■**Report No.:** DDT-R20112701-1E1

■**Issued Date:** Apr. 10, 2021

FCC CERTIFICATION TEST REPORT

FOR

Applicant	**:**	Infinet LLC
Address	**:**	69/75 Vavilova str., off. 425, 117997, Moscow,Russian Federation
Equipment under Test	**:**	InfiMAN Evolution
Model No.	**:**	E5-BSI/05600
Trade Mark	**:**	InfiMAN Evolution
FCC ID	**:**	2AZJ4-E5-BS
Manufacturer	**:**	Infinet LLC
Address	**:**	24 S. Deryabinoy str., off. 701, 620149, Yekaterinburg, Russian Federation

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, **E-mail:** ddt@dgddt.com, http://www.dgddt.com

REPORT

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Test Report Declare

Applicant	:	Infinet LLC
Address	:	69/75 Vavilova str., off. 425, 117997, Moscow,Russian Federation
Equipment under Test	:	InfiMAN Evolution
Model No	:	E5-BSI/05600
Trade Mark	:	InfiMAN Evolution
Manufacturer	:	Infinet LLC
Address	:	24 S. Deryabinoy str., off. 701, 620149, Yekaterinburg, Russian Federation

Test Standard Used: FCC Rules and Regulations Part 15 Subpart E

Test procedure used: ANSI C63.10:2013, 789033 D02 General U-NII Test Procedures New Rules v02r01, 662911 D01 Multiple Transmitter Output v02r01

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.

Report No:	DDT-R20112701-1E1		
Date of Receipt:	Nov. 27, 2020	**Date of Test:**	Nov. 27, 2020 ~ Apr. 10, 2021

Prepared By: ***Approved By:***

Ella Gong

Ella Gong/Engineer ***Damon Hu/EMC Manager***

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Apr. 10, 2021	

1. Summary of test results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	**Standard**	**Verdict**
6/26db Bandwidth and 99% Bandwidth	FCC 15.407 (e)	Pass
Maximum Conducted Output Power	FCC 15.407 (a)	Pass
Power Spectral Density	FCC 15.407 (a)	Pass
Frequency Stability Measurement	FCC 15.407 (g)	Pass
Emissions in restricted frequency bands	FCC 15.407 (a) FCC 15.209 FCC 15.205	Pass
Power Line Conducted Emission	FCC 15.207	Pass
Antenna requirement	FCC 15.203	Pass
Dynamic Frequency Selection	FCC 15.407 (h)	N/A
Note: N/A means not application		

2. General Test Information

2.1. Description of EUT

EUT* Name	:	InfiMAN Evolution
Model Number	:	E5-BSI/05600
EUT function description	:	Please reference user manual of this device
Power supply	:	DC 55V, 1.5A from PoE
Radio Technology	:	Proprietary protocol based on IEEE 802.11ac
FCC Operation frequency	:	20 MHz: 5745MHz-5825MHz 40 MHz: 5755MHz-5795MHz 80 MHz: 5775MHz
Modulation	:	BPSK, QAM
Antenna Type	:	Dedicated antenna 1, maximum PK gain: 16 dBi Dedicated antenna 2, maximum PK gain: 16 dBi
Sample Type	:	Series production
Serial Number	:	N/A

Note 1: EUT is the ab. of equipment under test.
Note 2: EUT without DFS detection.

2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Description	Remark
Power Over Ethernet(PoE) DC Power Injector	Microsemi corp.	PD-ACDC60G	N/A	INPUT: 100-240V AC~ 50/60 Hz 1.5A OUTPUT: 55V 1.1A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
Notebook	Lenovo Beijing Co. Ltd.	ThinkPad	FCC/CE	TP00015A

2.4. Block diagram of EUT configuration for test

Run a special test software “Putty.exe” provided by manufacturer to control EUT work in Continuous Tx mode, and select test channel, wireless mode and data rate.

Tested mode, channel, and data rate information				
Mode	Setting Tx Power		Channel	Frequency (MHz)
	Ant1	Ant2		
20 MHz	8	8	Low: CH149	5745
	8	8	Middle: CH157	5785
	8	8	High: CH165	5825
40 MHz	8	8	Middle: CH151	5755
	8	8	High: CH159	5795
80 MHz	8	8	CH155	5775

2.5. Deviations of test standard

No Deviation.

2.6. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25℃
Humidity range:	40-75%
Pressure range:	86-106 kPa

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, http://www.dgddt.com, Email: ddt@dgddt.com

CNAS Registration No. CNAS L6451; A2LA Certificate Number: 3870.01;

FCC Designation Number: CN1182; FCC Test Firm Registration Number: 540522

Industry Canada Site Registration Number: 10288A

2.8. Measurement uncertainty

Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Frequencies Stability	6.7×10^{-8} (Antenna couple method)
	5.5×10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB (10 MHz ≤ f < 3.6GHz);
	1.40 dB (3.6 GHz ≤ f < 8 GHz)

	1.66 dB (8 GHz≤ f < 22 GHz)
Uncertainty for radio frequency (RBW<20kHz)	3×10^{-8}
Temperature	0.4℃
Humidity	2%
Uncertainty for Radiation Emission test (30MHz-1GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1GHz-40GHz)	4.10 dB (1-6 GHz)
	4.40 dB (6 GHz-18 GHz)
	3.54 dB (18 GHz-26 GHz)
	4.30 dB (26 GHz-40 GHz)
Uncertainty for Power line conduction emission test	3.32 dB (150 kHz-30 MHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

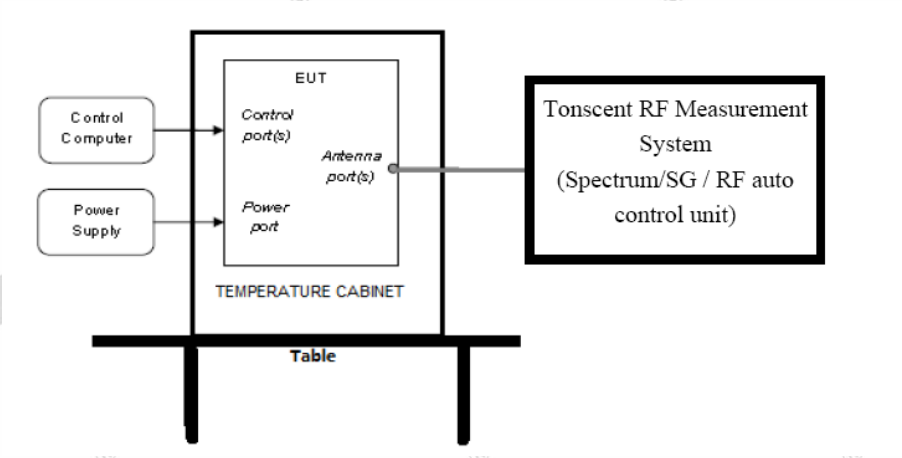
3. Equipment Used During Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☐**RF Connected Test (Tonscend RF Measurement System 1#)**					
Spectrum analyzer	R&S	FSU26	101272	Jul. 01, 2020	1 Year
Spectrum analyzer	Agilent	N9020D	MY49100362	Sep. 28, 2020	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	E8267D	US49060192	Sep. 24, 2020	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180737	Jul. 01, 2020	1 Year
Power Sensor	Agilent	U2021XA	MY55150010	Jul. 01, 2020	1 Year
Power Sensor	Agilent	U2021XA	MY55150011	Jul. 01, 2020	1 Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Apr. 25, 2020	1 Year
RF Cable	Micable	C10-01-01-1	100309	Sep. 28, 2020	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	Jul. 01, 2020	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
☒**RF Connected Test (Tonscend RF Measurement System 2#)**					
Spectrum analyzer	R&S	FSU26	200071	Sep. 25, 2020	1 Year
Spectrum analyzer	Agilent	N9020D	MY49100362	Sep. 28, 2020	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	N5182A	MY19060405	Jul. 01, 2020	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180912	Jul. 01, 2020	1 Year
RF Control Unit	Tonsend	JS0806-2	DDT-ZC01449	Jul. 01, 2020	1 Year
DC Power Source	MATRIS	MPS-3005L-3	D813058W	Apr. 25, 2020	1 Year
RF Cable	Micable	C10-01-01-1	100309	Sep. 28, 2020	1 Year
Temp&Humi	ZHIXIANG	ZXGDJS-15	ZX170110-A	Jul. 01, 2020	1 Year

Programmable		0L			
Test Software	JS Tonscend	JS1120-3	Ver.2.7	N/A	N/A
☐**Radiation 1#chamber**					
EMI Test Receiver	R&S	ESU8	100316	Sep. 24, 2020	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB9163	9163-462	Nov. 13, 2020	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Nov. 18, 2020	1 Year
Double Ridged Horn Antenna	R&S	HF907	100276	Nov. 13, 2020	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Apr. 11, 2020	1 Year
Pre-amplifier	A.H.	PAM-0118	360	Sep. 28, 2020	1 Year
RF Cable	HUBSER	CP-X2+ CP-X1	W11.03+ W12.02	Sep. 24, 2020	1 Year
RF Cable	N/A	5m+6m+1m	06270619	Sep. 30, 2020	1 Year
MI Cable	HUBSER	C10-01-01-1M	1091629	Sep. 30, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
☒**Radiation 2#chamber**					
EMI Test Receiver	R&S	ESCI	101364	Sep. 28, 2020	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	Jul. 01, 2020	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	9163-994	Nov. 13, 2020	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Nov. 18, 2020	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA9120	02108	Jul. 11, 2020	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	Apr. 11, 2020	1 Year
Pre-amplifier	TERA-MW	TRLA-0040 G35	1013 03	Sep. 28, 2020	1 Year
RF Cable	N/A	14+1.5m	06270619	Sep. 28, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
☒**Power Line Conducted Emissions Test 1#**					
EMI Test Receiver	R&S	ESU8	100316	Sep. 24, 2020	1 Year
LISN 1	R&S	ENV216	101109	Sep. 28, 2020	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 28, 2020	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Sep. 24, 2020	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Sep. 24, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A
☐**Power Line Conducted Emissions Test 2#**					
Test Receiver	R&S	ESPI	101761	Sep. 24, 2020	1 Year
LISN 1	R&S	ENV216	101170	Sep. 28, 2020	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 28, 2020	1 Year
Pulse Limiter	R&S	KH43101	43101180156 8-12#	Jul. 01, 2020	1 Year
CE Cable 2	HUBSER	N/A	W11.02	Sep. 24, 2020	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

4. 26dB Bandwidth, 6dB Bandwidth and 99% Bandwidth

4.1. Block diagram of test setup



4.2. Limits

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Bandwidth	26 dB Bandwidth	5725 - 5850
	Minimum 500 kHz 6 dB Bandwidth	5725 - 5850

4.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth: RBW=100 kHz For 26 dB Bandwidth: approximately 1% of the emission bandwidth.
VBW	For 6 dB Bandwidth: VBW=300 kHz For 26 dB Bandwidth: >3 RBW
Trace	Max hold
Sweep	Auto couple

(2) Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB and 6 dB relative to the maximum level measured in the fundamental emission.

4.4. Test result

Test Mode	Antenna	Channel	26db EBW [MHz]	F_L [MHz]	F_H [MHz]	Limit [MHz]	Verdict
20 MHz	Ant1	5745	21.960	5734.280	5756.240	---	PASS
	Ant2	5745	21.680	5734.280	5755.960	---	PASS
	Ant1	5785	22.120	5774.040	5796.160	---	PASS
	Ant2	5785	21.760	5774.080	5795.840	---	PASS
	Ant1	5825	22.160	5814.040	5836.200	---	PASS
	Ant2	5825	21.440	5814.320	5835.760	---	PASS
40 MHz	Ant1	5755	43.440	5733.320	5776.760	---	PASS
	Ant2	5755	44.240	5732.280	5776.520	---	PASS
	Ant1	5795	43.680	5773.000	5816.680	---	PASS
	Ant2	5795	43.680	5772.840	5816.520	---	PASS
80 MHz	Ant1	5775	88.480	5729.880	5818.360	---	PASS
	Ant2	5775	88.640	5730.040	5818.680	---	PASS

Test Mode	Antenna	Channel	OCB [MHz]	F_L [MHz]	F_H [MHz]	Limit [MHz]	Verdict
20 MHZ	Ant1	5745	18.56	5735.760	5754.320	---	PASS
	Ant2	5745	18.52	5735.720	5754.240	---	PASS
	Ant1	5785	18.6	5775.760	5794.360	---	PASS
	Ant2	5785	18.56	5775.680	5794.240	---	PASS
	Ant1	5825	18.56	5815.720	5834.280	---	PASS
	Ant2	5825	18.52	5815.680	5834.200	---	PASS
40 MHZ	Ant1	5755	36.96	5736.520	5773.480	---	PASS
	Ant2	5755	37.04	5736.440	5773.480	---	PASS
	Ant1	5795	37.12	5776.440	5813.560	---	PASS
	Ant2	5795	37.12	5776.360	5813.480	---	PASS
80 MHZ	Ant1	5775	77.28	5735.960	5813.240	---	PASS
	Ant2	5775	77.28	5736.280	5813.560	---	PASS

4.5. Original test data

26 dB Bandwidth:

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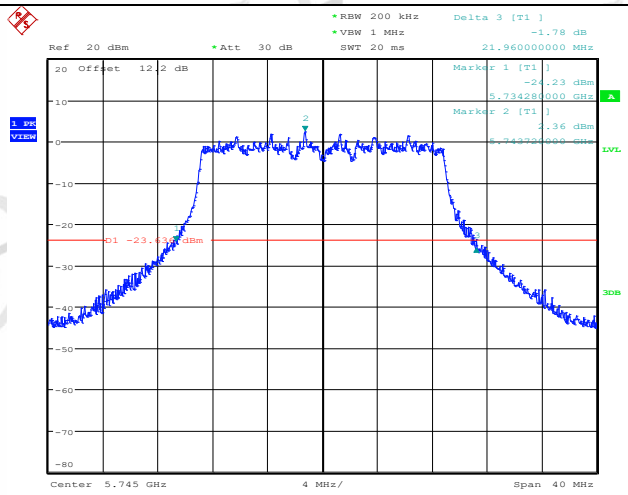

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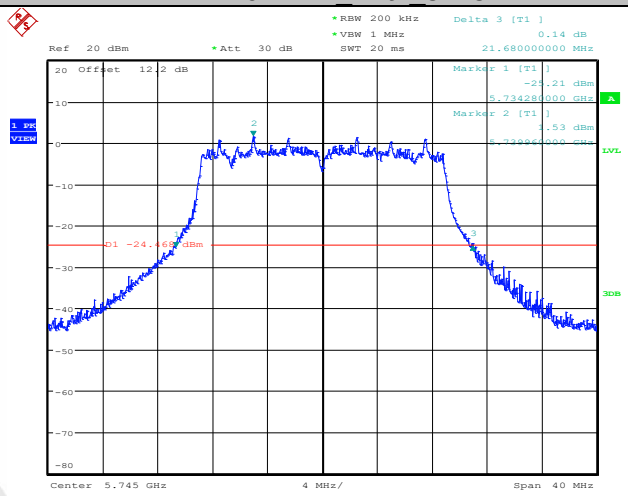

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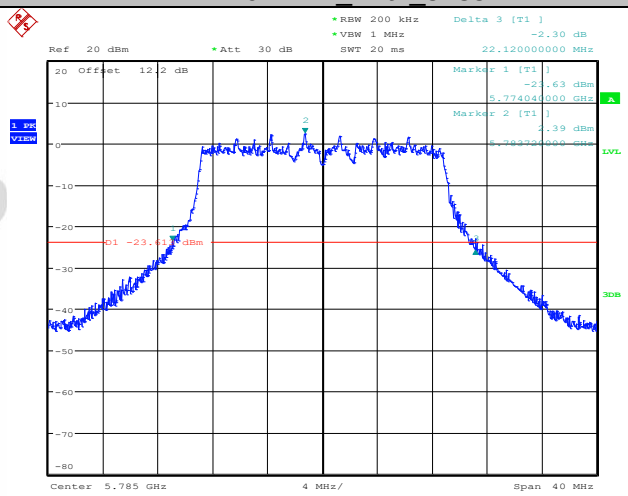

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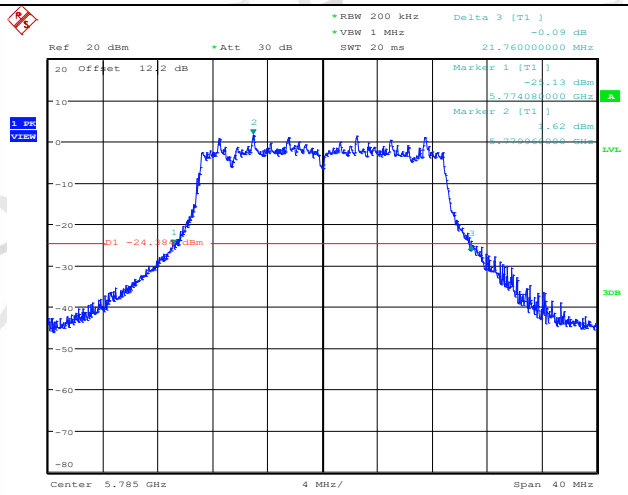

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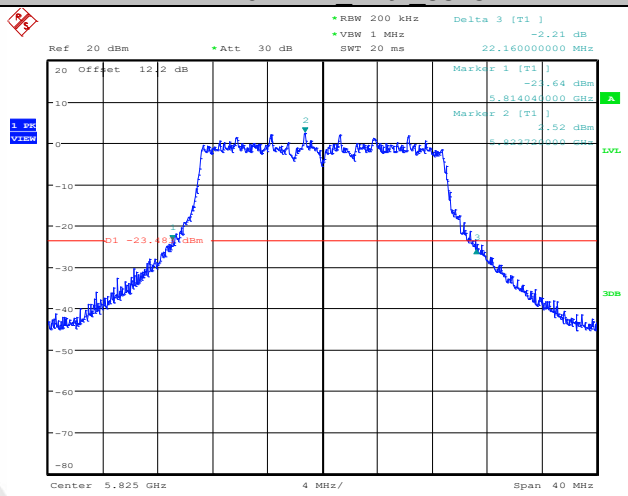

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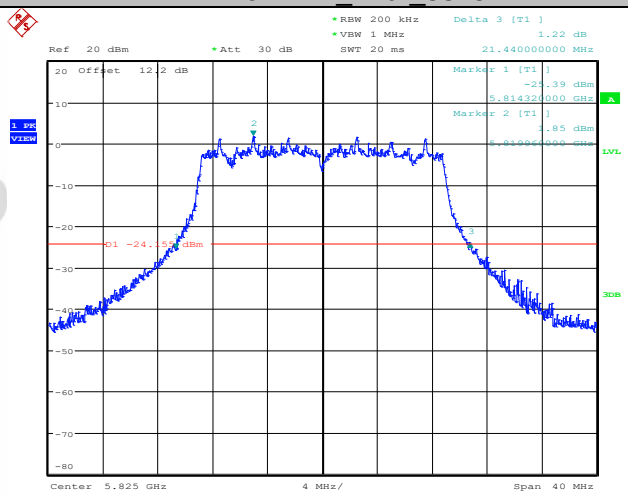

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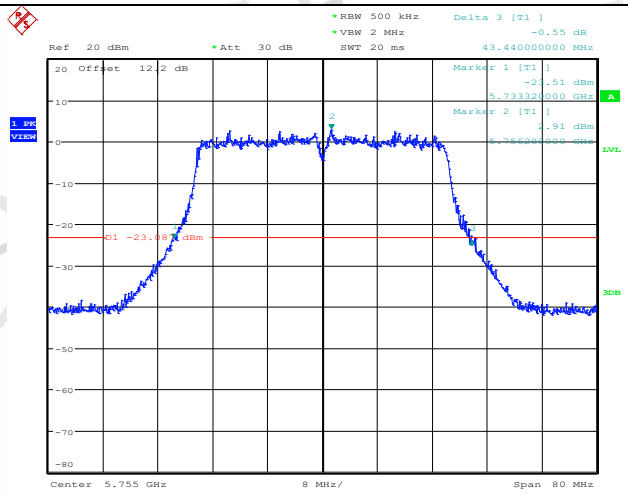

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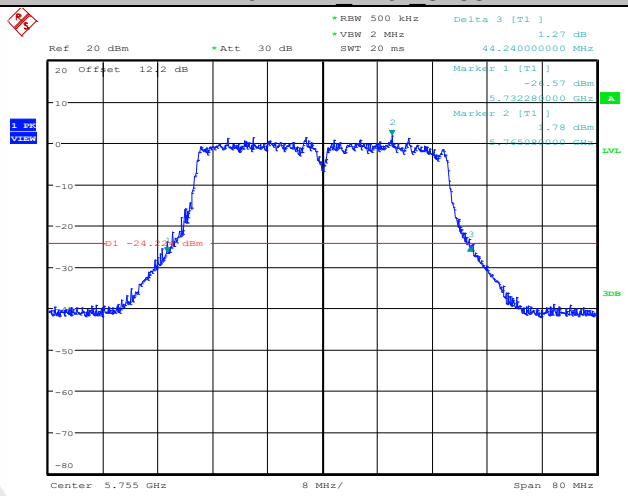

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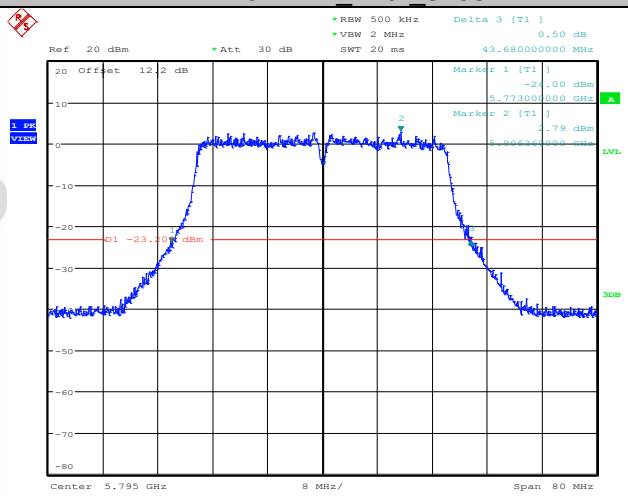

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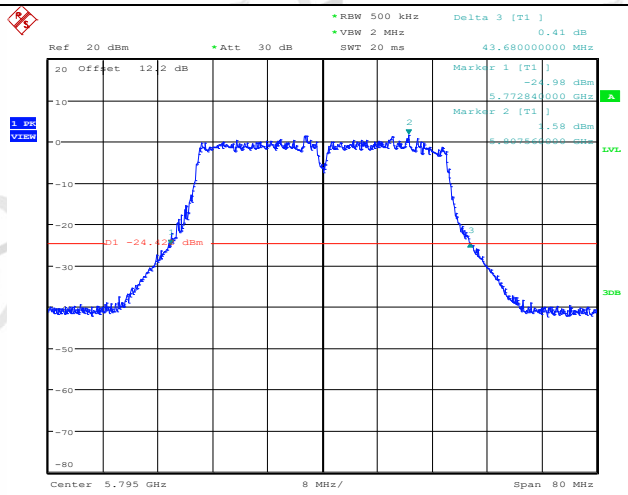

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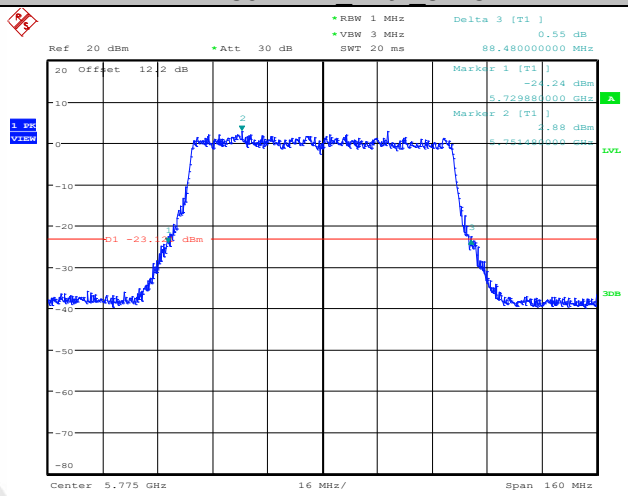
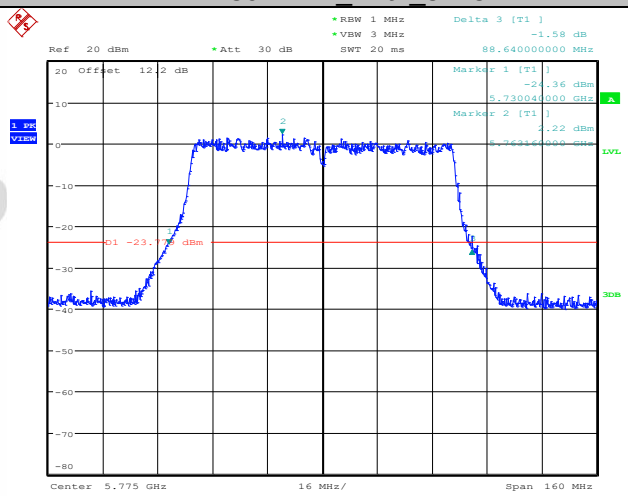
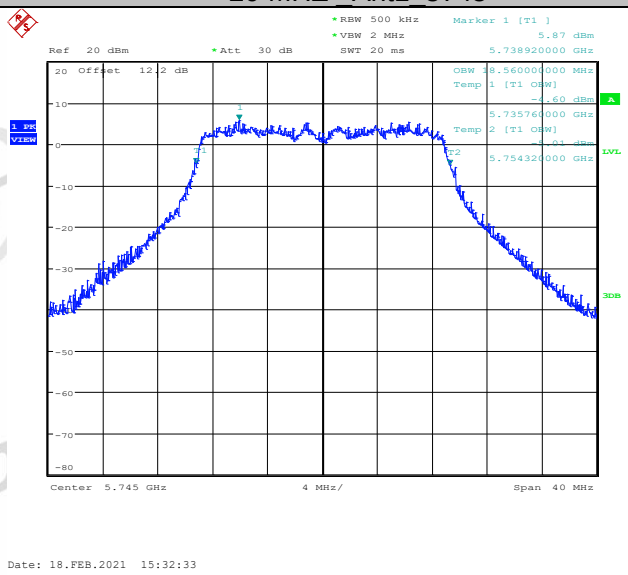


80 MHZ _Ant2_5775



99% Bandwidth

20 MHZ _Ant1_5745



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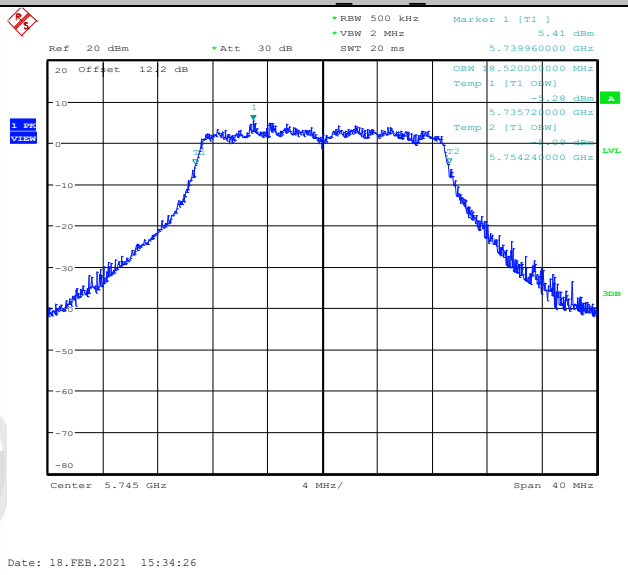

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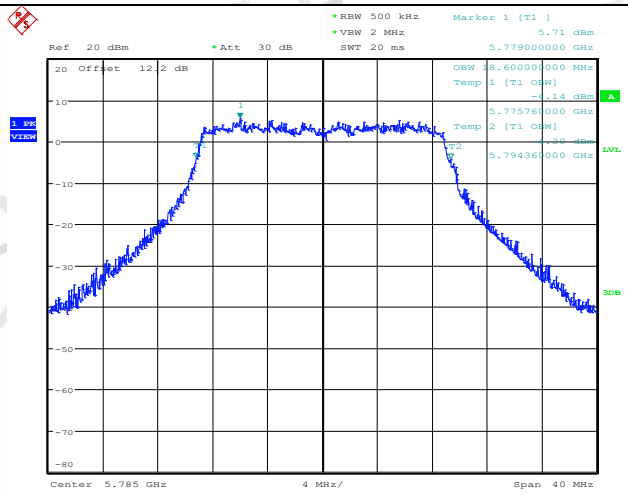

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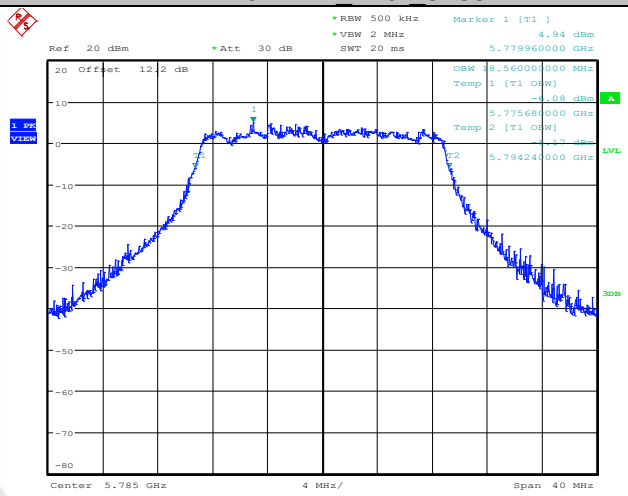

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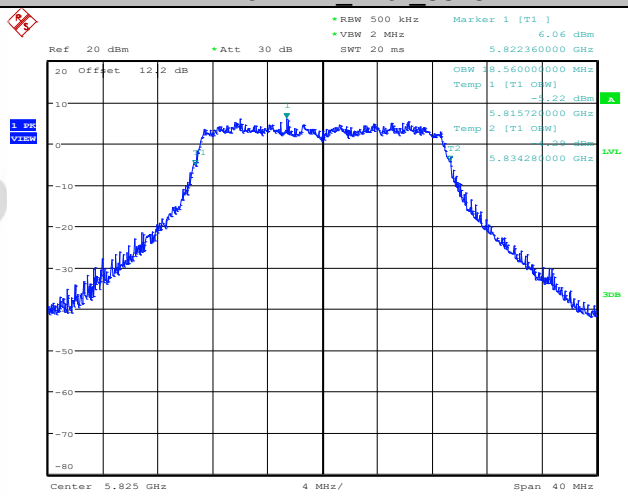

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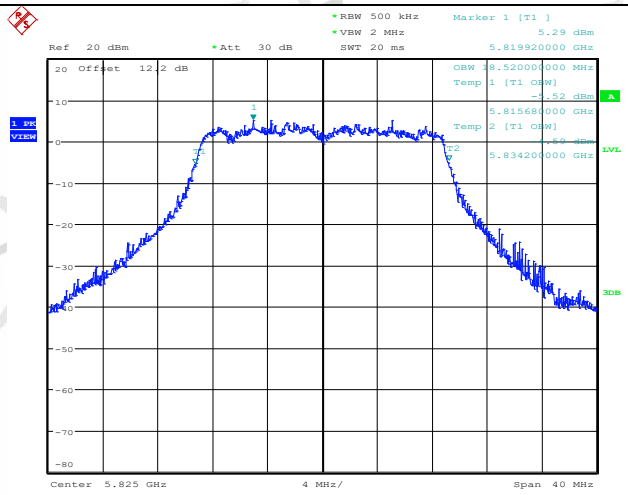
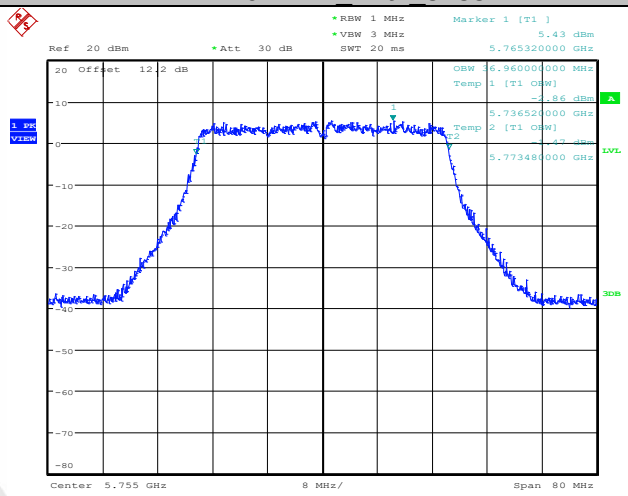
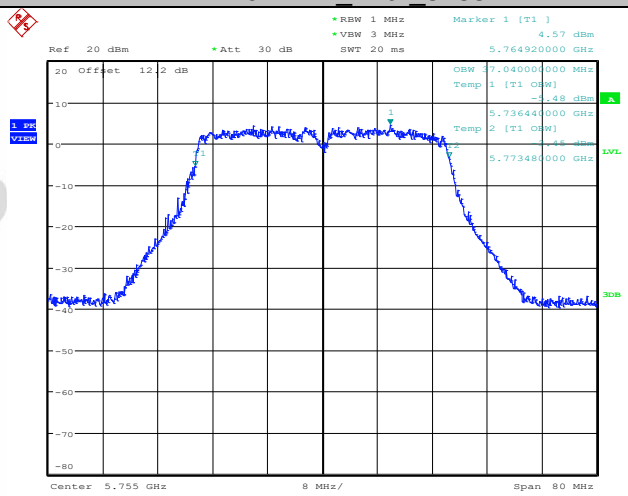


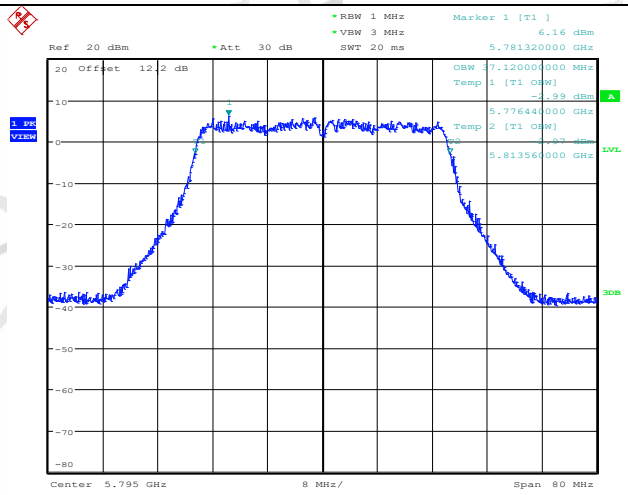
40 MHZ _Ant1_5755



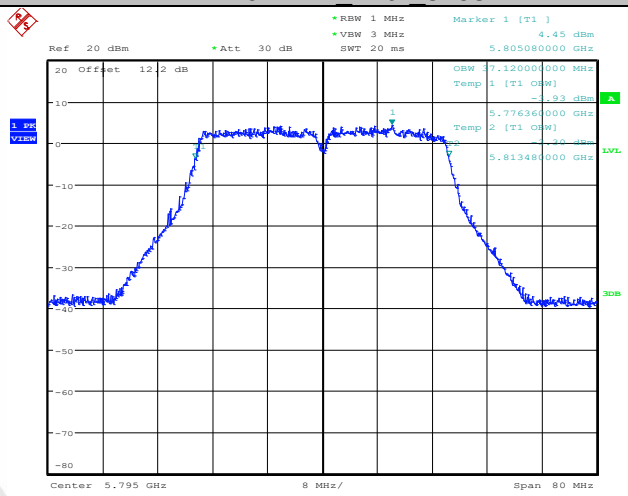
40 MHZ _Ant2_5755



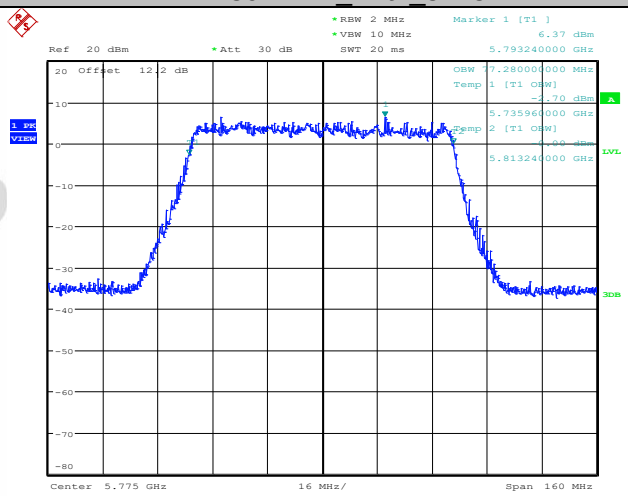
40 MHZ _Ant1_5795



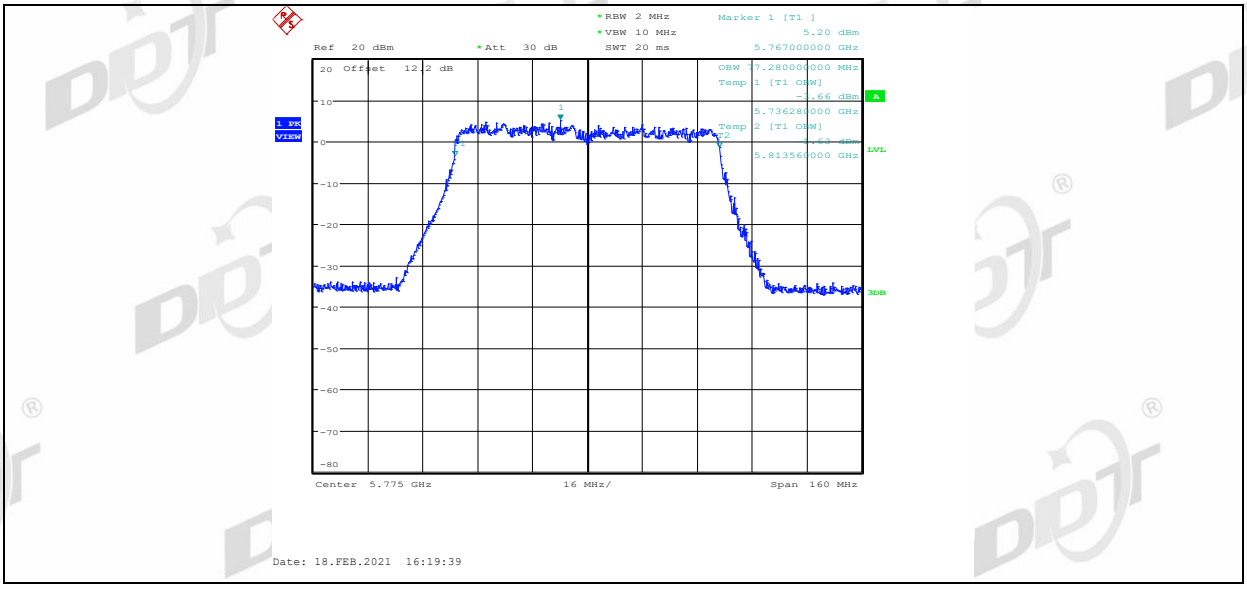
40 MHZ _Ant2_5795



80 MHZ _Ant1_5775

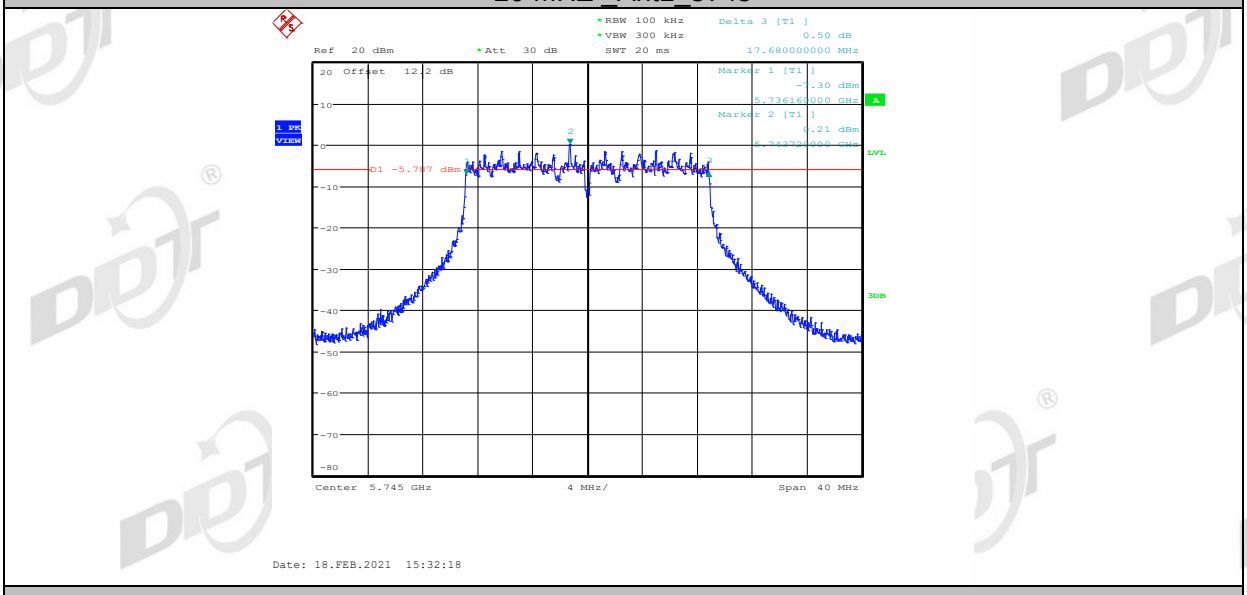


80 MHZ _Ant2_5775

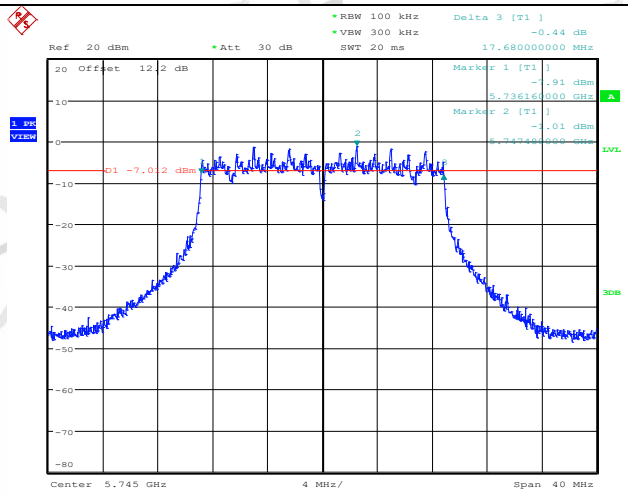


6 dB Bandwidth:

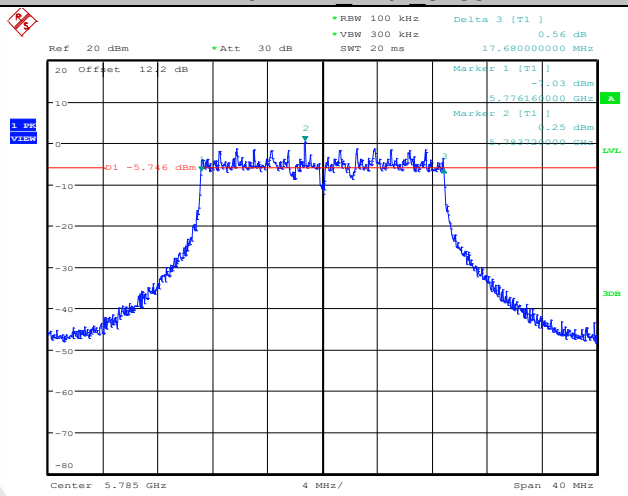
20 MHZ _Ant1_5745



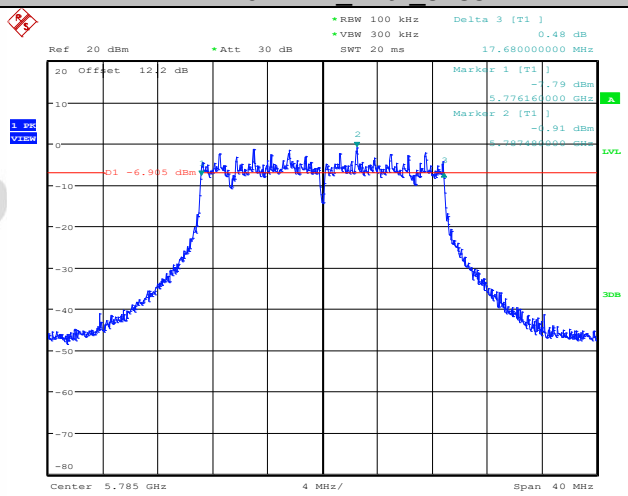
20 MHZ _Ant2_5745



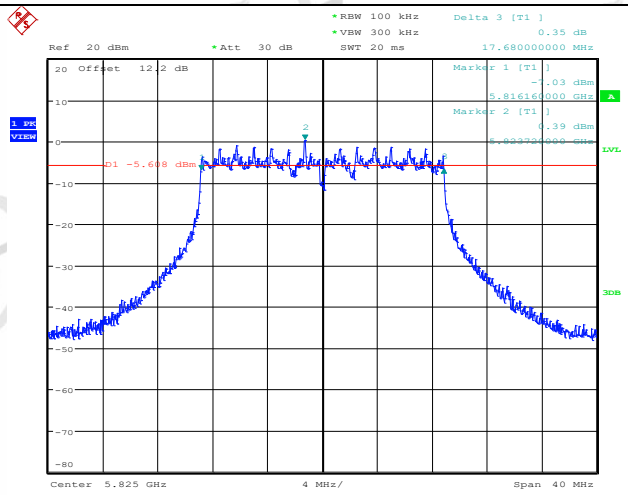
20 MHZ _Ant1_5785



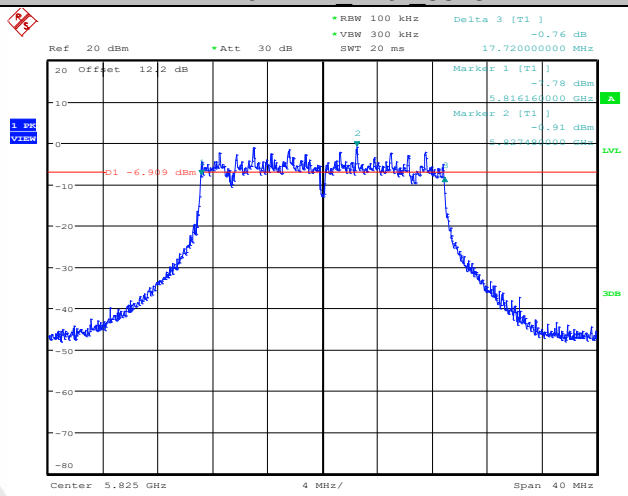
20 MHZ _Ant2_5785



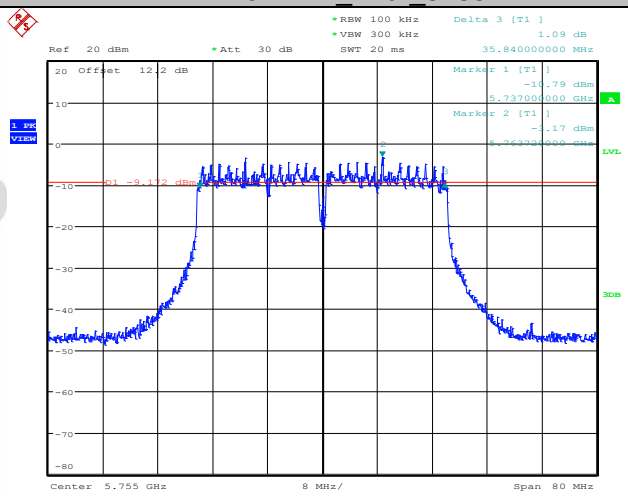
20 MHZ _Ant1_5825



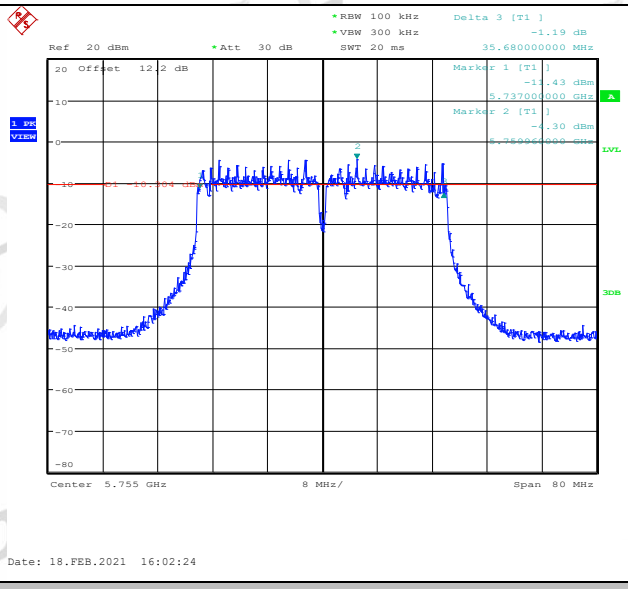
20 MHZ _Ant2_5825



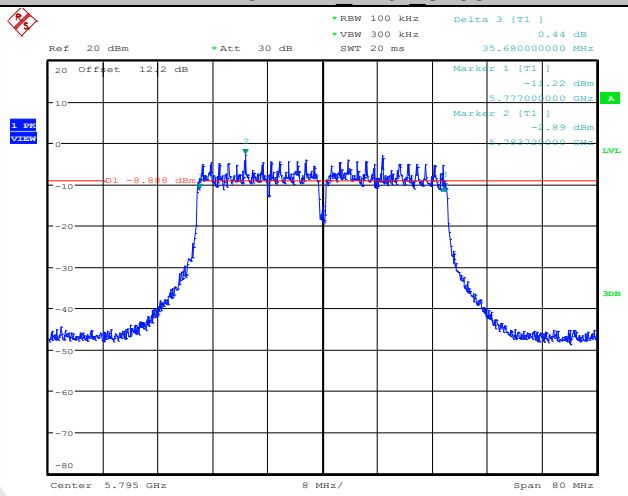
40 MHZ _Ant1_5755



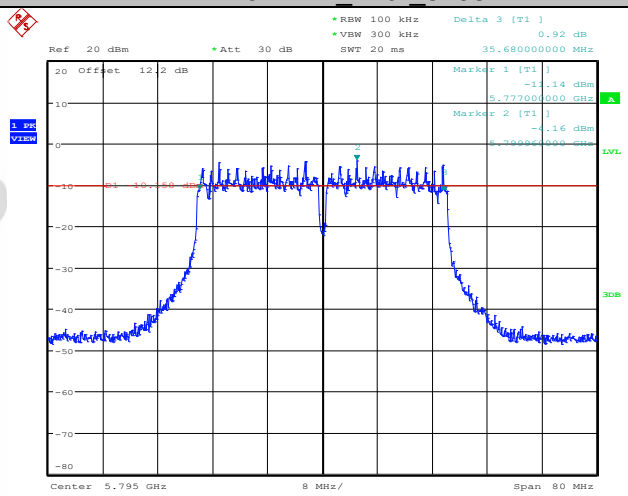
40 MHZ _Ant2_5755



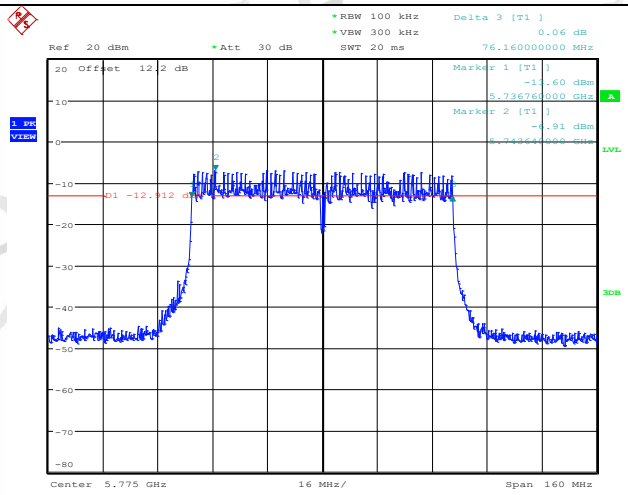
40 MHZ _Ant1_5795



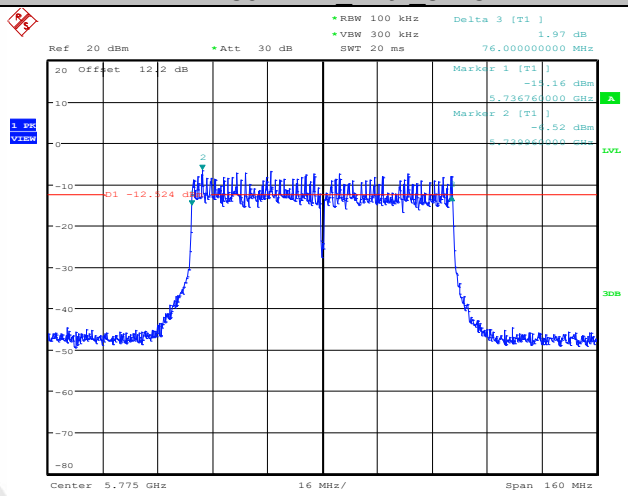
40 MHZ _Ant2_5795



80 MHZ _Ant1_5775



80 MHZ _Ant2_5775

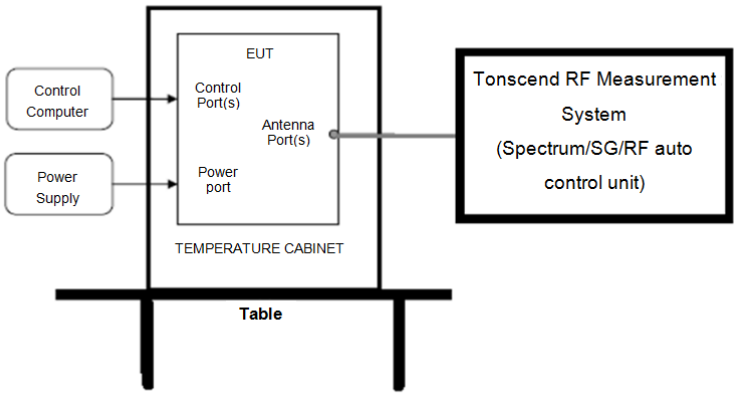


5. Duty cycle

5.1. Limit

Test Burst Ratio for Antenna Power calculation.

5.2. Block diagram of test setup



5.3. Test procedure

(1) Connect each EUT's antenna output to power sensor by RF cable and attenuator.

(2) For adaptive equipment, the measurement duration shall be long enough to ensure a minimum number of bursts (at least 10) is captured.

Note: The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset.

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the middle hopping channel.

Resolution BW: 10 MHz.

Video BW: 10 MHz.

Span: Zero span.

Detector: Peak.

Trace Mode: Max Hold.

Sweep: Video Trigger

(2) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 burst cycle.

(3) Calculate dwell time follow below formula:

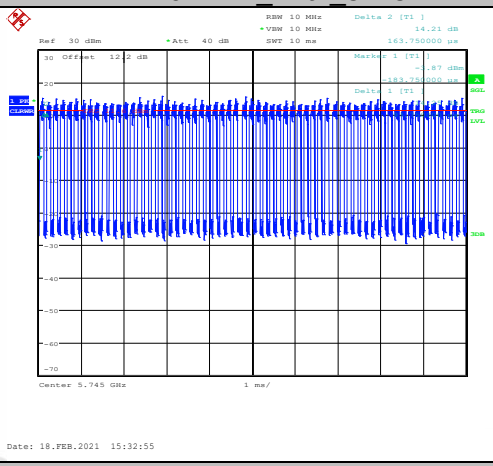
Duty cycle= Pulse's on time / Burst cycle

5.4. Test result

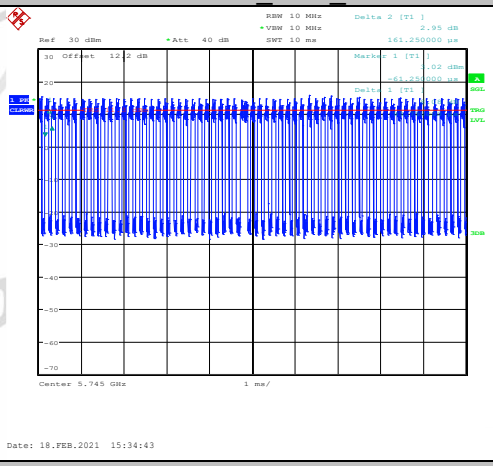
Test Mode	Antenna	Channel	Pulse's on time(ms)	Burst cycle(ms)	Duty cycle [%]	Duty cycle Factor[dB]
20 MHz	Ant1	5745	0.9	1.6	0.56	2.5
	Ant2	5745	0.9	1.6	0.56	2.5
	Ant1	5785	0.9	1.6	0.56	2.5
	Ant2	5785	0.9	1.6	0.56	2.5
	Ant1	5825	0.9	1.8	0.50	3.0
	Ant2	5825	0.9	3.2	0.28	5.5
40 MHz	Ant1	5755	0.6	1.3	0.46	3.4
	Ant2	5755	0.6	1.5	0.40	4.0
	Ant1	5795	0.6	1.3	0.46	3.4
	Ant2	5795	0.6	1.3	0.46	3.4
80 MHz	Ant1	5775	0.5	1.2	0.42	3.8
	Ant2	5775	0.5	1.2	0.42	3.8

5.5. Original test data

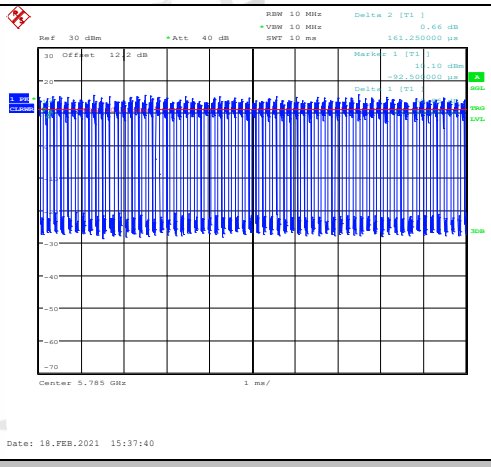
20 MHz _Ant1_5745



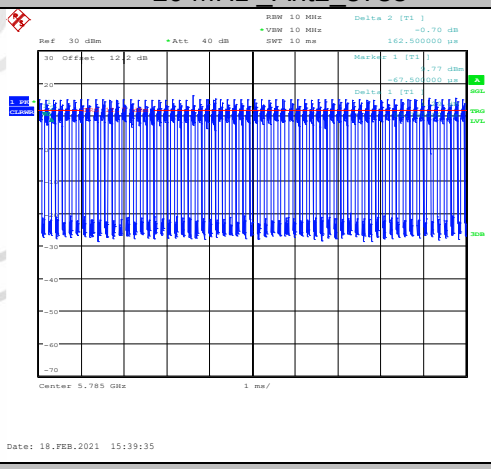
20 MHz _Ant2_5745



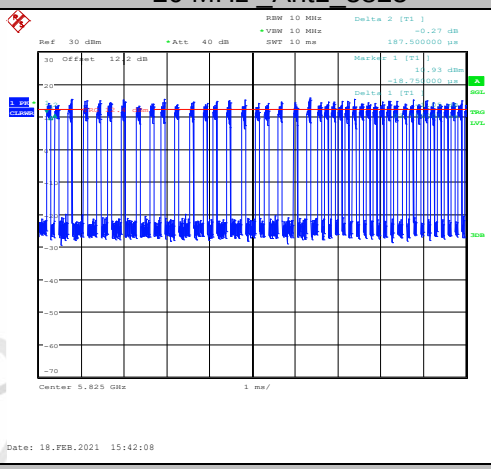
20 MHz _Ant1_5785



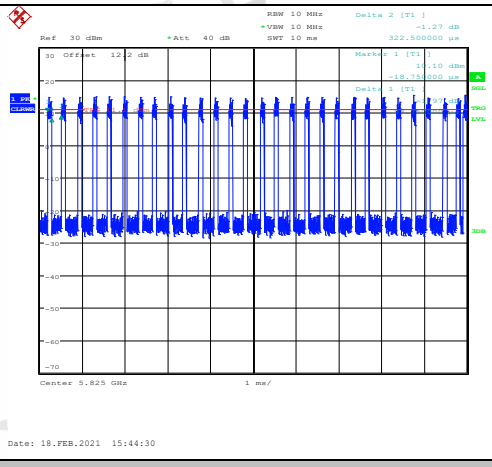
20 MHz _Ant2_5785



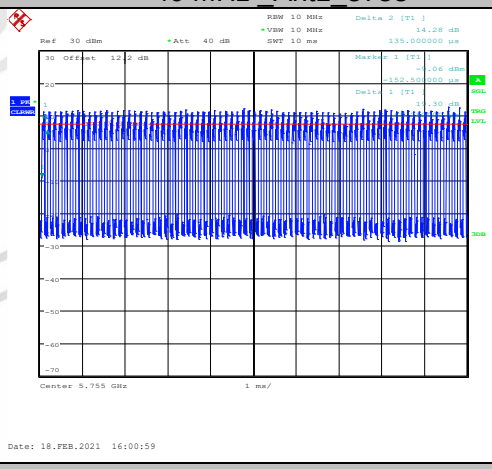
20 MHz _Ant1_5825



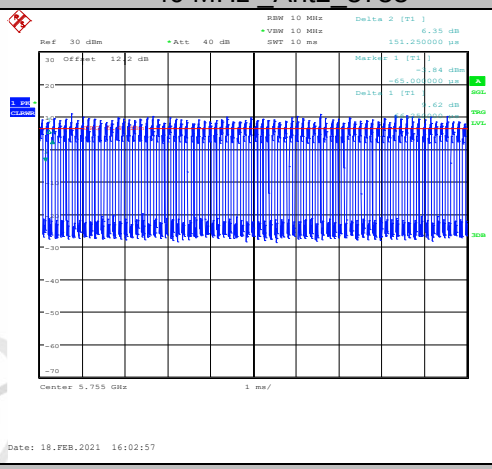
20 MHz _Ant2_5825



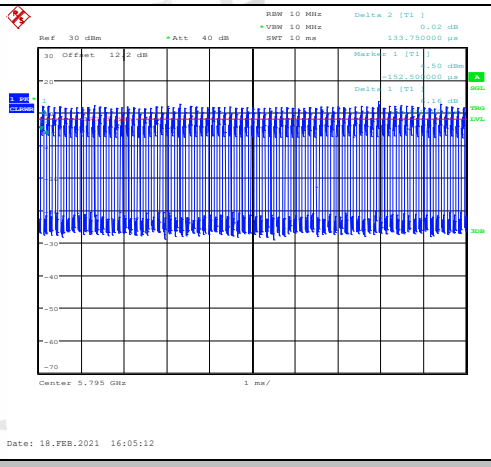
40 MHz _Ant1_5755



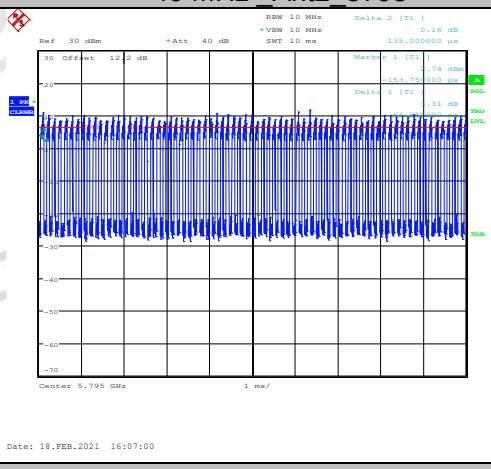
40 MHz _Ant2_5755



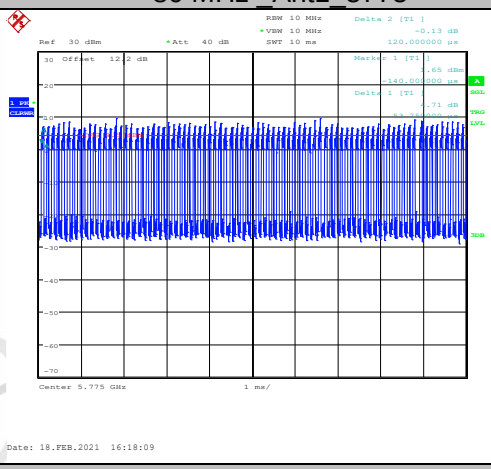
40 MHz _Ant1_5795



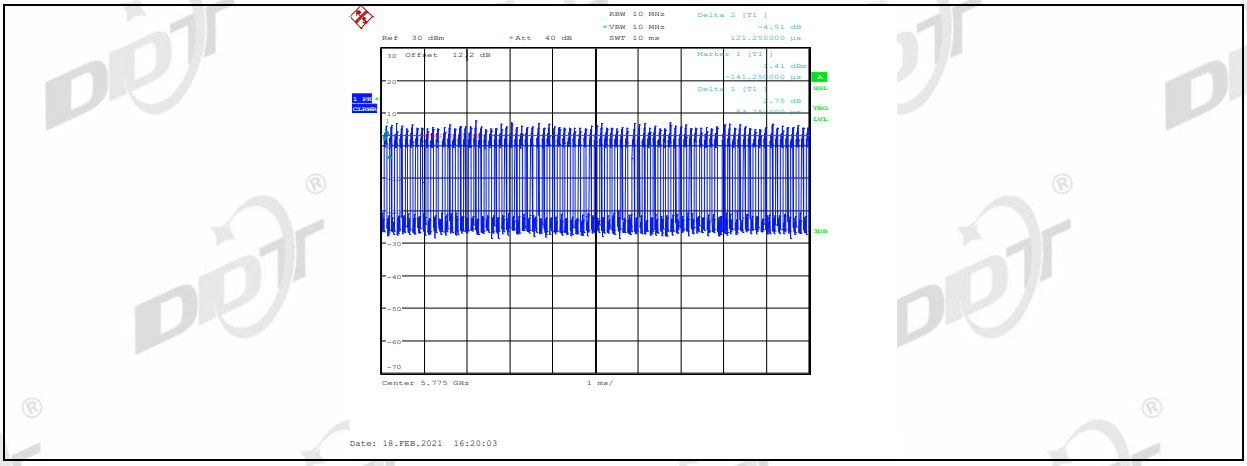
40 MHz _Ant2_5795



80 MHz _Ant1_5775



80 MHz _Ant2_5775


RBW 10 MHz
VBW 10 MHz
SWT 10 ms
Delta 2 [T1]
-4.51 dB
121.250000 µs
Ref 30 dBm
Att 40 dB
Offset 12.2 dB
Marker 1 [T1]
1.41 dBm
-141.250000 µs
Delta 1 [T1]
2.75 dB
Center 5.775 GHz
1 ms/
Date: 18.FEB.2021 16:20:03

6. Maximum Output Power

6.1. Block diagram of test setup

Same as section 4.1

6.2. Limits

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Conducted Output Power	1 Watt (30 dBm)	5725-5850
Note：the EUT incorporates a MIMO function. The Antenna directional gain is 16 dBi. The Output Power limit is the above limits-(16-6)		

6.3. Test procedure

(1) Connect each EUT's antenna output to power meter by RF cable and attenuator，The procedure for this method refer to ANSI C63.10 clause 12.3.3.1 is as follows:

a) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the following conditions are satisfied:

1) The EUT is configured to transmit continuously, or to transmit with a constant duty cycle.

2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.

3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

b) If the transmitter does not transmit continuously, measure the duty cycle *D* of the transmitter output signal as described in 12.2.

c) Measure the average power of the transmitter. This measurement is an average over both the ON and OFF periods of the transmitter.

d) Adjust the measurement in dBm by adding [10 log (1 / *D*)], where *D* is the duty cycle {e.g., [10 log (1 / 0.25)], if the duty cycle is 25%}.

(2) Add each antenna port's results to get the total output power of EUT.

6.4. Test result

Test Mode	Antenna	Channel	Duty cycle [%]	Duty cycle Factor[dB]	Result[dBm]	Limit[dBm]	Verdict
20 MHZ	Ant1	5745	56.23	2.5	10.19	<=20	PASS
	Ant2	5745	56.23	2.5	9.24	<=20	PASS
	total	5745	/	/	12.75	<=20	PASS
	Ant1	5785	56.23	2.5	10.31	<=20	PASS
	Ant2	5785	56.23	2.5	9.29	<=20	PASS
	total	5785	/	/	12.84	<=20	PASS
	Ant1	5825	47.86	3.2	11.11	<=20	PASS

	Ant2	5825	28.18	5.5	12.45	<=20	PASS
	total	5825	/	/	14.84	<=20	PASS
40 MHZ	Ant1	5755	50.12	3.0	9.82	<=20	PASS
	Ant2	5755	46.77	3.3	9.10	<=20	PASS
	total	5755	/	/	12.49	<=20	PASS
	Ant1	5795	53.70	2.7	9.72	<=20	PASS
	Ant2	5795	50.12	3.0	8.73	<=20	PASS
	total	5795	/	/	12.26	<=20	PASS
80 MHZ	Ant1	5775	41.69	3.8	10.41	<=20	PASS
	Ant2	5775	41.69	3.8	9.45	<=20	PASS
	total	5775	/	/	**12.97**	<=20	PASS

7. Power Spectral Density

7.1. Block diagram of test setup

Same with 4.1

7.2. Limits

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
	30 dBm/500 kHz	5725-5850
Note：the EUT incorporates a MIMO function. The Antenna directional gain is 16 dBi. The Output Power limit is the above limits-(16-6)		

7.3. Test procedure

The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW.
Connect the UUT to the spectrum analyser and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

7.4. Test result

Test Mode	Antenna	Channel	Duty cycle [%]	Duty cycle Factor[dB]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
20 MHz	Ant1	5745	56.23	2.5	1.24	<=20	PASS
	Ant2	5745	56.23	2.5	0.2	<=20	PASS
	total	5745	/	/	3.76	<=20	PASS
	Ant1	5785	56.23	2.5	0.93	<=20	PASS
	Ant2	5785	56.23	2.5	0.16	<=20	PASS
	total	5785	/	/	3.57	<=20	PASS
	Ant1	5825	47.86	3.2	2.15	<=20	PASS
	Ant2	5825	28.18	5.5	3.35	<=20	PASS
	total	5825	/	/	5.80	<=20	PASS
40 MHz	Ant1	5755	50.12	3.0	-1.79	<=20	PASS
	Ant2	5755	46.77	3.3	-2.29	<=20	PASS
	total	5755	/	/	0.98	<=20	PASS
	Ant1	5795	53.70	2.7	-2.09	<=20	PASS
	Ant2	5795	50.12	3.0	-2.72	<=20	PASS
	total	5795	/	/	0.62	<=20	PASS
80	Ant1	5775	41.69	3.8	-3.72	<=20	PASS

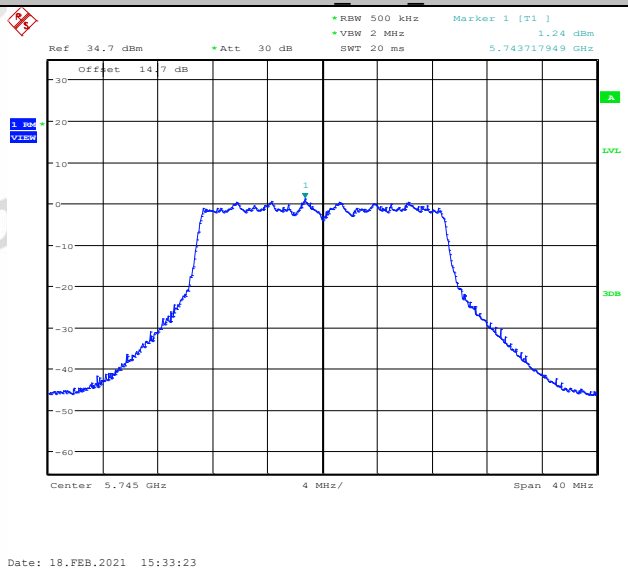
MHz	Ant2	5775	41.69	3.8	-4.28	<=20	PASS
	total	5775	/	/	-0.98	<=20	PASS

Note：1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

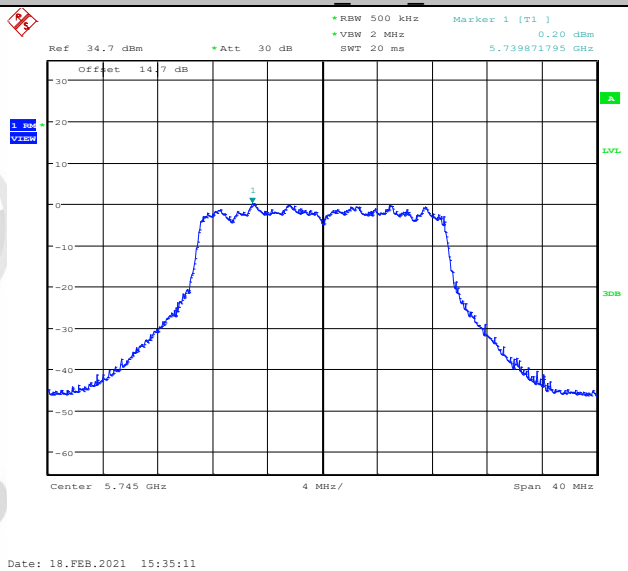
2.The Duty Cycle Factor is compensated in the graph.

7.5. Original test data

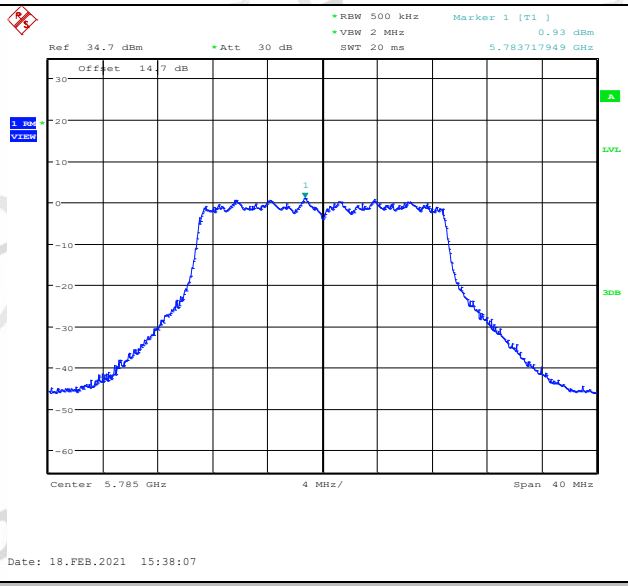
20 MHz _Ant1_5745



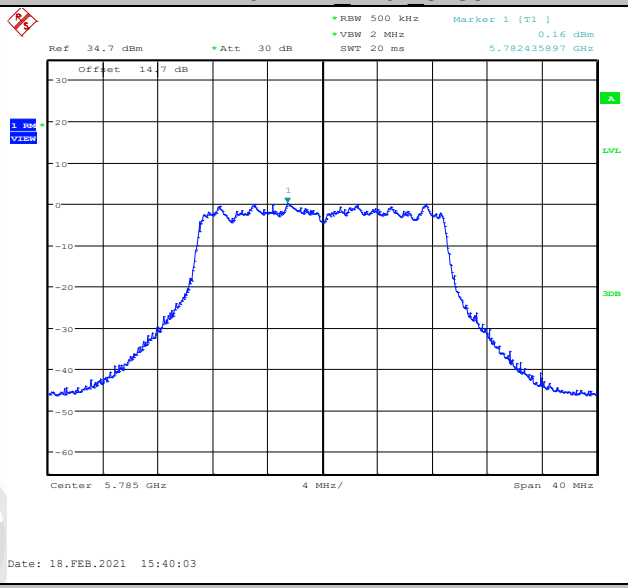
20 MHz _Ant2_5745



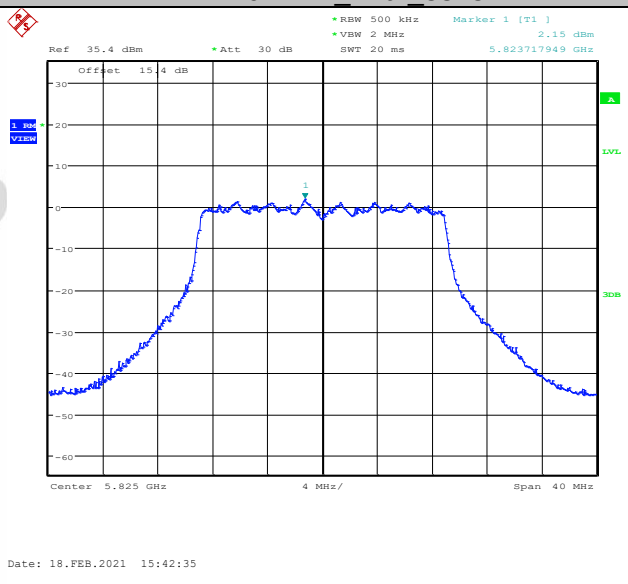
20 MHz _Ant1_5785



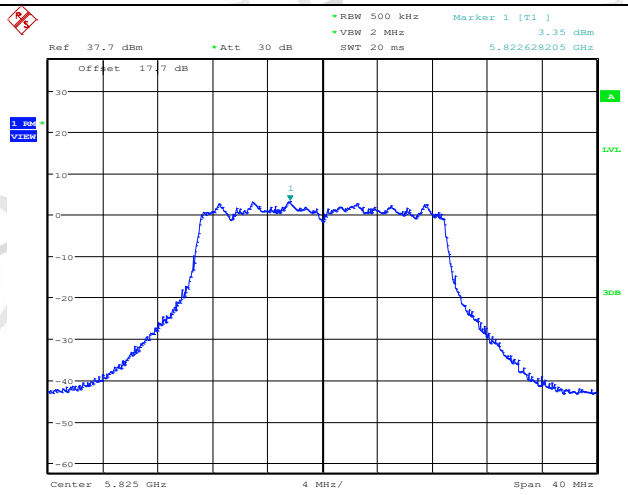
20 MHz _Ant2_5785



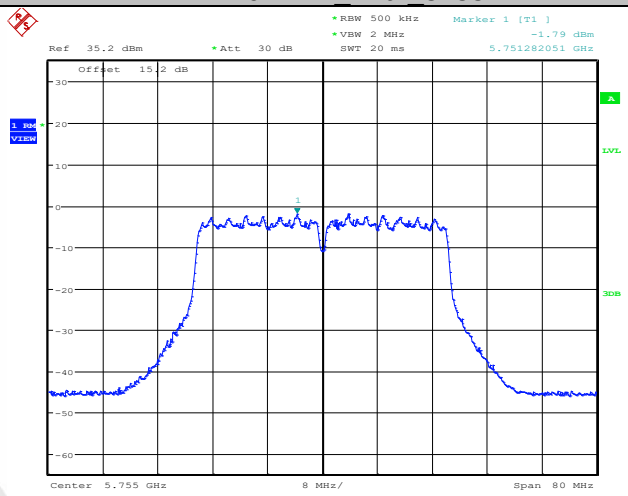
20 MHz _Ant1_5825



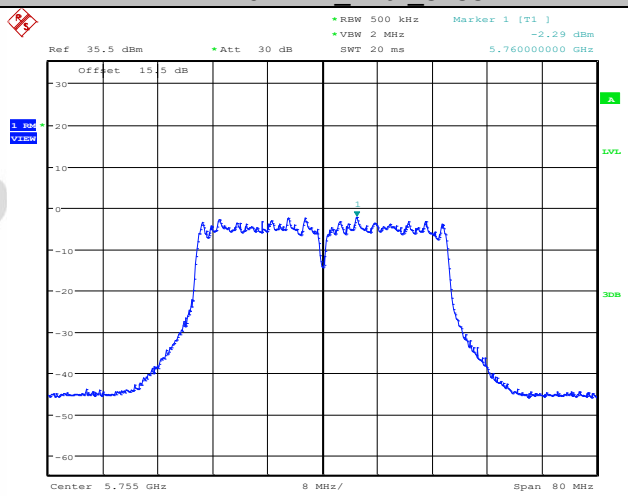
20 MHz _Ant2_5825



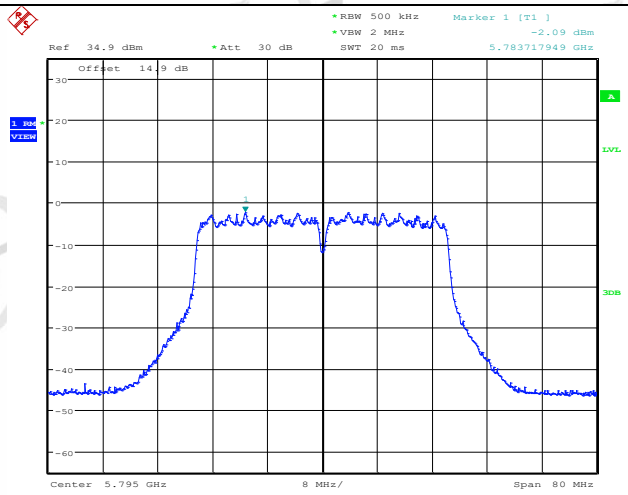
40 MHz _Ant1_5755



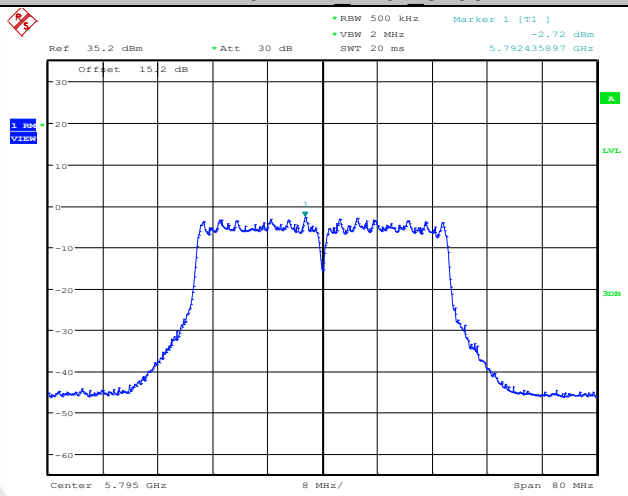
40 MHz _Ant2_5755



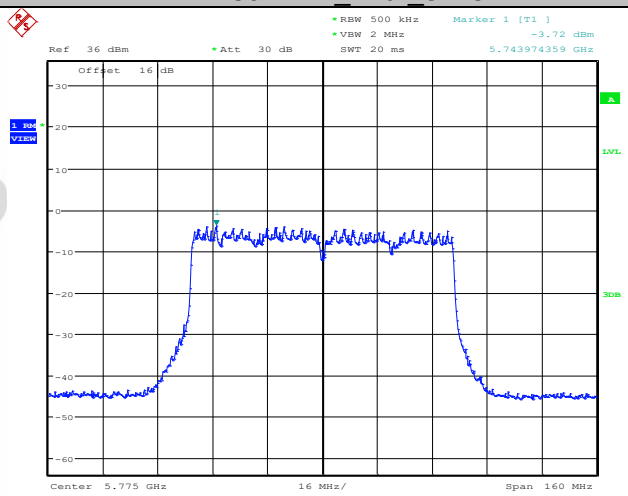
40 MHz _Ant1_5795



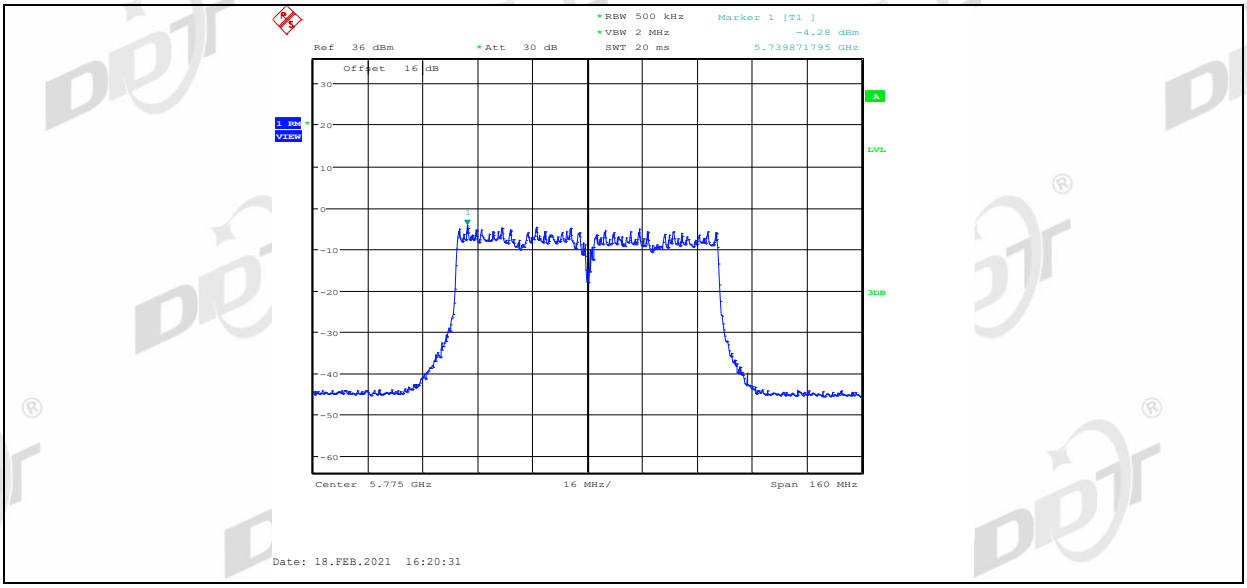
40 MHz _Ant2_5795



80 MHz _Ant1_5775



80 MHz _Ant2_5775


RBW 500 kHz
VBW 2 MHz
SWT 20 ms
Marker 1 [T1]
-4.28 dBm
5.739871795 GHz
Ref 36 dBm
Att 30 dB
Offset 16 dB
1 RMS
View
A
LVL
3DB
Center 5.775 GHz
16 MHz/
Span 160 MHz
Date: 18.FEB.2021 16:20:31

8. Frequency Stability Measurement

8.1. Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

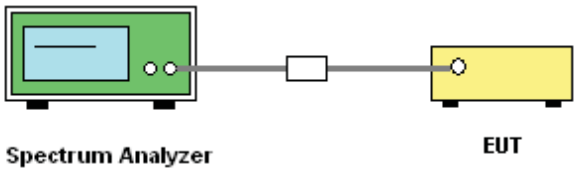
8.2. Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

8.3. Test procedures

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

8.4. Test setup



8.5. Test result

Voltage						
Antenna	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (ppm)	Limit (ppm)	Verdict
20 MHz ANT1	5745	NV	NT	-0.69626	20	Pass
		LV	NT	0.34572	20	Pass
		HV	NT	-3.43348	20	Pass
20 MHz ANT2	5745	NV	NT	-2.78503	20	Pass
		LV	NT	-1.72861	20	Pass
		HV	NT	-1.03004	20	Pass
20 MHz ANT1	5825	NV	NT	-3.43348	20	Pass
		LV	NT	-0.34813	20	Pass
		HV	NT	-2.76577	20	Pass
20 MHz ANT2	5825	NV	NT	-1.03004	20	Pass
		LV	NT	-3.13316	20	Pass
		HV	NT	-2.07433	20	Pass
40 MHz ANT1	5755	NV	NT	-11.12077	20	Pass
		LV	NT	-0.69505	20	Pass
		HV	NT	0.00000	20	Pass

40 MHz ANT2	5755	NV	NT	-0.69505	20	Pass
		LV	NT	-13.805	20	Pass
		HV	NT	-0.69505	20	Pass
40 MHz ANT1	5795	NV	NT	0.00000	20	Pass
		LV	NT	3.47524	20	Pass
		HV	NT	-2.07075	20	Pass
40 MHz ANT2	5795	NV	NT	-13.805	20	Pass
		LV	NT	-0.69505	20	Pass
		HV	NT	-0.69025	20	Pass
80 MHz ANT1	5825	NV	NT	0.00000	20	Pass
		LV	NT	1.38528	20	Pass
		HV	NT	0.00000	20	Pass
80 MHz ANT2	5825	NV	NT	1.38528	20	Pass
		LV	NT	0.00000	20	Pass
		HV	NT	-6.92641	20	Pass

Temperature						
Antenna	Channel	Voltage (Vdc)	Temperature (℃)	Deviation (ppm)	Limit (ppm)	Verdict
20 MHz ANT1	5745	NV	-30	-0.34813	20	Pass
		NV	-20	-0.34642	20	Pass
		NV	-10	-0.34813	20	Pass
		NV	0	-0.69414	20	Pass
		NV	10	-0.69678	20	Pass
		NV	20	-0.69626	20	Pass
		NV	30	-1.04439	20	Pass
		NV	40	-1.04344	20	Pass
		NV	50	-1.04407	20	Pass
20 MHz ANT2	5745	NV	-30	-3.13316	20	Pass
		NV	-20	-3.18541	20	Pass
		NV	-10	-3.10897	20	Pass
		NV	0	-2.78841	20	Pass
		NV	10	-2.78248	20	Pass
		NV	20	-2.78503	20	Pass
		NV	30	-0.34974	20	Pass
		NV	40	-0.34044	20	Pass
		NV	50	-0.34818	20	Pass
20 MHz ANT1	5825	NV	-30	1.37841	20	Pass
		NV	-20	1.37307	20	Pass
		NV	-10	1.35748	20	Pass
		NV	0	-3.41872	20	Pass
		NV	10	-3.43489	20	Pass
		NV	20	-3.43348	20	Pass
		NV	30	-1.03841	20	Pass
		NV	40	-1.03845	20	Pass
		NV	50	-1.03004	20	Pass
20 MHz ANT2	5825	NV	-30	-2.40343	20	Pass
		NV	-20	-2.40941	20	Pass
		NV	-10	-2.40772	20	Pass
		NV	0	-1.03058	20	Pass
		NV	10	-1.03611	20	Pass

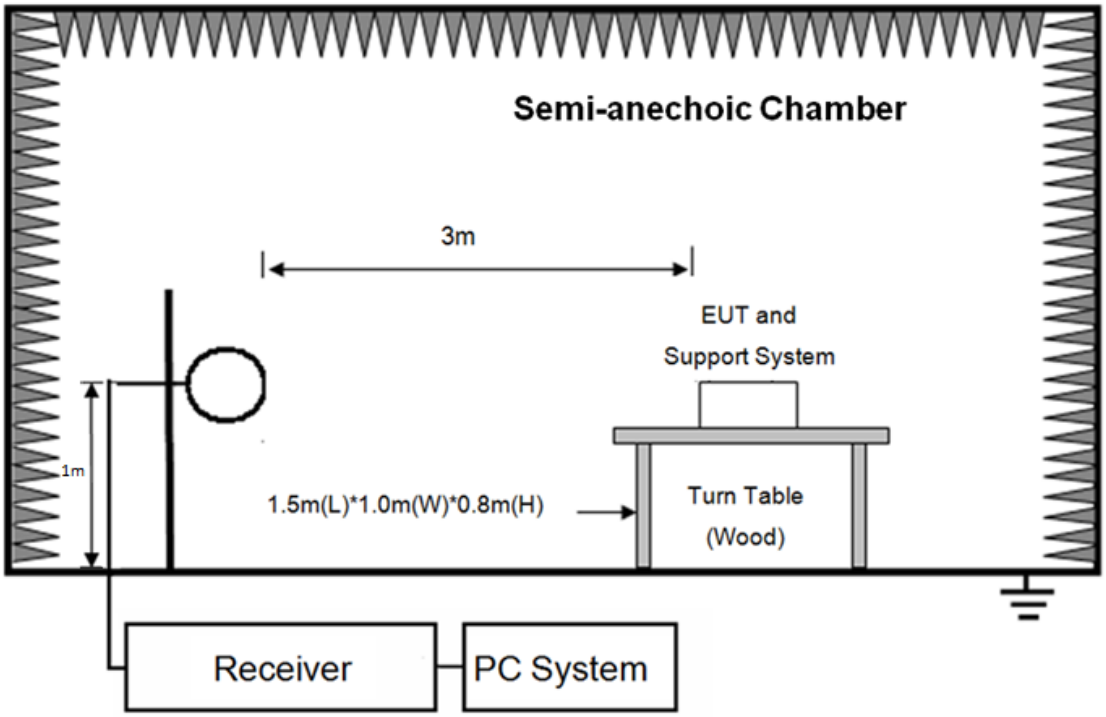
		NV	20	-1.03004	20	Pass
		NV	30	-6.52058	20	Pass
		NV	40	-6.52456	20	Pass
		NV	50	-6.52274	20	Pass
40 MHz ANT1	5755	NV	-30	3.47841	20	Pass
		NV	-20	3.47078	20	Pass
		NV	-10	3.47548	20	Pass
		NV	0	-11.12104	20	Pass
		NV	10	-11.17521	20	Pass
		NV	20	-11.12077	20	Pass
		NV	30	0.69097	20	Pass
		NV	40	0.64652	20	Pass
		NV	50	0.69107	20	Pass
40 MHz ANT2	5755	NV	-30	-0.69574	20	Pass
		NV	-20	-0.69875	20	Pass
		NV	-10	-0.69378	20	Pass
		NV	0	0.00000	20	Pass
		NV	10	0.00000	20	Pass
		NV	20	0.00000	20	Pass
		NV	30	2.75711	20	Pass
		NV	40	2.78058	20	Pass
		NV	50	2.78921	20	Pass
40 MHz ANT1	5795	NV	-30	-2.07075	20	Pass
		NV	-20	-2.07510	20	Pass
		NV	-10	-2.07974	20	Pass
		NV	0	-0.65587	20	Pass
		NV	10	-0.69384	20	Pass
		NV	20	-0.69505	20	Pass
		NV	30	3.45712	20	Pass
		NV	40	3.46001	20	Pass
		NV	50	3.45645	20	Pass
40 MHz ANT2	5795	NV	-30	-0.69574	20	Pass
		NV	-20	-0.69082	20	Pass
		NV	-10	-0.69894	20	Pass
		NV	0	-13.88542	20	Pass
		NV	10	-13.98707	20	Pass
		NV	20	-13.80500	20	Pass
		NV	30	-6.90204	20	Pass
		NV	40	-6.90442	20	Pass
		NV	50	-6.90250	20	Pass
80 MHz ANT1	5775	NV	-30	0.00004	20	Pass
		NV	-20	0.00000	20	Pass
		NV	-10	0.0009	20	Pass
		NV	0	0.0000	20	Pass
		NV	10	0.0000	20	Pass
		NV	20	0.0000	20	Pass
		NV	30	0.0000	20	Pass
		NV	40	0.00007	20	Pass
		NV	50	0.00000	20	Pass
80 MHz ANT2	5775	NV	-30	-6.92651	20	Pass
		NV	-20	-6.92620	20	Pass

		NV	-10	-6.92621	20	Pass
		NV	0	1.38652	20	Pass
		NV	10	1.37117	20	Pass
		NV	20	1.38528	20	Pass
		NV	30	1.38214	20	Pass
		NV	40	1.37599	20	Pass
		NV	50	1.38528	20	Pass

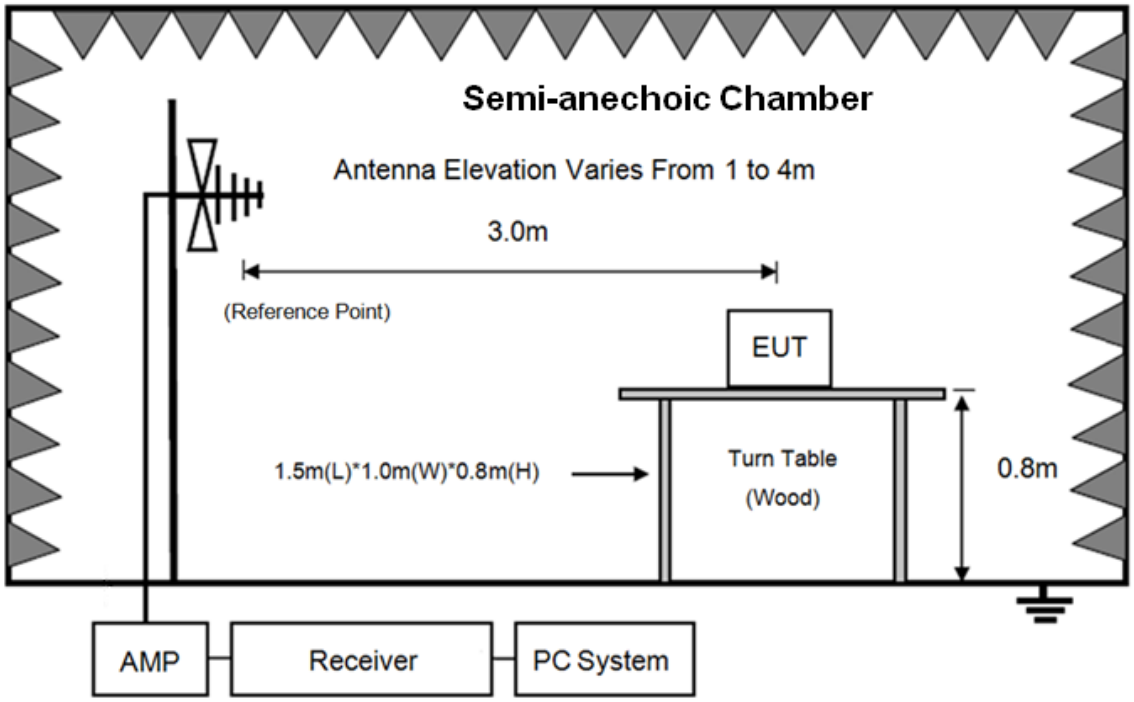
9. Emissions in restricted frequency bands

9.1. Block diagram of test setup

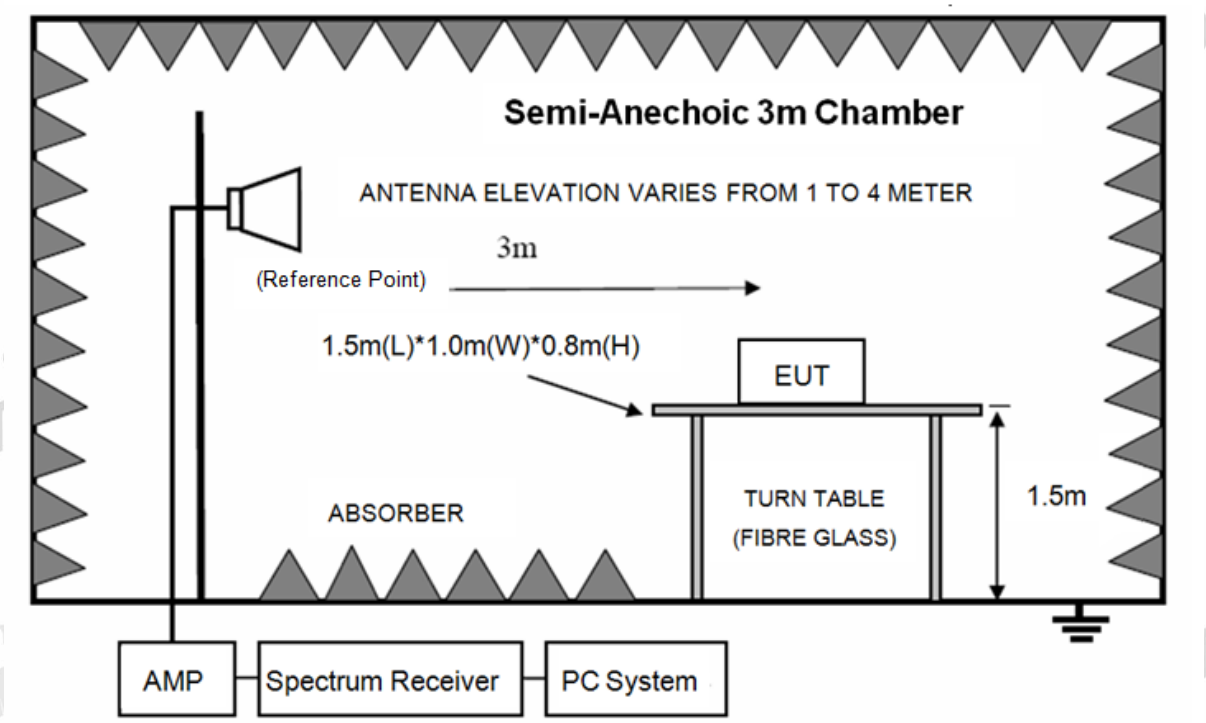
In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:



In 3 m Anechoic Chamber, test setup diagram for 30 MHz – 1 GHz:



In 3 m Anechoic Chamber, test setup diagram for frequency above 1 GHz:



Note: For harmonic emissions test an appropriate high pass filter was inserted in the input port of AMP.

9.2. Limit

8.3.1 FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2]Above 38.6

8.3.2 FCC 15.209 Limit.

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Note: (1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000MHz.Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$Limit_{3m}(dBuV/m) = Limit_{30m}(dBuV/m) + 40Log(30m/3m)$$

8.3.3 Limit for this EUT

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions or comply with 15.209 limits.

9.3. Test procedure

(1) EUT height should be 0.8 m for below 1 GHz at a semi‐anechoic chamber while EUT height should be 1.5 m for above 1GHz at full chamber or semi‐anechoic chamber ground with absorbers

(2) Setup EUT and assistant system according clause 2.3 and 8.2

(3) Test antenna was located 3m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test distance
9 kHz-30 MHz	Active Loop antenna	3 m
30 MHz-1 GHz	Trilog Broadband Antenna	3 m
1 GHz-18 GHz	Double Ridged Horn Antenna(1GHz-18GHz)	3 m
18 GHz-40 GHz	Horn Antenna(18GHz-40GHz)	1 m

According ANSI C63.10:2013 clause 6.4.4.2 and 6,5.3, for measurements below 30 MHz, the loop antenna was positioned with its plane vertical from the EUT and rotated about its vertical

axis for maximum response at each azimuth position around the EUT. And the loop antenna also be positioned with its plane horizontal at the specified distance from the EUT. The center of the loop is 1 m above the ground. for measurement above 30 MHz, the Trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(4) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 40 GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Change power supply range from 85% to 115% of the rated supply voltage

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

Spectrum frequency from 9 kHz to 40 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 9 kHz to 30 MHz and 18 GHz to 40 GHz, so below final test was performed with frequency range from 30 MHz to 18 GHz.

(5) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.

(6) The emissions from 9 kHz to 1 GHz were measured based on CISPR QP detector except for the frequency bands 9-90 kHz, 110-490 kHz, for emissions from 9 kHz-90kHz,110kHz-490kHz and above 1GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.

(7) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW

Frequency band	RBW
9 kHz-150 kHz	200 Hz
150 kHz-30 MHz	9 kHz
30 MHz-1 GHz	120 kHz

(8) For emissions above 1 GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3MHz for Peak measure, the RBW is set at 1 MHz, VBW is set at 1/T for AV value.

9.4. Test result

PASS. (See below detailed test result)

All the emissions except fundamental emission from 9kHz to 40GHz were comply with 15.209 limit.

Note1: According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz and 18 GHz to 40 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

Note2: For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in 20 MHz mode.

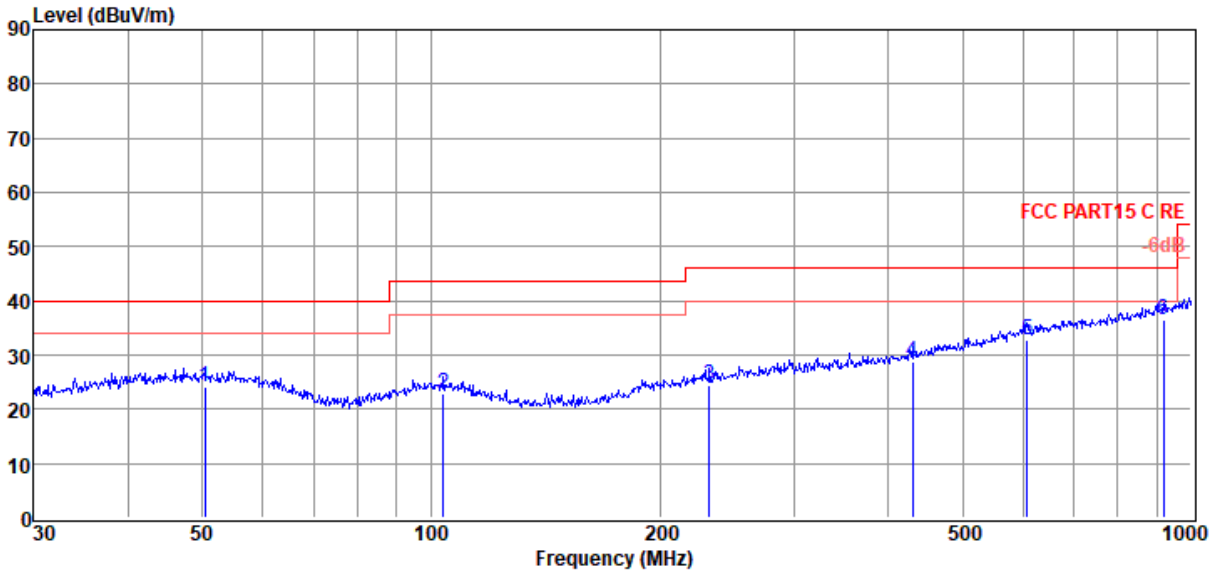
Note3: For below test data, when the limit tabular marked “/” means this frequency point is the fundamental emission and no need comply with this limit.

Radiated Emission test (below 1GHz)

TR-4-E-009 Radiated Emission Test Result

Test Site	:	DDT 3m Chamber 1#	D:\2020 RE 1# Report data\Q20112701 CETECOM\FCC BELOW1G.EM6		
Test Date	:	2021-04-02	**Tested By**	:	Zora
EUT	:	InfiMAN Evolution	**Model Number**	:	E5-BSI/05600
Power Supply	:	AC230V/50HZ	**Test Mode**	:	Tx mode
Condition	:	Temp:24.5°C,Humi:45%,Press:101.3kPa	**Antenna/Distance**	:	2019 VULB 9163 1#/3m/HORIZONTAL
Memo	:				

Data: 1



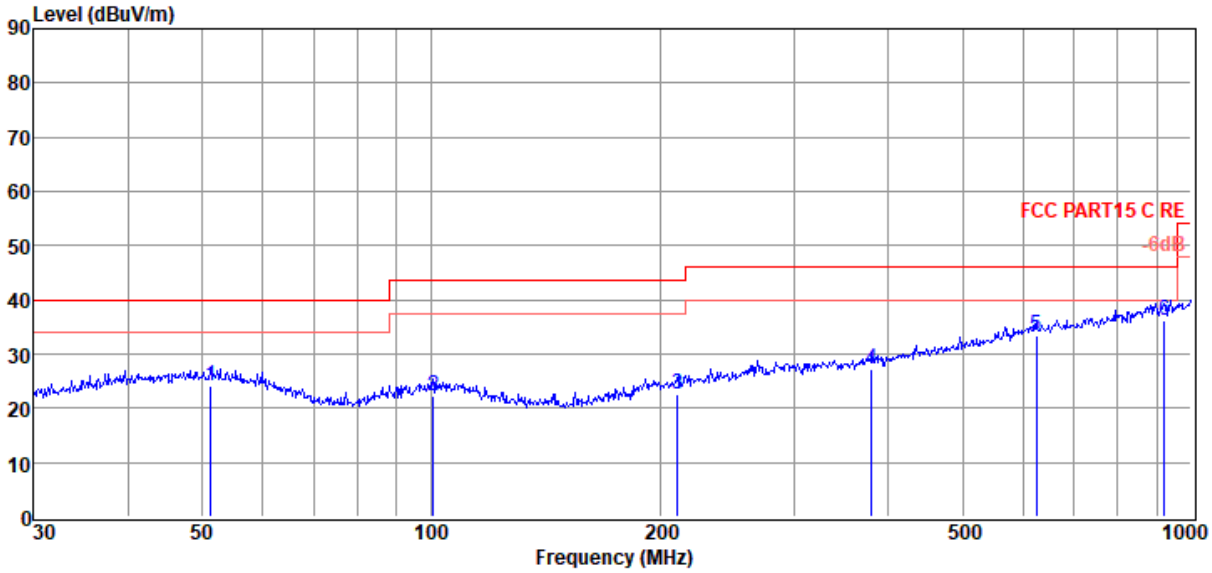
Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	50.41	5.93	14.15	3.99	24.07	40.00	-15.93	QP	HORIZONTAL
2	103.81	6.75	11.66	4.44	22.85	43.50	-20.65	QP	HORIZONTAL
3	232.53	6.88	12.40	5.20	24.48	46.00	-21.52	QP	HORIZONTAL
4	429.52	6.65	15.91	6.08	28.64	46.00	-17.36	QP	HORIZONTAL
5	607.79	6.74	19.26	6.77	32.77	46.00	-13.23	QP	HORIZONTAL
6	919.29	6.88	22.00	7.74	36.62	46.00	-9.38	QP	HORIZONTAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Site	: DDT 3m Chamber 1#	D:\2020 RE 1# Report data\Q20112701 CETECOM\FCC BELOW1G.EM6	
Test Date	: 2021-04-02	**Tested By**	: Zora
EUT	: InfiMAN Evolution	**Model Number**	: E5-BSI/05600
Power Supply	: AC230V/50HZ	**Test Mode**	: Tx mode
Condition	: Temp:24.5°C,Humi:45%,Press:101.3kPa	**Antenna/Distance**	: 2019 VULB 9163 1#/3m/VERTICAL
Memo	:		

Data: 2



Item (Mark)	Freq. (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	Cable Loss dB	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	51.30	6.15	14.03	4.00	24.18	40.00	-15.82	QP	VERTICAL
2	100.58	5.96	11.86	4.41	22.23	43.50	-21.27	QP	VERTICAL
3	210.79	5.75	11.75	5.09	22.59	43.50	-20.91	QP	VERTICAL
4	379.91	6.38	15.09	5.88	27.35	46.00	-18.65	QP	VERTICAL
5	625.08	7.09	19.39	6.83	33.31	46.00	-12.69	QP	VERTICAL
6	922.52	6.49	22.03	7.75	36.27	46.00	-9.73	QP	VERTICAL

Note: 1. Result Level = Read Level + Antenna Factor + Cable loss.
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

Radiated Emission test (above 1GHz)

Freq (MHz)	Read level (dBμV)	Antenna Factor (dB/m)	PRM Factor(dB)	Cable Loss (dB)	Result Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector type	Polarization
11ac CH149									
6049.00	46.45	33.41	43.09	7.00	43.77	74.00	-30.23	Peak	HORIZONTAL
8021.00	45.26	37.99	42.80	8.69	49.14	74.00	-24.86	Peak	HORIZONTAL
9925.00	45.15	39.44	42.41	9.32	51.50	74.00	-22.50	Peak	HORIZONTAL
11761.00	44.86	39.39	42.31	10.25	52.19	74.00	-21.81	Peak	HORIZONTAL
13699.00	42.38	40.54	40.58	10.86	53.20	74.00	-20.80	Peak	HORIZONTAL
15671.00	42.80	38.79	40.13	11.56	53.02	74.00	-20.98	Peak	HORIZONTAL
6440.00	45.43	35.05	43.03	7.23	44.68	74.00	-29.32	Peak	VERTICAL
9126.00	44.50	38.80	42.56	8.70	49.44	74.00	-24.56	Peak	VERTICAL
11251.00	45.86	40.05	42.34	9.61	53.18	74.00	-20.82	Peak	VERTICAL
13325.00	43.73	40.06	40.94	10.77	53.62	74.00	-20.38	Peak	VERTICAL
14634.00	41.79	40.59	40.23	11.39	53.54	74.00	-20.46	Peak	VERTICAL
16249.00	41.96	39.50	40.09	11.77	53.14	74.00	-20.86	Peak	VERTICAL
11ac CH157									
6304.00	45.29	34.48	43.05	7.15	43.87	74.00	-30.13	Peak	HORIZONTAL
8021.00	45.26	37.99	42.80	8.69	49.14	74.00	-24.86	Peak	HORIZONTAL
10435.00	45.29	40.11	42.38	9.35	52.37	74.00	-21.63	Peak	HORIZONTAL
12696.00	44.42	38.99	41.57	10.65	52.49	74.00	-21.51	Peak	HORIZONTAL
14311.00	40.97	40.84	40.27	11.15	52.69	74.00	-21.31	Peak	HORIZONTAL
15926.00	42.63	38.49	40.11	11.53	52.54	74.00	-21.46	Peak	HORIZONTAL
5454.00	47.68	32.68	43.26	6.59	43.69	74.00	-30.31	Peak	VERTICAL
7273.00	46.22	37.16	42.90	7.87	48.35	74.00	-25.65	Peak	VERTICAL
10129.00	46.28	39.68	42.39	9.37	52.94	74.00	-21.06	Peak	VERTICAL
12271.00	44.95	38.83	42.01	10.59	52.36	74.00	-21.64	Peak	VERTICAL
13835.00	41.85	40.70	40.45	10.89	52.99	74.00	-21.01	Peak	VERTICAL
15841.00	42.44	38.59	40.11	11.54	52.46	74.00	-21.54	Peak	VERTICAL
11ac CH165									
6100.00	46.43	33.62	43.08	7.03	44.00	74.00	-30.00	Peak	HORIZONTAL
8565.00	44.50	37.83	42.68	8.64	48.29	74.00	-25.71	Peak	HORIZONTAL
11370.00	45.89	39.88	42.33	9.76	53.20	74.00	-20.80	Peak	HORIZONTAL
12866.00	44.70	39.33	41.40	10.67	53.30	74.00	-20.70	Peak	HORIZONTAL
14770.00	41.75	40.37	40.22	11.48	53.38	74.00	-20.62	Peak	HORIZONTAL
15841.00	42.63	38.59	40.11	11.54	52.65	74.00	-21.35	Peak	HORIZONTAL
5454.00	47.68	32.68	43.26	6.59	43.69	74.00	-30.31	Peak	VERTICAL
8106.00	45.78	37.94	42.78	8.68	49.62	74.00	-24.38	Peak	VERTICAL
10435.00	45.91	40.11	42.38	9.35	52.99	74.00	-21.01	Peak	VERTICAL
12645.00	44.76	38.89	41.62	10.64	52.67	74.00	-21.33	Peak	VERTICAL
13971.00	42.40	40.87	40.33	10.92	53.86	74.00	-20.14	Peak	VERTICAL
15416.00	42.43	39.17	40.16	11.60	53.04	74.00	-20.96	Peak	VERTICAL
Conclusion: Pass									

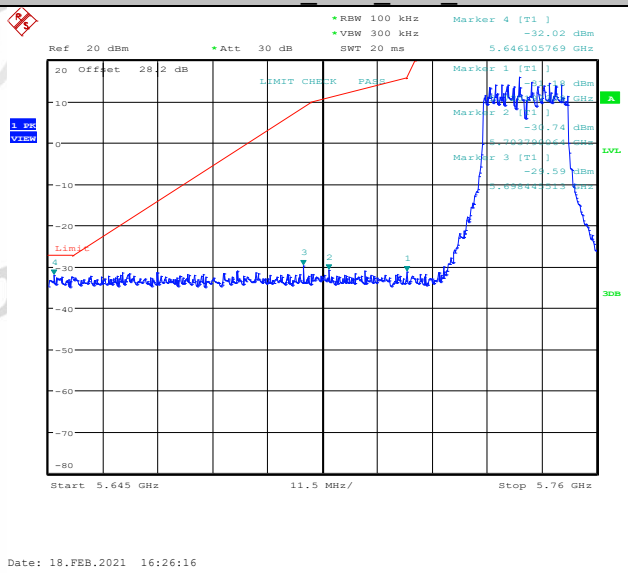
Note: 1. 30MHz~40GHz: (20 MHz, 40 MHz ,80 MHz mode all have been tested, only 20 MHz MIMO mode is the worst case and reported.)

2. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.

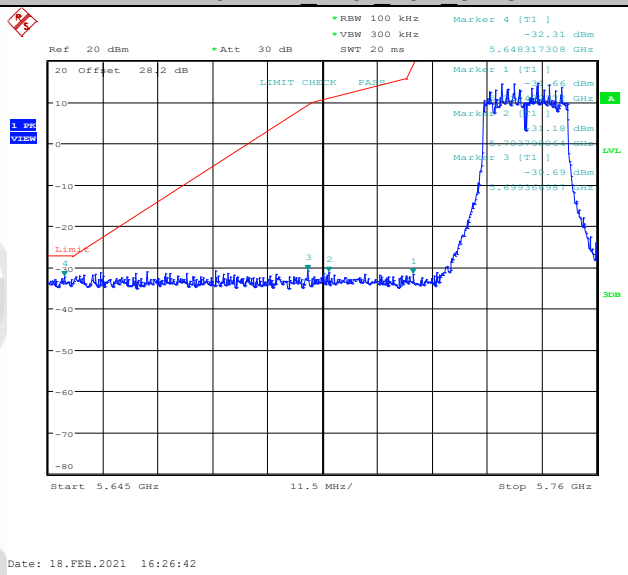
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

For transmitters operating in the 5.725-5.85 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

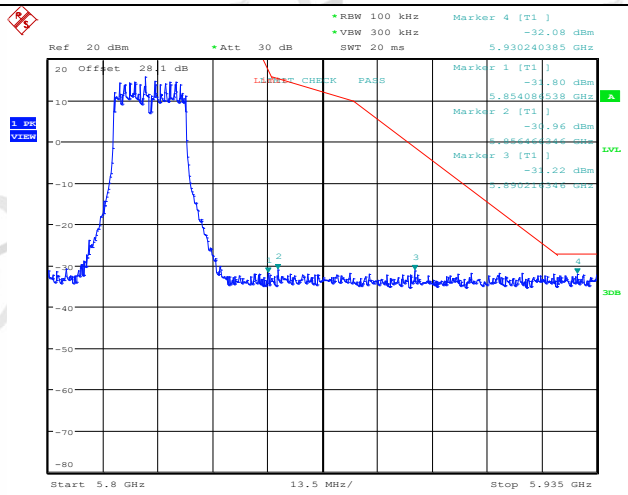
20 MHz _Ant1_Low_5745



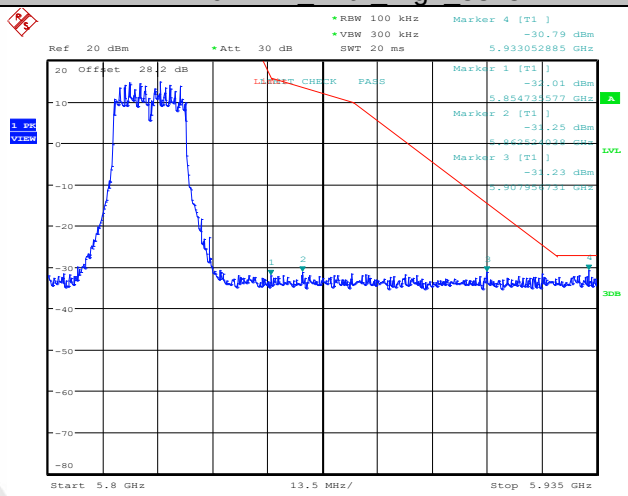
20 MHz _Ant2_Low_5745



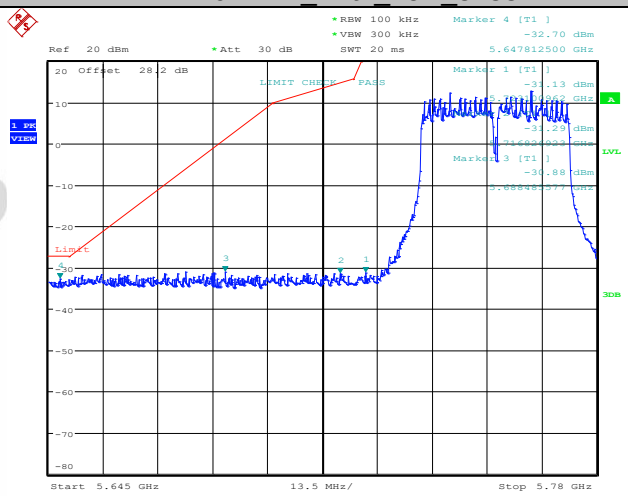
20 MHz _Ant1_High_5825



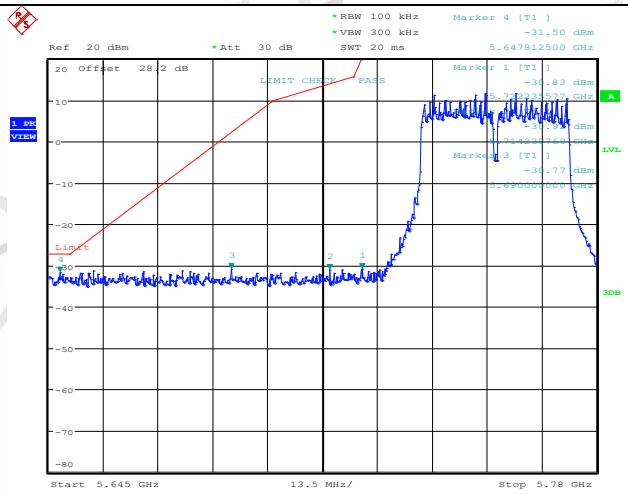
20 MHz _Ant2_High_5825



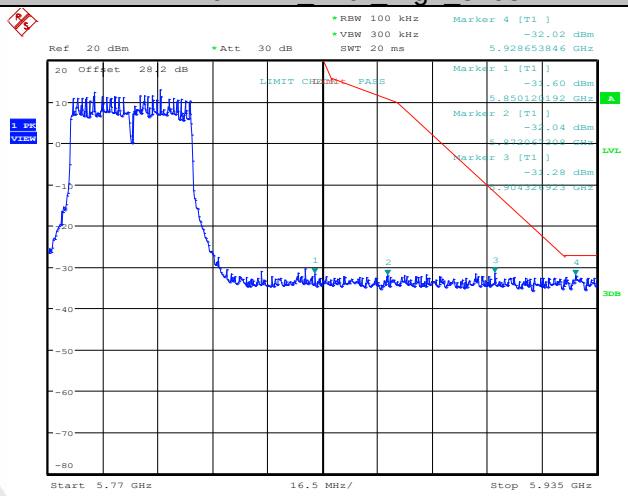
40 MHz _Ant1_Low_5755



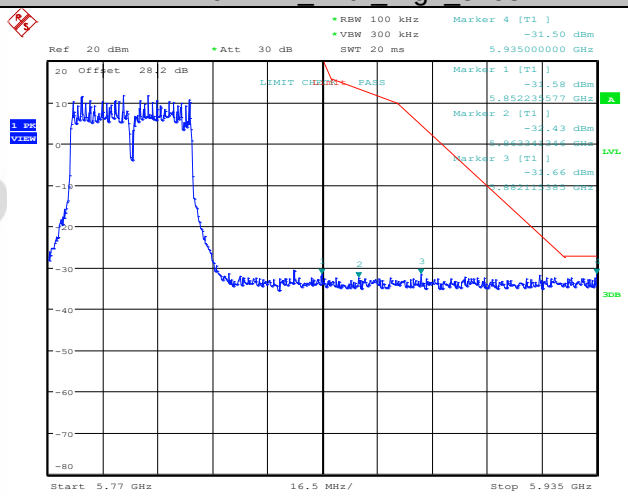
40 MHz _Ant2_Low_5755



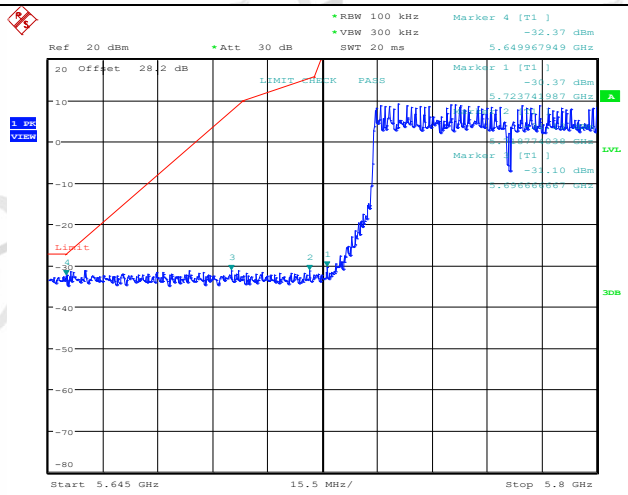
40 MHz _Ant1_High_5795



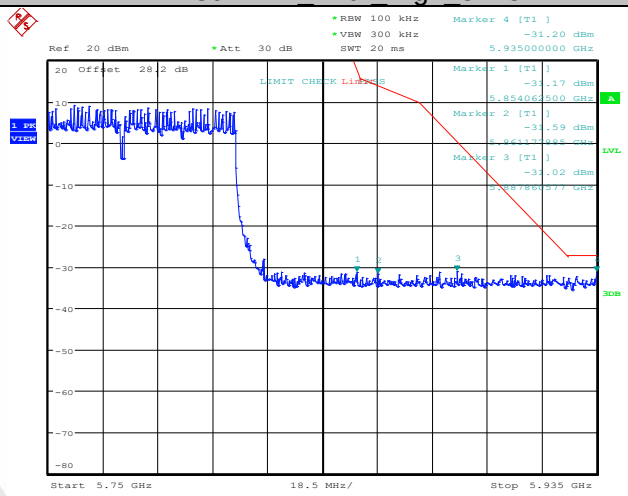
40 MHz _Ant2_High_5795



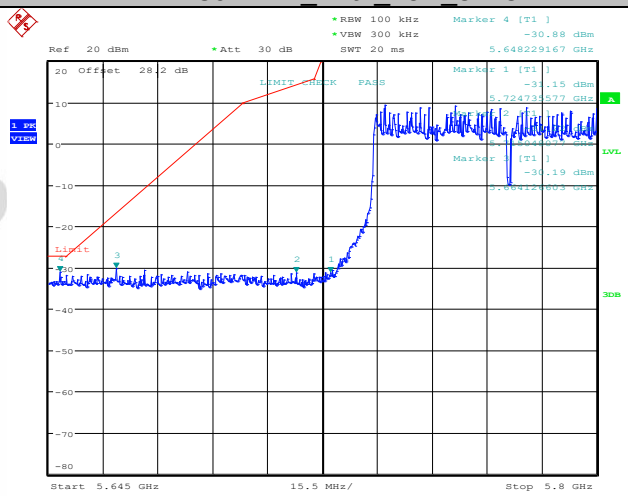
80 MHz _Ant1_Low_5775



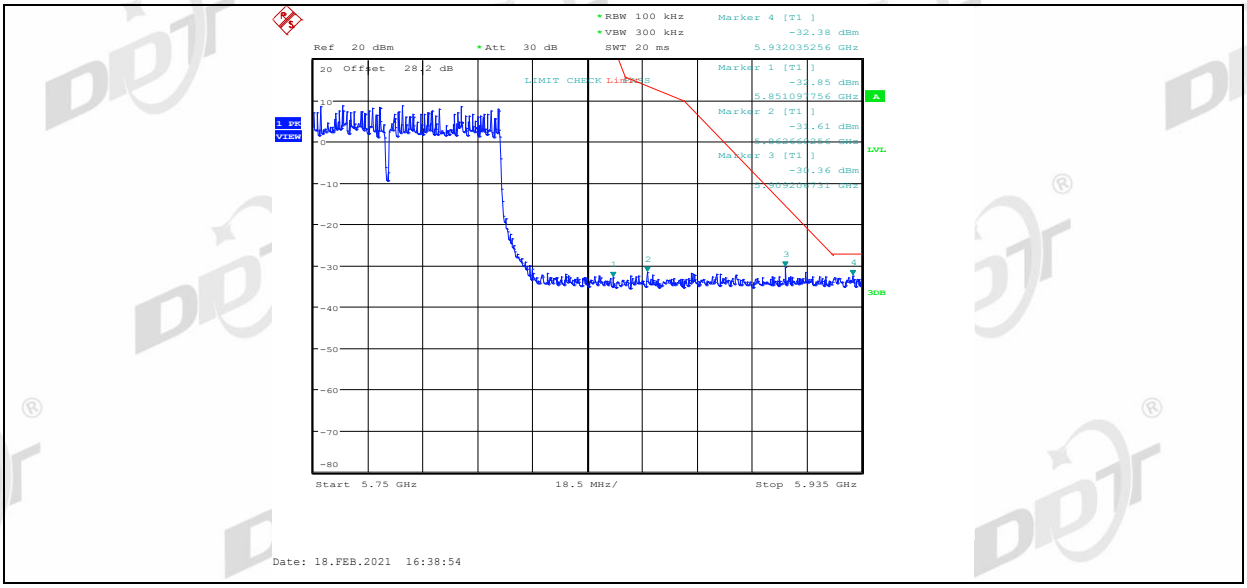
80 MHz _Ant1_High_5775



80 MHz _Ant2_Low_5775

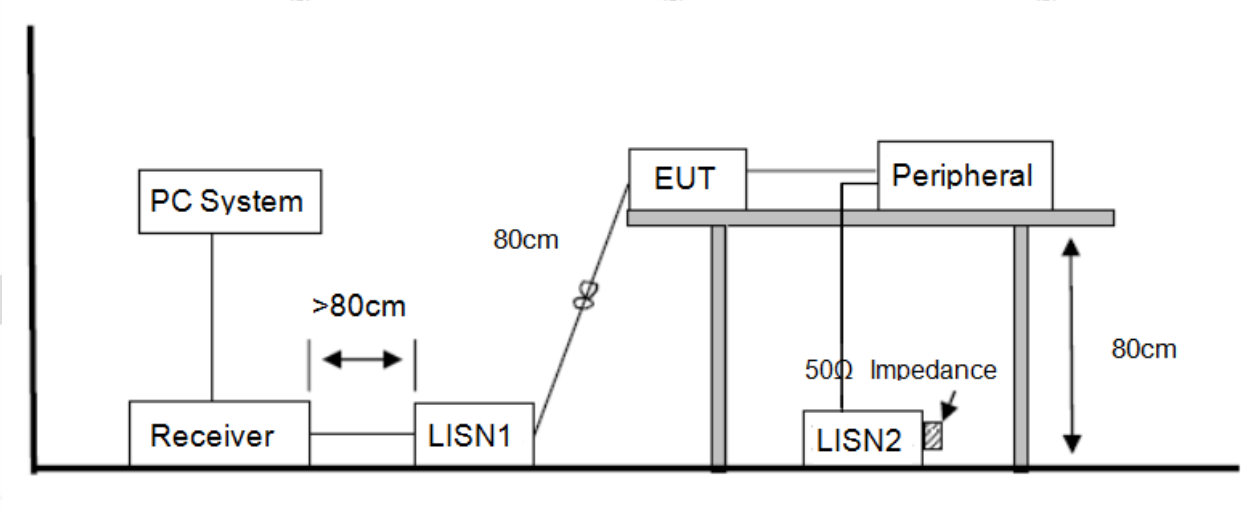


80 MHz _Ant2_High_5775


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
Ref 20 dBm
Att 30 dB
Offset 28.2 dB
LIMIT CHECK Limit
Marker 4 [T1]
-32.38 dBm
5.932035256 GHz
Marker 1 [T1]
-32.85 dBm
5.851097756 GHz
Marker 2 [T1]
-32.61 dBm
Marker 3 [T1]
-30.36 dBm
1 PK VIEW
LVL
3DB
Start 5.75 GHz
18.5 MHz/
Stop 5.935 GHz
Date: 18.FEB.2021 16:38:54

10. Power Line Conducted Emission

10.1. Block diagram of test setup



10.2. Power Line Conducted Emission Limits (Class B)

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150 kHz ~ 500 kHz	66 ~ 56*	56 ~ 46*
500 kHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

10.3. Test Procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.3 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.3 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.
EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

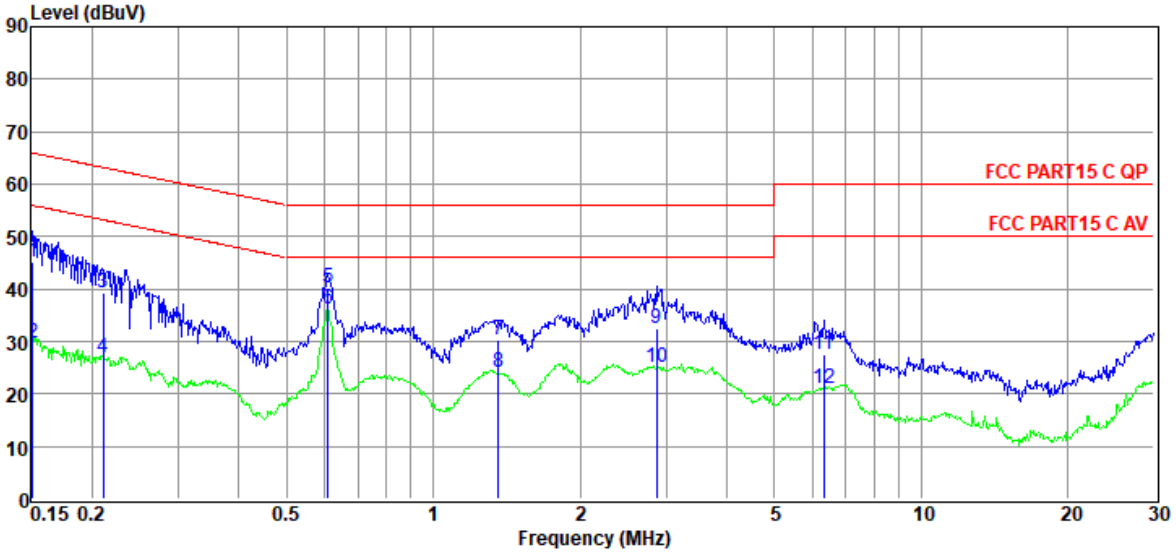
10.4. Test Result

PASS. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.
Note2: "-----" means peak detection; "-----" means average detection
Note3: Pre-test AC conducted emission at both voltage AC 110V/60Hz and AC 240V/50Hz, recorded worse case.

TR-4-E-010 Conducted Emission Test Result

Test Site	:	DDT 5# Shield Room	D:\2020 report data\Q20112701-1E\CE.EM6		
Test Date	:	2021-02-04	**Tested By**	:	Junchang Du
EUT	:	InfiMAN Evolution	**Model Number**	:	E5-BSI/05600
Power Supply	:	AC 230V/50Hz	**Test Mode**	:	Tx mode
Condition	:	Temp:24.5°,Humi:55.5%,Press:101.4kPa	**LISN**	:	2020 ENV 216 2#/LINE
Memo	:				



Item (Mark)	Freq. (MHz)	Read Level (dBµV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Phase
1	0.15	25.71	9.41	0.02	10.01	45.15	65.96	-20.81	QP	LINE
2	0.15	10.19	9.41	0.02	10.01	29.63	55.96	-26.33	Average	LINE
3	0.21	19.68	9.42	0.02	10.01	39.13	63.18	-24.05	QP	LINE
4	0.21	7.49	9.42	0.02	10.01	26.94	53.18	-26.24	Average	LINE
5	0.61	20.65	9.45	0.03	10.01	40.14	56.00	-15.86	QP	LINE
6	0.61	16.60	9.45	0.03	10.01	36.09	46.00	-9.91	Average	LINE
7	1.36	10.78	9.43	0.04	10.01	30.26	56.00	-25.74	QP	LINE
8	1.36	4.56	9.43	0.04	10.01	24.04	46.00	-21.96	Average	LINE
9	2.87	12.85	9.45	0.06	10.01	32.37	56.00	-23.63	QP	LINE
10	2.87	5.45	9.45	0.06	10.01	24.97	46.00	-21.03	Average	LINE
11	6.32	8.05	9.53	0.09	10.01	27.68	60.00	-32.32	QP	LINE
12	6.32	1.53	9.53	0.09	10.01	21.16	50.00	-28.84	Average	LINE

Note: 1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.

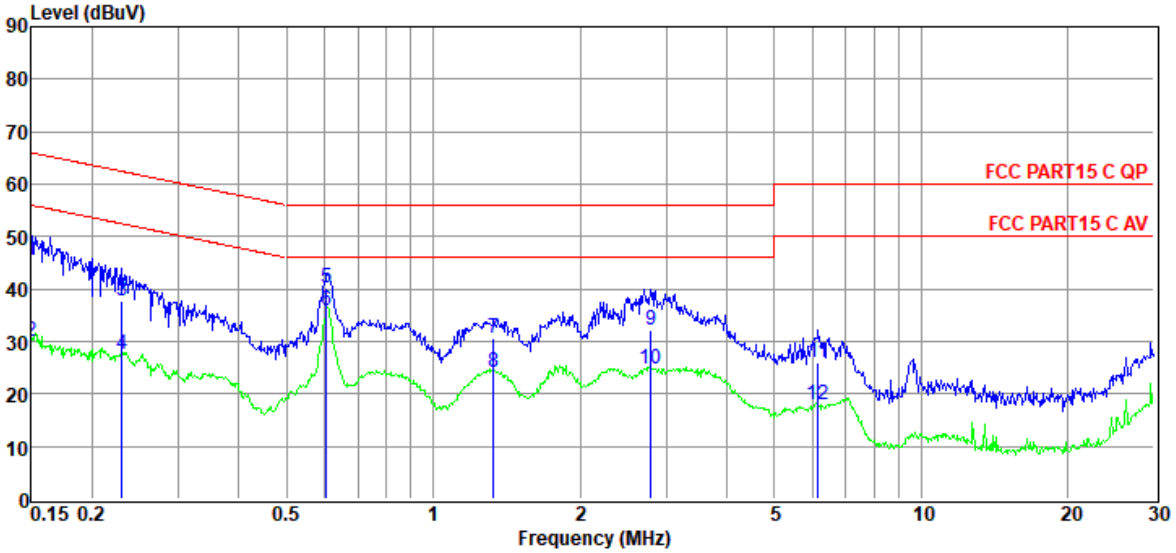
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).

4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

TR-4-E-010 Conducted Emission Test Result

Test Site	: DDT 5# Shield Room	D:\2020 report data\Q20112701-1E\CE.EM6	
Test Date	: 2021-02-04	**Tested By**	: Junchang Du
EUT	: InfiMAN Evolution	**Model Number**	: E5-BSI/05600
Power Supply	: AC 230V/50Hz	**Test Mode**	: Tx mode
Condition	: Temp:24.5°,Humi:55.5%,Press:101.4kPa	**LISN**	: 2020 ENV 216 2#/NEUTRAL
Memo	: 5G		



Item (Mark)	Freq. (MHz)	Read Level (dBµV)	LISN Factor (dB)	Cable Loss (dB)	Pulse Limiter Factor (dB)	Result Level (dBµV)	Limit Line (dBµV)	Over Limit (dB)	Detector	Phase
1	0.15	26.04	9.38	0.02	10.01	45.45	66.00	-20.55	QP	NEUTRAL
2	0.15	10.70	9.38	0.02	10.01	30.11	56.00	-25.89	Average	NEUTRAL
3	0.23	18.27	9.39	0.02	10.01	37.69	62.44	-24.75	QP	NEUTRAL
4	0.23	8.07	9.39	0.02	10.01	27.49	52.44	-24.95	Average	NEUTRAL
5	0.60	20.69	9.40	0.03	10.01	40.13	56.00	-15.87	QP	NEUTRAL
6	0.60	16.45	9.40	0.03	10.01	35.89	46.00	-10.11	Average	NEUTRAL
7	1.33	11.03	9.41	0.04	10.01	30.49	56.00	-25.51	QP	NEUTRAL
8	1.33	4.75	9.41	0.04	10.01	24.21	46.00	-21.79	Average	NEUTRAL
9	2.79	12.73	9.43	0.06	10.01	32.23	56.00	-23.77	QP	NEUTRAL
10	2.79	5.29	9.43	0.06	10.01	24.79	46.00	-21.21	Average	NEUTRAL
11	6.15	6.23	9.51	0.09	10.01	25.84	60.00	-34.16	QP	NEUTRAL
12	6.15	-1.75	9.51	0.09	10.01	17.86	50.00	-32.14	Average	NEUTRAL

Note: 1. Result Level = Read Level +LISN Factor + Pulse Limiter Factor + Cable loss.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).

4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

11. Antenna Requirements

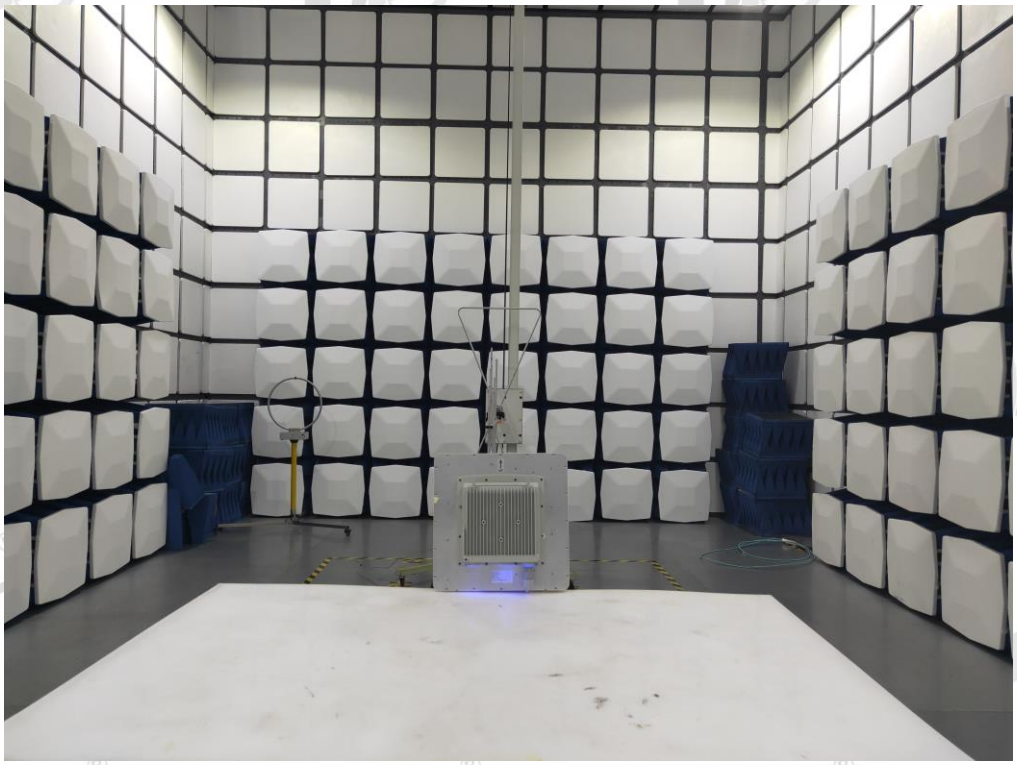
11.1. Limit

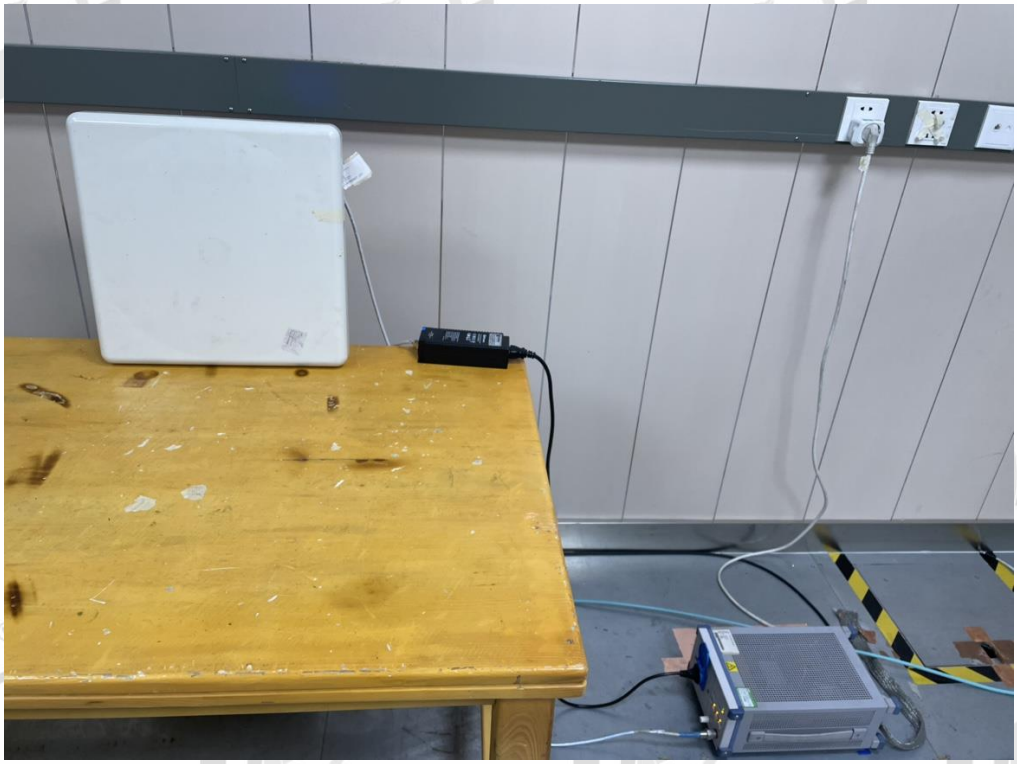
For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

11.2. Result

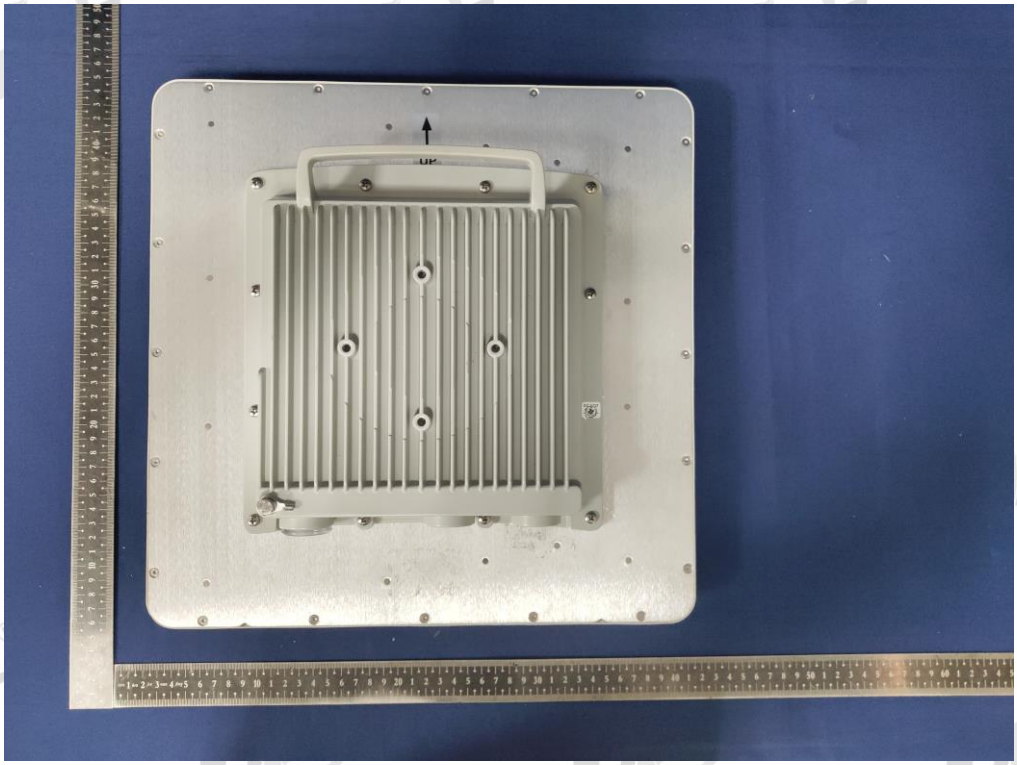
The device support 2T2R , the antennas both used for this product are dedicated antennas and other than that furnished by the responsible party shall be used with the device, maximum antenna gain is 16 dBi for antenna 1, 16 dBi for antenna 2.

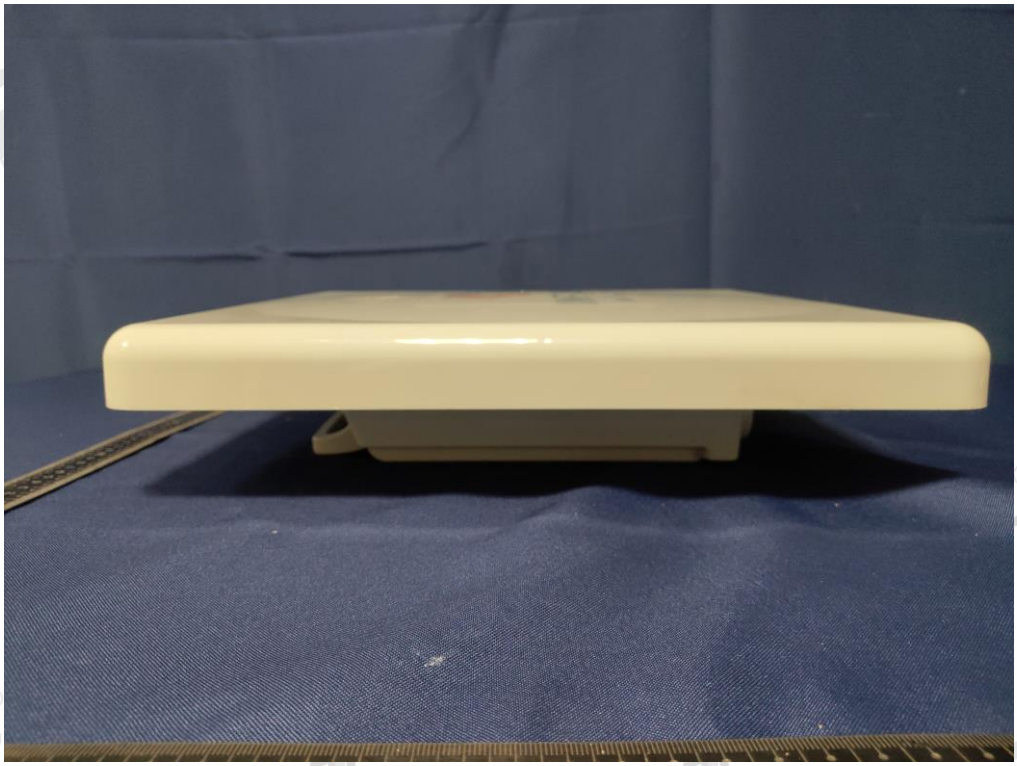
12. Test setup photograph

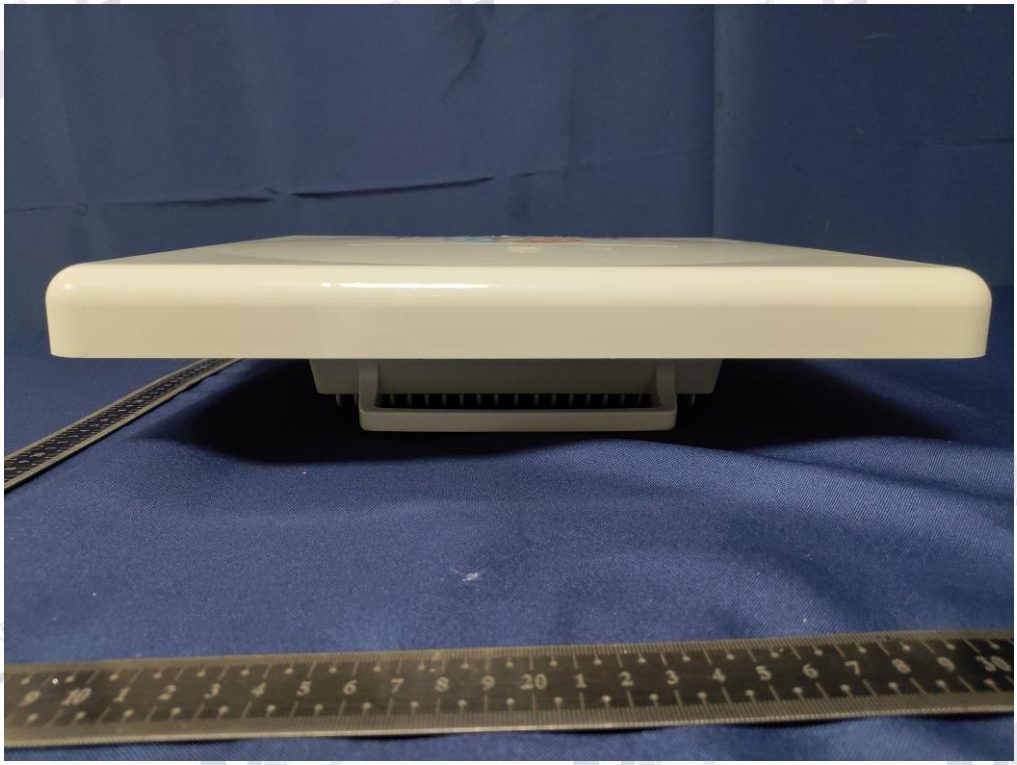


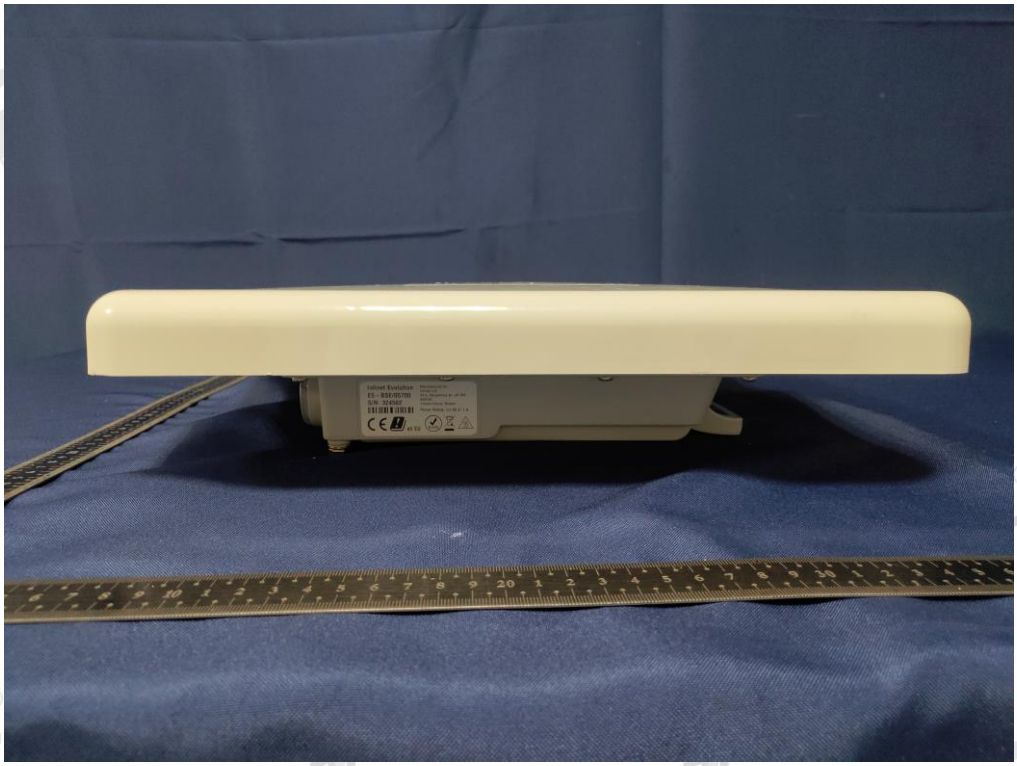


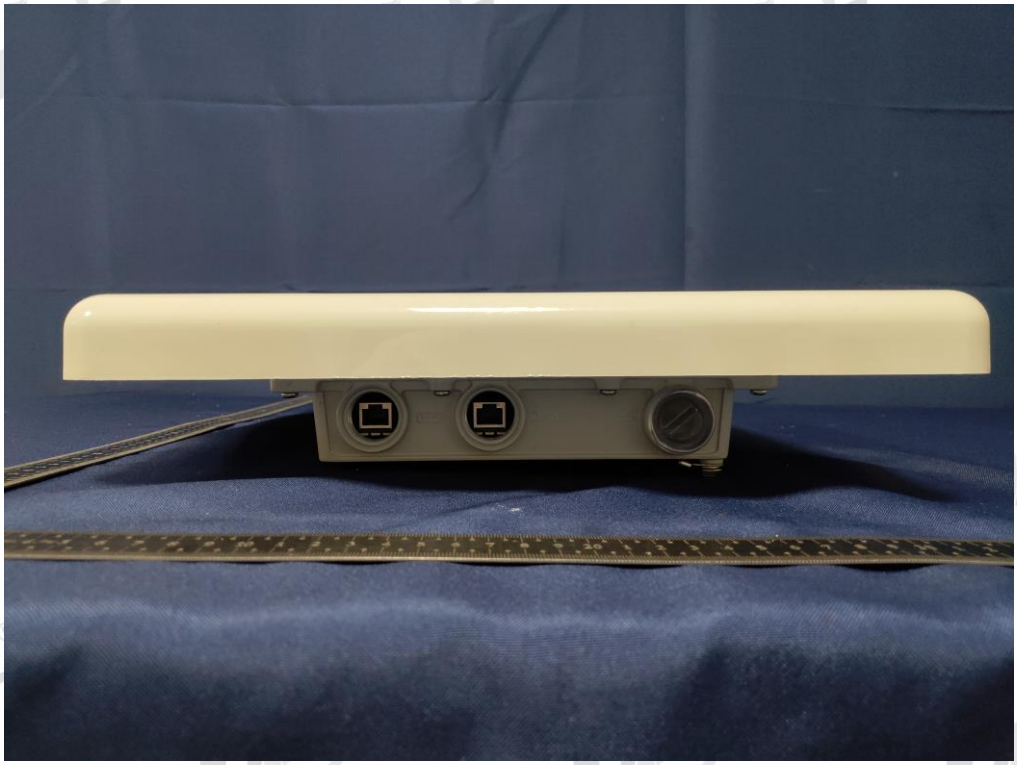
13. Photos of the EUT



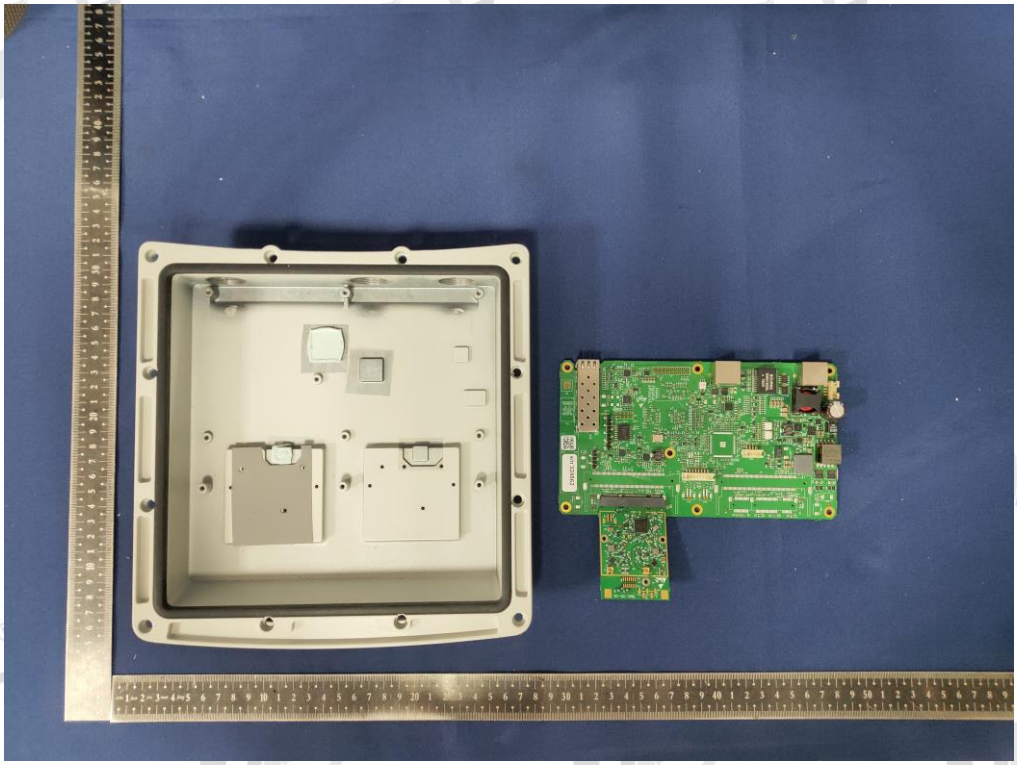


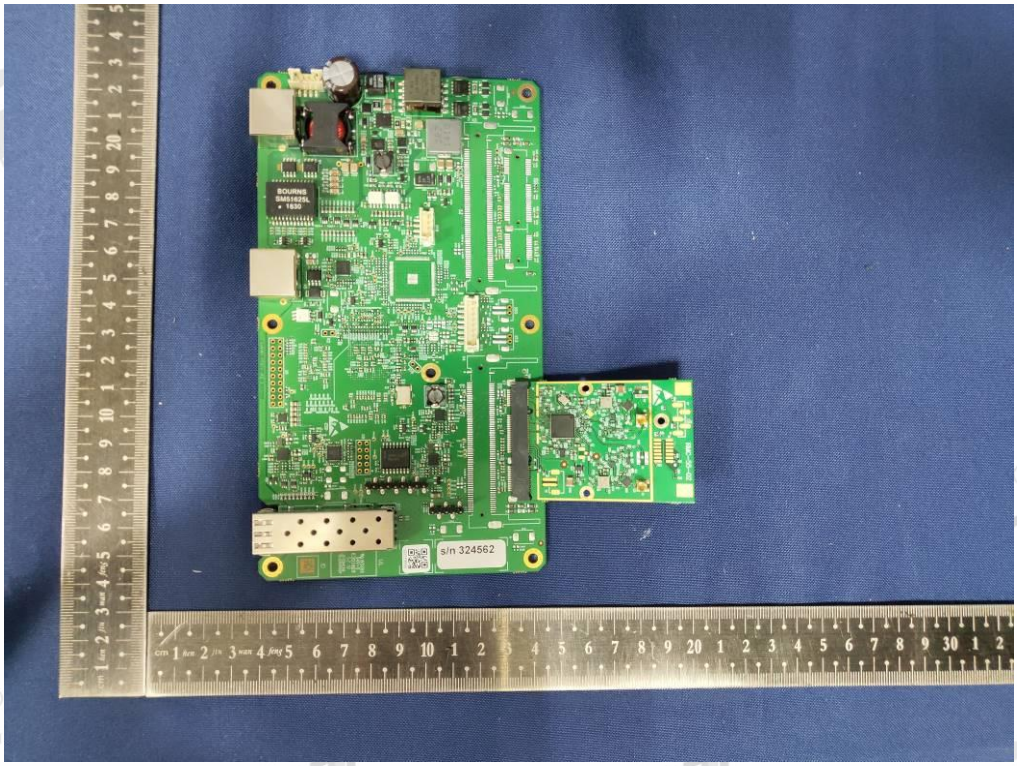







INFINET
wireless

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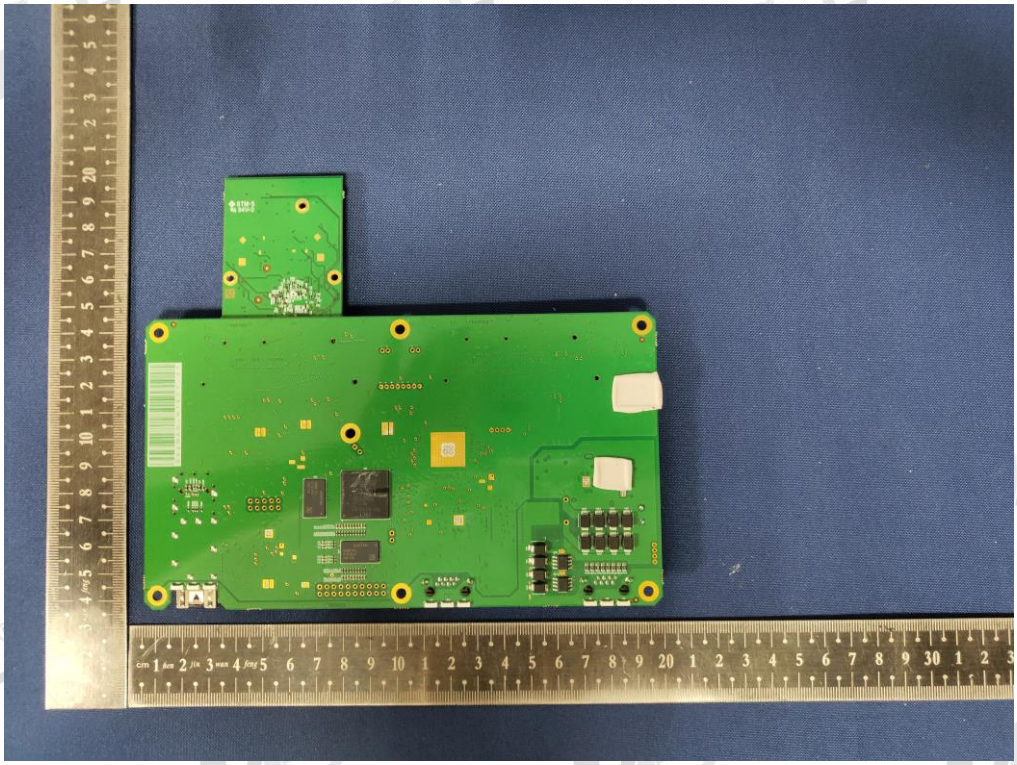

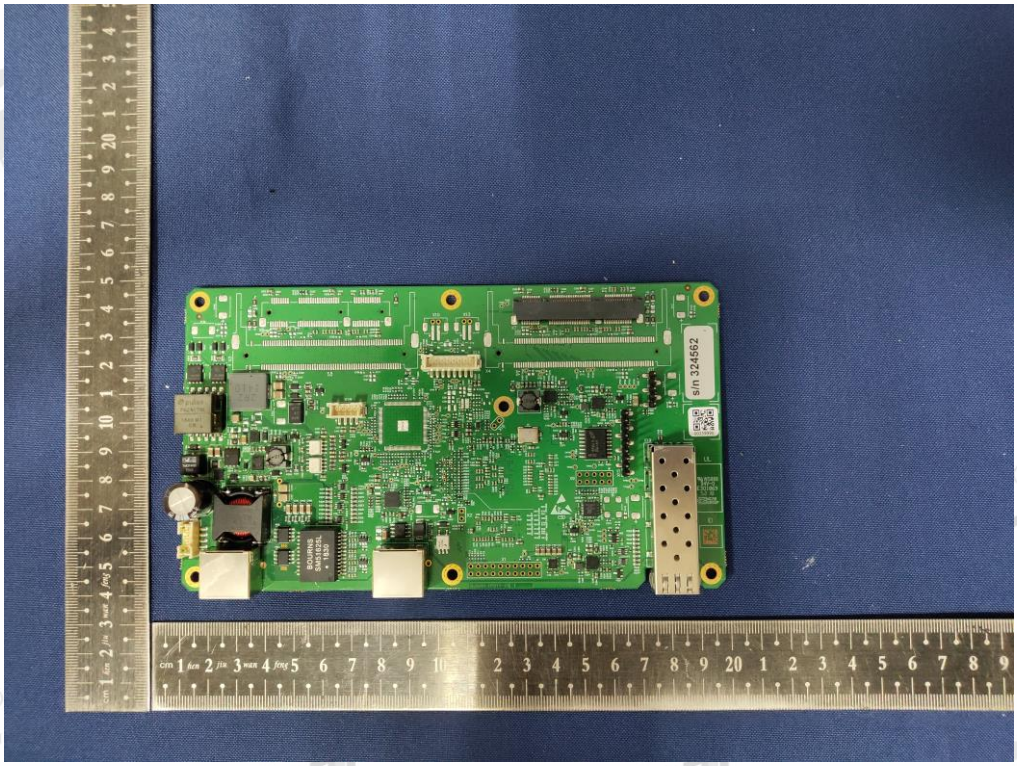
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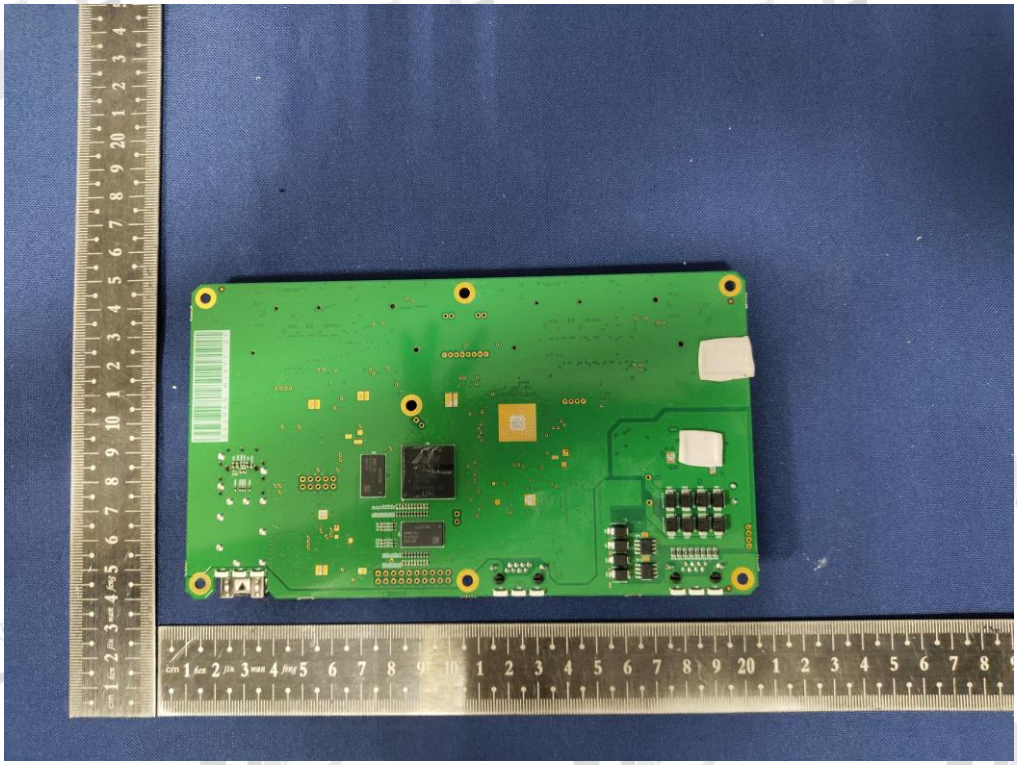

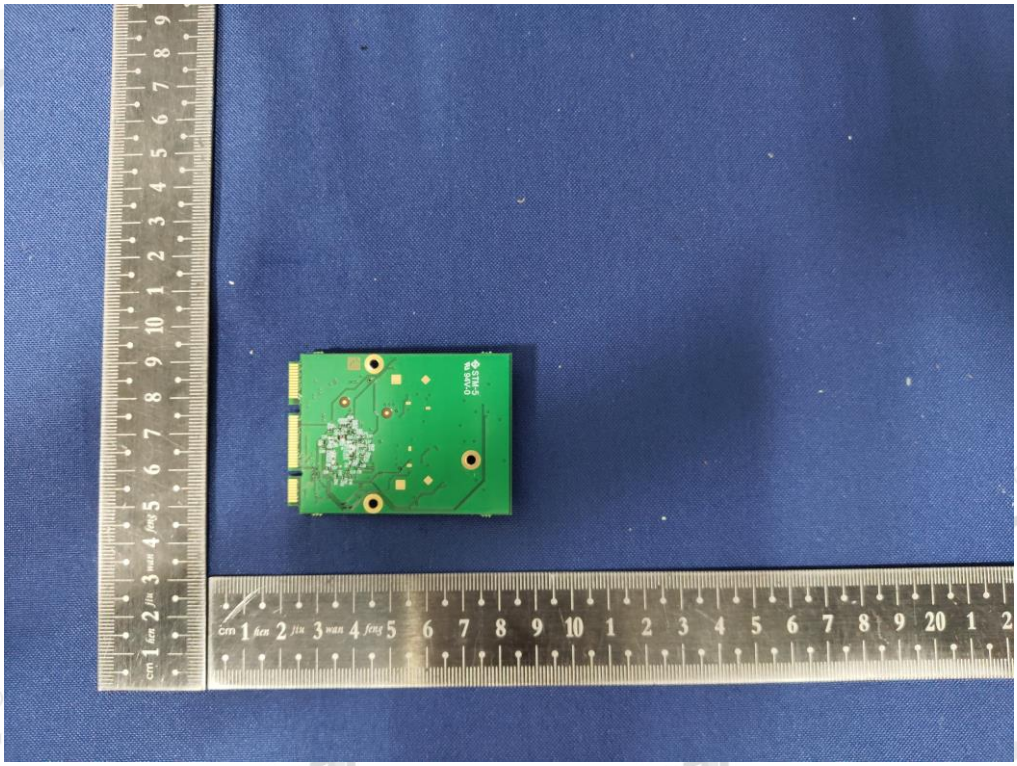

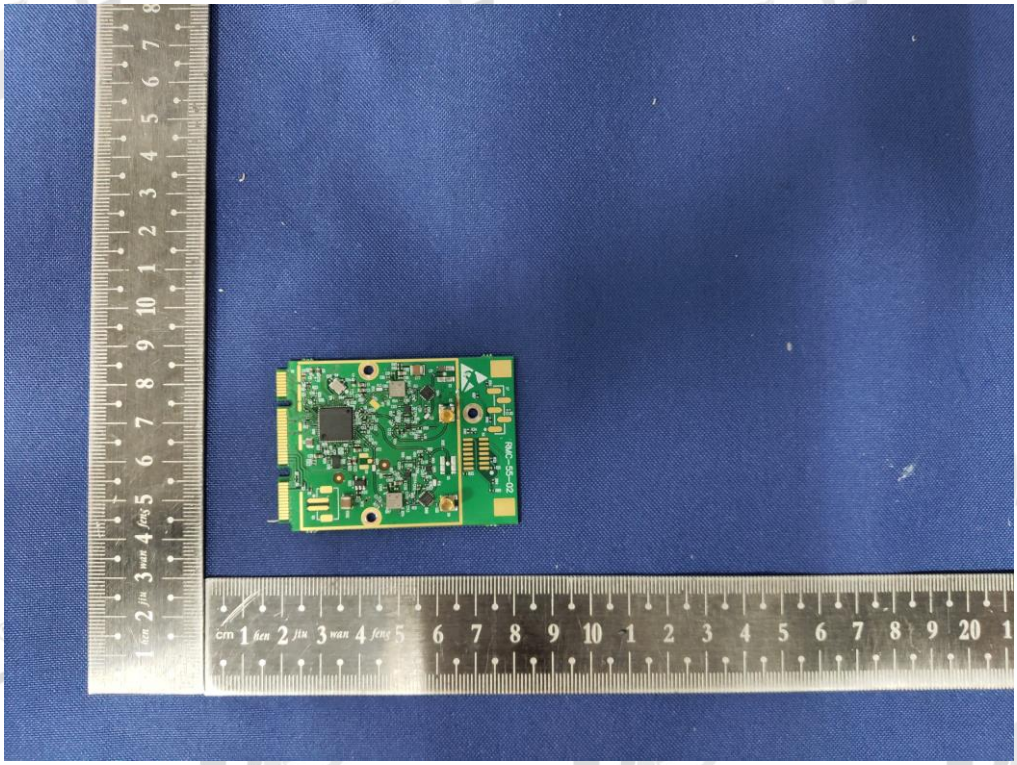

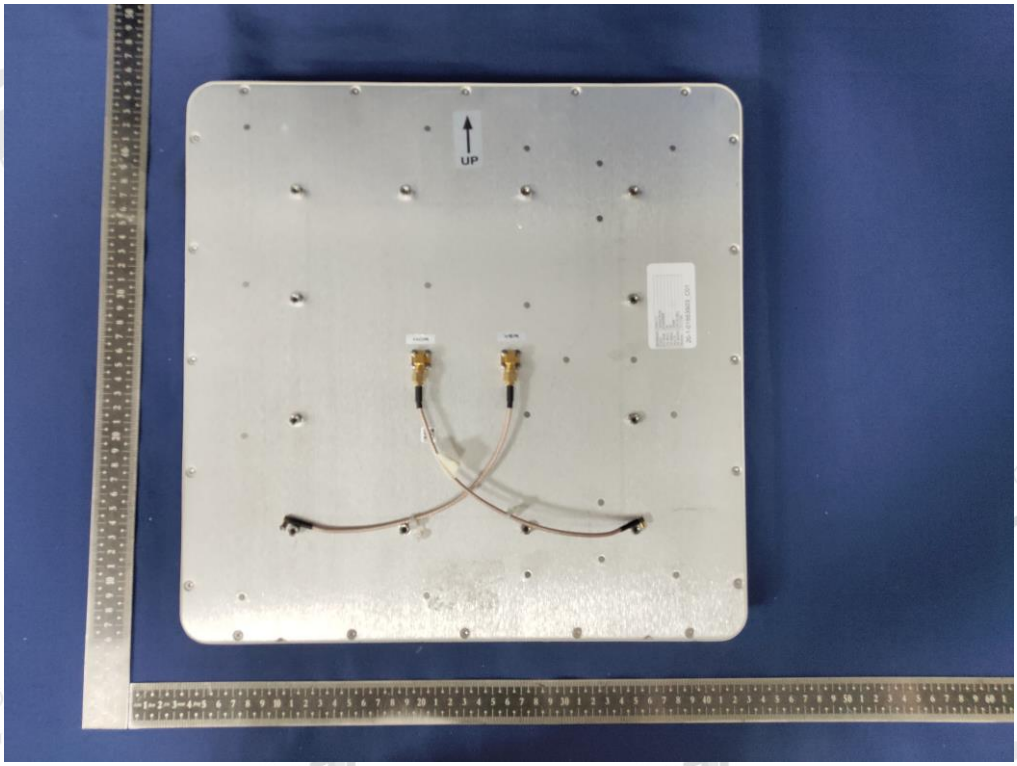
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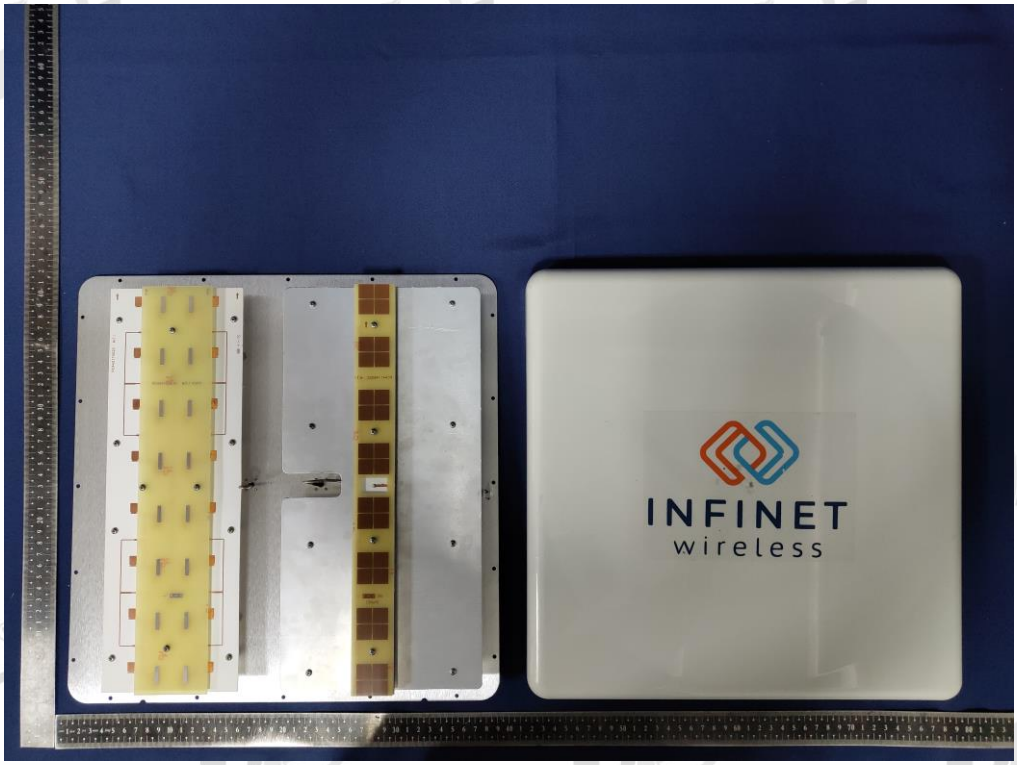
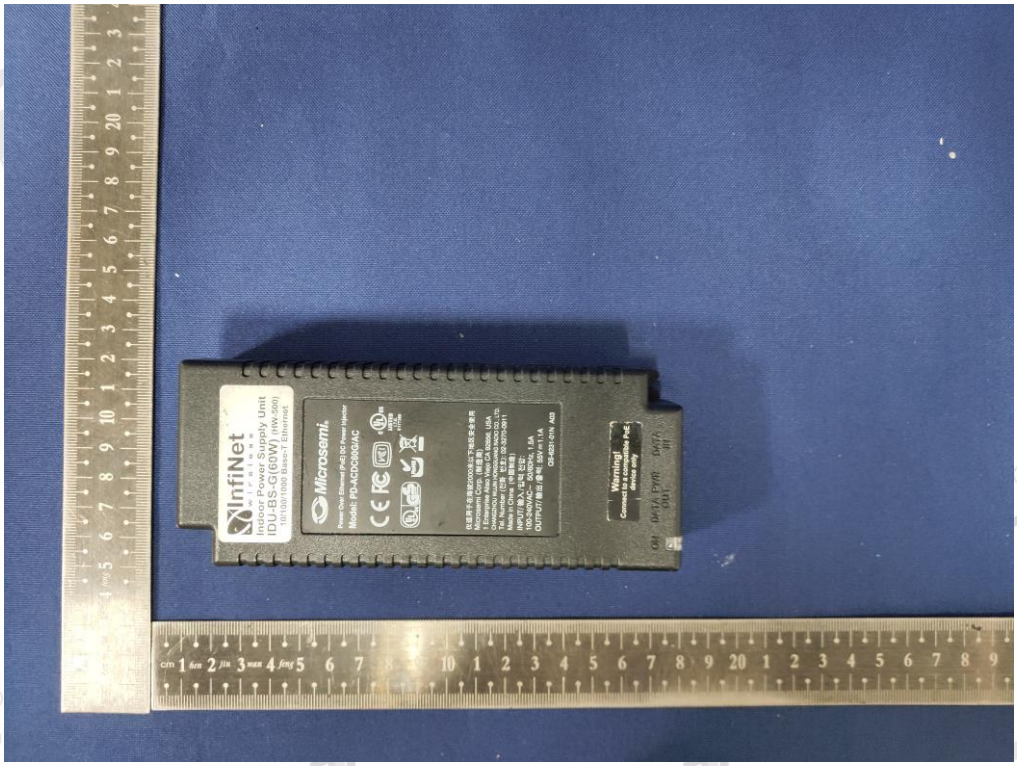
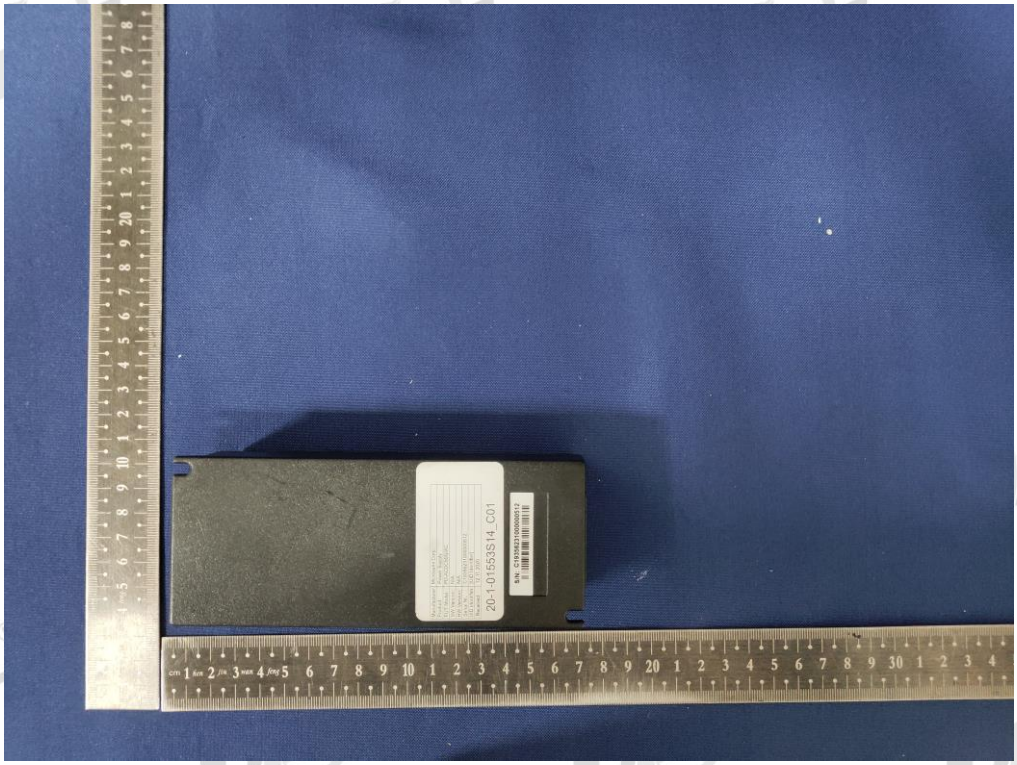

INFINET
wireless


InfiNet
Microsemi



END OF REPORT