Peak	no limit
2 *	2443.7600	62. 29	32. 55	94.84	54.00	40.84	AVG	no limit
3	2483. 5000	34.49	32.66	67. 15	74.00	-6.85	Peak	
4	2483. 5000	18. 37	32. 66	51. 03	54.00	-2. 97	AVG	

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



Test Mode: TX N-40M Mode 2452 MHz

Vertical



No.	Freq.	Keading Level	Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4914. 2500	56.84	-9. 35	47.49	74.00	-26. 51	Peak	

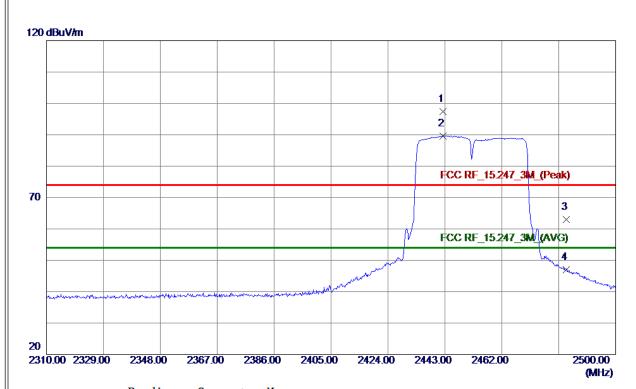
REMARKS:

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



Test Mode: TX N-40M Mode 2452 MHz

Horizontal



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limit
limit
) 11

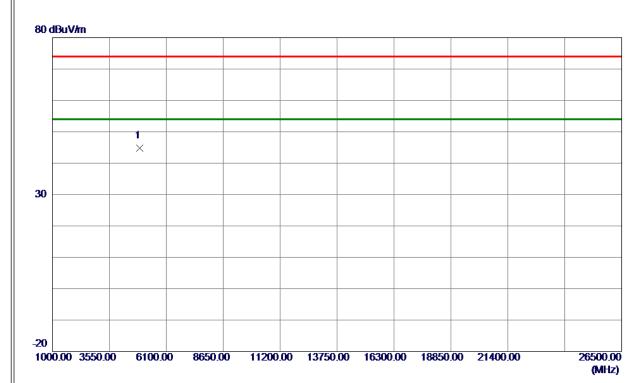
REMARKS:

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



Test Mode: TX N-40M Mode 2452 MHz

Horizontal



No.	Freq.	Level	Correct Factor	measure ment	Limit	Margin		
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1 *	4914. 2500	54. 12	-9. 35	44.77	74. 00	-29. 23	Peak	

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

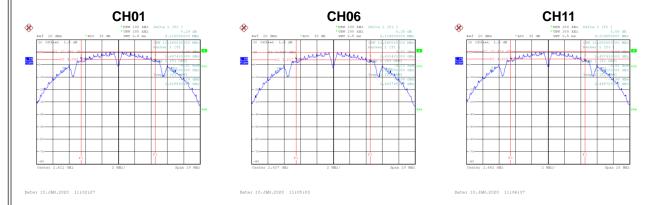


APPENDIX E - BANDWIDTH	



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Ш		
Ш	Test Mode	TX B Mode
Ш	TEST INIONE	1 A D Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	9.11	500	Complies
06	2437	9.12	500	Complies
11	2462	9.13	500	Complies



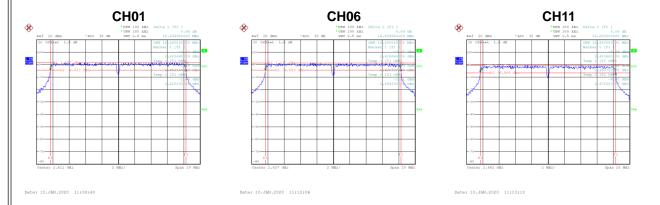
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	13.50	Complies
06	2437	13.60	Complies
11	2462	13.60	Complies





T	TV 0 14 1
Test Mode	ITX G Mode

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	16.64	500	Complies
06	2437	16.64	500	Complies
11	2462	16.62	500	Complies



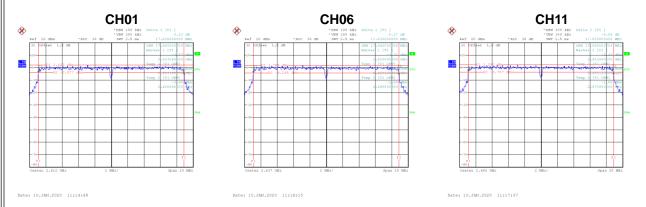
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	17.00	Complies
06	2437	17.00	Complies
11	2462	17.00	Complies



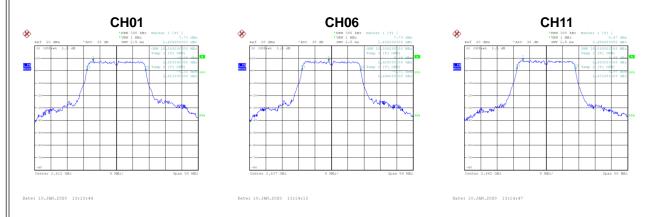


Test Mode	TX N-20M Mode
1000 111000	17111 -0111 111040

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
01	2412	17.83	500	Complies
06	2437	17.83	500	Complies
11	2462	17.83	500	Complies



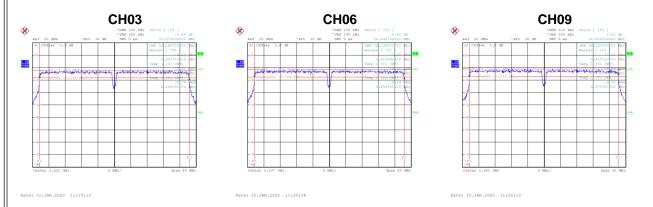
Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
01	2412	18.00	Complies
06	2437	18.00	Complies
11	2462	18.00	Complies



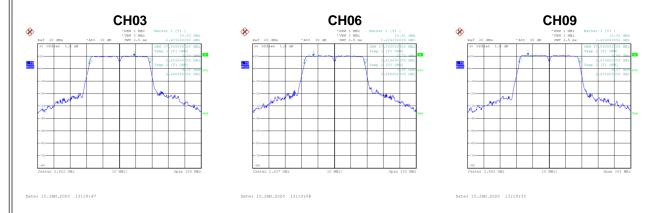


Test Mode	TX N-40M Mode
100t Wiodo	I / C I TO I VI I VIO GO

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	6 dB Bandwidth Min. Limit (kHz)	Result
03	2422	36.58	500	Complies
06	2437	36.65	500	Complies
09	2452	36.57	500	Complies



Channel	Frequency (MHz)	99 % Emission Bandwidth (MHz)	Result
03	2422	37.00	Complies
06	2437	37.00	Complies
09	2452	37.00	Complies





APPENDIX F - MAXIMUM OUTPUT POWER



For 1T1R

Test Mode TX E	Mode
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Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	17.55	30.00	1.0000	Complies
06	2437	17.58	30.00	1.0000	Complies
11	2462	18.01	30.00	1.0000	Complies

Test Mode TX G Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	24.43	30.00	1.0000	Complies
06	2437	24.16	30.00	1.0000	Complies
11	2462	24.44	30.00	1.0000	Complies

Test Mode TX N-20M Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	23.69	30.00	1.0000	Complies
06	2437	23.51	30.00	1.0000	Complies
11	2462	24.14	30.00	1.0000	Complies

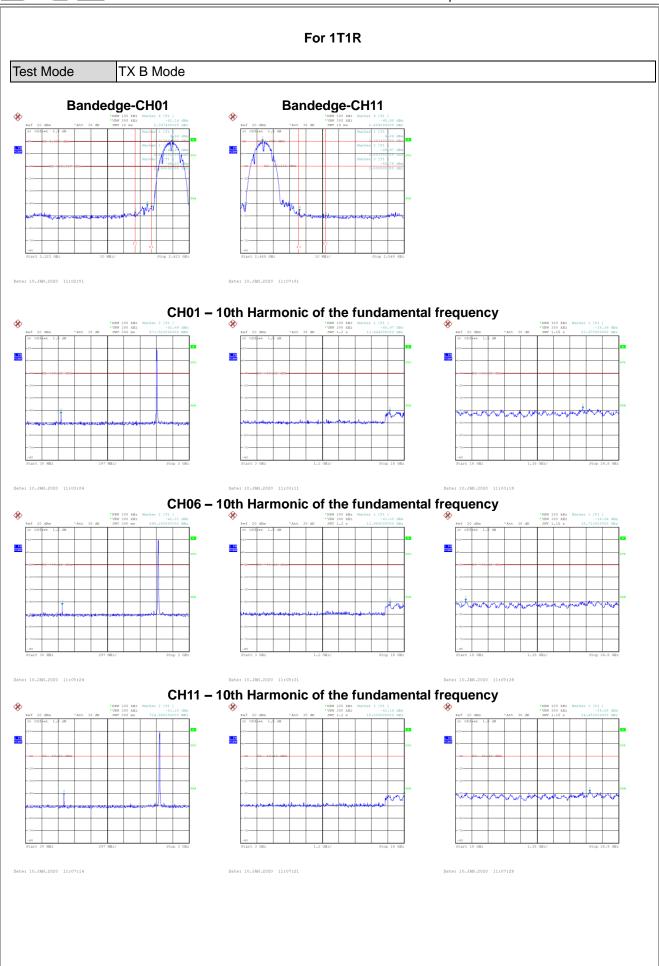
Test Mode TX N-40M Mode

Channel	Frequency (MHz)	Peak Output Power (dBm)	Max. Limit (dBm)	Max. Limit (W)	Result
01	2412	24.21	30.00	1.0000	Complies
06	2437	24.37	30.00	1.0000	Complies
11	2462	24.21	30.00	1.0000	Complies

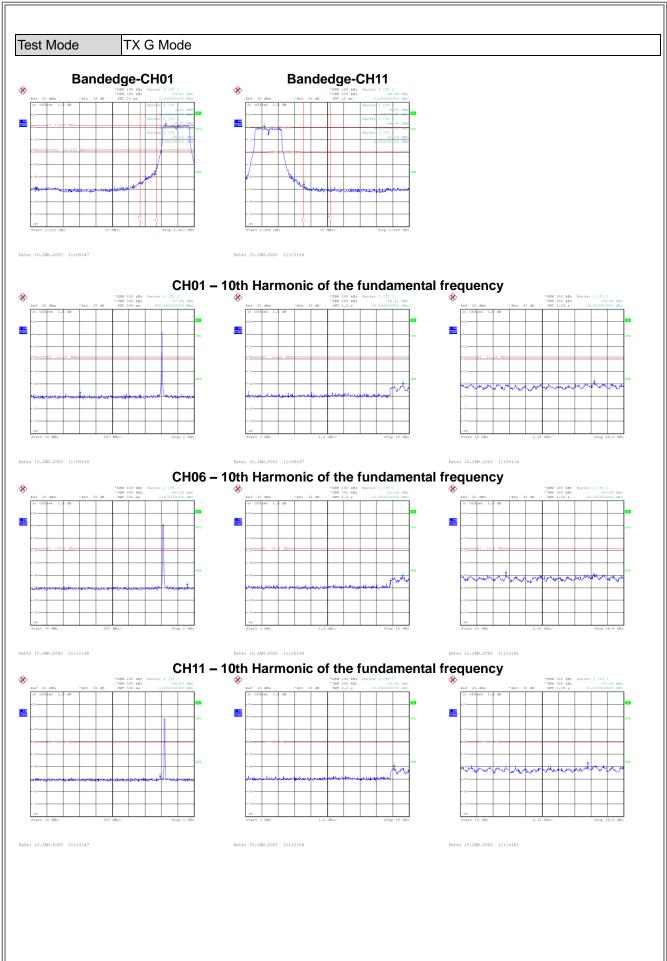


APPENDIX G - CONDUCTED SPURIOUS EMISSIONS

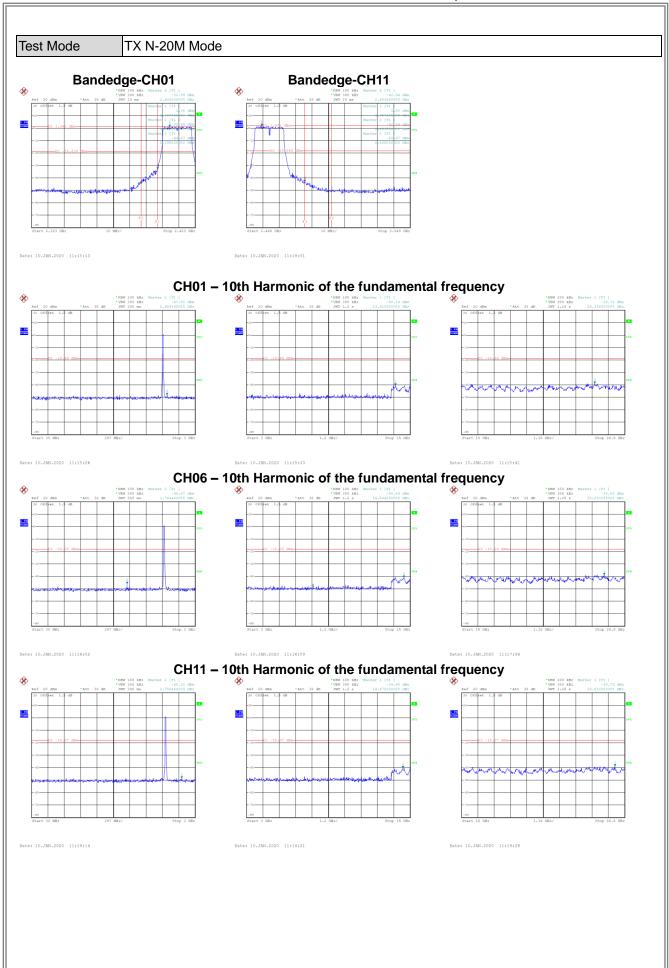




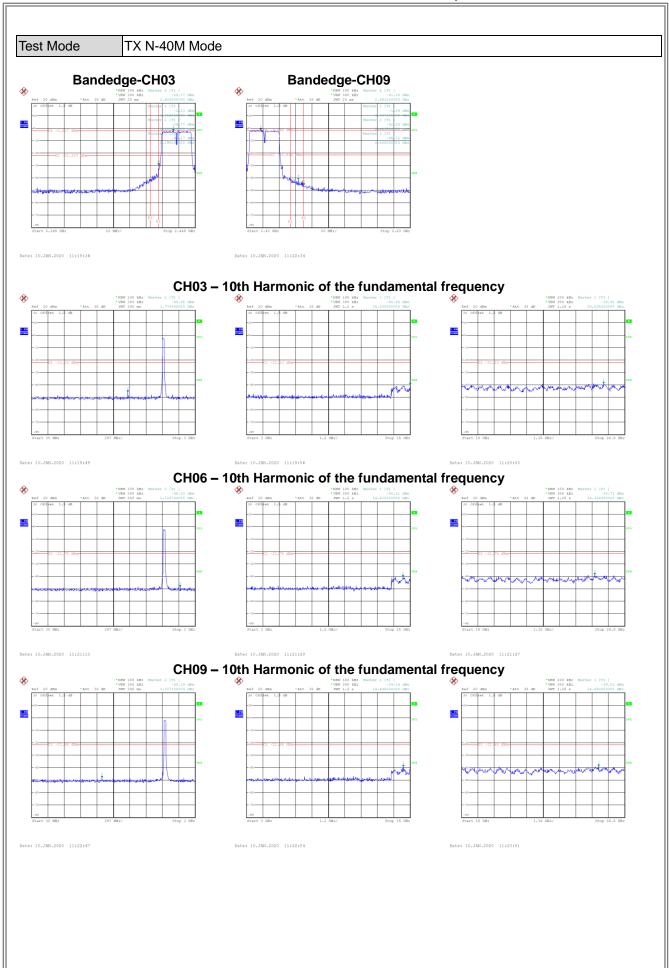














APPENDIX H - POWER SPECTRAL DENSITY



For 1T1R

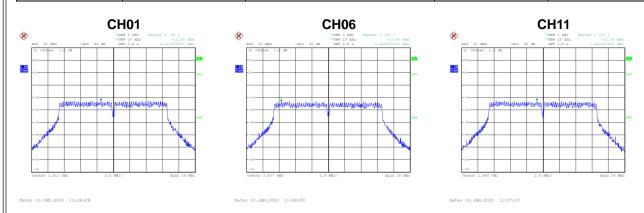
Test Mode	TX B Mode
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Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-10.99	8	Complies
06	2437	-10.47	8	Complies
11	2462	-10.12	8	Complies



Test Mode	TX G Mode
TEST MORE	

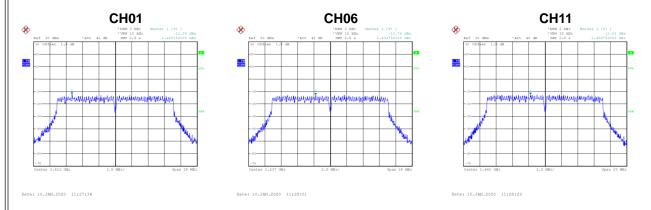
Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-12.45	8	Complies
06	2437	-13.06	8	Complies
11	2462	-12.40	8	Complies





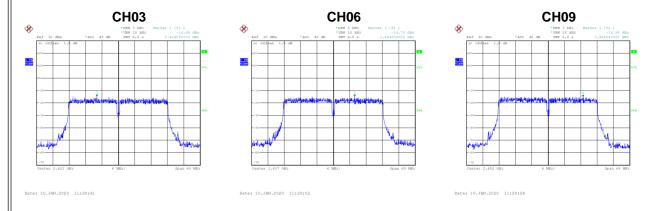
Test Mode	TX N-20M Mode

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
01	2412	-12.09	8	Complies
06	2437	-12.76	8	Complies
11	2462	-12.51	8	Complies



Test Mode	TX N-40M Mode
LEST MICHE	

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Max. Limit (dBm/3kHz)	Result
03	2422	-14.65	8	Complies
06	2437	-14.73	8	Complies
09	2452	-14.98	8	Complies



End of Test Report