

Report No.: AAEMT/RF/251215-02-01

FCC Test Report

(Part 25)

FCC ID: 2BOSVXCOMRU30N53O

Client Information:

Applicant: Globalstar

Applicant add.: 9450 Carroll Park Drive, San Diego, CA 92121

Product Information:

EUT Name: N53 Outdoor Radio Unit

Model No.: XCOMRU30N53O

Brand Name:



Standards: FCC PART 25

AA Electro Magnetic Test Laboratory Private Limited

Add.: Plot No 174, Udyog Vihar - Phase 4, Sector 18,
Gurgaon, Haryana, India

Date of Receipt: Dec. 15, 2025

Date of Test: Dec. 15~ Dec. 22, 2025

Date of Issue: Jan. 22, 2026

Test Result: Pass

Declaration of Conformity: Declaration of conformity of the results is based as per the standard limits

This device described above has been tested by AA Electro Magnetic Test Laboratory Private Limited, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

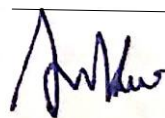
*This test report must not be used by the client to claim product endorsement by any agency of the U.S. government.

Prepared By (+ signature) Vaishali:



Reviewed & Approved by: (+ signature)

Ankur Kumar



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2 Test Summary

2.1 Compliance with FCC Part 25

TEST	TEST REQUIREMENT	LIMIT	RESULT	REMARK
RF Output Power, EIRP, Maximum Power spectral density	2.1046; 25.149 (c)(4)(iii)	< 30 dBm	PASS	Meet the requirement of limit.
	2.1046; 25.149 (c)(4)(iii)	< 36 dBm		
	2.1046; 25.149 (c)(4)(iv)	< 8 dBm/3KHz		
Frequency Stability	2.1055; 25.202 (d)	N/A	PASS	Meet the requirement of limit.
Occupied Bandwidth (99% Bandwidth, 26 dB Bandwidth, 6 dB Bandwidth) & Emission mask	2.1049; 25.202 (f) 25.149 (c)(4)(ii), 25.149 (c)(4)(v), 25.149 (c)(4)(vi)	See 5.3.1 <500kHz	PASS	Meet the requirement of limit.
Peak to average ratio	2.1046; 25.253(d)(1)(2)	< 13 dB	PASS	Meet the requirement of limit.
Band Edge Measurements	2.1049; 25.202 (f)	< -10 dBm	PASS	Meet the requirement of limit.
Conducted Spurious Emissions	2.1051; 25.202 (f)	< -25 dBm	PASS	Meet the requirement of limit.
Radiated Spurious Emissions	2.1053; 25.202 (f)	< -25 dBm	PASS	Meet the requirement of limit.

2.2 Measurement Uncertainty

All measurements involve certain levels of uncertainties, the following measurements uncertainty Levels have estimated based on standards, the maximum value of the uncertainty as below:

No.	Item	Uncertainty
1	Conducted Emission Test	2.82dB
2	Radiated Emission Test	2.79dB
3	Spurious Emissions, Conducted	0.76dB
4	Output Power	1.16dB

2.3 Test Location

All tests were performed at:

AA Electro Magnetic Test Laboratory Private Limited

Plot No 174, Udyog Vihar - Phase 4, Sector 18, Gurgaon, Haryana, India

Tel.: +91-0124-4235350

3 Test Facility

The test facility is recognized, certified or accredited by the following organizations:

ILAC / NABL Accreditation No.: TC-8597

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by National Accreditation Board for Testing and Calibration Laboratories (NABL).

ILAC –A2LA Accreditation No.: 5593.01

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered American Association of Laboratory Accreditation (A2LA.)

FCC- Recognition No.: 137777

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Federal Communications Commission (FCC).

ISED Recognition No.: 26046

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Institute for Social and Economic Development.(ISED)

VCCI- Registration No: 4053

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Voluntary Control Council for Interference.(VCCI)

TEC Designation No.: IND063

Three 3m Semi-Anechoic Chamber, 1 full-Anechoic chamber and 2 Shielding Rooms of AA Electro Magnetic Test Laboratory Private Limited have been registered by Telecommunication Engineering (TEC) Center

BIS Recognition No: 816586

BIS recognized as per CRS scheme for IT electronics, LED control gears, Lamp, Inverter / UPS are recognized as per LRS 2020

3.1 Deviation from standard

None

3.2 Abnormalities from standard conditions

None

4 General Information

4.1 General Description of EUT

Manufacturer:	VVDN Technologies Pvt Ltd	
Manufacturer Address:	Global Innovation Park, CP-7, Sector-8, IMT Manesar, Gurugram, Haryana-122050	
Applicant:	Globalstar	
Applicant add:	9450 Carroll Park Drive, San Diego, CA 92121	
EUT Name:	N53 Outdoor Radio Unit	
Model No:	XCOMRU30N53O	
Brand Name:		
Derivative model No.:	N/A	
Frequency Range:	n53 Channel Bandwidth: 10MHz	2483.5 MHz ~ 2495 MHz
Modulation Technology:	QPSK, 16QAM, 64QAM, 256QAM	
Antenna Gain(dBi):	6dBi	
H/W No.:	R1.0	
S/W No.:	R1.0	
Power Supply Range:	EUT Input: 54V 1.45A (Powered Through PoE) Input of PoE : 100-240V -50/60Hz 2.0A max(Powered Through PoE) Output of PoE: 54V 1.67A DC:48 V,1.45A	
Note:1	For a more detailed features description, please refer to the manufacturer's Specifications or the User's Manual. Disclaimer: Antenna type and Antenna gain is provided by manufacturer.	
Condition of Sample on receipt:	Good / Satisfactory / Fit for Testing	
Opinions and Interpretations:	See the specific Note / Annexure if any in the whole /full report.	

4.2 EUT channels and frequencies list:

Test Item	Tested Channel frequency	Channel Bandwidth	Modulation
Equivalent Isotropic Radiated Power	2489.25MHz	10MHz	QPSK, 16QAM, 64QAM, 256QAM
Occupied Bandwidth			
Peak to average ratio	2489.25MHz		QPSK
Frequency Stability	2489.25MHz		
Radiated Spurious Emissions	2489.25MHz		
Conducted Spurious Emissions	2489.25MHz		
Band Edge Measurements	2489.25MHz		

4.3 EUT Peripheral List

No.	Equipment	Manufacturer	FCC ID	Model No.	Serial No.	Power cord	Remark
1.	PoE	TRENDNET	N/A	N/A	IT31192000037	N/A	N/A

4.4 Test Peripheral List

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	DC Power Supply	Anivo	N/A	N/A	N/A	N/A	N/A
2.	Laptop	DELL	N/A	Latitude E7240	6SJ2T02	2m unshielded	N/A

5 Equipments List for All Test Items

No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Due Date
1	Spectrum Analyser	R&S	FSP	-	2026/01/10
2	Loop antenna	DA ZE Beijing	ZN30900C	18052	2026/09/15
3	Hi power horn antenna	DAZE Beijing	ZN30700	18012	2026/09/10
4	MXA Signal Analyzer	KEYSIGHT	N9020A	MY53290443	2025/07/27
5	Horn antenna	DAZE Beijing	ZN30703	18005	2026/09/10
6	Pre-Amplifier	KELIANDA	LNA-0009295	-	2026/01/10
7	Pre-Amplifier	HP	8447FOPH64	-	2026/01/10
8	Biconical Antenna	DAZE Beijing	ZN30505C	17038	2026/09/10
9	EMI- Test RECEIVER	Rohde and Schwarz	ESIB26	509371	2027/06/10
10	LISN	Kyoritsu	KNW-407	8-1789-5	2026/01/10
11	Network – LISN	Schwarzbeck	NNBM8125	81251314	2026/01/10
12	Network – LISN	Schwarzbeck	NNBM8125	81251315	2026/01/10
13	PULSE LIMITER	Rohde and Schwarz	ESH3-Z2	100681	-
14	50Ω Coaxial Switch	DAIWA	1565157	-	-
15	50Ω Coaxial Switch	-	-	-	-

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16	USB RF Power Sensor	DARE!!	RPR3006W	18I00043SNO0 2	2026/01/12
17	USB RF Power Sensor	DARE!!	RPR3006W	18I00043SNO0 4	2026/01/12
18	Signal Generator	KEYSIGHT	N5181A	512071	2026/01/10
19	RF Vector Signal Generator	KEYSIGHT	N5182B	512094	2026/01/10
20	Spectrum analyzer	ROHDE & SCHWARZ	FSV40-N	101385	2026/04/28
21	Climatic Chamber (Environmental Chamber)	SUNRISE SCIENTIFIC INSTRUMENTS	-	-	03/11/26
22	Attenuators	HP	8494B	1510A04625	2026/03/21
23	Attenuators	AGILENT	8495B	MY42140429	2026/03/21
24	Vector Signal Analyzer	Anritsu	MS2850A	6272323218	29/10/27
25	Vector Signal Generator	Anritsu	MG3710E	6262251278	30/10/27
26	MXA Signal Analyzer	Keysight	N9020A	MY53290443	01/09/27

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5.1 RF OUTPUT POWER MEASUREMENT, EIRP, MAXIMUM PSD

5.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

This test is a measurement of the total RF power level transmitted at the antenna-transmitting terminal. The product was allowed to warm up and stabilize per KDB 971168 D01 and ANSI C63.26.

The power is under digital control. The product is designed to operate under FCC 20-48 O&A, Part 25 rules for Band 53.

Under FCC 25 the product is limited to the maximum EIRP of 6 dBW or 3.98W.

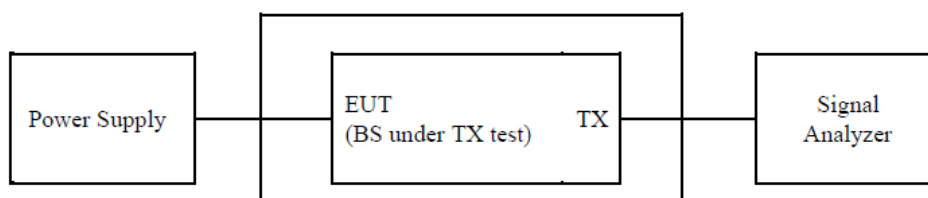
The maximum power spectral density conducted to the antenna is not greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission

5.1.2 TEST PROCEDURES

1. Span to $2 \times$ to $3 \times$ the OBW
2. RBW $\geq 1\%$ to 5% of the OBW
3. VBW $\geq 3 \times$ RBW
4. Sweep time $\geq 10 \times$ (number of points in sweep) $\times$ (transmission symbol period)
5. Detector = power averaging (rms)
6. Set sweep trigger to "free run"
7. If the EUT can be configured to transmit continuously, then set the trigger to free run
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple.
9. The trace was allowed to stabilize
10. Compute the power by integrating the spectrum across the OBW of the signal using the Instrument's band power measurement function, with the band/channel limits set equal to the OBW band edges.

5.1.3 TEST SETUP

CONDUCTED POWER MEASUREMENT



5.1.4 Test results

Bandwidth (MHz)	Channel Number	Frequency (MHz)	Modulation	dBm/10MHz				Total power dBm/10MHz	EIRP (dBm/10MHz)
				ANT-0	ANT-1	ANT-2	ANT-3		
10	497850	2489.25	QPSK	21.60	21.60	21.72	21.89	27.70	33.70
			16QAM	21.70	21.65	21.92	21.52	27.69	33.69
			64QAM	21.57	21.64	22.03	21.60	27.71	33.71
			256QAM	21.61	21.75	21.95	21.66	27.74	33.74

Frequency (MHz)	Channel BW (MHz)	Power Density (dBm/MHz)				EIRP Density (dBm/MHz)	EIRP Density (dBm/3kHz)	Limit (dBm/3kHz)
		Ant 0	Ant 1	Ant 2	Ant 3			
QPSK								< 8
2489.25	10	11.60	11.60	11.72	11.89	23.70	-1.53	
16QAM								
2489.25	10	11.70	11.65	11.92	11.52	23.69	-1.54	
64QAM								
2489.25	10	11.57	11.64	12.03	11.60	23.71	-1.52	
256QAM								
2489.25	10	11.61	11.75	11.95	11.66	23.74	-1.49	

Note 1: Total Power Density (dBm/MHz) = $10 \cdot \log\{10^{\frac{\text{ANT 1 Power (dBm/MHz)}}{10}} + 10^{\frac{\text{ANT 2 Power (dBm/MHz)}}{10}} + 10^{\frac{\text{ANT 3 Power (dBm/MHz)}}{10}} + 10^{\frac{\text{ANT 4 Power (dBm/MHz)}}{10}}\}$ (dBm/MHz).

Note 2: EIRP Density (dBm/MHz) = Total Power Density (dBm/MHz) + Antenna Gain (dBi).

Observations:- Observed EIRP of the submitted devices are within the limits See table 5.1.4. As per the observations the device meets the FCC requirements.

5.2 FREQUENCY STABILITY MEASUREMENT

5.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

5.2.2 TEST PROCEDURE

Frequency Stability Under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

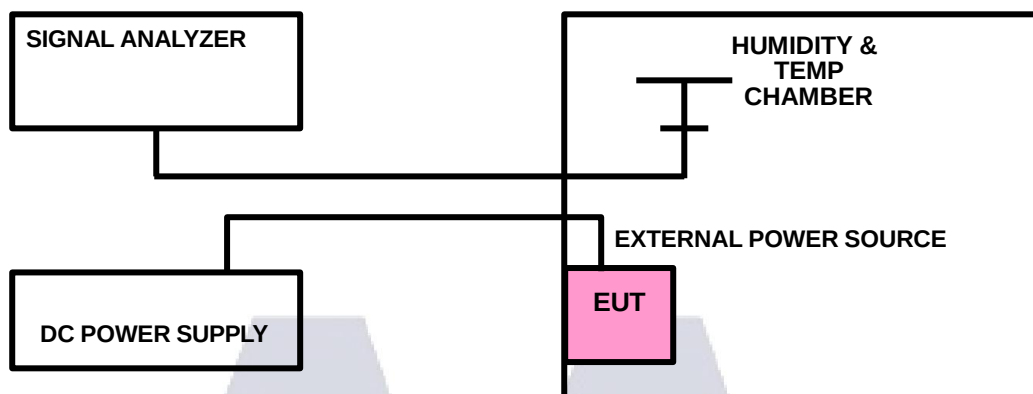
5.2.3 Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 20\%$) and endpoint (If a product is specified to Operate over a range of input voltage then the -20% variation is applied to the lowermost voltage And the $+20\%$ is applied to the uppermost voltage), record the maximum frequency change.

NOTE: The frequency error was recorded frequency error from the communication simulator.

5.2.4 TEST SETUP



5.2.5 TEST RESULTS

DUT Input DC Voltage (V)	Temp. (°C)	Limit	Frequency error (Hz)			
			ANT-0	ANT-1	ANT-2	ANT-3
36	-10	± 0.1PPM (± 362 Hz)	-0.756	0.984	-0.976	-1.16
	0		-0.706	-1.01	-1.10	-0.303
	10		-0.761	-0.614	-1.67	-0.521
	20		-0.314	-0.503	-1.17	0.438
	30		-1.30	-0.477	-0.601	-0.981
	40		-0.13	-0.793	-1.01	-0.239
	50		-1.03	-0.777	0.263	-0.849
	55		-0.291	-0.199	-1.24	-0.117
48	-10	± 0.1PPM (± 362 Hz)	-0.83	-0.803	-0.389	-0.208
	0		-0.837	-0.776	-0.858	-1.12
	10		-0.041	-0.667	-0.841	-0.837
	20		-0.494	-0.463	-0.374	-1.00
	30		-0.695	-0.256	-0.436	-0.153
	40		-0.707	-0.630	-0.359	0.023
	50		0.446	-0.645	-0.434	-0.036
	55		-0.313	-0.377	-0.392	-0.897
58	-10	± 0.1PPM (± 362 Hz)	-0.527	-1.22	-1.24	-1.22
	0		-0.801	-0.489	-1.04	0.107
	10		-0.843	0.305	-0.586	-0.927
	20		-0.855	-0.137	-0.544	-0.412
	30		-0.579	-0.095	0.042	-0.518
	40		-0.213	-0.213	-1.09	-0.763
	50		-0.504	-0.363	-0.546	-0.874
	55		-0.418	-0.663	0.046	-0.694

Note:- Testing is carried out in all possible configuration , only worst case data reported. This unit meets the FCC requirement.

5.3 OCCUPIED BANDWIDTH & EMISSION MASK MEASUREMENT

5.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

“The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable.”

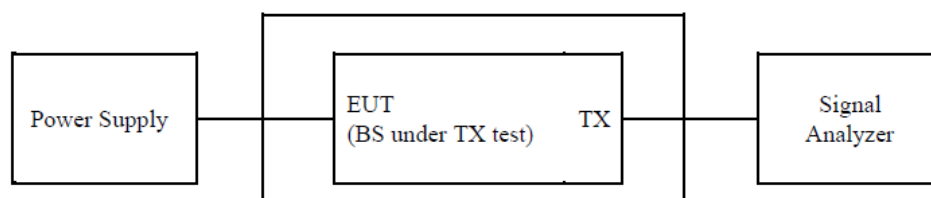
This required measurement is the 99% Occupied Bandwidth, also called the designated signal bandwidth and needs to be within the parameters of the products specified emissions designator. During these measurements it is customary to evaluate the Edge of Band emissions at block/band edges.

5.3.2 TEST PROCEDURE

1. Set center frequency to the nominal EUT channel center frequency;
2. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW;
3. VBW $\geq 3 \times$ RBW;
4. Detector = Peak;
5. Trace mode = max hold;
6. Sweep = auto couple;
7. Allow the trace to stabilize;
8. The dynamic range of the spectrum analyzer at the selected RBW shall be more than 10 dB below the target “-X dB” requirement, i.e., if the requirement calls for measuring the -26 dB OBW, the spectrum analyzer noise floor at the selected RBW shall be at least 26 dB below the reference level

Art

5.3.3 TEST SETUP



5.3.4 TEST RESULTS

Frequency (MHz)	Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
QPSK			
ANT0			
2489.25	10	9.061	8.567
ANT1			
2489.25	10	9.054	8.565
ANT2			
2489.25	10	9.059	8.566
ANT3			
2489.25	10	9.057	8.566

Frequency (MHz)	Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
16QAM			
ANT0			
2489.25	10	8.957	8.516
ANT1			
2489.25	10	8.953	8.513
ANT2			
2489.25	10	8.957	8.516
ANT3			
2489.25	10	8.951	8.512

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Frequency (MHz)	Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
64QAM			
ANT0			
2489.25	10	9.025	8.561
ANT1			
2489.25	10	9.050	8.557
ANT2			
2489.25	10	9.053	8.558
ANT3			
2489.25	10	9.050	8.557

Frequency (MHz)	Bandwidth (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
256QAM			
ANT0			
2489.25	10	9.072	8.567
ANT1			
2489.25	10	9.072	8.556
ANT2			
2489.25	10	9.073	8.557
ANT3			
2489.25	10	9.069	8.556

Bandwidth (MHz)	Channel Number	Frequency (MHz)	Modulation	6dB Occupied Bandwidth (MHz)			
				ANT-0	ANT-1	ANT-2	ANT-3
10	497850	2489.25	QPSK	8.663	8.664	8.665	8.665
			16QAM	8.607	8.611	8.599	8.607
			64QAM	8.663	8.653	8.661	8.662
			256QAM	8.663	8.661	8.664	8.659

Observations:- Observed Occupied Bandwidth of the submitted devices are within the limits See table 5.3.4. As per the observations the device meets the FCC requirements.

Emissions Mask

Frequency offset from signal edge	Lower Frequency offset	Limit	Test Results (dBm)			
			Port 1	Port 2	Port 3	Port 4
50 KHz - 750 KHz	2484.2 MHz - 2483.5 MHz	-10 dBm	-40.03	-42.12	-45.47	-42.73
750 KHz - 1.750 MHz	2483.5 MHz - 2482.5 MHz	-13 dBm	-38.33	-38.06	-40.65	-37.92
1.750 MHz - 5.750 MHz	2482.5 MHz - 2478.5 MHz	-13 dBm	-25.53	-30.89	-32.08	-28.45
5.750 MHz - 6.750 MHz	2478.5 MHz - 2477.5 MHz	-13 dBm	-29.13	-30.38	-34.08	-30.20
6.750 MHz - 37.50 MHz	2477.5 MHz - 2446.75 MHz	-25 dBm	-29.88	-31.67	-35.20	-31.78

Frequency offset from signal edge	Upper Frequency offset	Limit	Test Results (dBm)			
			Port 1	Port 2	Port 3	Port 4
50 KHz - 750 KHz	2494.3 MHz - 2495 MHz	-10 dBm	-40.56	-43.44	-44.90	-41.80
750 KHz - 1.750 MHz	2495 MHz - 2496 MHz	-13 dBm	-36.85	-40.98	-41.61	-38.88
1.750 MHz - 5.750 MHz	2496 MHz - 2505 MHz	-13 dBm	-28.18	-30.19	-31.39	-29.28
5.750 MHz - 6.750 MHz	2505 MHz - 2506 MHz	-13 dBm	-31.63	-34.11	-34.99	-31.77
6.750 MHz - 37.50 MHz	2506 MHz - 2531.75 MHz	-25 dBm	-29.40	-32.14	-35.18	-28.01

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99% & 26dB Bandwidth@ ANT1



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99% & 26dB Bandwidth@ ANT2



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99% & 26dB Bandwidth@ ANT3

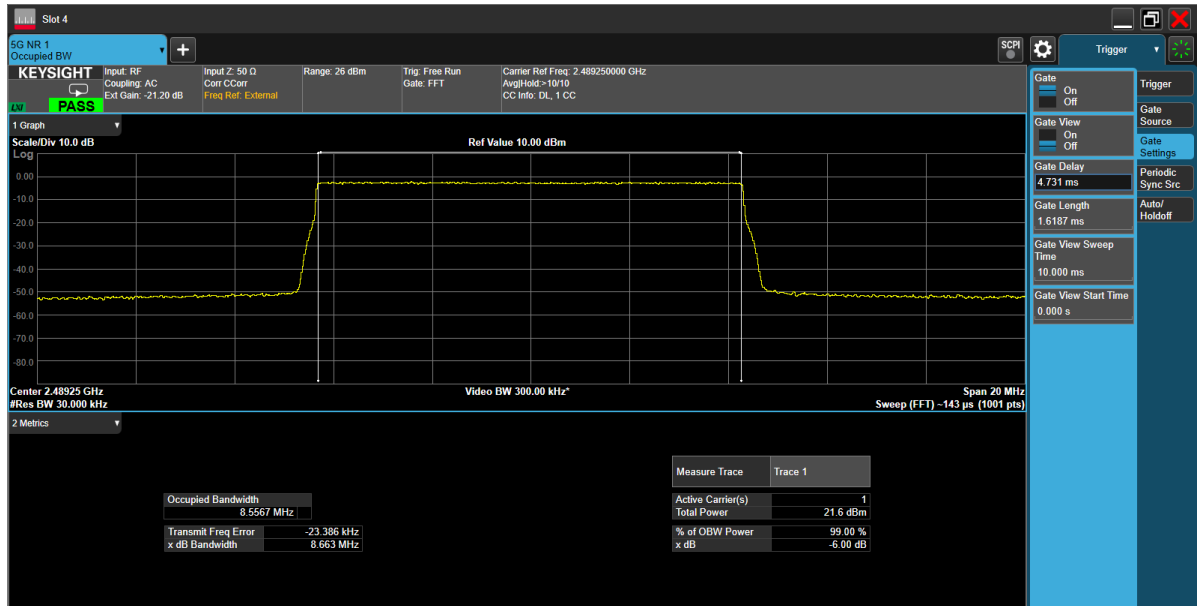


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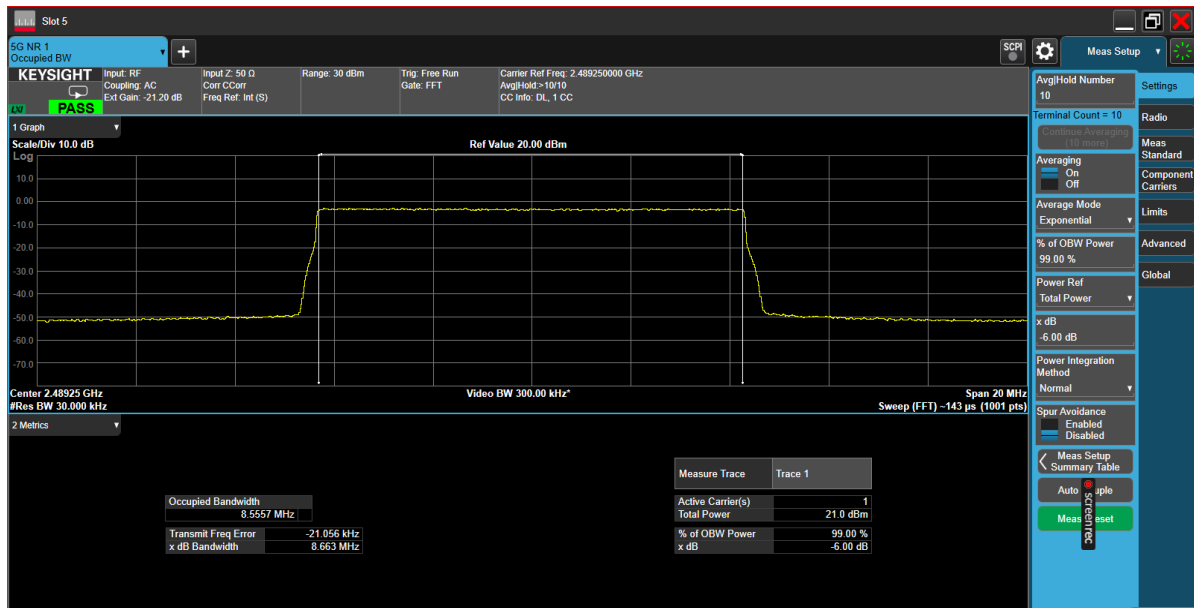


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6dB Bandwidth@ ANT0

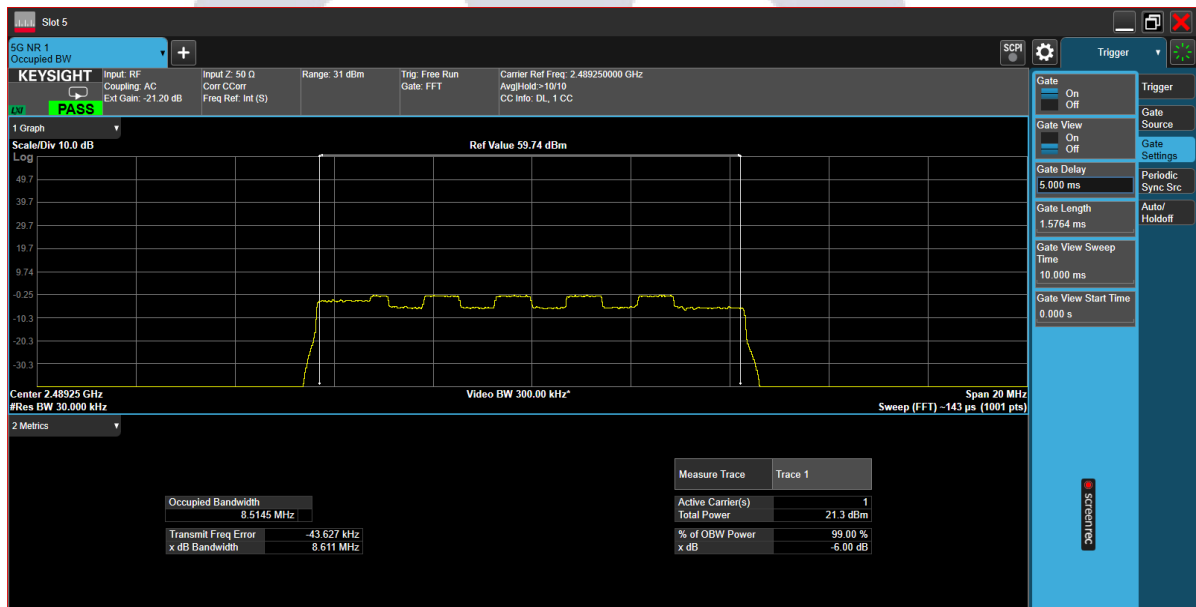
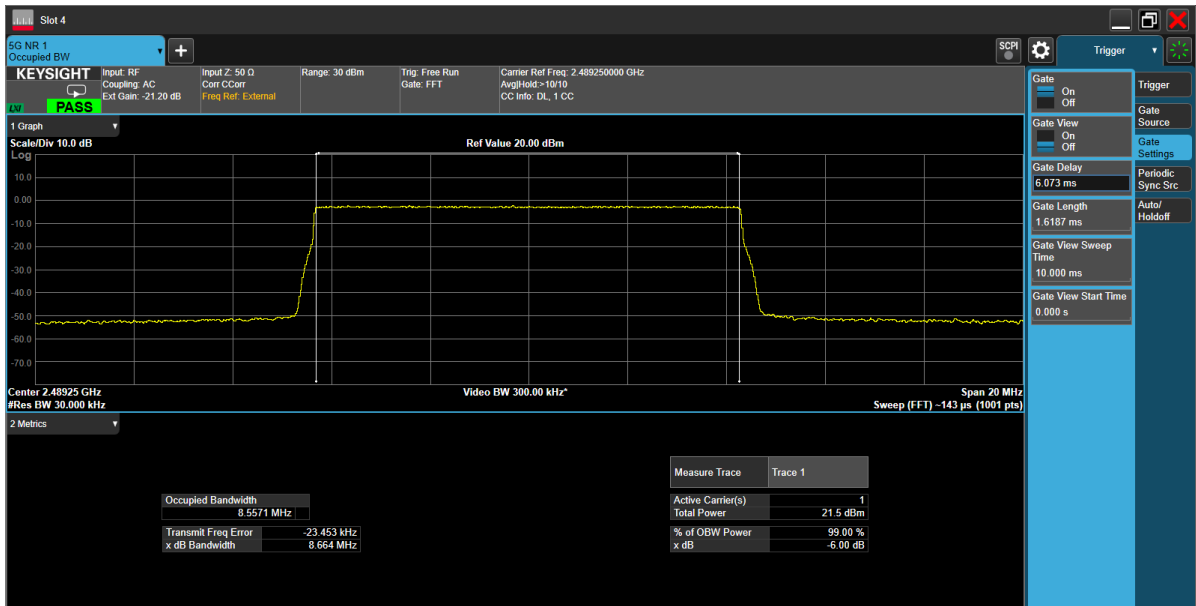


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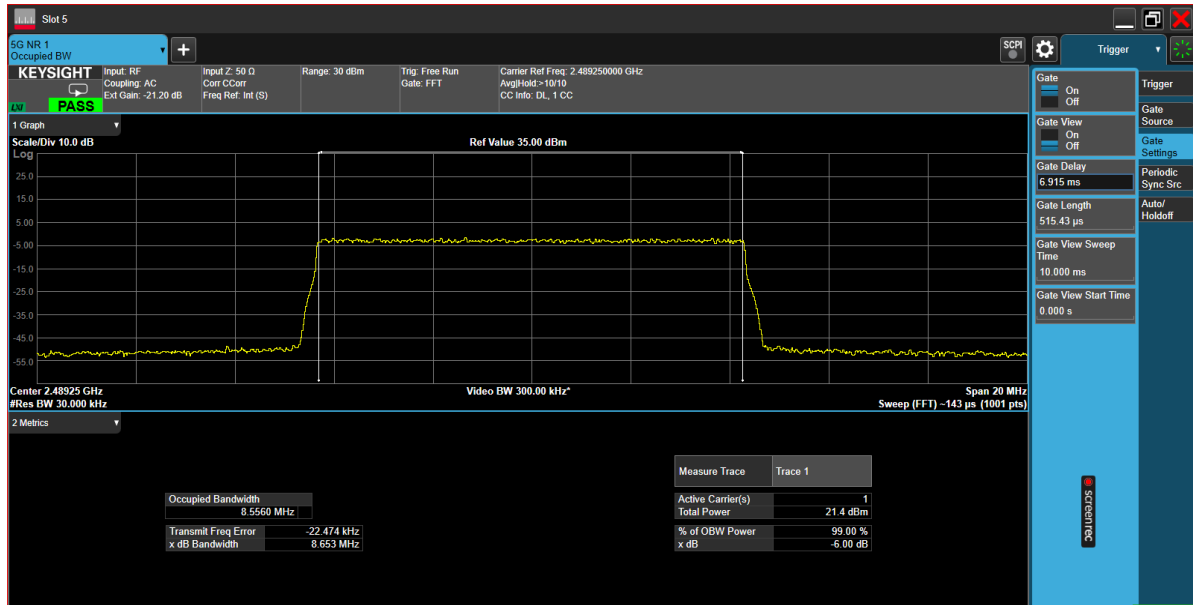


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6dB Bandwidth@ ANT1

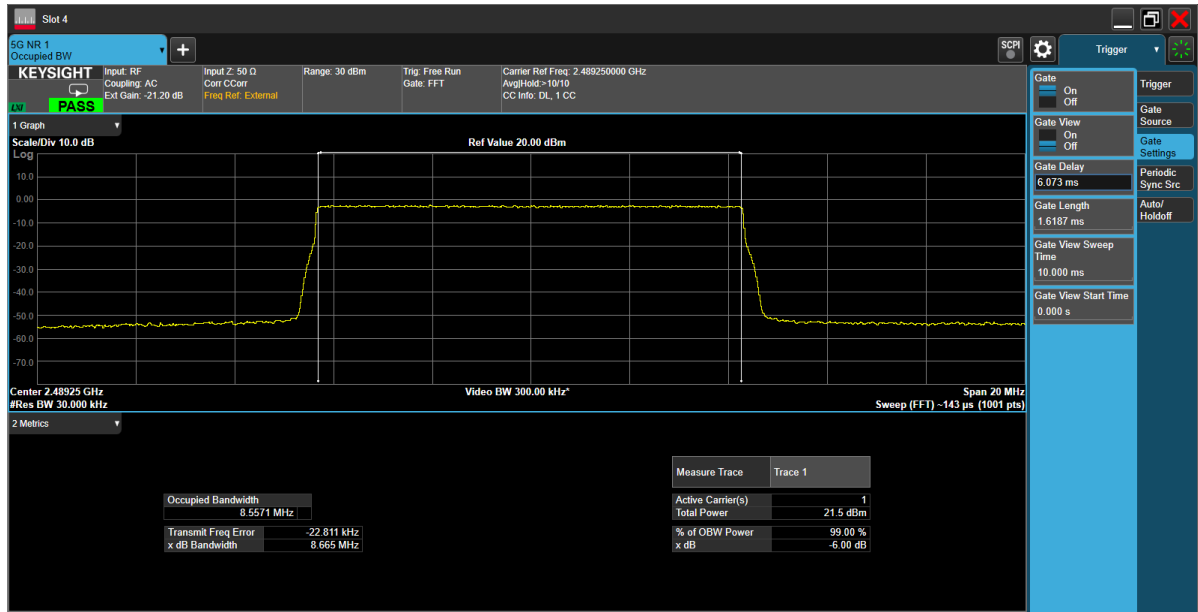


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6dB Bandwidth@ ANT2

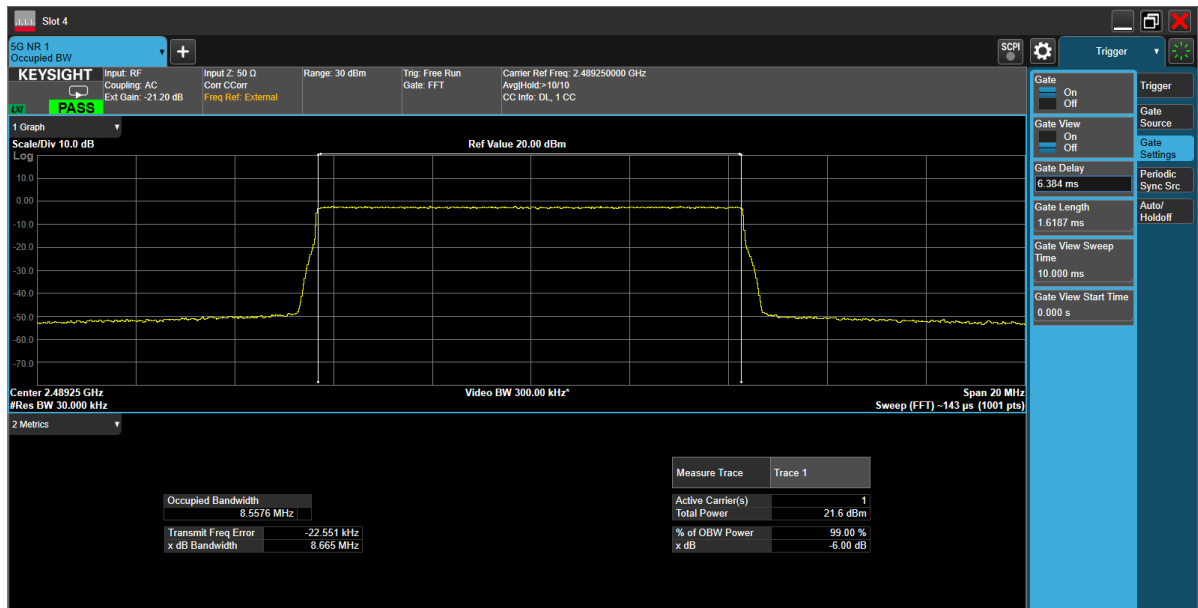


Report No.: AAEMT/RF/251215-02-01

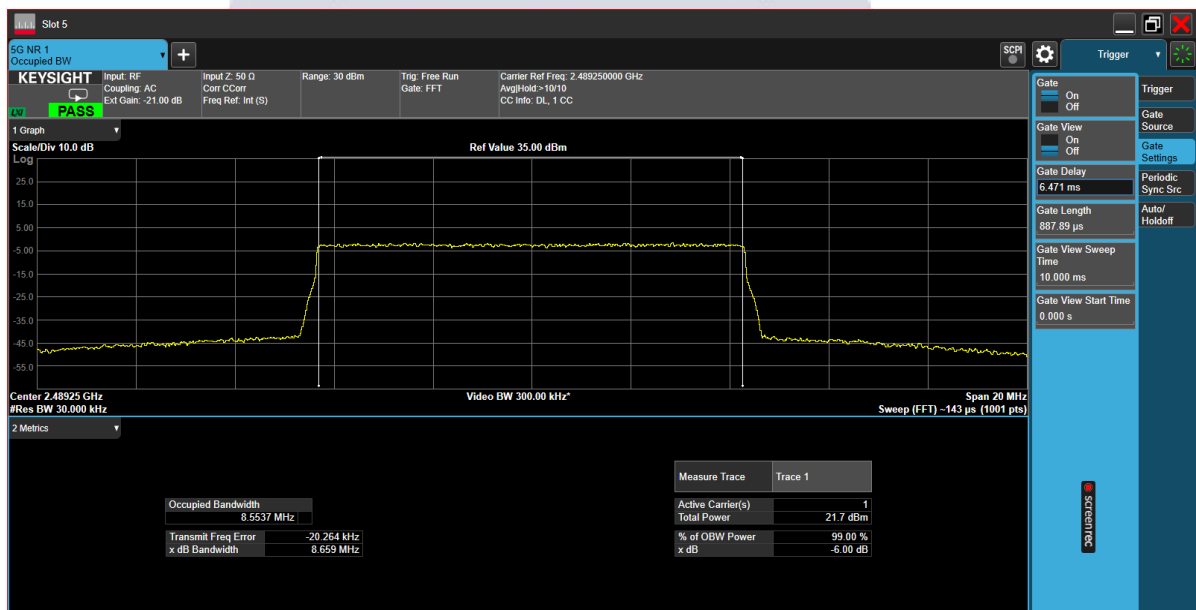


Report No.: AAEMT/RF/251215-02-01

6dB Bandwidth@ ANT3

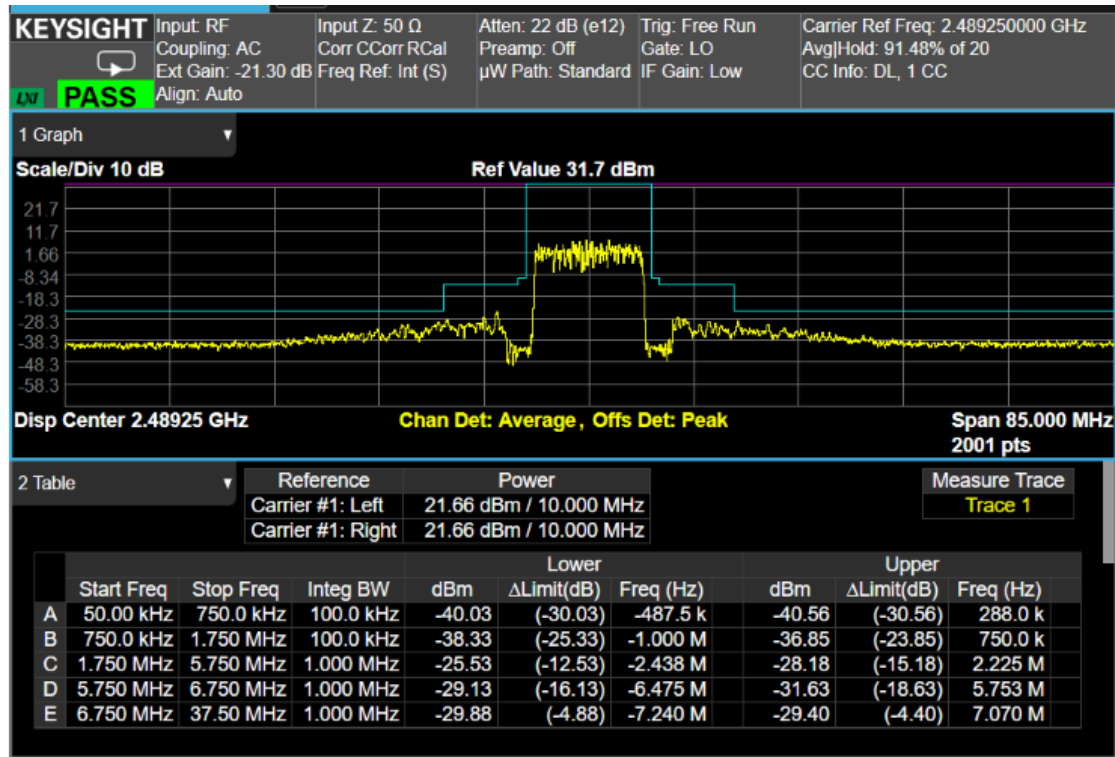


Report No.: AAEMT/RF/251215-02-01

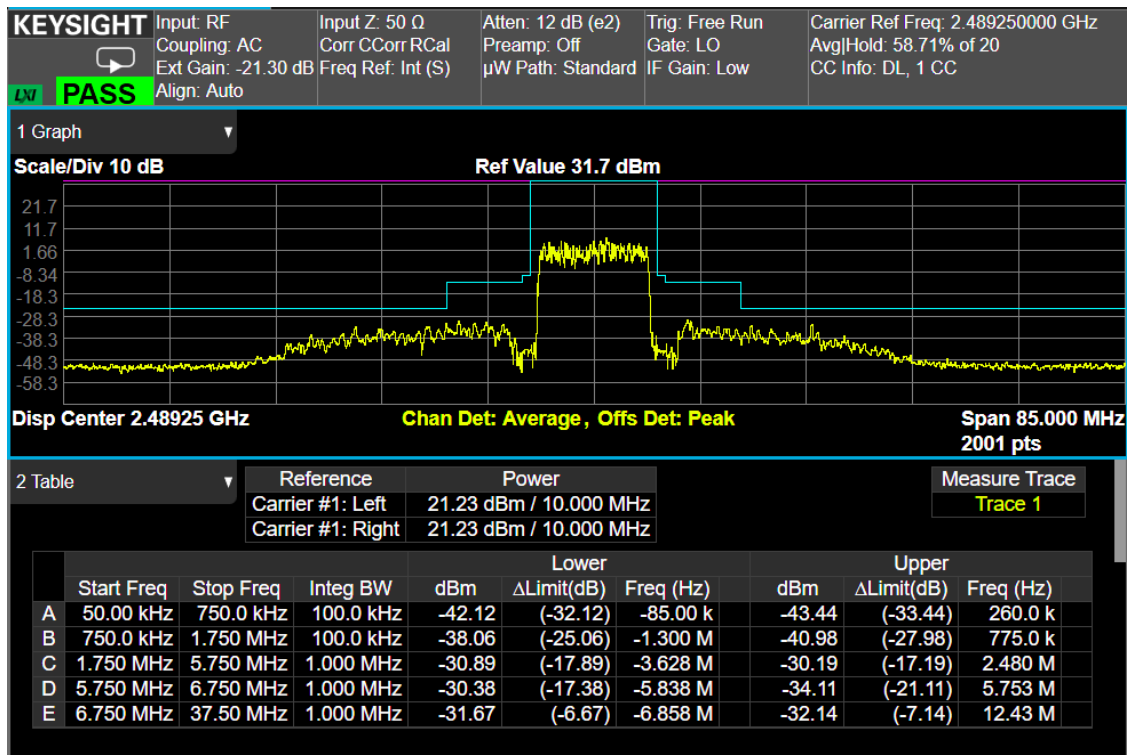


Report No.: AAEMT/RF/251215-02-01

Emission Mask @ ANT0

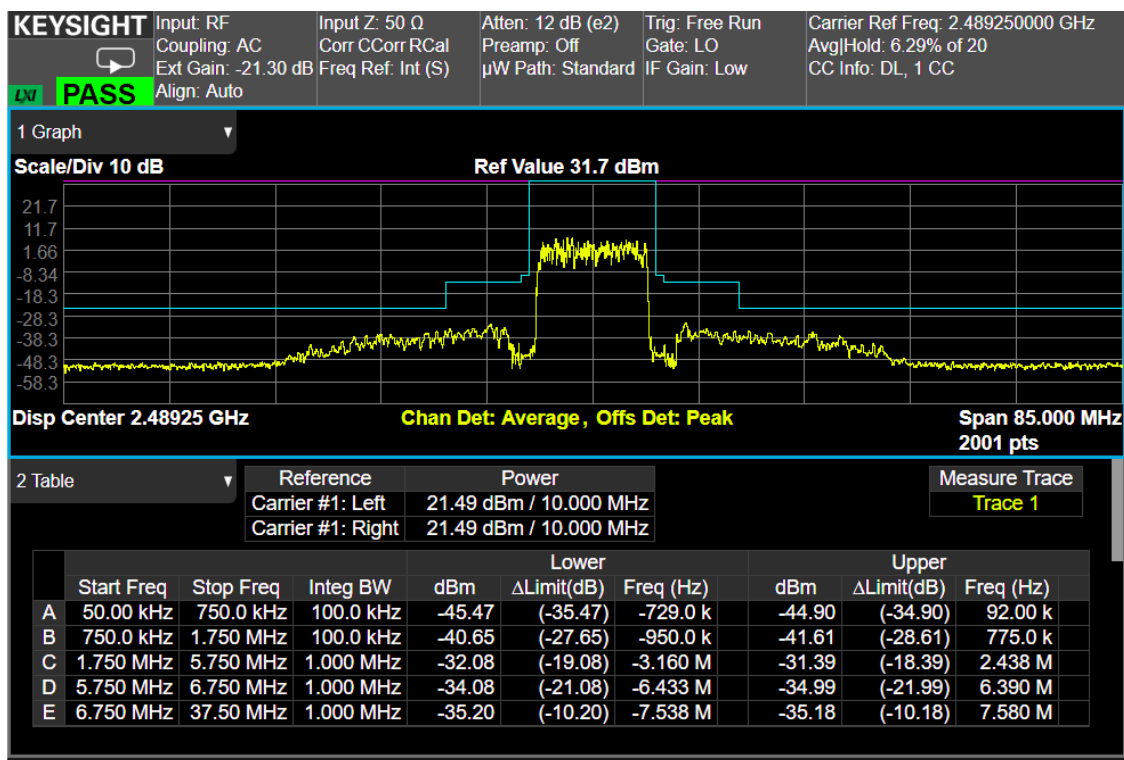


Emission Mask @ ANT1

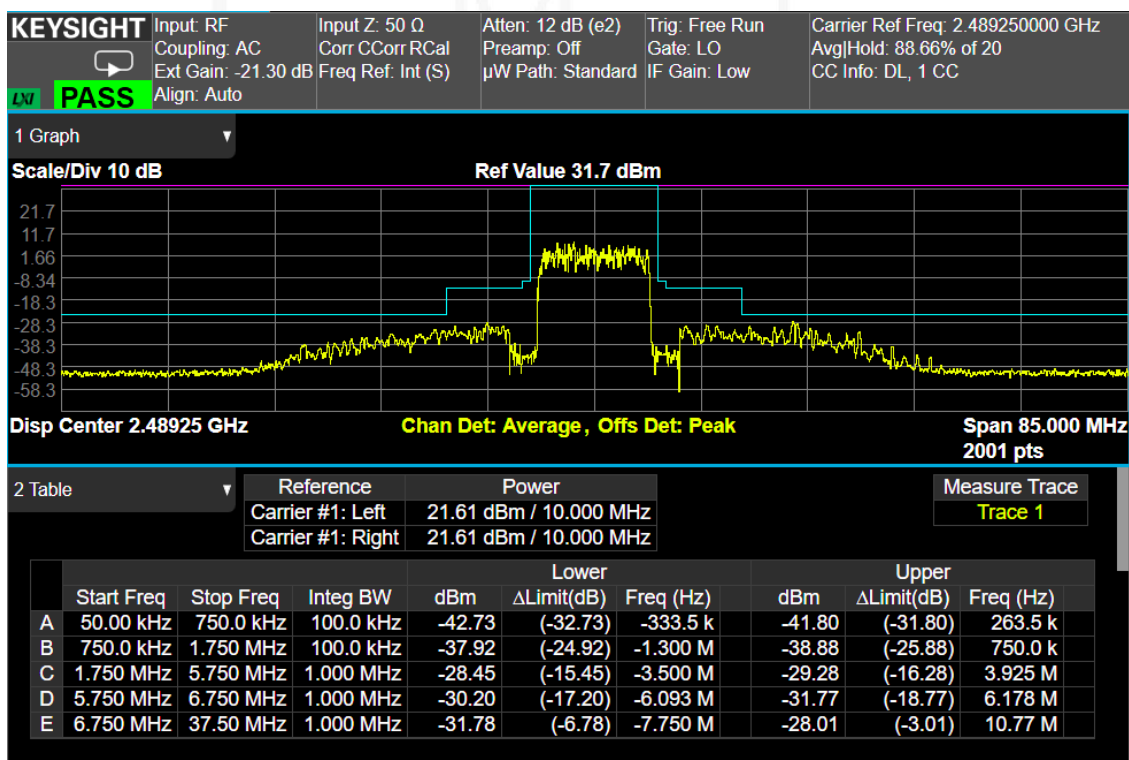


Report No.: AAEMT/RF/251215-02-01

Emission Mask @ ANT2



Emission Mask @ ANT3



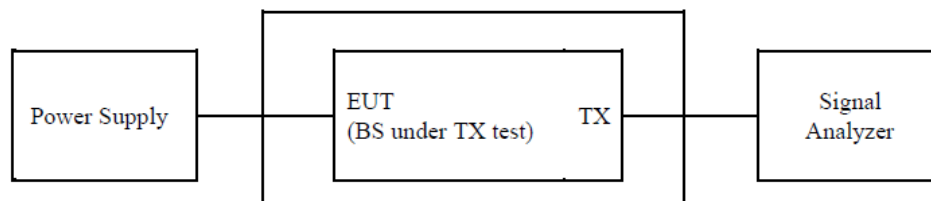
5.4 BAND EDGE MEASUREMENT

5.4.1 LIMITS OF BAND EDGE MEASUREMENT

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission limit equal to -13dBm.

The limit is adjusted to -13 dBm.

5.4.2 TEST SETUP



5.4.3 TEST PROCEDURES

1. Set the analyzer frequency to Bottom or Top channel.
1. RBW = The nominal RBW shall be in the range of 1% to 5% of the anticipated OBW
2. VBW $\geq 3 \times$ RBW
3. Sweep time = auto
4. Detector = power averaging (rms)
5. Set sweep trigger to "free run"
6. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple.

To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

5.4.4. TEST RESULTS

Frequency (MHz)	Channel BW (MHz)	Max Band Edge (dBm)				Limit (dBm)	Verdict
		Ant 0	Ant 1	Ant 2	Ant 3		
2483.50	10	-24.85	-24.99	-24.69	-24.57	≤ -13	Pass
2495.00	10	-26.78	-27.10	-26.58	-25.76	≤ -13	Pass

Observations:- Observed Band Edge of the submitted devices are within the limits See table 5.4.4. As per the observations the device meets the FCC requirements.

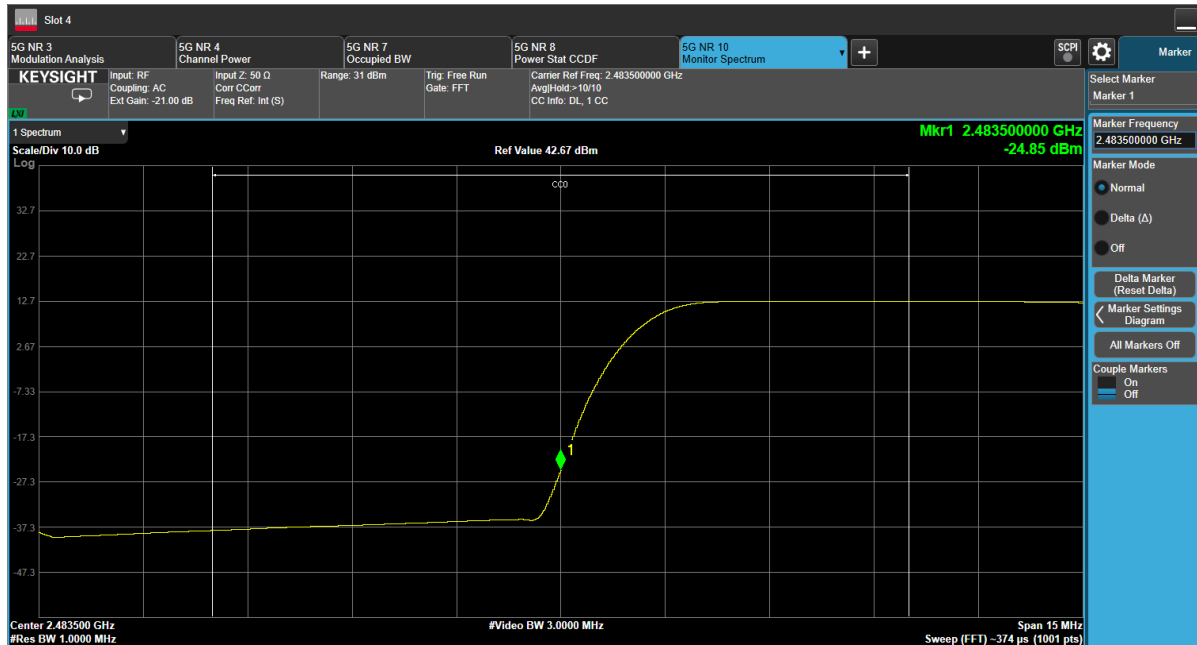
Report No.: AAEMT/RF/251215-02-01

Test Plots

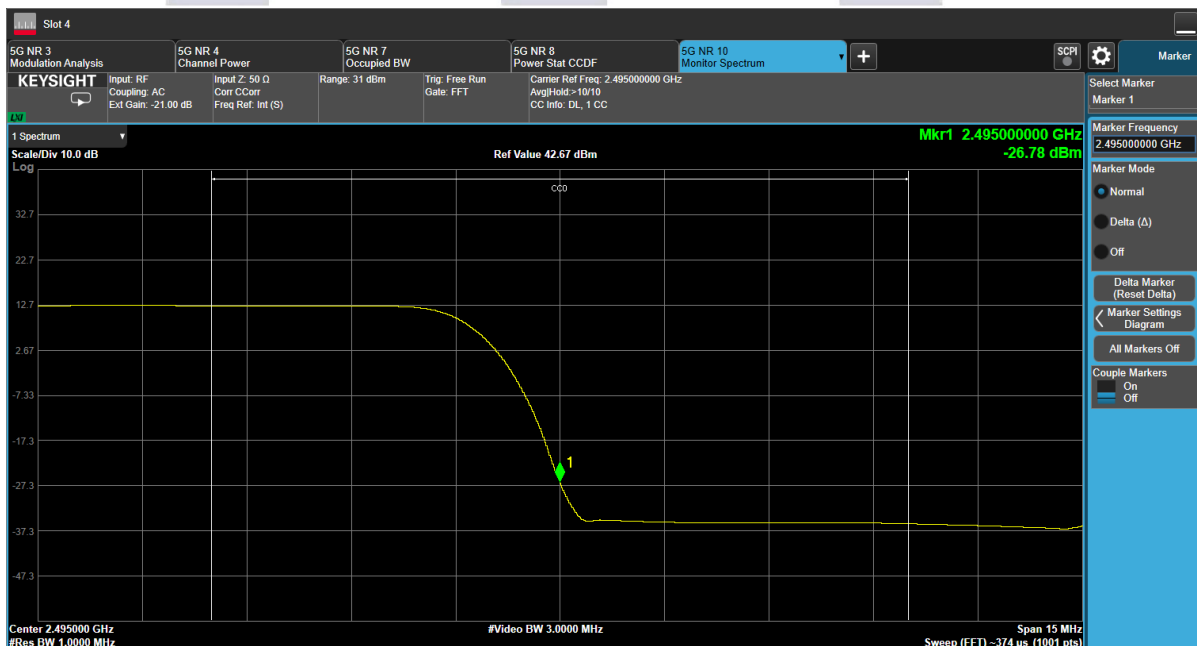
n53

Channel Bandwidth: 10 MHz ANT0

2483.50MHz



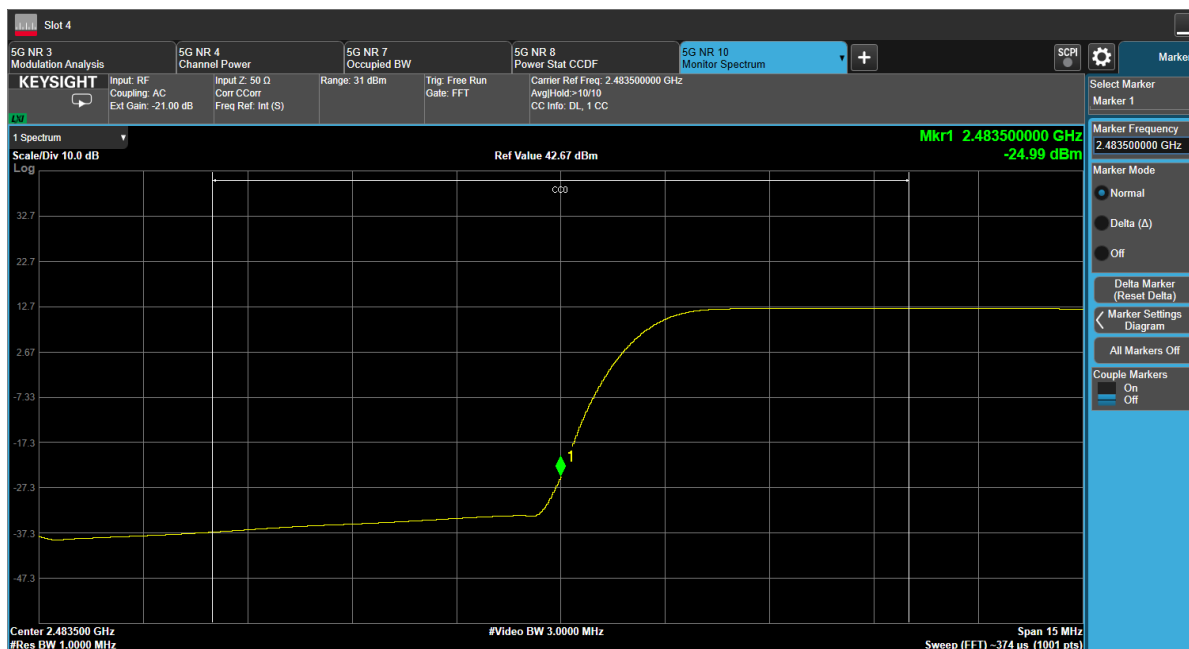
2495.00MHz



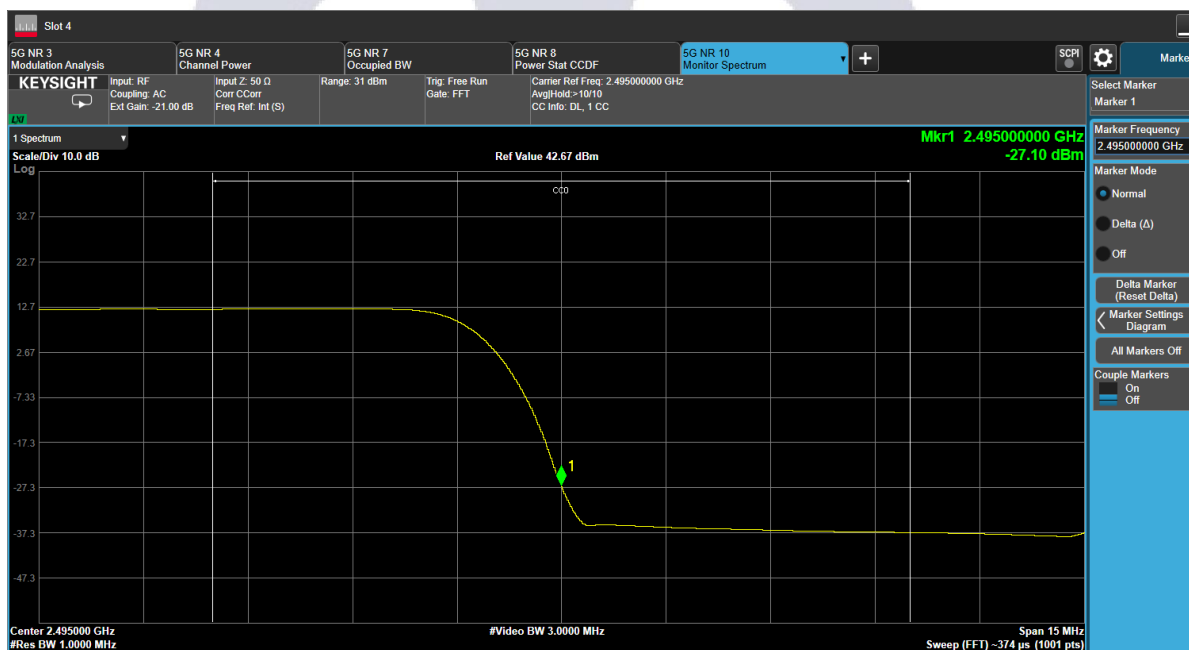
Report No.: AAEMT/RF/251215-02-01

Channel Bandwidth: 10 MHz ANT1

2483.50MHz



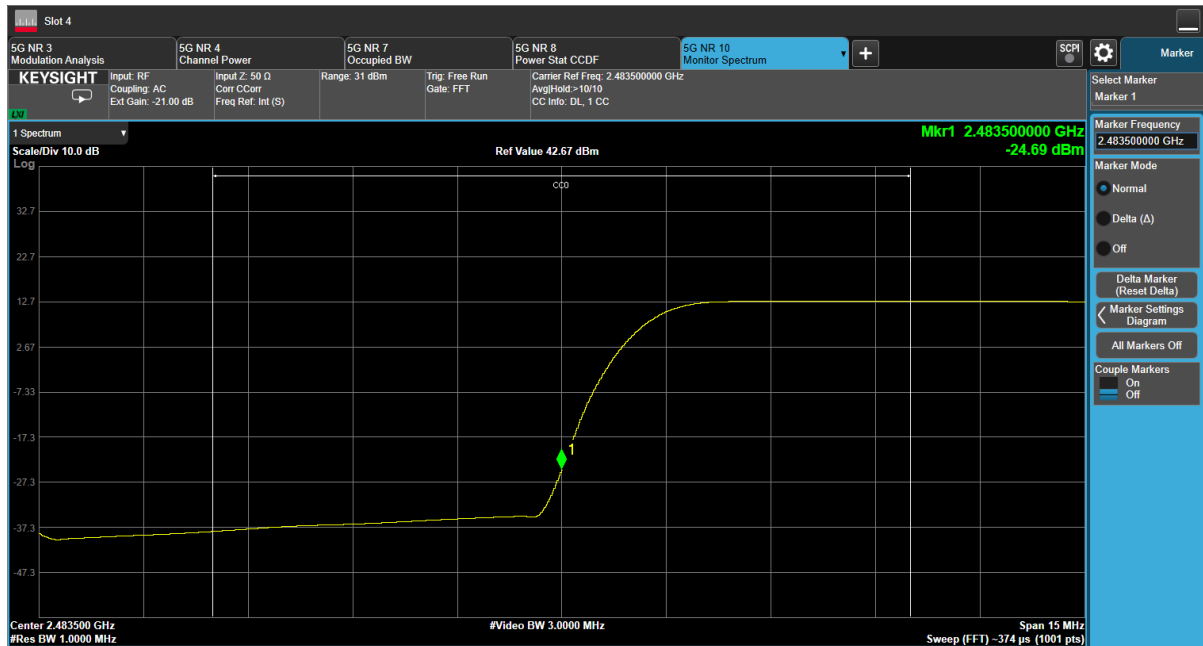
2495.00MHz



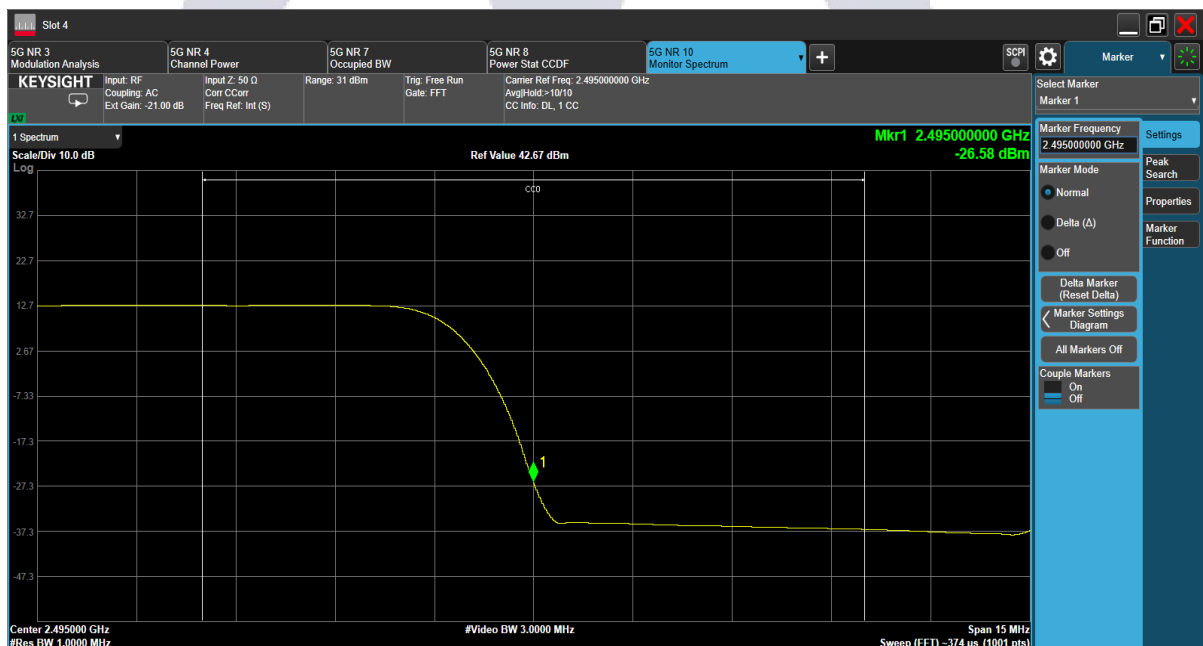
Report No.: AAEMT/RF/251215-02-01

Channel Bandwidth: 10 MHz ANT2

2483.50MHz



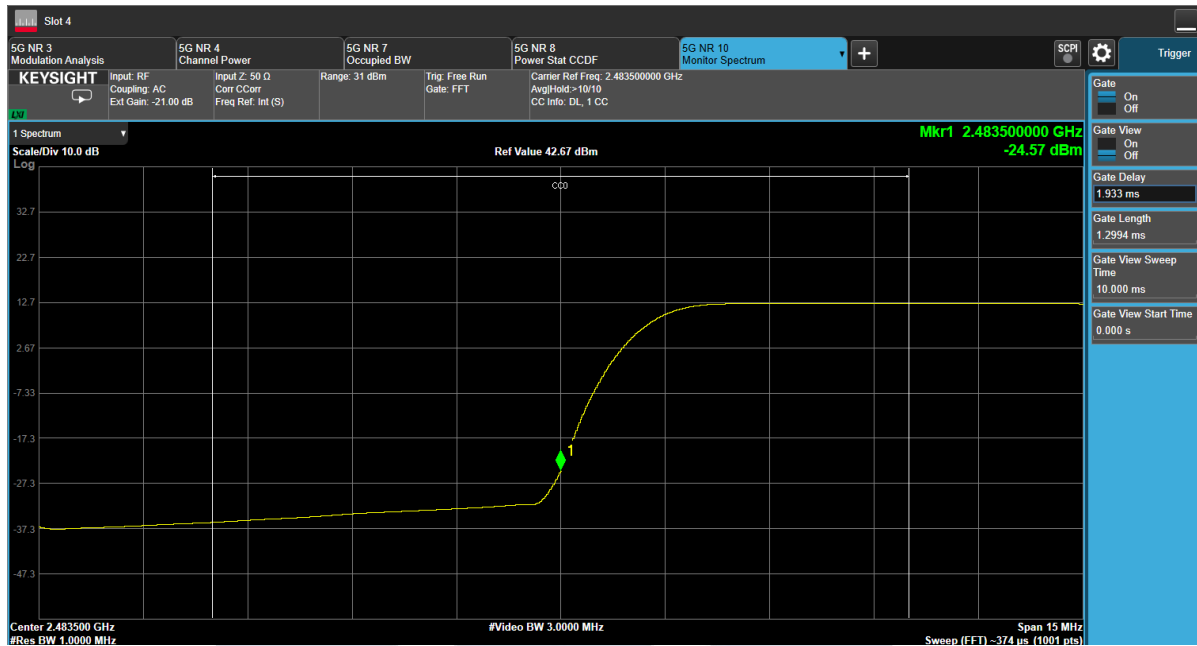
2495.00MHz



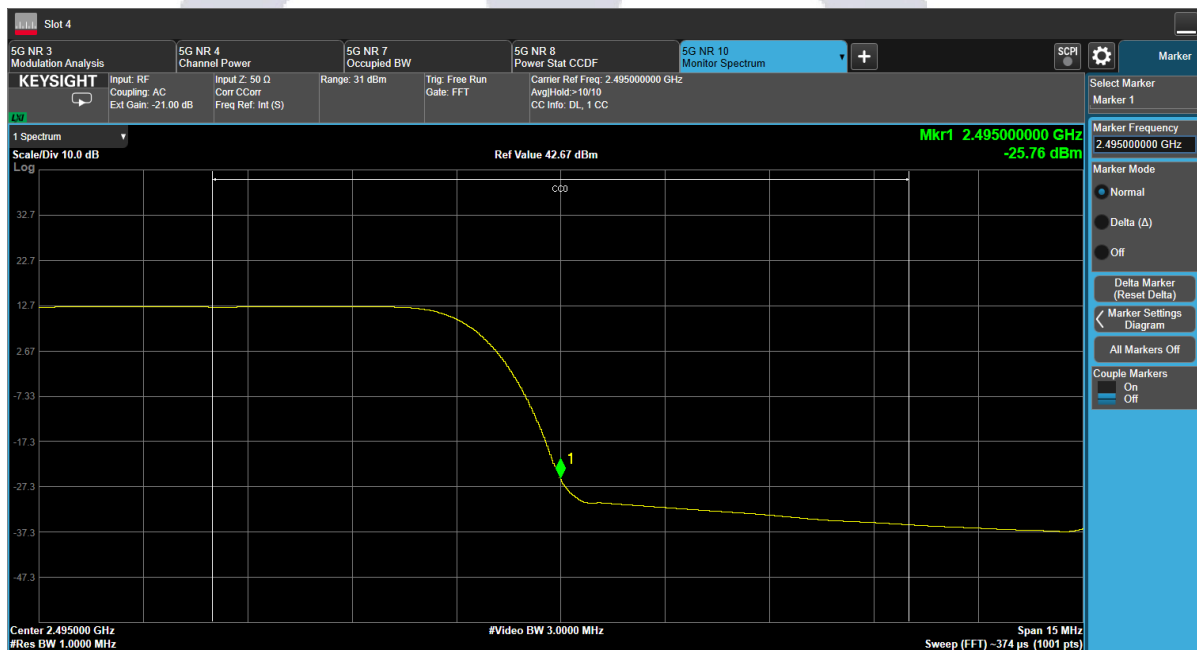
Report No.: AAEMT/RF/251215-02-01

Channel Bandwidth: 10 MHz ANT3

2483.50MHz



2495.00MHz

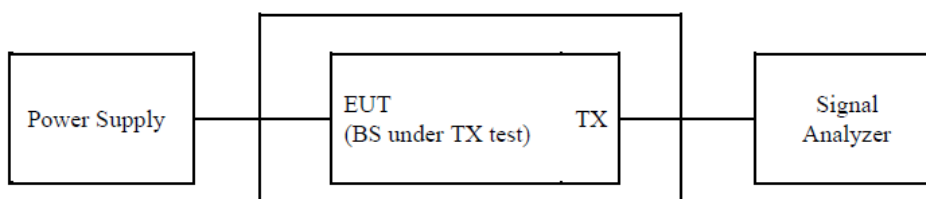


5.5 PEAK TO AVERAGE RATIO

5.5.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

5.5.2 Test Setup

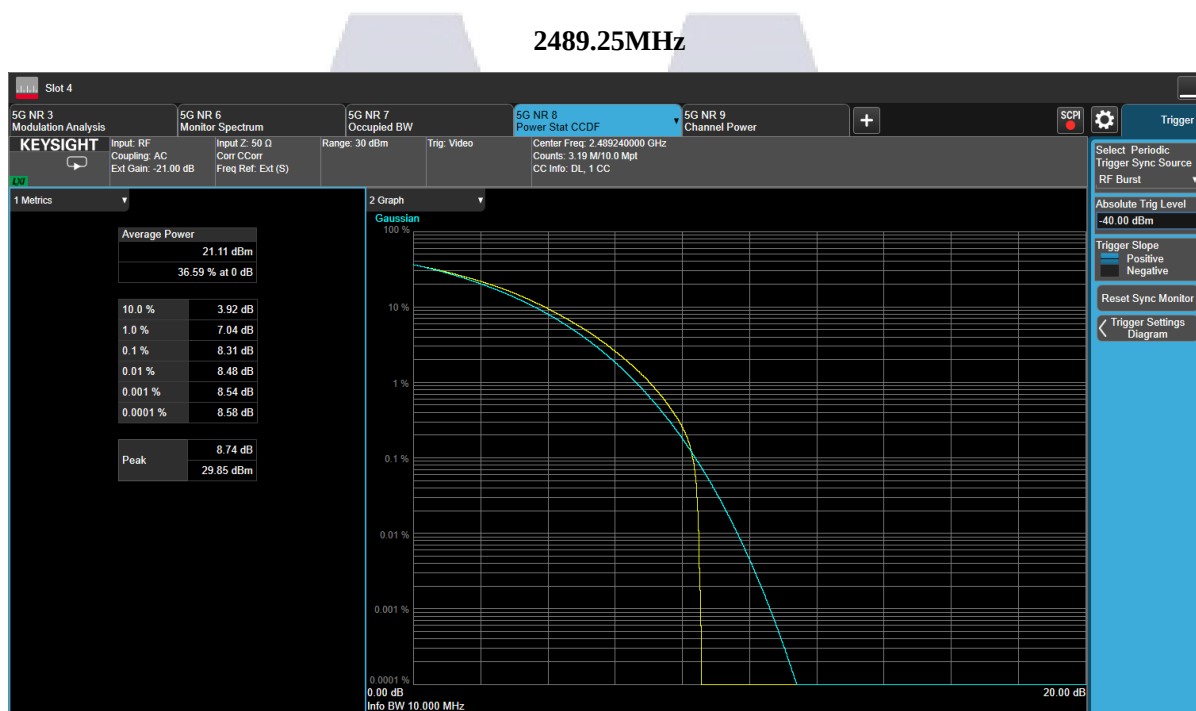


5.5.3 Test Procedures

1. Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Record the maximum PAPR level associated with a probability of 0.1 %.

5.5.4 Test Result

Frequency (MHz)	Bandwidth (MHz)	Peak to Average Ratio (dB)	Limit (dB)	Result
2489.25	10	8.31	≤ 13.00	Pass



Note:- Testing is carried out in all possible configuration , only worst case plot reported.

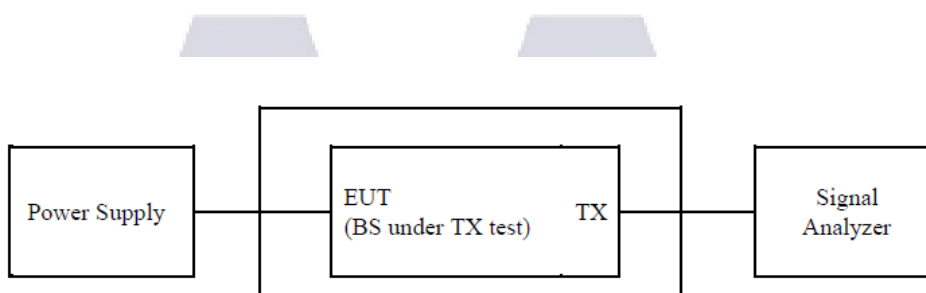
5.6 Conducted Spurious Emissions

5.6.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB. The emission limit equal to -13 dBm.

The limit is adjusted to -25dBm .

5.6.2 Test Setup



5.6.3 Test Procedure

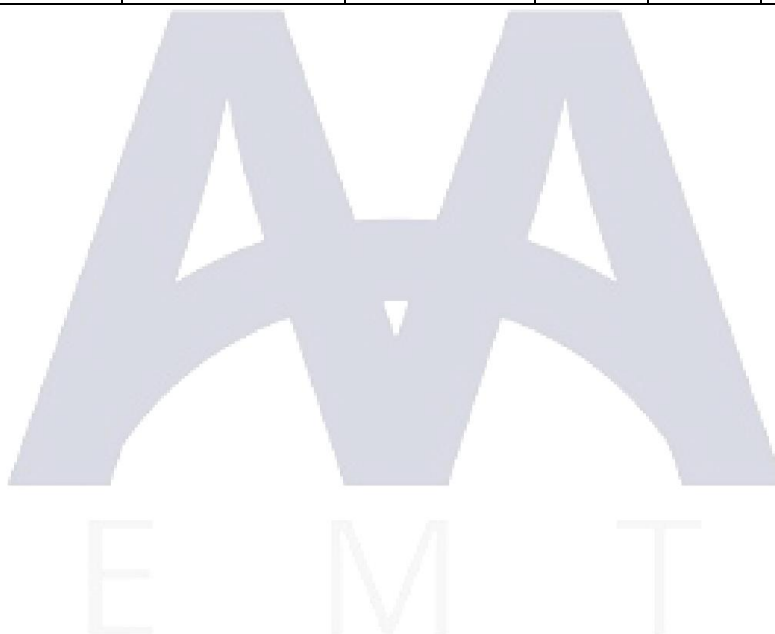
1. Set the analyzer frequency to low or high channel.
2. RBW = 100kHz or 1MHz
3. VBW $\geq 3 \times$ RBW
4. Sweep time = auto
5. Detector = power averaging (rms)
6. Set sweep trigger to "free run."
7. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple.

To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

Sr. No.	Frequency Range	RBW
1.	9KHz~30MHz	100KHz
2.	30MHz~3GHz	1MHz
3.	3GHz~26.5GHz	1MHz

5.6.4 Test Results

CH BW (MHz)	CH Freq (MHz)	Modulation	Frequency	Limit	Test Results (dBm)				Result
					Ant 0	Ant 1	Ant 2	Ant 3	
10	2489.25	QPSK	9KHz-2.4735GHz	< -25dBm/MHz	-42.49	-44.92	-44.49	-41.84	Pass
			2.505GHz-26.5 GHz		-36.51	-38.60	-41.44	-41.14	Pass

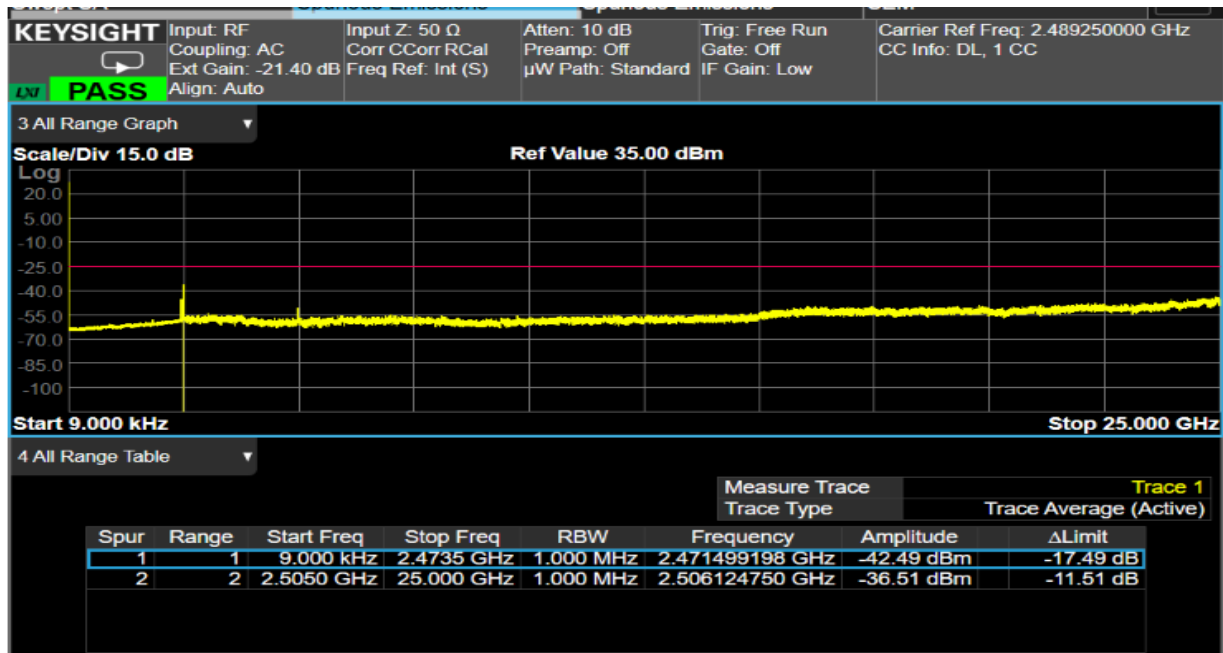


Report No.: AAEMT/RF/251215-02-01

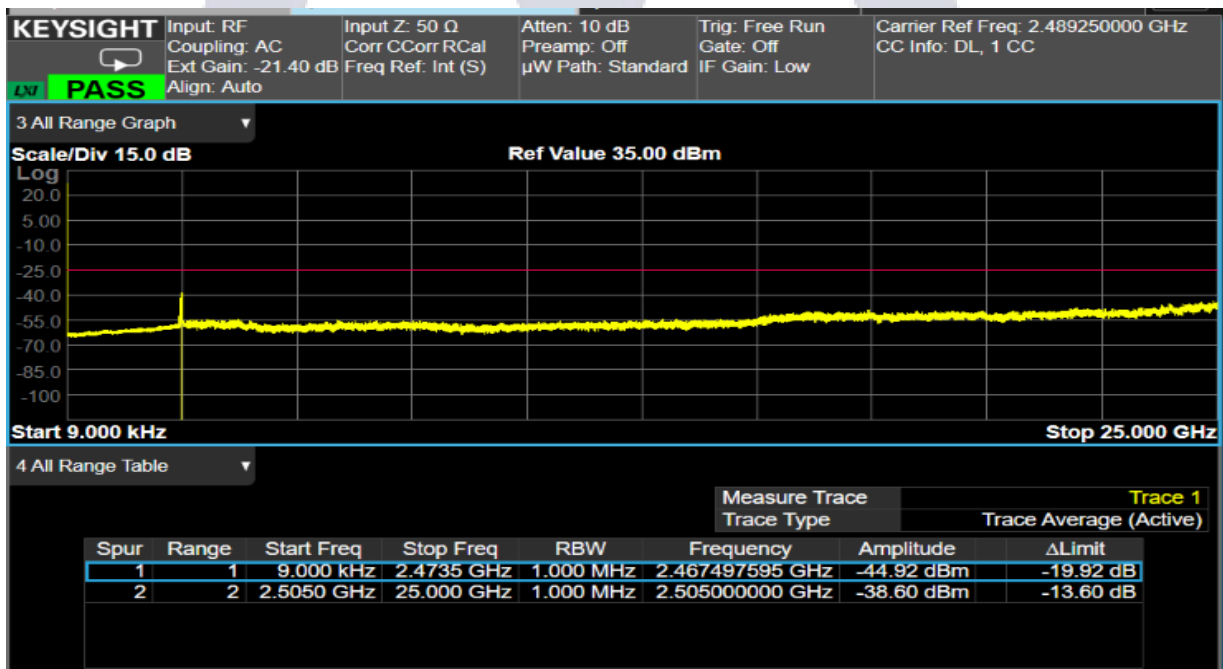
n53

Channel Bandwidth: 10 MHz

2489.25MHz@ANT0

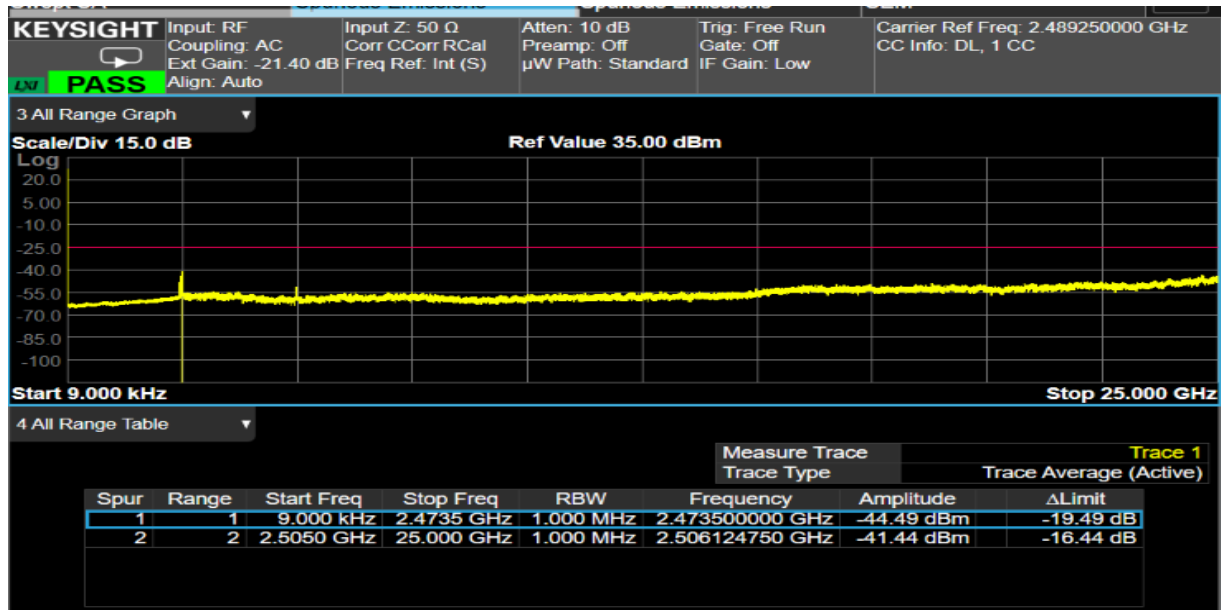


2489.25MHz@ANT1

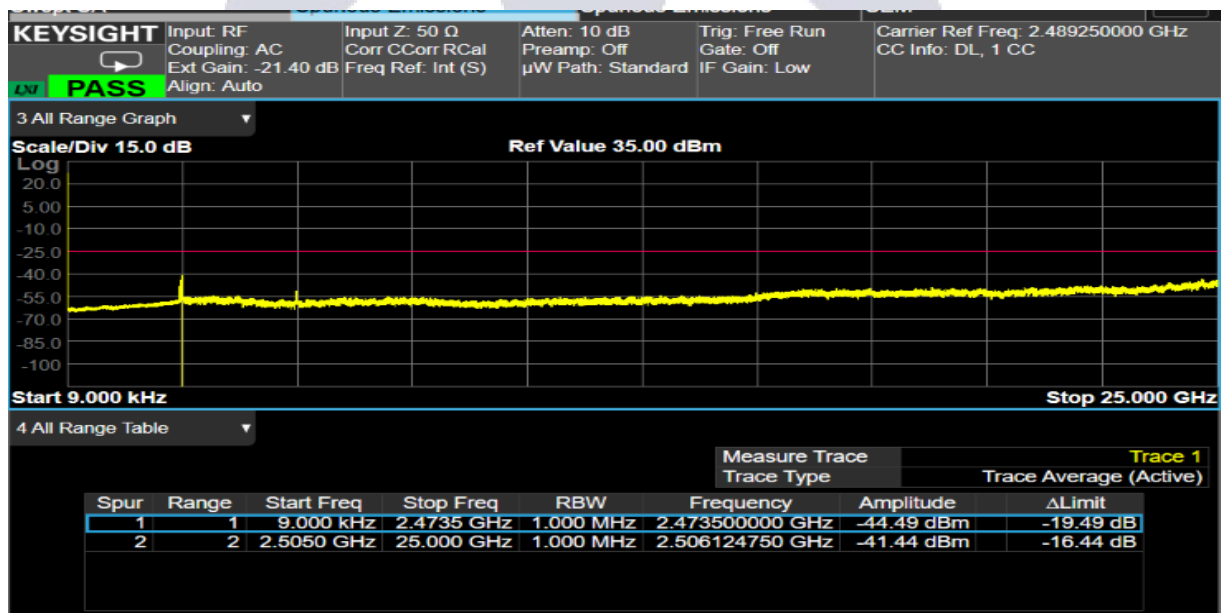


Report No.: AAEMT/RF/251215-02-01

2489.25MHz@ANT2



2489.25MHz@ANT3



5.7 Radiated Spurious Emission

5.7.1 Limits of Radiated Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB. The emission limit is equal to -25 dBm.

$E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20 \log D + 104.8$; where D is the measurement distance in meters. The emission limit equal to 70.3dB $\mu\text{V/m}$.

5.7.2 Test Procedure

1. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
2. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step a. Record the power level of S.G.
3. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain}$
4. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $\text{E.R.P power} = \text{E.I.R.P power} - 2.15 \text{ dB}$

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.

5.7.3 Test Results

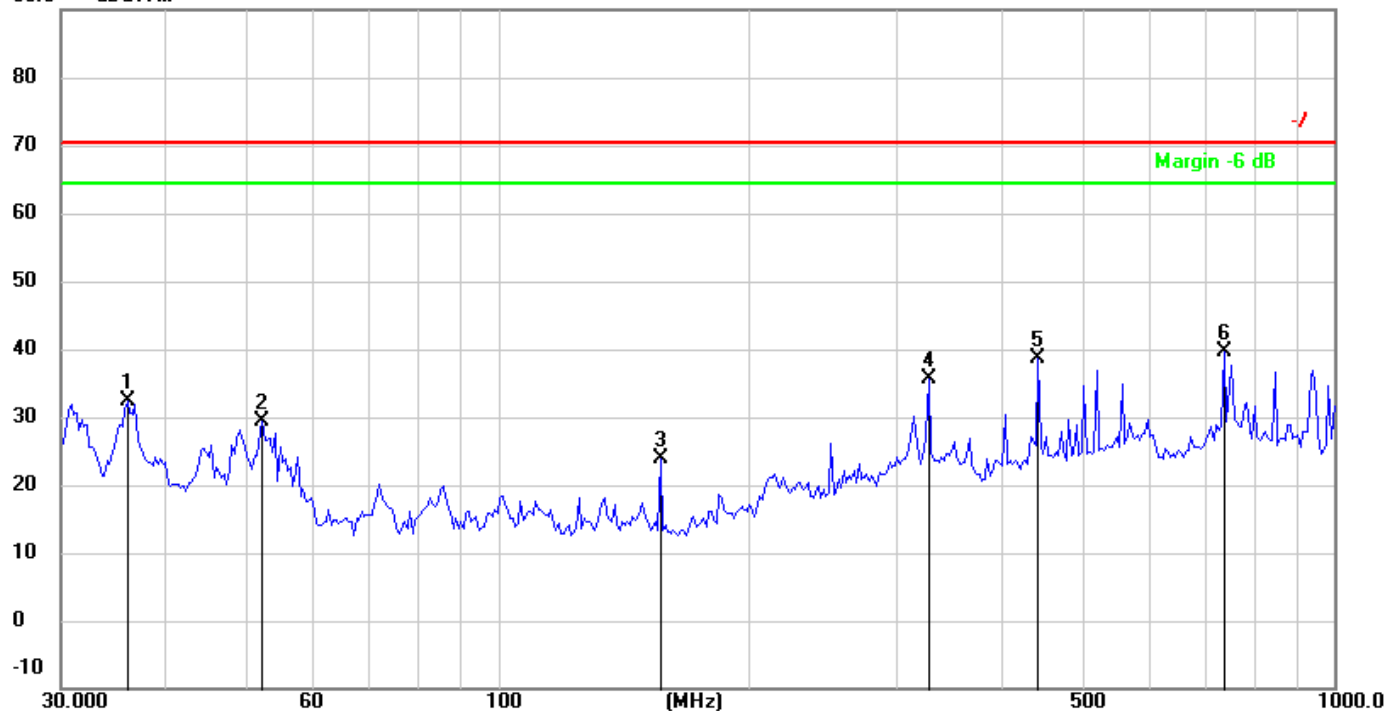
n53

Channel Bandwidth: 10MHz

2489.25MHz

Vertical

90.0 dBuV/m



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.0138	-14.98	47.40	32.42	70.30	-37.88	QP
2	52.2657	-12.11	41.40	29.29	70.30	-41.01	QP
3	156.4258	-16.00	39.96	23.96	70.30	-46.34	QP
4	327.1553	-9.04	44.59	35.55	70.30	-34.75	QP
5	442.5720	-6.07	44.80	38.73	70.30	-31.57	QP
6	739.2136	-1.86	41.52	39.66	70.30	-30.64	QP

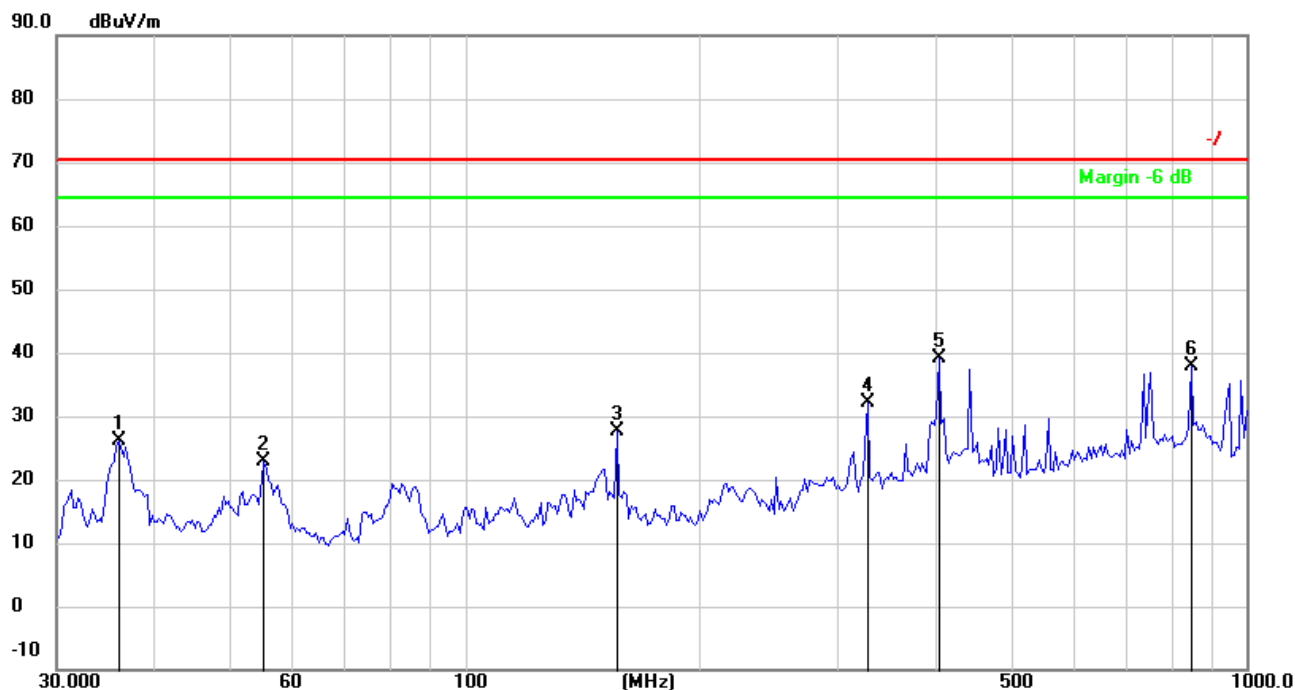
Report No.: AAEMT/RF/251215-02-01

n53

Channel Bandwidth: 10MHz

2489.25MHz

Horizontal



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	36.0138	-10.58	36.66	26.08	70.30	-44.22	QP
2	55.2882	-10.42	33.20	22.78	70.30	-47.52	QP
3	156.4258	-14.00	41.53	27.53	70.30	-42.77	QP
4	327.1553	-7.04	39.28	32.24	70.30	-38.06	QP
5	403.9334	-4.96	44.00	39.04	70.30	-31.26	QP
6	850.7602	1.56	36.31	37.87	70.30	-32.43	QP

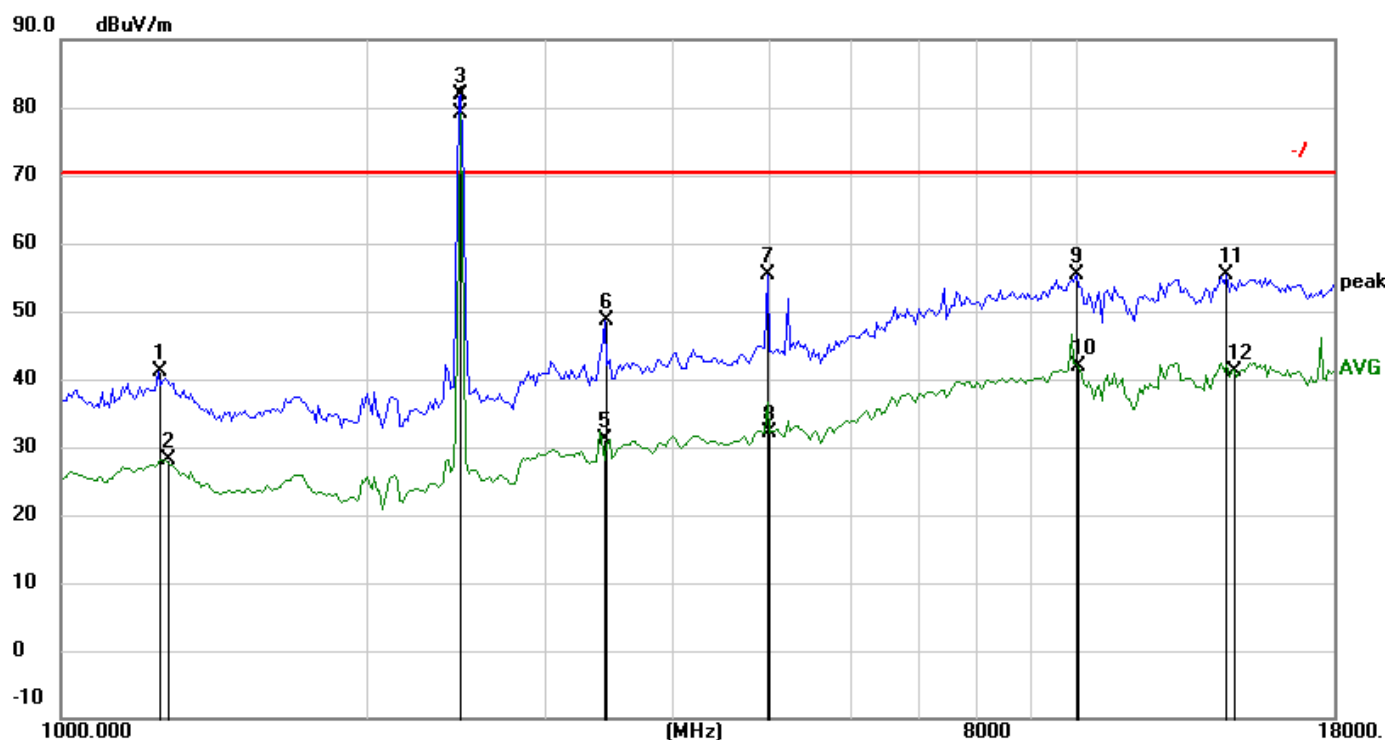
Report No.: AAEMT/RF/251215-02-01

n53

Channel Bandwidth: 10MHz

2489.25MHz

Vertical



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1246.212	-10.19	51.27	41.08	70.30	-29.22	peak
2	1268.057	-10.15	38.17	28.02	70.30	-42.28	AVG
3	2482.821	-8.99	90.83	81.84	70.30	11.54	peak
4	2482.821	-8.99	88.09	79.10	70.30	8.80	AVG
5	3414.304	-5.97	37.02	31.05	70.30	-39.25	AVG
6	3434.138	-5.76	54.43	48.67	70.30	-21.63	peak
7	4975.246	-1.14	56.62	55.48	70.30	-14.82	peak
8	5004.148	-1.14	33.23	32.09	70.30	-38.21	AVG
9	10027.653	9.09	46.36	55.45	70.30	-14.85	peak
10	10085.905	8.92	32.90	41.82	70.30	-28.48	AVG
11	14112.966	13.00	42.27	55.27	70.30	-15.03	peak
12	14277.411	12.45	28.77	41.22	70.30	-29.08	AVG

Report No.: AAEMT/RF/251215-02-01

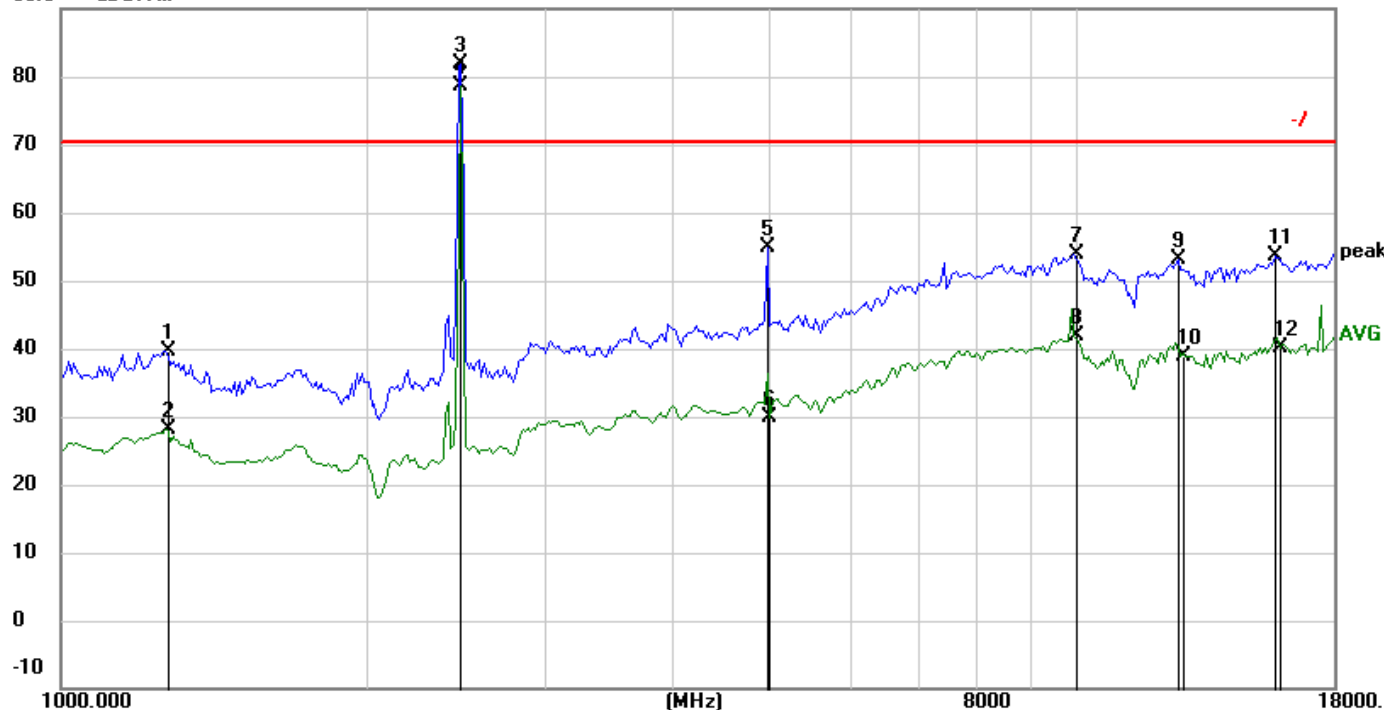
n53

Channel Bandwidth: 10MHz

2489.25MHz

Horizontal

90.0 dBuV/m



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1268.057	-10.15	49.85	39.70	70.30	-30.60	peak
2	1268.057	-10.15	38.17	28.02	70.30	-42.28	AVG
3	2482.821	-8.99	90.83	81.84	70.30	11.54	peak
4	2482.821	-8.99	87.51	78.52	70.30	8.22	AVG
5	4975.246	-1.14	55.98	54.84	70.30	-15.46	peak
6	5004.148	-1.14	31.02	29.88	70.30	-40.42	AVG
7	9969.738	8.92	45.02	53.94	70.30	-16.36	peak
8	9969.738	8.92	32.88	41.80	70.30	-28.50	AVG
9	12642.191	10.66	42.49	53.15	70.30	-17.15	peak
10	12715.632	10.76	28.24	39.00	70.30	-31.30	AVG
11	15754.849	9.82	43.71	53.53	70.30	-16.77	peak
12	15938.425	9.05	31.18	40.23	70.30	-30.07	AVG

Report No.: AAEMT/RF/251215-02-01

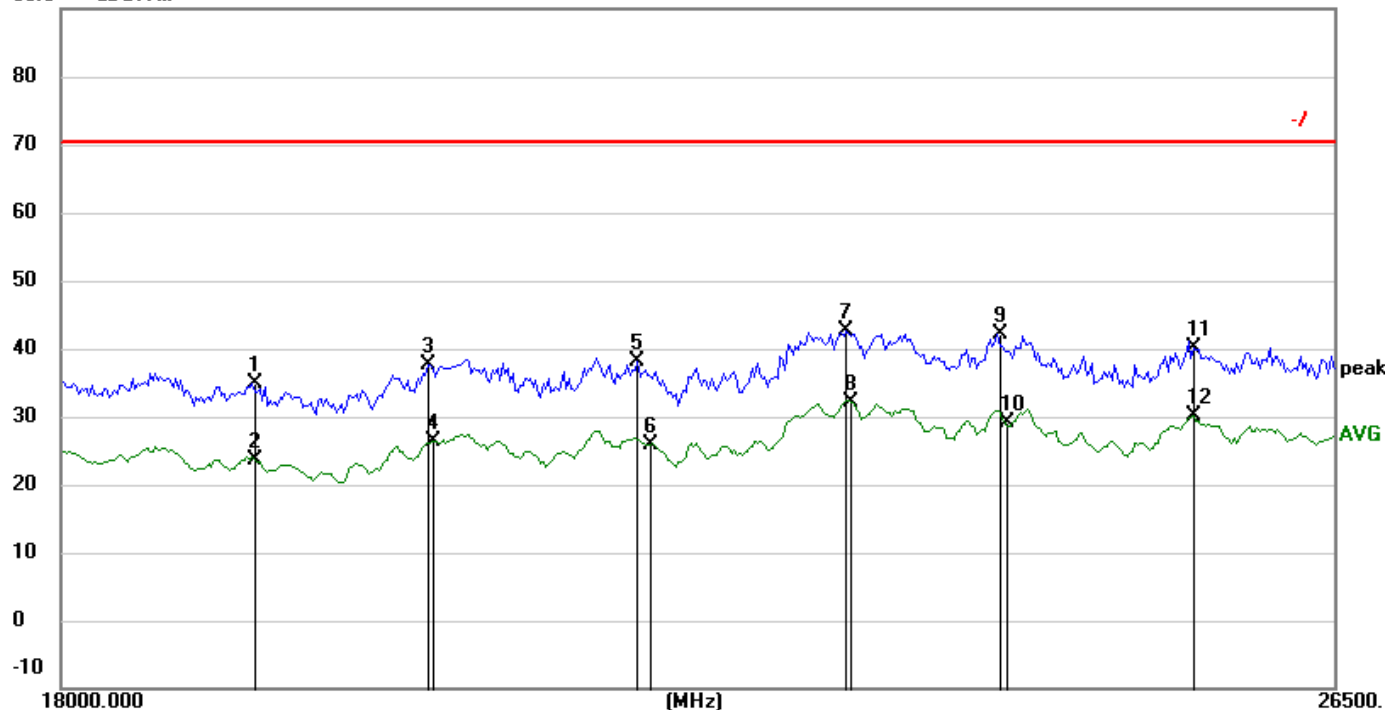
n53

Channel Bandwidth: 10MHz

2489.25MHz

Vertical

90.0 dBuV/m



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	19077.392	-7.02	41.83	34.81	70.30	-35.49	peak
2	19092.184	-7.01	30.74	23.73	70.30	-46.57	AVG
3	20125.458	-6.72	44.46	37.74	70.30	-32.56	peak
4	20156.681	-6.71	33.09	26.38	70.30	-43.92	AVG
5	21446.114	-6.38	44.57	38.19	70.30	-32.11	peak
6	21512.709	-6.37	32.32	25.95	70.30	-44.35	AVG
7	22853.433	-6.08	48.78	42.70	70.30	-27.60	peak
8	22888.888	-6.08	38.31	32.23	70.30	-38.07	AVG
9	23922.802	-5.89	47.95	42.06	70.30	-28.24	peak
10	23978.494	-5.87	34.97	29.10	70.30	-41.20	AVG
11	25394.038	-5.66	45.84	40.18	70.30	-30.12	peak
12	25394.038	-5.66	35.76	30.10	70.30	-40.20	AVG

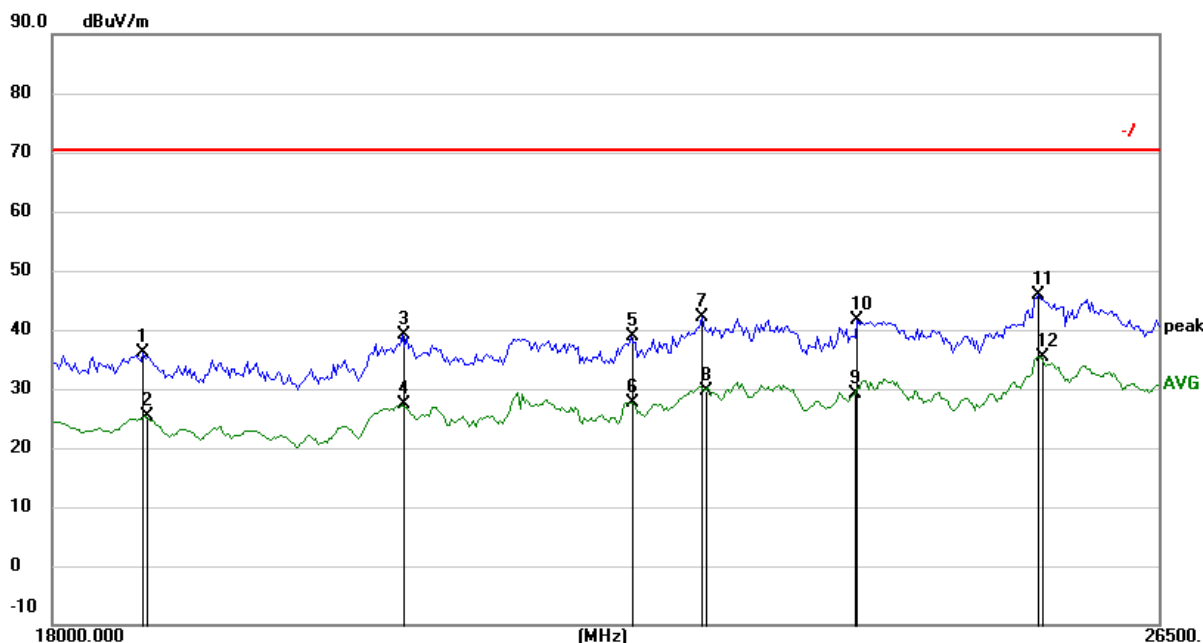
Report No.: AAEMT/RF/251215-02-01

n53

Channel Bandwidth: 10MHz

2489.25MHz

Horizontal



No.	Frequency (MHz)	Factor (dBuV/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	18581.207	-7.14	43.28	36.14	70.30	-34.16	peak
2	18595.615	-7.14	32.58	25.44	70.30	-44.86	AVG
3	20345.036	-6.65	45.78	39.13	70.30	-31.17	peak
4	20345.036	-6.65	33.99	27.34	70.30	-42.96	AVG
5	22035.876	-6.25	45.23	38.98	70.30	-31.32	peak
6	22035.876	-6.25	33.80	27.55	70.30	-42.75	AVG
7	22589.268	-6.13	48.14	42.01	70.30	-28.29	peak
8	22606.784	-6.13	35.81	29.68	70.30	-40.62	AVG
9	23830.268	-5.90	35.06	29.16	70.30	-41.14	AVG
10	23848.746	-5.90	47.42	41.52	70.30	-28.78	peak
11	25413.729	-5.65	51.44	45.79	70.30	-24.51	peak
12	25433.435	-5.65	41.08	35.43	70.30	-34.87	AVG


****End of Report****