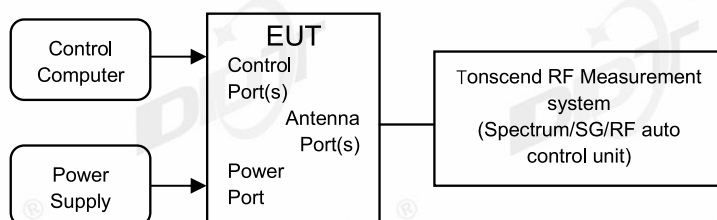


9. Power Spectral Density

9.1. Block diagram of test setup



9.2. Limits

FCC Part15		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	Other than Mobile and portable:17 dBm/MHz Mobile and portable client devices:11 dBm/MHz	5150-5250
	11 dBm/MHz	5250-5350
	11 dBm/MHz	5470 - 5725
	30 dBm/500 kHz	5725-5850

9.3. 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:

5150 MHz~5250 MHz, 5250 MHz~5350 MHz, 5470 MHz~5725 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	1MHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

5725 MHz-5850 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

9.4. Test result

Test Mode	Antenna	Frequency [MHz]	Result [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	Ant1	5180	0.14	≤ 11.00	PASS
		5200	0.56	≤ 11.00	PASS
		5240	0.83	≤ 11.00	PASS
		5260	0.97	≤ 11.00	PASS
		5280	1.20	≤ 11.00	PASS
		5320	0.97	≤ 11.00	PASS
		5500	-0.50	≤ 11.00	PASS
		5580	-1.49	≤ 11.00	PASS
		5700	-2.68	≤ 11.00	PASS
		5720_UNII-2C	-3.01	≤ 11.00	PASS
		5720_UNII-3	-9.61	≤ 30.00	PASS
		5745	-4.86	≤ 30.00	PASS
		5785	-4.47	≤ 30.00	PASS
		5825	-4.96	≤ 30.00	PASS
11N20SISO	Ant1	5180	-0.46	≤ 11.00	PASS
		5200	0.11	≤ 11.00	PASS
		5240	0.47	≤ 11.00	PASS
		5260	0.51	≤ 11.00	PASS
		5280	0.92	≤ 11.00	PASS
		5320	0.76	≤ 11.00	PASS

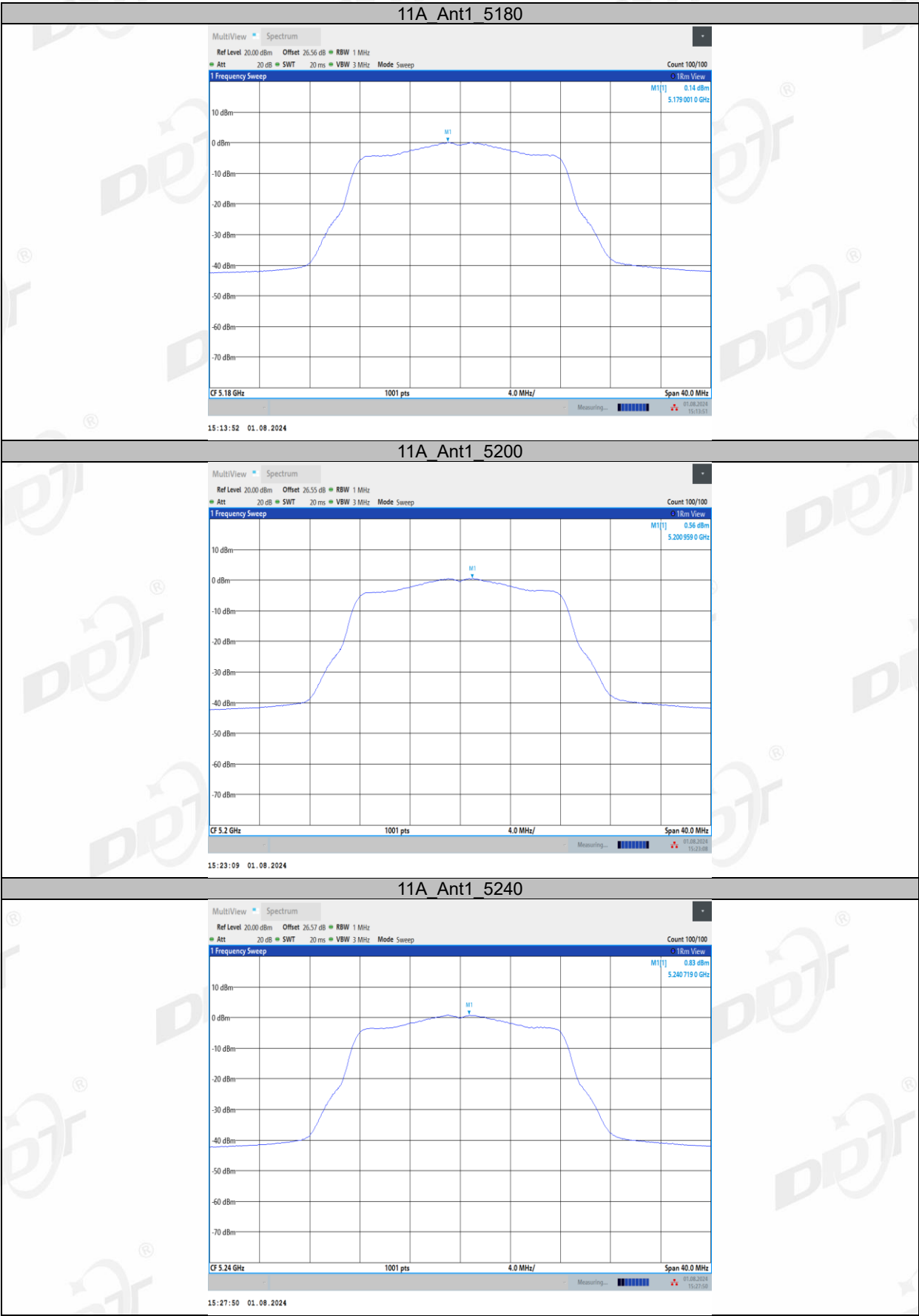
		5500	-0.87	≤11.00	PASS
		5580	-1.72	≤11.00	PASS
		5700	-3.04	≤11.00	PASS
		5720_UNII-2C	-3.46	≤11.00	PASS
		5720_UNII-3	-9.83	≤30.00	PASS
		5745	-5.29	≤30.00	PASS
		5785	-4.68	≤30.00	PASS
		5825	-5.62	≤30.00	PASS
11N40SISO	Ant1	5190	-3.09	≤11.00	PASS
		5230	-2.42	≤11.00	PASS
		5270	-1.96	≤11.00	PASS
		5310	-2.07	≤11.00	PASS
		5510	-3.96	≤11.00	PASS
		5550	-4.30	≤11.00	PASS
		5670	-5.72	≤11.00	PASS
		5755	-8.01	≤30.00	PASS
11AC20SISO	Ant1	5795	-7.61	≤30.00	PASS
		5180	-0.21	≤11.00	PASS
		5200	0.44	≤11.00	PASS
		5240	0.68	≤11.00	PASS
		5260	0.63	≤11.00	PASS
		5280	1.14	≤11.00	PASS
		5320	0.75	≤11.00	PASS
		5500	-0.87	≤11.00	PASS
		5580	-1.70	≤11.00	PASS
		5700	-2.94	≤11.00	PASS
		5720_UNII-2C	-3.42	≤11.00	PASS
		5720_UNII-3	-10.10	≤30.00	PASS
		5745	-5.04	≤30.00	PASS
		5785	-4.81	≤30.00	PASS

		5825	-5.55	≤30.00	PASS
11AC40SISO	Ant1	5190	-2.63	≤11.00	PASS
		5230	-2.24	≤11.00	PASS
		5270	-1.75	≤11.00	PASS
		5310	-2.04	≤11.00	PASS
		5510	-4.07	≤11.00	PASS
		5550	-4.10	≤11.00	PASS
		5670	-5.61	≤11.00	PASS
		5710_UNII-2C	-6.11	≤11.00	PASS
		5710_UNII-3	-12.83	≤30.00	PASS
		5755	-8.09	≤30.00	PASS
		5795	-7.63	≤30.00	PASS
11AC80SISO	Ant1	5210	-5.38	≤11.00	PASS
		5290	-5.11	≤11.00	PASS
		5530	-7.10	≤11.00	PASS
		5610	-7.79	≤11.00	PASS
		5690_UNII-2C	-8.55	≤11.00	PASS
		5690_UNII-3	-15.61	≤30.00	PASS
		5775	-10.92	≤30.00	PASS

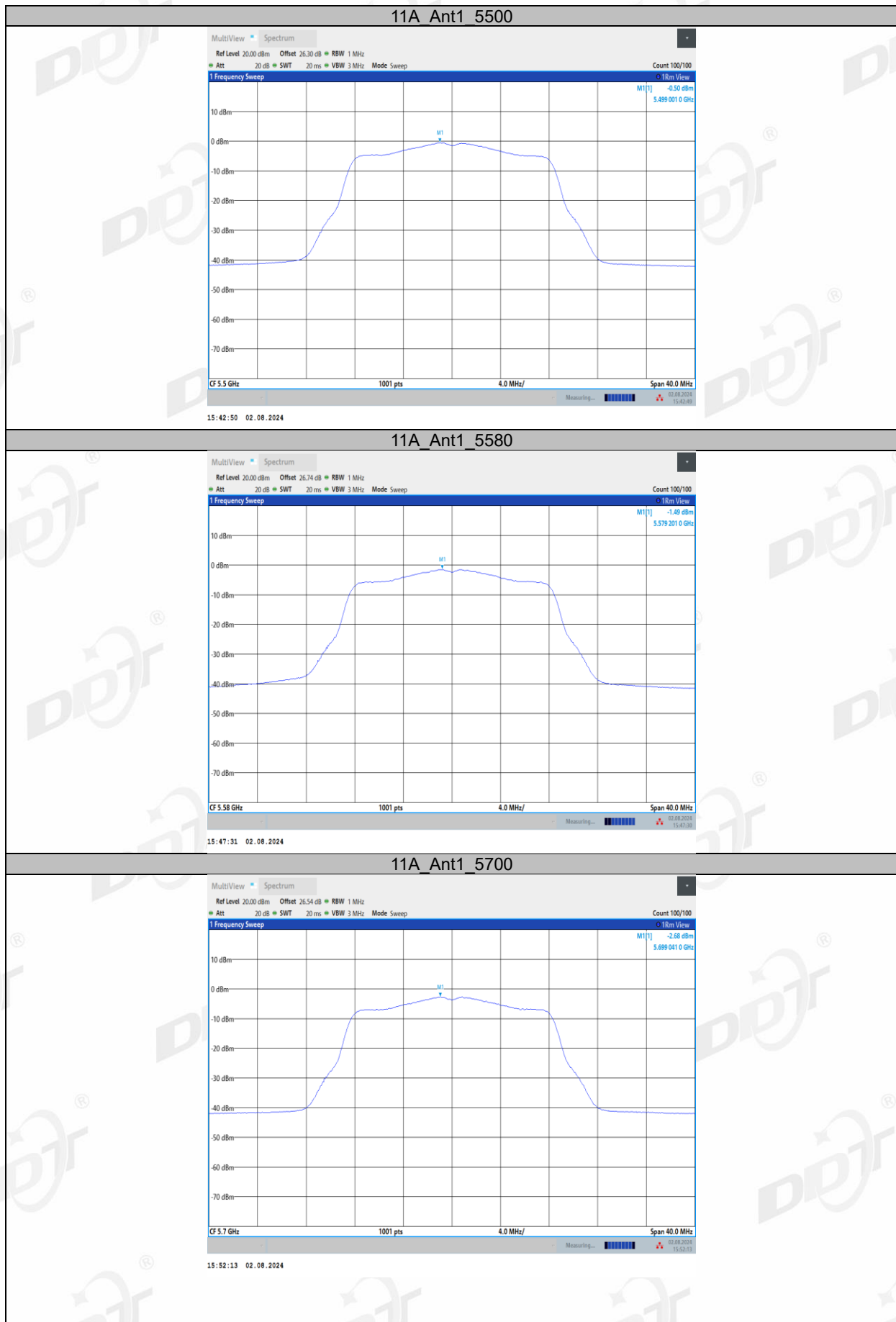
Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

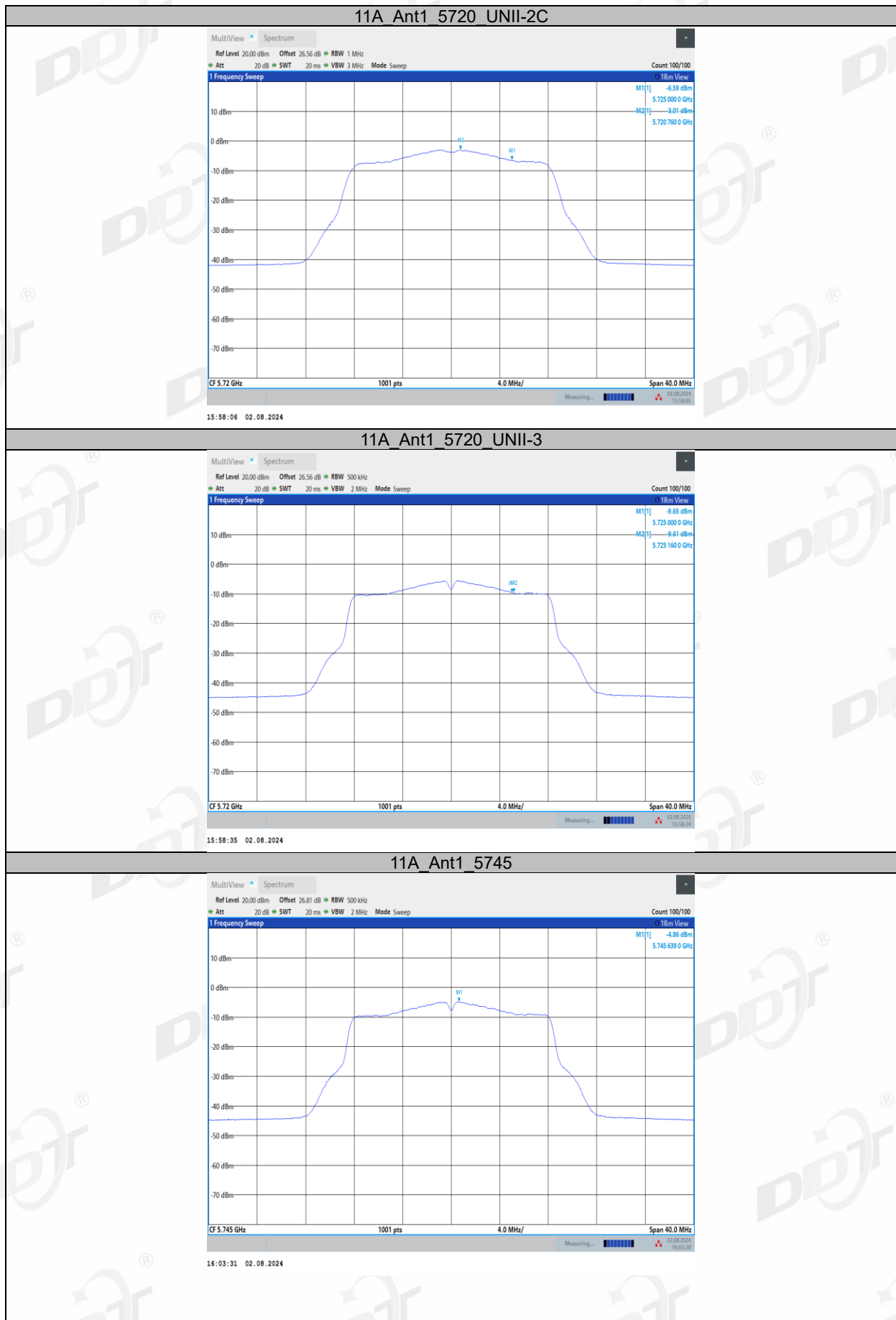
2.The Duty Cycle Factor is compensated in the graph.

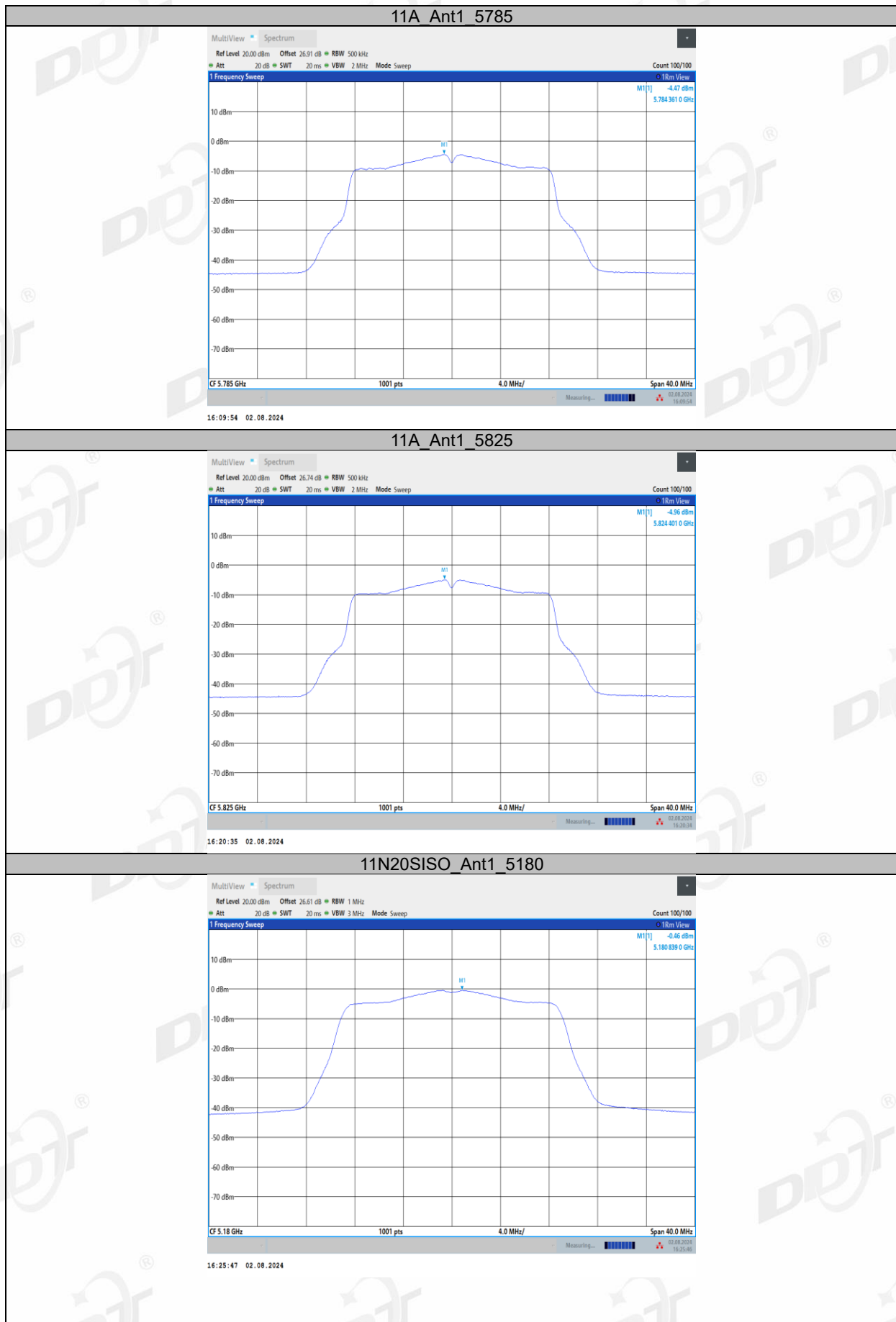
9.5. Test graphs

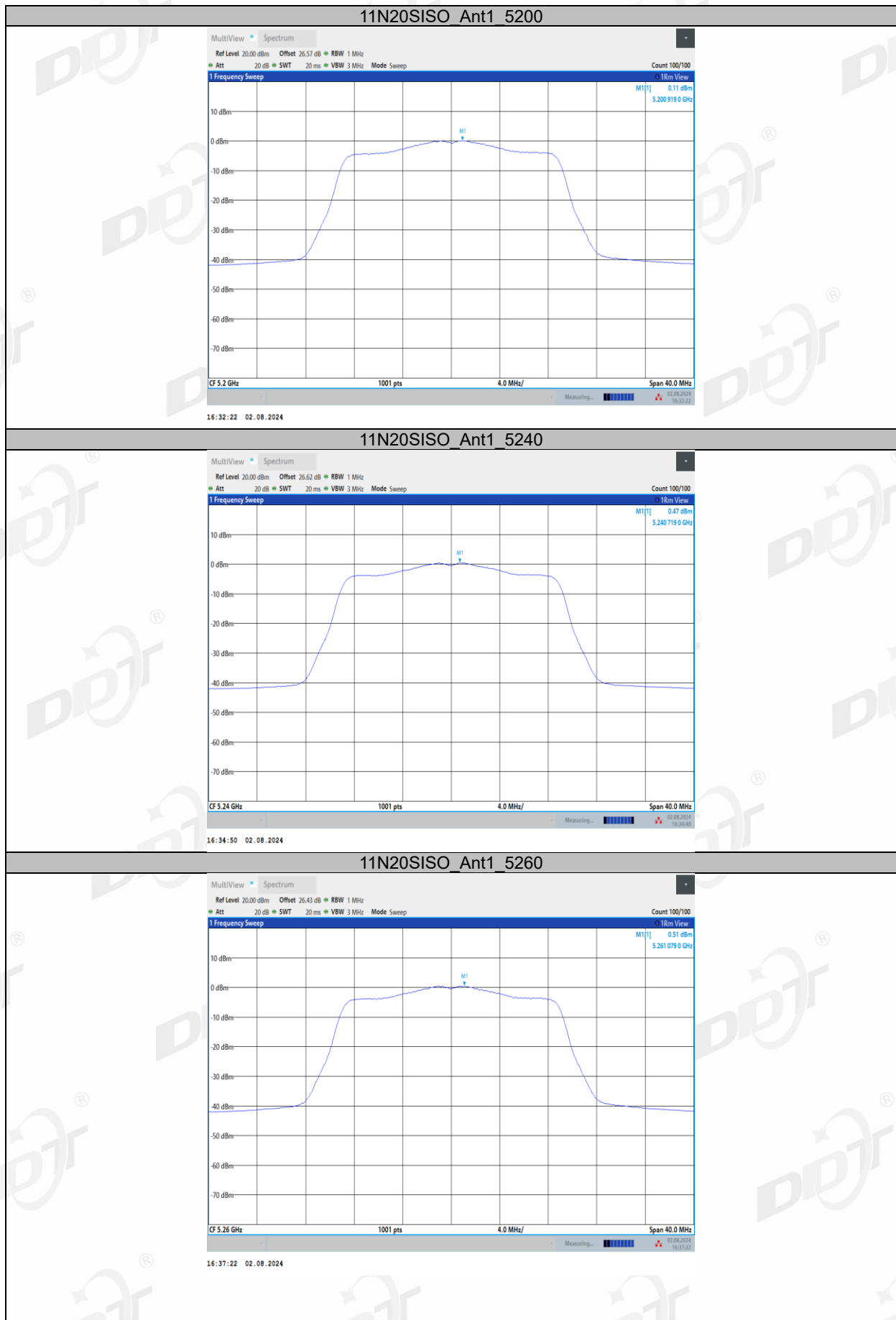


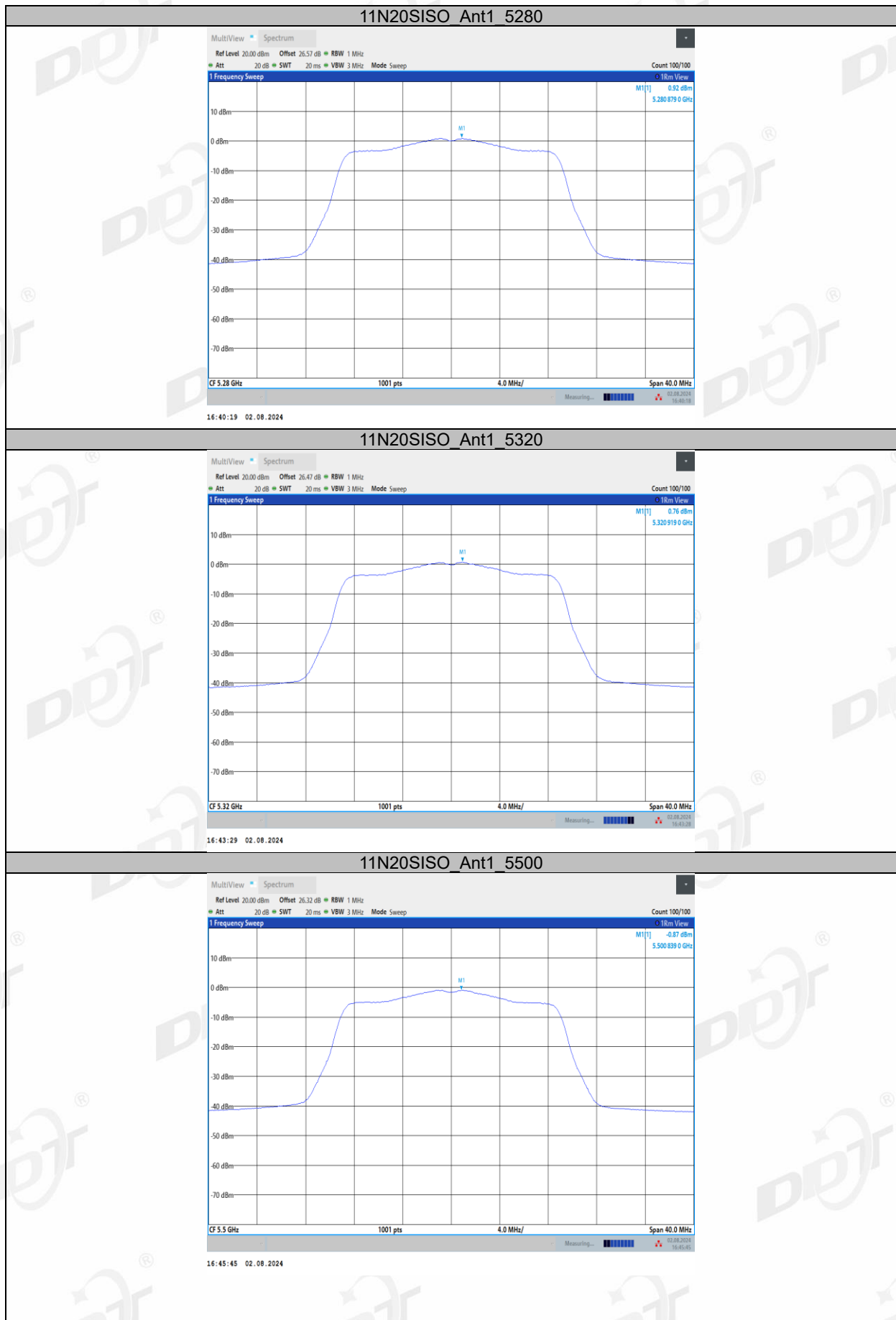


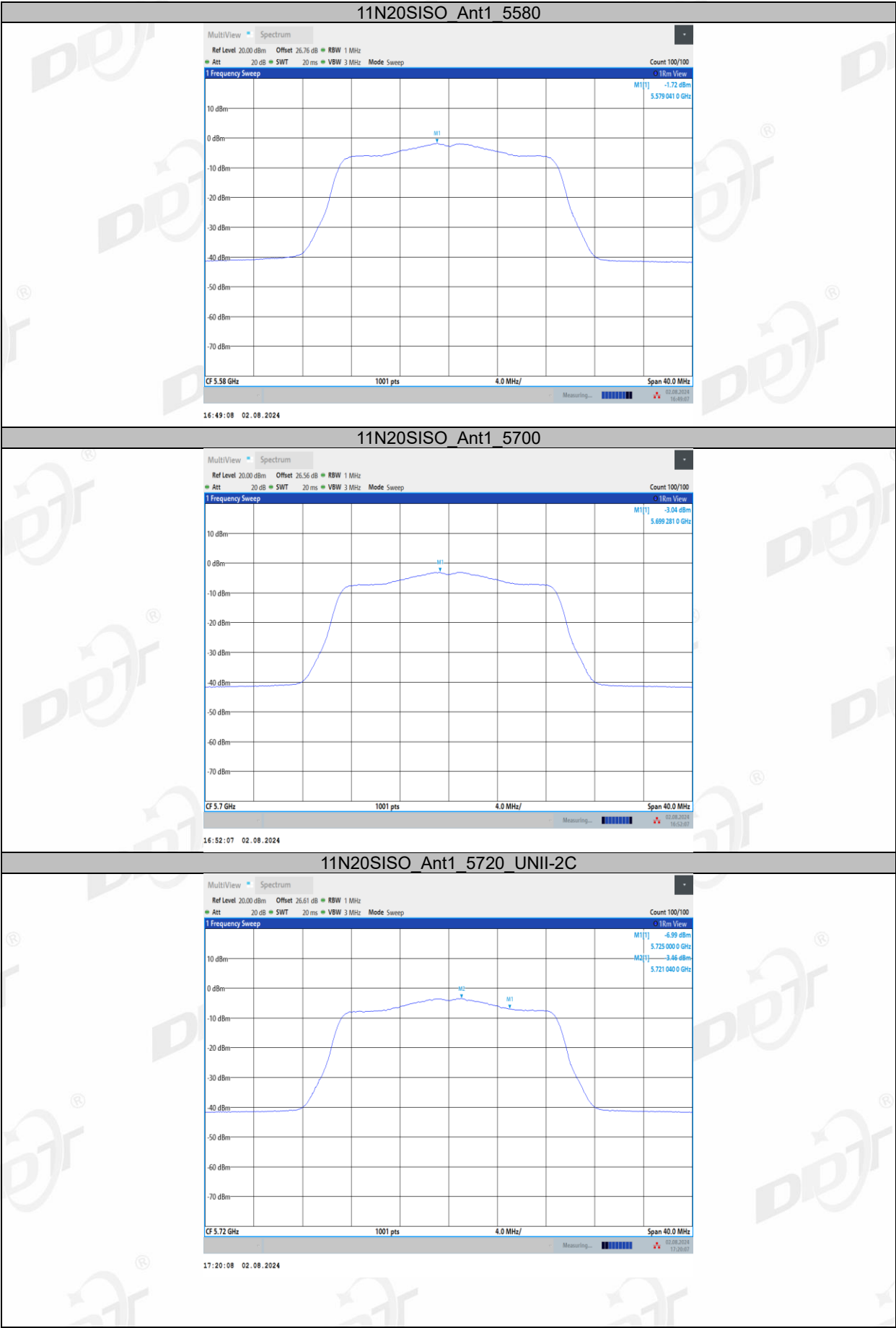


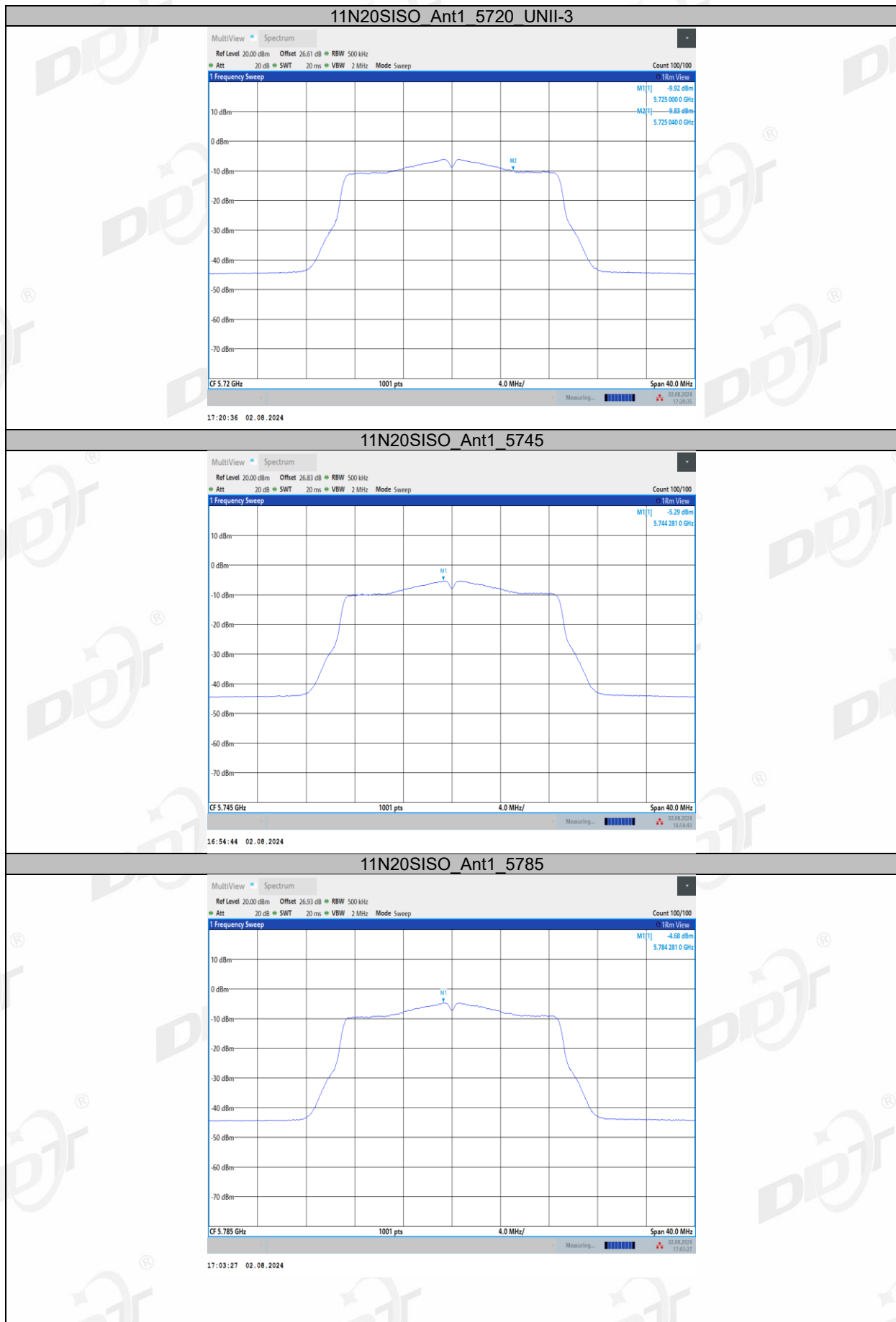


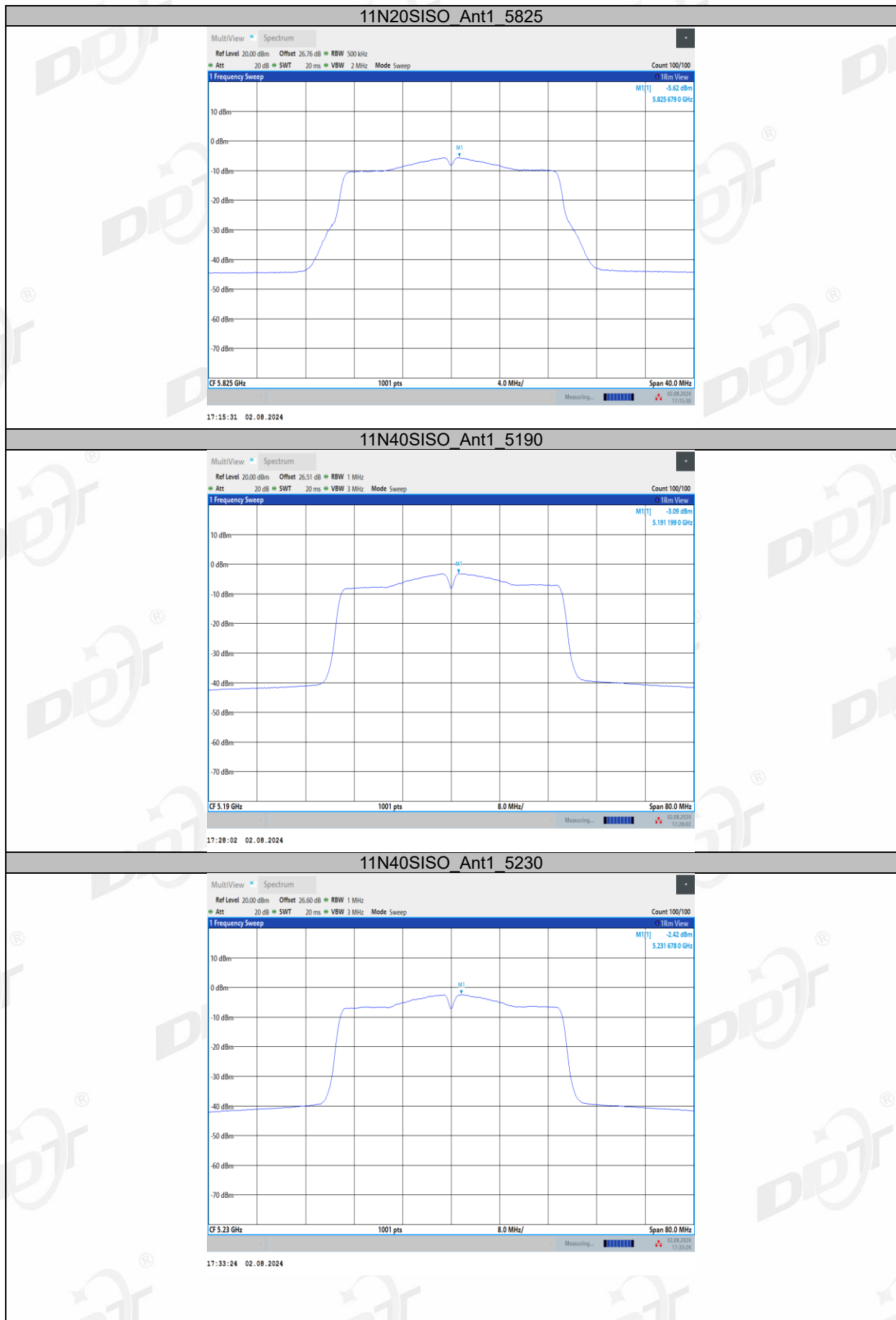


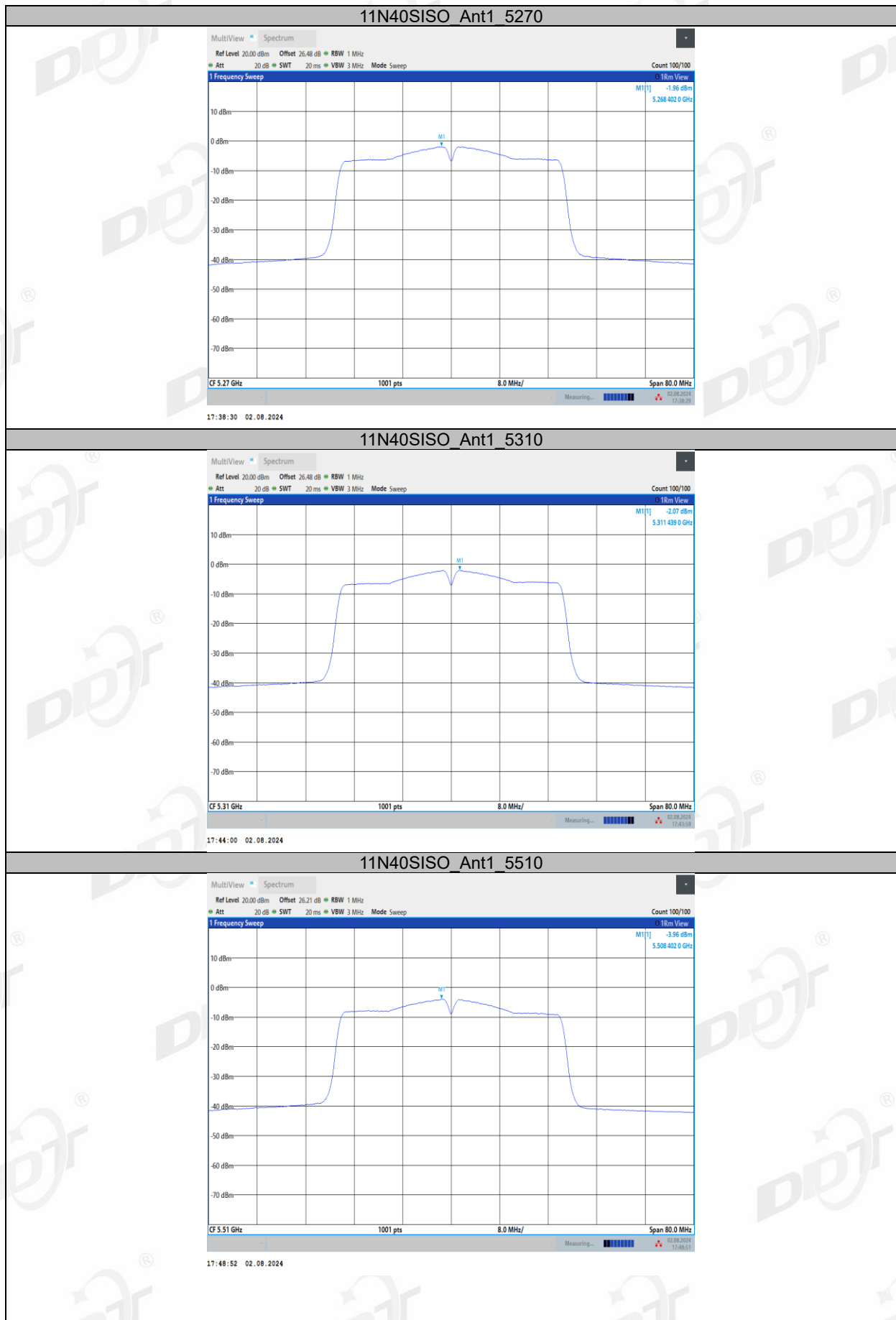


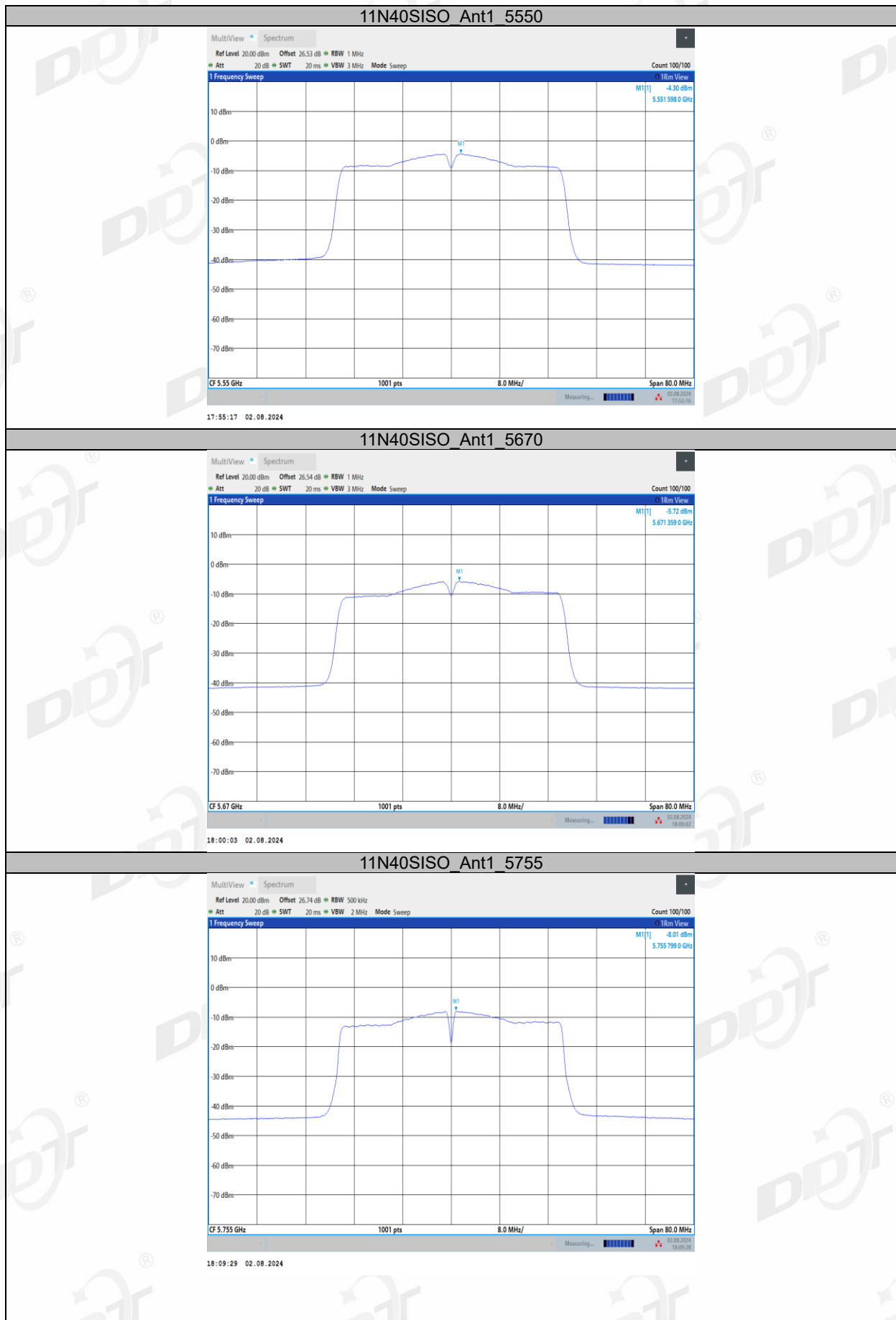


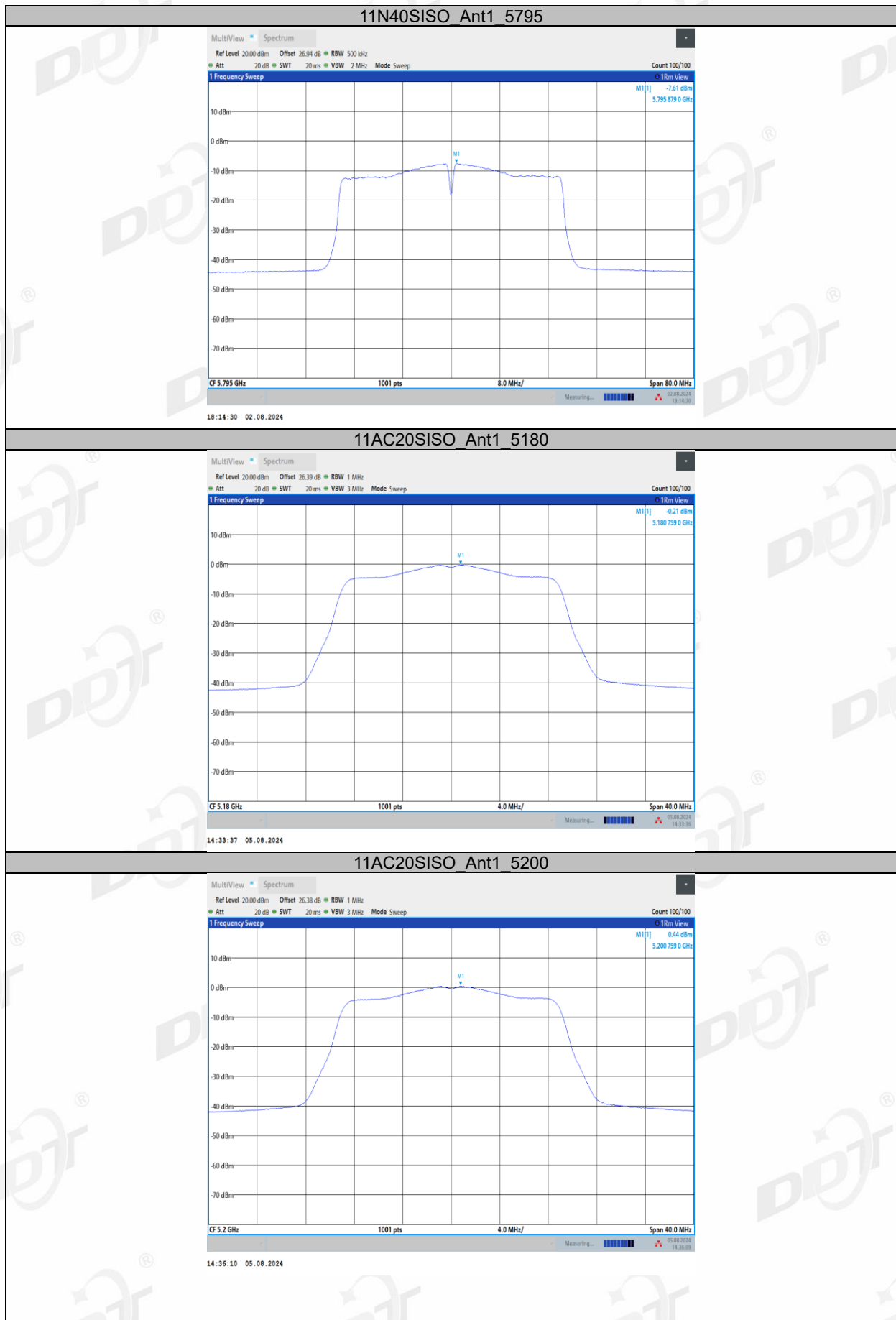




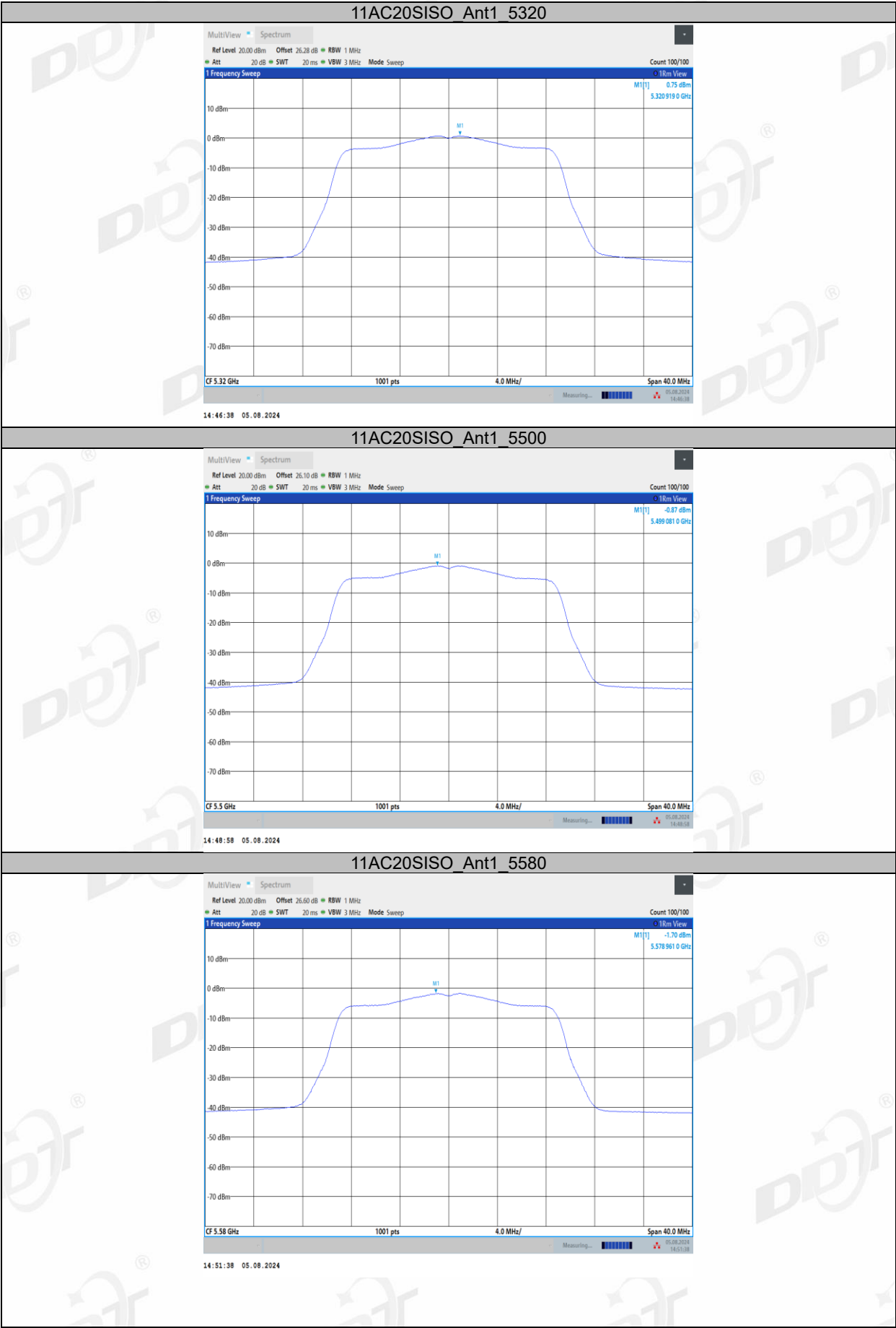


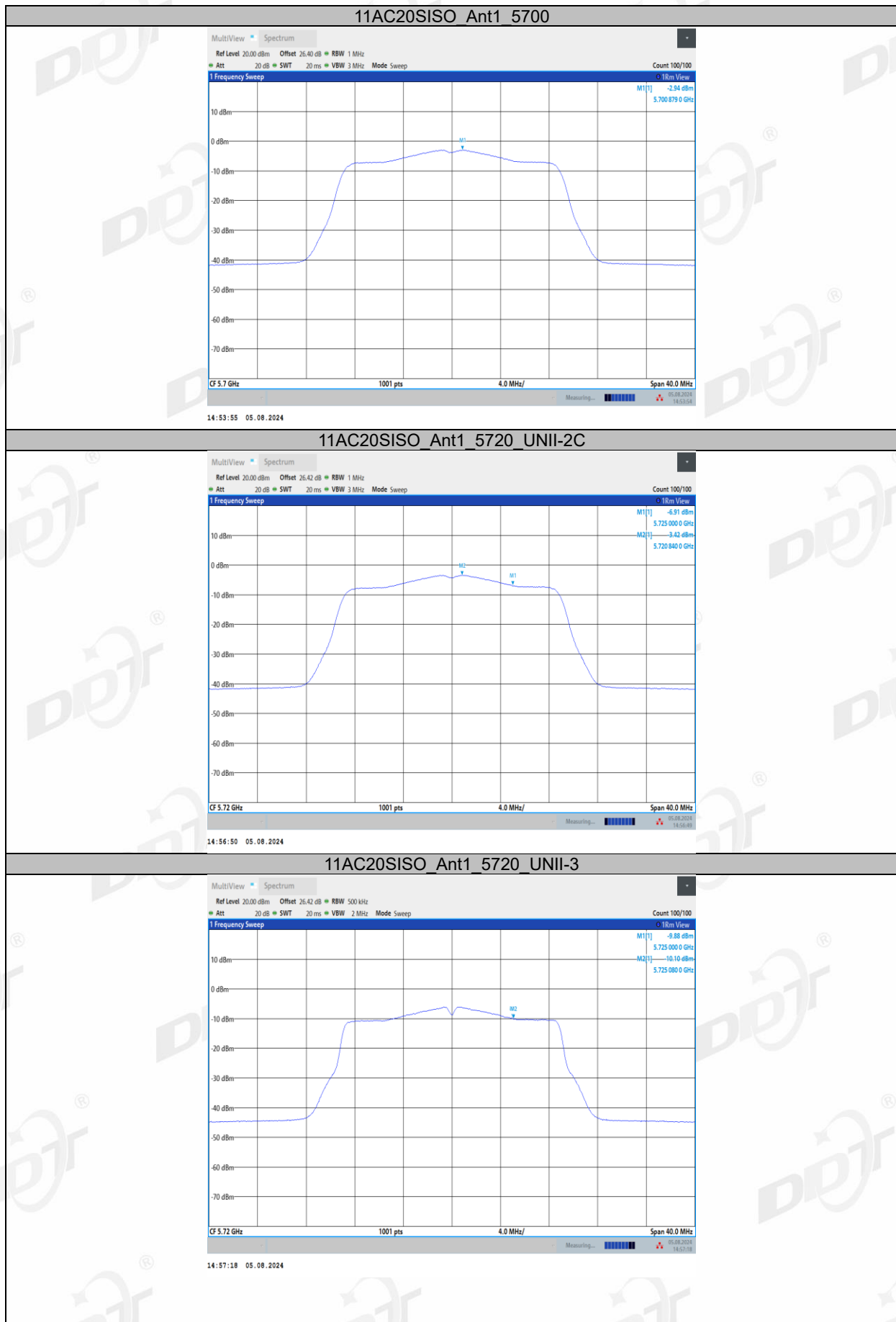




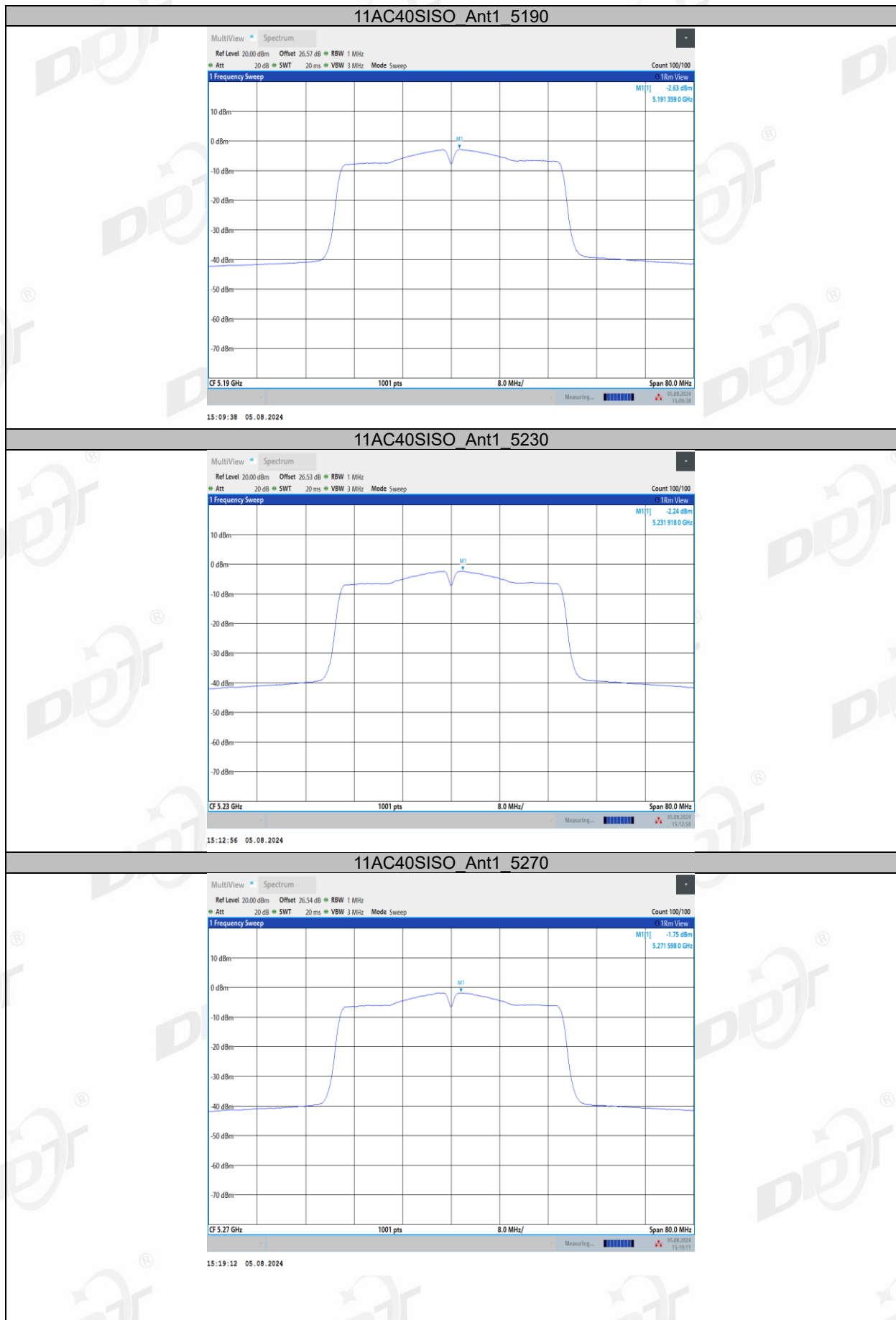


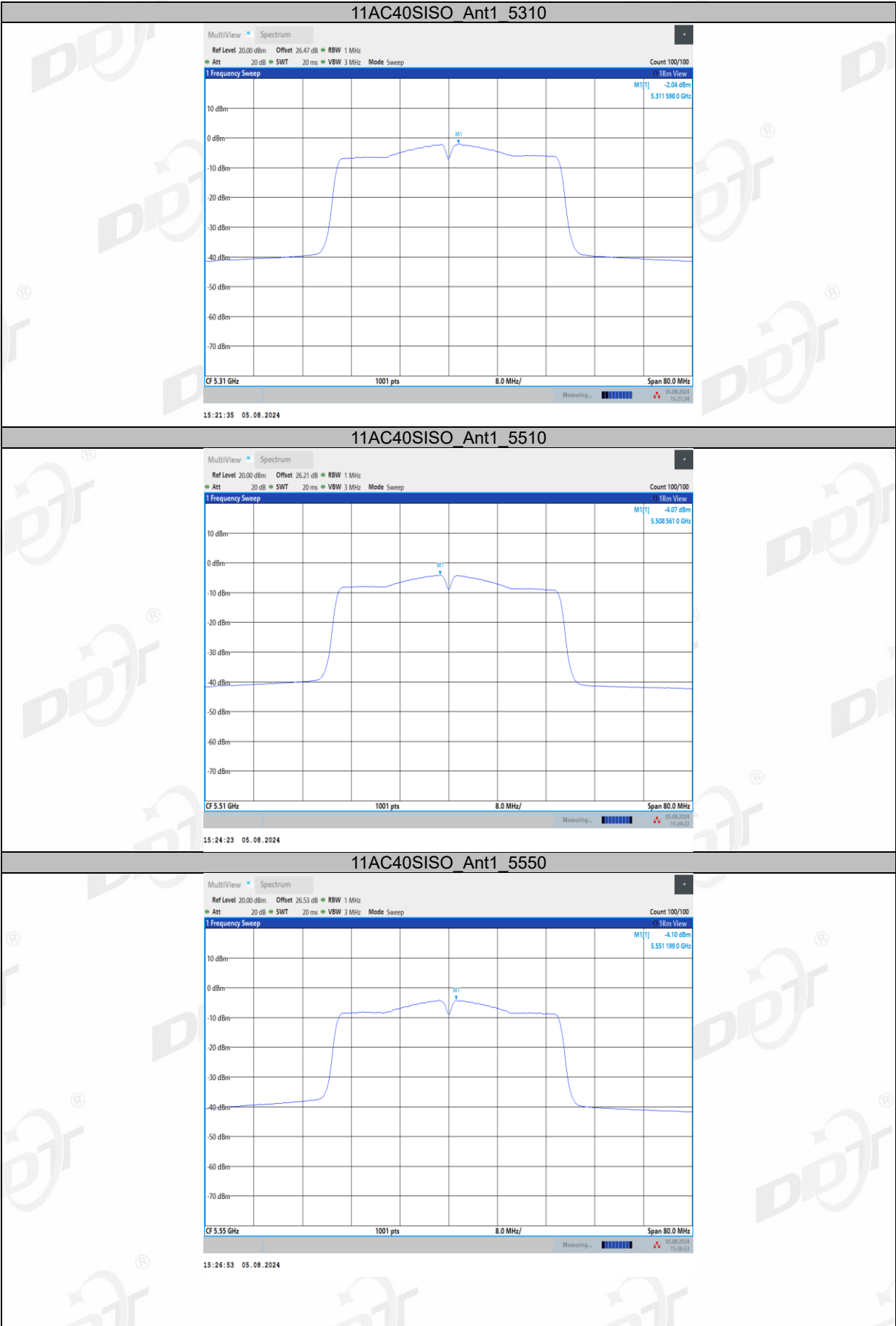


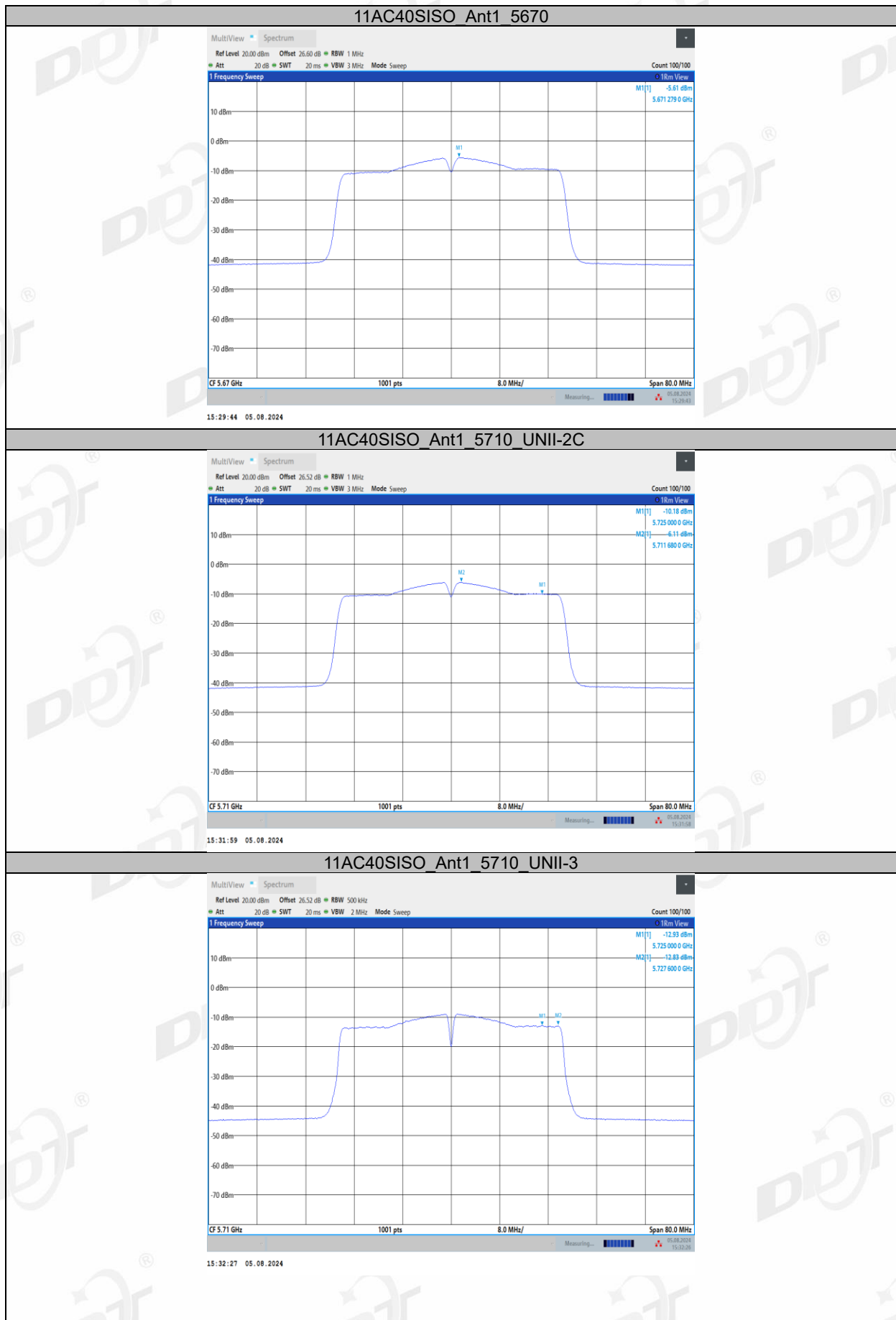


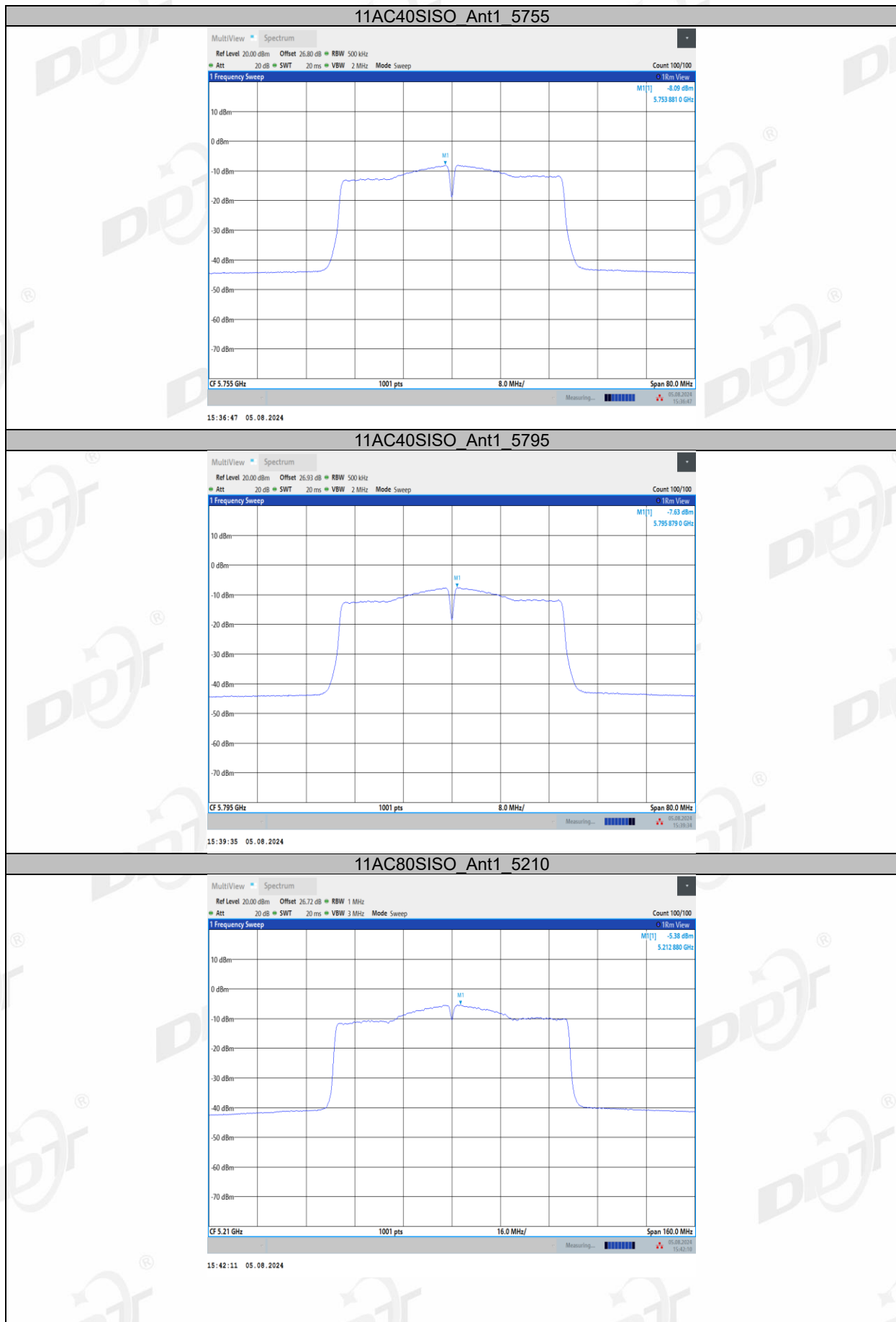


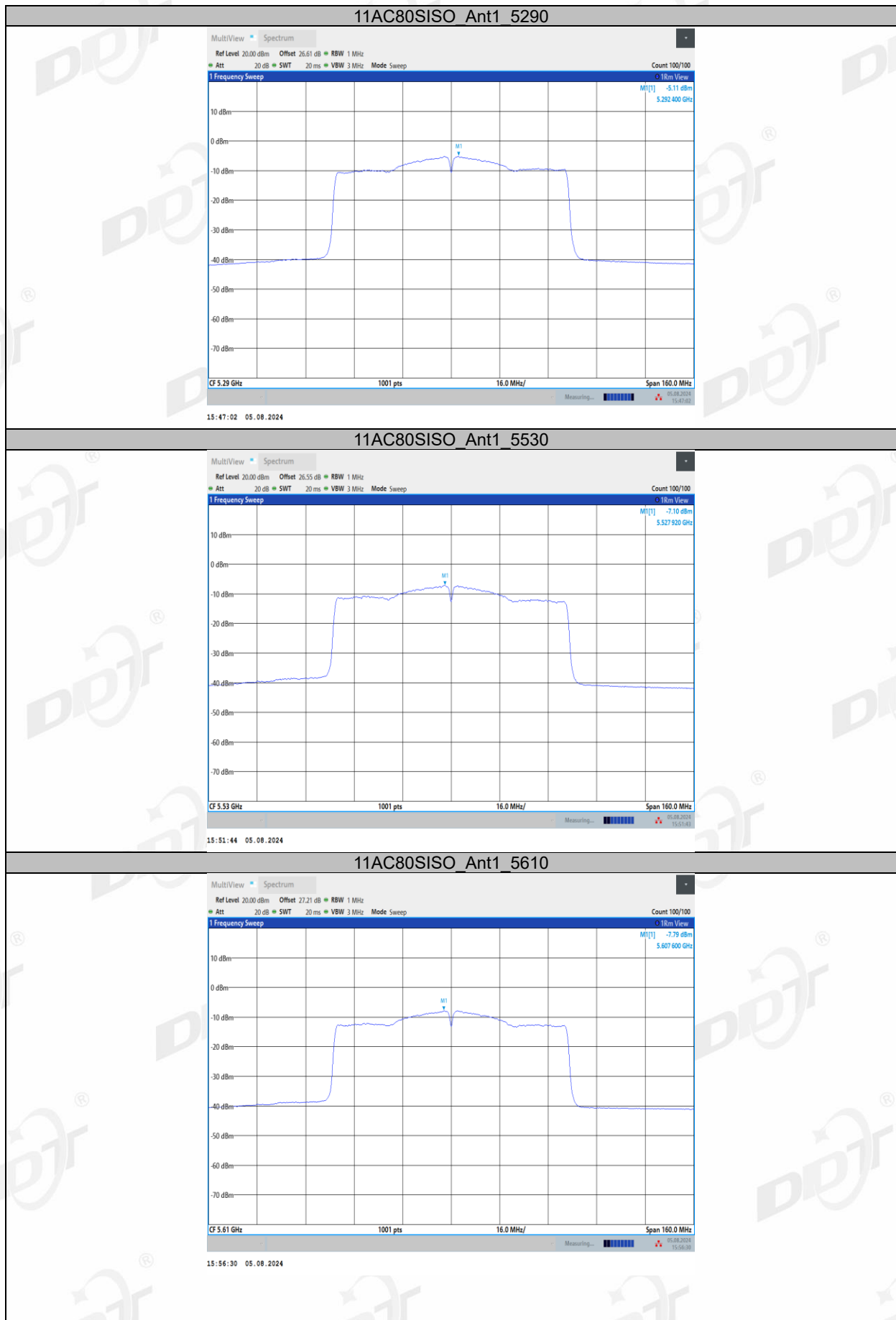


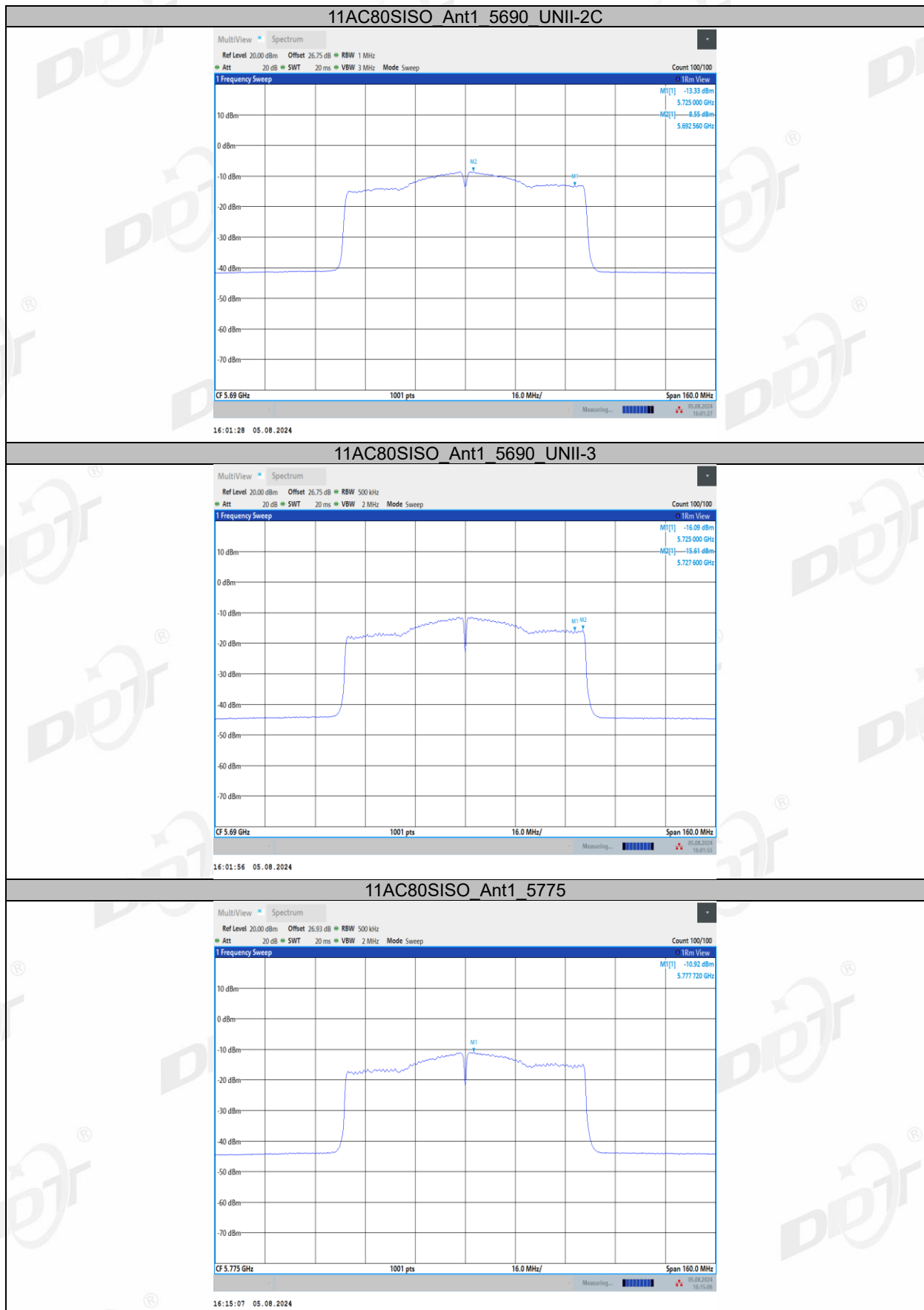












10. Frequency Stability Measurement

10.1. 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.

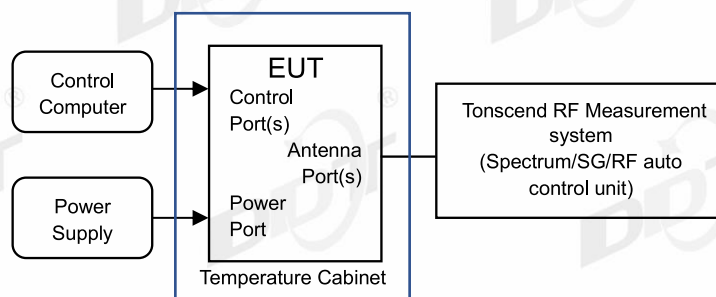
10.2. Measuring Instruments

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

10.3. 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.

10.4. Test setup



10.5. Test result

Voltage								
Test Mode	Antenna	Frequency [MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	NT	-20000.00	-3.861004	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5200	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5240	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	-20000.00	-3.816794	20	PASS
		5260	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-20000.00	-3.802281	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5280	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	-20000.00	-3.787879	20	PASS
		5320	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5500	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5580	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-20000.00	-3.584229	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5700	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-20000.00	-3.508772	20	PASS
			HV	NT	-20000.00	-3.508772	20	PASS
		5720	NV	NT	-20000.00	-3.496503	20	PASS
			LV	NT	-20000.00	-3.496503	20	PASS
			HV	NT	-20000.00	-3.496503	20	PASS
		5745	NV	NT	-20000.00	-3.481288	20	PASS

		5785	LV	NT	-20000.00	-3.481288	20	PASS
			HV	NT	-20000.00	-3.481288	20	PASS
			NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	-20000.00	-3.457217	20	PASS
			NV	NT	0.00	0.000000	20	PASS
		5825	LV	NT	0.00	0.000000	20	PASS
			HV	NT	-20000.00	-3.433476	20	PASS
11N40SISO	Ant1	5190	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5230	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-40000.00	-7.648184	20	PASS
			HV	NT	-40000.00	-7.648184	20	PASS
		5270	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5310	NV	NT	-40000.00	-7.532957	20	PASS
			LV	NT	40000.00	7.532957	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5510	NV	NT	-80000.00	-14.519056	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5550	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-40000.00	-7.207207	20	PASS
			HV	NT	-40000.00	-7.207207	20	PASS
		5670	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5755	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5795	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS

			HV	NT	0.00	0.000000	20	PASS
11AC20SISO	Ant1	5785	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-20000.00	-3.457217	20	PASS
			HV	NT	0.00	0.000000	20	PASS
11AC80SISO	Ant1	5210	NV	NT	80000.00	15.355086	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5290	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5530	NV	NT	80000.00	15.355086	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5610	NV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5690	NV	NT	-80000.00	-14.059754	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5775	NV	NT	0.00	0.000000	20	PASS
			LV	NT	80000.00	13.852814	20	PASS
			HV	NT	0.00	0.000000	20	PASS

Temperature								
Test Mode	Antenna	Frequency [MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	0	0.00	0.000000	20	PASS
			NV	10	-20000.0	-3.861004	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5200	NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5240	NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	-20000.0	-3.816794	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5260	NV	0	-20000.0	-3.802281	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	-20000.0	-3.802281	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5280	NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5320	NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5500	NV	0	-20000.0	-3.636364	20	PASS

			NV	10	0.00	0.000000	20	PASS
			NV	20	-20000.0	-3.636364	20	PASS
			NV	30	-20000.0	-3.636364	20	PASS
			NV	40	-20000.0	-3.636364	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5580	NV	0	0.00	0.000000	20	PASS
			NV	10	-20000.0	-3.584229	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5700	NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	-20000.0	-3.508772	20	PASS
			NV	30	-20000.0	-3.508772	20	PASS
			NV	40	-20000.0	-3.508772	20	PASS
			NV	50	-20000.0	-3.508772	20	PASS
		5720	NV	0	-20000.0	-3.496503	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	-20000.0	-3.496503	20	PASS
			NV	30	-20000.0	-3.496503	20	PASS
			NV	40	-20000.00	-3.496503	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5745	NV	0	-20000.00	-3.481288	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	-20000.0	-3.481288	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	-20000.0	-3.481288	20	PASS
		5785	NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	-20000.0	-3.457217	20	PASS
			NV	40	-20000.0	-3.457217	20	PASS
			NV	50	-20000.0	-3.457217	20	PASS
		5825	NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	-20000.0	-3.433476	20	PASS

11N40SISO	Ant1		NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5190	NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	-40000.0	-7.707129	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5230	NV	0	-40000.0	-7.648184	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5270	NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	-40000.0	-7.590133	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	-40000.0	-7.590133	20	PASS
		5310	NV	0	0.00	0.000000	20	PASS
			NV	10	-40000.0	-7.532957	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	-40000.0	-7.532957	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	-40000.0	-7.532957	20	PASS
		5510	NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	-80000.0	-14.51906	20	PASS
			NV	30	-80000.0	-14.51906	20	PASS
			NV	40	-40000.0	-7.259528	20	PASS
			NV	50	-80000.0	-14.51906	20	PASS
		5550	NV	0	-80000.0	-14.41441	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	-40000.0	-7.207207	20	PASS
			NV	30	-40000.0	-7.207207	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	-40000.0	-7.207207	20	PASS
		5670	NV	0	-40000.0	-7.054674	20	PASS

11AC80SISO	Ant1		NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	40000.00	7.054674	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
			NV	0	-40000.0	-6.950478	20	PASS
		5755	NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
			NV	0	0.00	0.000000	20	PASS
		5795	NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
			NV	0	0.00	0.000000	20	PASS
		5210	NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	80000.00	15.355086	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
			NV	0	0.00	0.000000	20	PASS
		5290	NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
			NV	0	0.00	0.000000	20	PASS
		5530	NV	10	0.00	0.000000	20	PASS
			NV	20	-80000.0	-14.46655	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
			NV	0	0.00	0.000000	20	PASS
		5610	NV	10	-80000.0	-14.26025	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	-80000.0	-14.26025	20	PASS
			NV	40	0.00	0.000000	20	PASS

			NV	40	0.00	0.000000	20	PASS
			NV	50	-80000.0	-14.26025	20	PASS
		5690	NV	0	0.00	0.000000	20	PASS
			NV	10	80000.00	14.059754	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5775	NV	0	0.00	0.000000	20	PASS
			NV	10	0.00	0.000000	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	0.00	0.000000	20	PASS