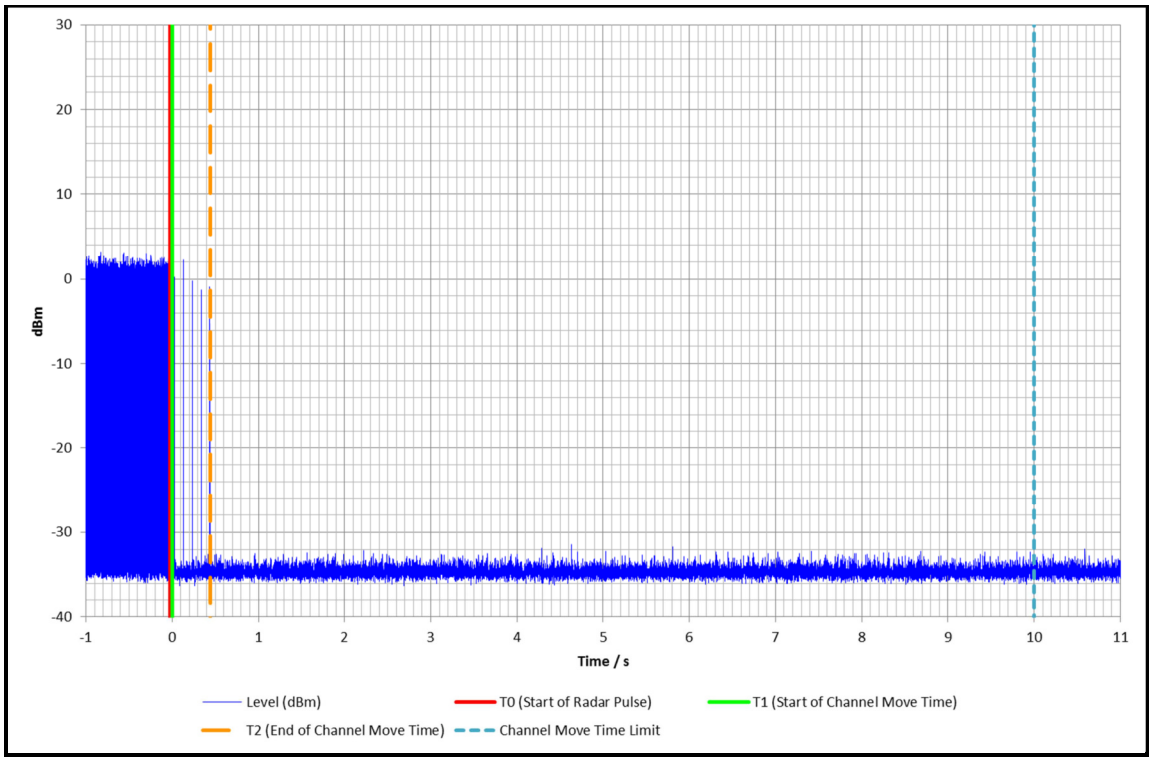
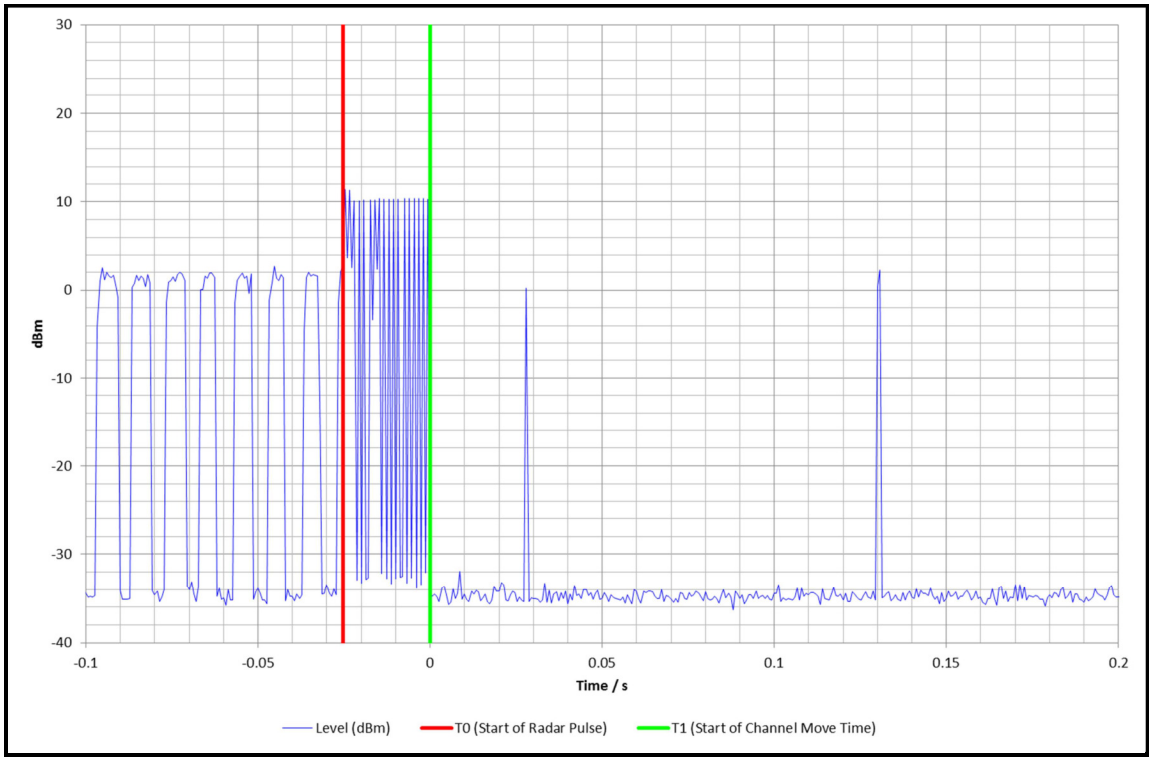
Channel Closing Transmission Time and Channel Move Time (continued)

Results: 40 MHz Master



Plot showing the full 10 second shutdown limit



Zoomed plot showing the first 200 ms after the end of the type 0 radar burst

Channel Closing Transmission Time and Channel Move Time (continued)

Results: 40 MHz Client, Radar at Master – Channel Move Time

Channel (MHz)	Move Time (ms)	Limit (ms)	Margin (ms)	Detected
5510	0	10000	10000	Yes

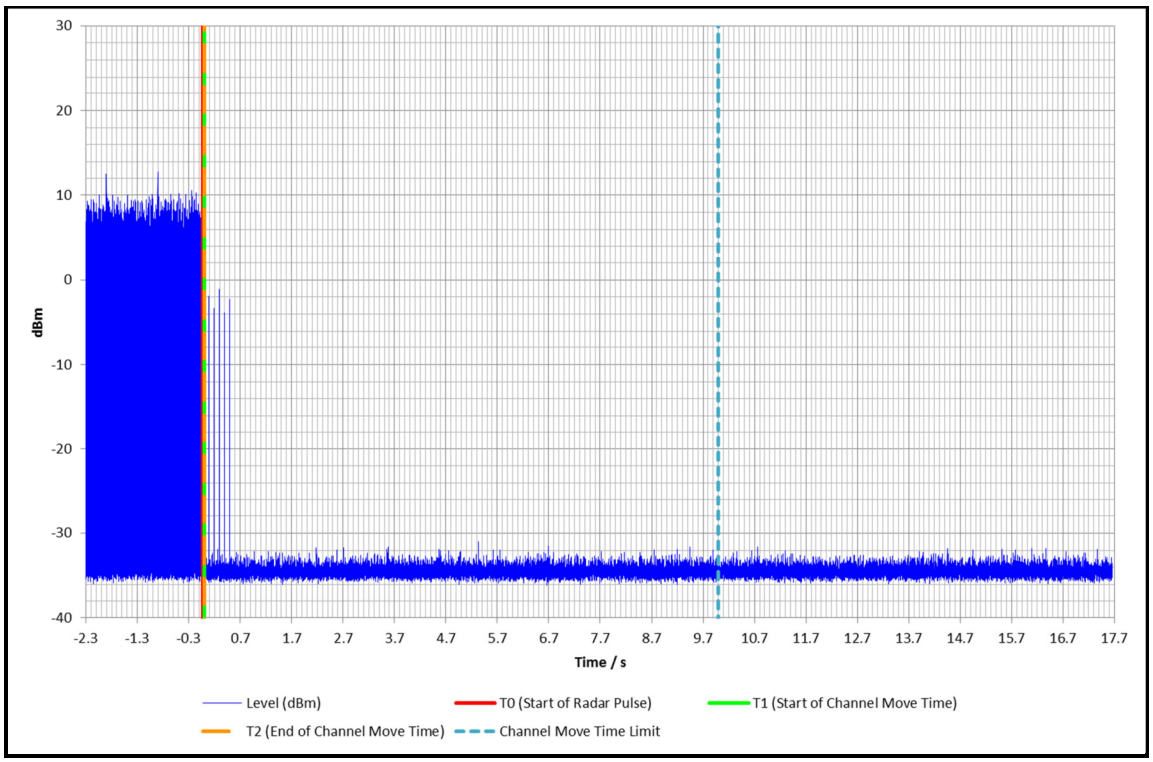
Results: 40 MHz Client, Radar at Master – Channel Closing Transmission Time

Channel (MHz)	Total Aggregate Tx Time (ms)	Limit (ms)	Margin (ms)	Tx Time >200 ms after end of radar (ms)	Limit (ms)	Margin (ms)
5510	0	260	260	0	60	60

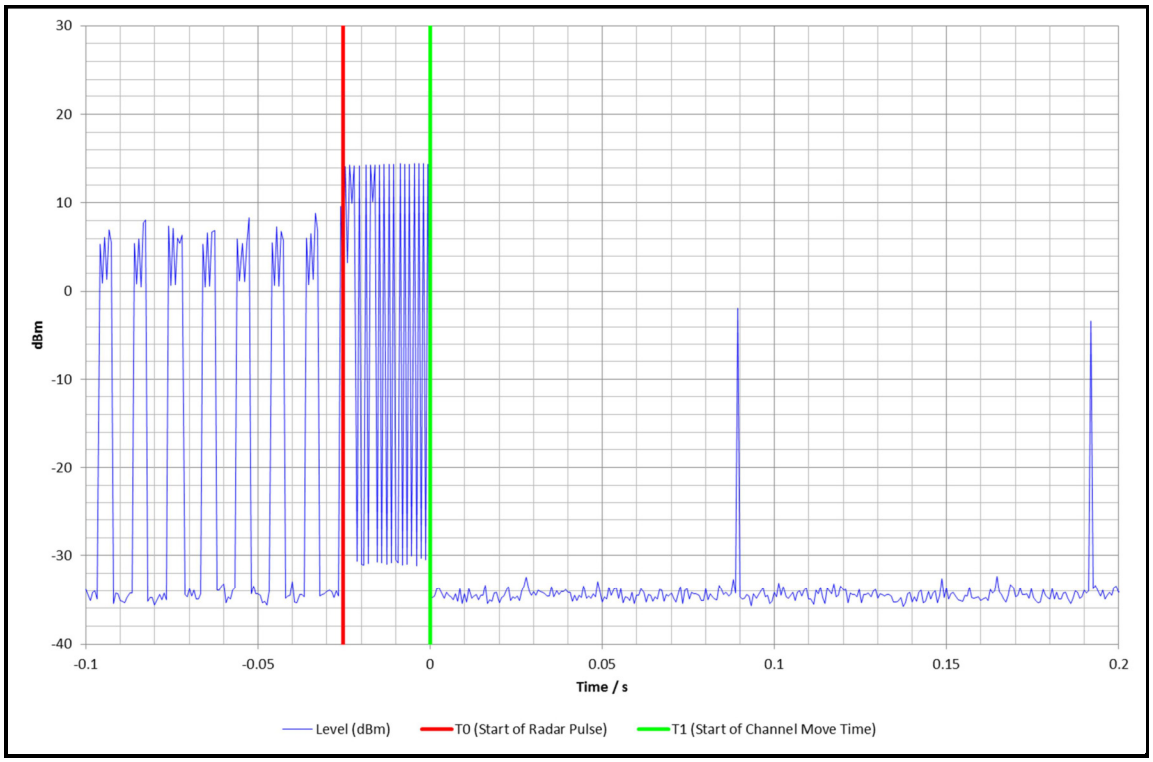
NOTE: A channel move or closing transmission time of zero occurs when the EUT shuts down before the end of the radar burst.

Channel Closing Transmission Time and Channel Move Time (continued)

Results: 40 MHz Client, Radar at Master – Channel Move Time



Plot showing the full 10 second shutdown limit



Zoomed plot showing the first 200 ms after the end of the type 0 radar burst

Channel Closing Transmission Time and Channel Move Time (continued)

Limits:

Part 15.407(h)(2)(iii)

After a radar's presence is detected, all transmissions shall cease on the operating channel within 10 seconds. Transmissions during this period shall consist of normal traffic for a maximum of 200 ms after detection of the radar signal. In addition, intermittent management and control signals can be sent during the remaining time to facilitate vacating the operating channel.

KDB 905462 D02 Table 4: DFS Response Requirement Values

Parameter	Value
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.

Note 1: *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

5.2.6. Non-occupancy Period

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Date:**	10 December 2015
Test Sample Serial Number:	F7186266		

FCC Reference:	Part 15.407(h)(iv)
Test Method Used:	KDB 905462 D02 Section 7.8.3

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	40

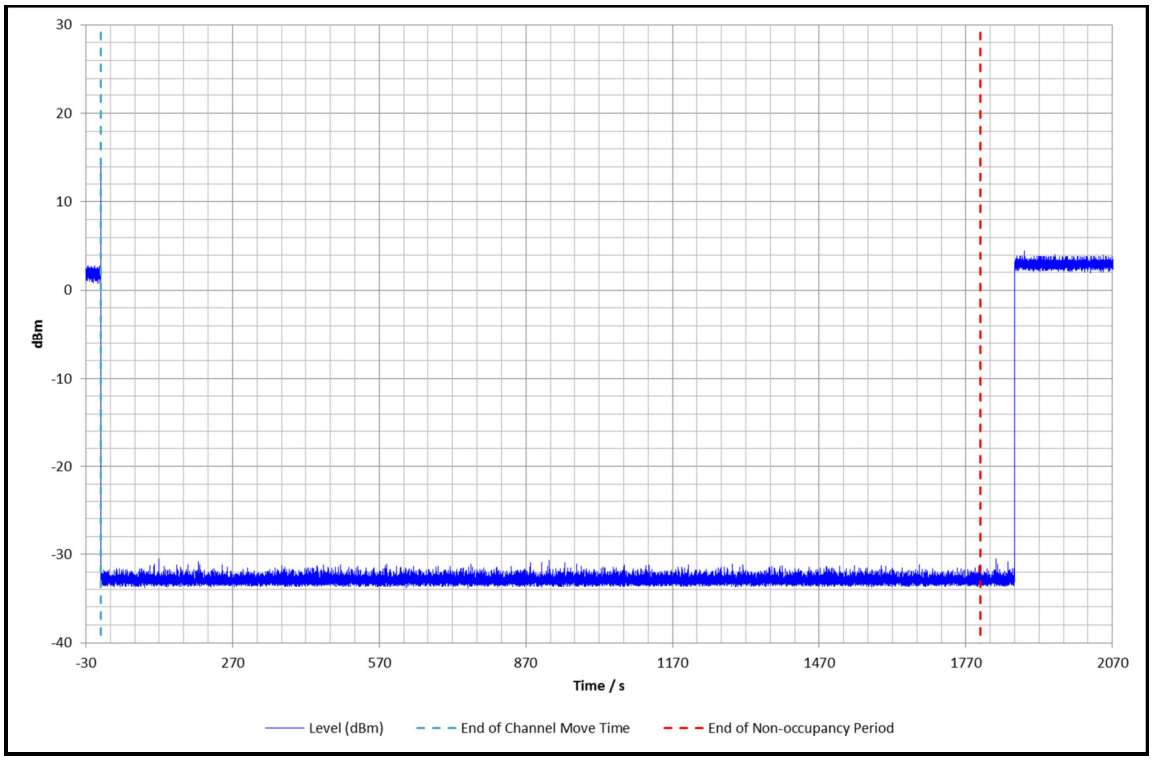
Notes:

1. In accordance with KDB 905462 D02 Table 2, the Initial Channel Availability Check test was performed on any single bandwidth. It was therefore tested only on a 40 MHz channel bandwidth.
2. UDP test data was streamed from the Master to the Client device using iPerf3 bandwidth testing tool. The channel loading was 21.7% with a 30 Mbit/s data rate. This therefore met the channel loading requirement of >17% in KDB 905462 D02 Section 7.7(c).
3. Tests were performed using a type 0 radar and the radar detection threshold calculated in Section 4.2 of this test report.
4. Radar burst type 0 was detected and the channel was vacated for >1800 seconds, meeting the 30 minute (1800 second) non-occupancy period. During this period all emissions remained below the -27 dBm/MHz spurious limit. Channel move occurred within the channel move and channel closing time limits. Therefore the EUT complied.

Non-occupancy Period (continued)

Results: 40 MHz Master

Channel (MHz)	Trial	Non-Occ (min)	Limit (min)	Margin (min)	Result
5510	1	31.2	30	1.2	Complied



Limits:

Part 15.407(h)(2)(iv)

A channel that has been flagged as containing a radar system, either by a channel availability check or in-service monitoring, is subject to a non-occupancy period of at least 30 minutes. The non-occupancy period starts at the time when the radar system is detected.

KDB 905462 D02 Table 4: DFS Response Requirement Values

Parameter	Value
Non-occupancy period	Minimum 30 minutes

5.2.7. Statistical Performance Check – Short Pulse Radar Types 1 - 4

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Date:**	10 December 2015
Test Sample Serial Number:	F7186266		

FCC Reference:	Part 15.407(h)(2)
Test Method Used:	KDB 905462 D02 Section 7.8.4.1 and Notes below

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	40

Notes:

1. In accordance with KDB 905462 D02 Table 2, the Statistical Performance Check test was performed on all supported channel bandwidths and frequencies selected within the radar detection bandwidth.
2. UDP test data was streamed from the Master to the Client device using iPerf3 bandwidth testing tool. This was set to 15 Mbit/s and 30 Mbit/s throughput rate for the 20 MHz and 40 MHz channels respectively. The channel loading was measured as 21.1% for 20 MHz operation and 22.0% for 40 MHz. This therefore met the channel loading requirement of >17% in KDB 905462 D02 Section 7.7(c).
3. Tests were performed using the radar detection threshold calculated in Section 4.2 of this report.
4. Parameters used for the short radar types 1, 2, 3, and 4 may be found in this test report Appendices 5, 6, 7, and 8 respectively.
5. The EUT met the required detection probability, and therefore complied with the *Statistical Performance Check – Short Pulse Radar Types 1 – 4* test.

Statistical Performance Check – Short Pulse Radar Types 1 - 4 (continued)

Results: 20 MHz Master - Radar Type 1

Radar Type	Trial #	Radar frequency (MHz)	Detection
			Yes / No
1	1	5491.085	Yes
	2	5491.679	Yes
	3	5492.274	Yes
	4	5492.868	Yes
	5	5493.462	Yes
	6	5494.057	Yes
	7	5494.651	Yes
	8	5495.245	Yes
	9	5495.840	Yes
	10	5496.434	Yes
	11	5497.028	Yes
	12	5497.623	Yes
	13	5498.217	Yes
	14	5498.811	No
	15	5499.406	Yes
	16	5500.000	Yes
	17	5500.594	Yes
	18	5501.189	Yes
	19	5501.783	Yes
	20	5502.377	Yes
	21	5502.972	Yes
	22	5503.566	Yes
	23	5504.160	Yes
	24	5504.755	Yes
	25	5505.349	Yes
	26	5505.943	Yes
	27	5506.538	Yes
	28	5507.132	Yes
	29	5507.726	Yes
	30	5508.321	Yes
EUT Test Frequency:		5500 MHz	
Detection Probability:		96.7%	

Statistical Performance Check – Short Pulse Radar Types 1 - 4 (continued)

Results: 20 MHz Master - Radar Type 2

Radar Type	Trial #	Radar frequency (MHz)	Detection
			Yes / No
2	1	5491.085	Yes
	2	5491.679	Yes
	3	5492.274	Yes
	4	5492.868	Yes
	5	5493.462	Yes
	6	5494.057	Yes
	7	5494.651	Yes
	8	5495.245	Yes
	9	5495.840	No
	10	5496.434	No
	11	5497.028	Yes
	12	5497.623	No
	13	5498.217	Yes
	14	5498.811	Yes
	15	5499.406	Yes
	16	5500.000	Yes
	17	5500.594	Yes
	18	5501.189	Yes
	19	5501.783	Yes
	20	5502.377	Yes
	21	5502.972	Yes
	22	5503.566	Yes
	23	5504.160	Yes
	24	5504.755	Yes
	25	5505.349	Yes
	26	5505.943	Yes
	27	5506.538	Yes
	28	5507.132	Yes
	29	5507.726	No
	30	5508.321	Yes
EUT Test Frequency:		5500 MHz	
Detection Probability:		86.7%	

Statistical Performance Check – Short Pulse Radar Types 1 - 4 (continued)

Results: 20 MHz Master - Radar Type 3

Radar Type	Trial #	Radar frequency (MHz)	Detection
			Yes / No
3	1	5491.085	Yes
	2	5491.679	Yes
	3	5492.274	Yes
	4	5492.868	Yes
	5	5493.462	Yes
	6	5494.057	No
	7	5494.651	Yes
	8	5495.245	Yes
	9	5495.840	Yes
	10	5496.434	Yes
	11	5497.028	Yes
	12	5497.623	No
	13	5498.217	No
	14	5498.811	Yes
	15	5499.406	Yes
	16	5500.000	Yes
	17	5500.594	Yes
	18	5501.189	Yes
	19	5501.783	Yes
	20	5502.377	Yes
	21	5502.972	Yes
	22	5503.566	Yes
	23	5504.160	No
	24	5504.755	Yes
	25	5505.349	Yes
	26	5505.943	Yes
	27	5506.538	Yes
	28	5507.132	Yes
	29	5507.726	Yes
	30	5508.321	Yes
EUT Test Frequency:		5500 MHz	
Detection Probability:		86.7%	

Statistical Performance Check – Short Pulse Radar Types 1 - 4 (continued)

Results: 20 MHz Master - Radar Type 4

Radar Type	Trial #	Radar frequency (MHz)	Detection
			Yes / No
4	1	5491.085	No
	2	5491.679	Yes
	3	5492.274	No
	4	5492.868	No
	5	5493.462	Yes
	6	5494.057	Yes
	7	5494.651	No
	8	5495.245	Yes
	9	5495.840	Yes
	10	5496.434	No
	11	5497.028	Yes
	12	5497.623	No
	13	5498.217	Yes
	14	5498.811	Yes
	15	5499.406	No
	16	5500.000	Yes
	17	5500.594	No
	18	5501.189	Yes
	19	5501.783	Yes
	20	5502.377	No
	21	5502.972	Yes
	22	5503.566	No
	23	5504.160	Yes
	24	5504.755	Yes
	25	5505.349	Yes
	26	5505.943	Yes
	27	5506.538	Yes
	28	5507.132	No
	29	5507.726	Yes
	30	5508.321	Yes
EUT Test Frequency:		5500 MHz	
Detection Probability:		63.3%	

Statistical Performance Check – Short Pulse Radar Types 1 - 4 (continued)

Results: 40 MHz Master - Radar Type 1

Radar Type	Trial #	Radar frequency (MHz)	Detection Yes / No
1	1	5491.340	Yes
	2	5492.584	Yes
	3	5493.828	Yes
	4	5495.072	Yes
	5	5496.316	Yes
	6	5497.560	Yes
	7	5498.804	Yes
	8	5500.048	No
	9	5501.292	Yes
	10	5502.536	Yes
	11	5503.780	Yes
	12	5505.024	Yes
	13	5506.268	Yes
	14	5507.512	Yes
	15	5508.756	Yes
	16	5510.000	Yes
	17	5511.244	Yes
	18	5512.488	Yes
	19	5513.732	Yes
	20	5514.976	Yes
	21	5516.220	Yes
	22	5517.464	Yes
	23	5518.708	Yes
	24	5519.952	Yes
	25	5521.196	Yes
	26	5522.440	Yes
	27	5523.684	Yes
	28	5524.928	Yes
	29	5526.172	Yes
	30	5527.416	Yes
EUT Test Frequency:		5510 MHz	
Detection Probability:		96.7%	

Statistical Performance Check – Short Pulse Radar Types 1 - 4 (continued)

Results: 40 MHz Master - Radar Type 2

Radar Type	Trial #	Radar frequency (MHz)	Detection
			Yes / No
2	1	5491.340	Yes
	2	5492.584	Yes
	3	5493.828	Yes
	4	5495.072	Yes
	5	5496.316	Yes
	6	5497.560	Yes
	7	5498.804	Yes
	8	5500.048	Yes
	9	5501.292	Yes
	10	5502.536	No
	11	5503.780	Yes
	12	5505.024	Yes
	13	5506.268	Yes
	14	5507.512	No
	15	5508.756	Yes
	16	5510.000	Yes
	17	5511.244	Yes
	18	5512.488	No
	19	5513.732	Yes
	20	5514.976	Yes
	21	5516.220	Yes
	22	5517.464	Yes
	23	5518.708	No
	24	5519.952	No
	25	5521.196	No
	26	5522.440	Yes
	27	5523.684	Yes
	28	5524.928	No
	29	5526.172	Yes
	30	5527.416	Yes
EUT Test Frequency:		5510 MHz	
Detection Probability:		76.7%	

Statistical Performance Check – Short Pulse Radar Types 1 - 4 (continued)

Results: 40 MHz Master - Radar Type 3

Radar Type	Trial #	Radar frequency (MHz)	Detection
			Yes / No
3	1	5491.340	Yes
	2	5492.584	Yes
	3	5493.828	No
	4	5495.072	Yes
	5	5496.316	Yes
	6	5497.560	Yes
	7	5498.804	Yes
	8	5500.048	No
	9	5501.292	Yes
	10	5502.536	No
	11	5503.780	Yes
	12	5505.024	Yes
	13	5506.268	Yes
	14	5507.512	Yes
	15	5508.756	Yes
	16	5510.000	Yes
	17	5511.244	No
	18	5512.488	No
	19	5513.732	Yes
	20	5514.976	Yes
	21	5516.220	Yes
	22	5517.464	Yes
	23	5518.708	Yes
	24	5519.952	Yes
	25	5521.196	No
	26	5522.440	Yes
	27	5523.684	Yes
	28	5524.928	Yes
	29	5526.172	No
	30	5527.416	Yes
EUT Test Frequency:		5510 MHz	
Detection Probability:		76.7%	

Statistical Performance Check – Short Pulse Radar Types 1 - 4 (continued)

Results: 40 MHz Master - Radar Type 4

Radar Type	Trial #	Radar frequency (MHz)	Detection
			Yes / No
4	1	5491.340	Yes
	2	5492.584	No
	3	5493.828	Yes
	4	5495.072	Yes
	5	5496.316	Yes
	6	5497.560	Yes
	7	5498.804	No
	8	5500.048	No
	9	5501.292	No
	10	5502.536	Yes
	11	5503.780	Yes
	12	5505.024	No
	13	5506.268	Yes
	14	5507.512	Yes
	15	5508.756	Yes
	16	5510.000	Yes
	17	5511.244	Yes
	18	5512.488	No
	19	5513.732	Yes
	20	5514.976	Yes
	21	5516.220	Yes
	22	5517.464	Yes
	23	5518.708	Yes
	24	5519.952	Yes
	25	5521.196	Yes
	26	5522.440	Yes
	27	5523.684	No
	28	5524.928	Yes
	29	5526.172	Yes
	30	5527.416	No
EUT Test Frequency:		5510 MHz	
Detection Probability:		73.3%	

Statistical Performance Check – Short Pulse Radar Types 1 - 4 (continued)

Results: Aggregate Percentage of Successful Detection

Radar Type	Channel Bandwidth	
	20 MHz	40 MHz
Type 1	96.7%	96.7%
Type 2	86.7%	76.7%
Type 3	86.7%	76.7%
Type 4	63.3%	73.3%
Aggregate	83.4%	80.9%

Limits:

KDB 905462 D02 Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a.	$Roundup\left\{\left(\frac{1}{360}\right)\times\left(\frac{19\times10^6}{PRI_{\mu sec}}\right)\right\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding PRI values selected in Test A.			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

5.2.8. Statistical Performance Check – Long Pulse Radar Type 5

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Date:**	10 December 2015
Test Sample Serial Number:	F7186266		

FCC Reference:	Part 15.407(h)(2)
Test Method Used:	KDB 905462 D02 Section 7.8.4.2 and Notes below

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	40

Notes:

1. In accordance with KDB 905462 D02 Table 2, the Statistical Performance Check test was performed on all supported channel bandwidths and frequencies selected within the radar detection bandwidth.
2. UDP test data was streamed from the Master to the Client device using iPerf3 bandwidth testing tool. This was set to 15 Mbit/s and 30 Mbit/s throughput rate for the 20 MHz and 40 MHz channels respectively. The channel loading was measured as 21.1% for 20 MHz operation and 22.0% for 40 MHz. This therefore met the channel loading requirement of >17% in KDB 905462 D02 Section 7.7(c).
3. Tests were performed using the radar detection threshold calculated in Section 4.2 of this test report.
4. Parameters used for the long radar type 5 can be found in Appendix 9 of this test report.
5. The centre frequency for each of the 30 trials of the Bin 5 radar, was randomly selected within 80% of the Occupied Bandwidth. See section 5.2.1 for occupied bandwidth measurements.
6. The EUT met the required detection probability, and therefore complied with the *Statistical Performance Check – Long Pulse Radar Type 5* test.

Statistical Performance Check – Long Pulse Radar Type 5 (continued)

Results: 20 MHz Master - Radar Type 5

Radar Type	Trial #	Radar frequency (MHz)	Detection
			Yes / No
5	1	5503.825	Yes
	2	5496.992	Yes
	3	5501.370	Yes
	4	5505.194	Yes
	5	5497.370	Yes
	6	5496.987	Yes
	7	5493.526	Yes
	8	5499.710	Yes
	9	5494.243	Yes
	10	5506.041	Yes
	11	5500.713	Yes
	12	5496.797	Yes
	13	5505.477	Yes
	14	5500.784	Yes
	15	5506.822	Yes
	16	5494.292	Yes
	17	5497.285	Yes
	18	5497.896	Yes
	19	5501.593	Yes
	20	5494.969	Yes
	21	5495.991	Yes
	22	5499.259	Yes
	23	5499.478	Yes
	24	5497.636	Yes
	25	5496.047	Yes
	26	5498.534	Yes
	27	5498.072	Yes
	28	5499.007	Yes
	29	5505.706	Yes
	30	5501.805	Yes
EUT Test Frequency:		5500 MHz	
Detection Probability:		100%	

Statistical Performance Check – Long Pulse Radar Type 5 (continued)

Results: 40 MHz Master - Radar Type 5

Radar Type	Trial #	Radar frequency (MHz)	Detection
			Yes / No
5	1	5507.163	Yes
	2	5515.345	No
	3	5507.357	Yes
	4	5522.379	Yes
	5	5522.701	Yes
	6	5498.830	Yes
	7	5505.291	Yes
	8	5516.543	Yes
	9	5517.499	Yes
	10	5508.338	Yes
	11	5497.541	Yes
	12	5501.603	Yes
	13	5496.369	Yes
	14	5507.815	Yes
	15	5518.854	Yes
	16	5500.989	Yes
	17	5521.795	Yes
	18	5512.540	Yes
	19	5520.812	Yes
	20	5516.002	Yes
	21	5511.848	No
	22	5499.235	Yes
	23	5504.313	Yes
	24	5517.241	Yes
	25	5495.169	Yes
	26	5504.724	Yes
	27	5497.199	Yes
	28	5519.911	Yes
	29	5498.286	Yes
	30	5502.910	Yes
EUT Test Frequency:		5510 MHz	
Detection Probability:		93.3%	

Statistical Performance Check – Long Pulse Radar Type 5 (continued)

Limits:

KDB 905462 D02 Table 6 – Long Pulse Radar Test Waveform

Radar Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Number of Pulses per *Burst*	Number of *Bursts*	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

5.2.9. Statistical Performance Check – Frequency Hopping Radar Type 6

Test Summary:

Test Engineer:	Georgios Vrezas	**Test Date:**	10 December 2015
Test Sample Serial Number:	F7186266		

FCC Reference:	Part 15.407(h)(2)
Test Method Used:	KDB 905462 D02 Section 7.8.4.3 and Notes below

Environmental Conditions:

Temperature (°C):	24
Relative Humidity (%):	40

Notes:

1. In accordance with KDB 905462 D02 Table 2, the Statistical Performance Check test was performed on all supported channel bandwidths and frequencies selected within the radar detection bandwidth.
2. UDP test data was streamed from the Master to the Client device using iPerf3 bandwidth testing tool. This was set to 15 Mbit/s and 30 Mbit/s throughput rate for the 20 MHz and 40 MHz channels respectively. The channel loading was measured as 21.1% for 20 MHz operation and 22.0% for 40 MHz. This therefore met the channel loading requirement of >17% in KDB 905462 D02 Section 7.7(c).
3. Tests were performed using the radar detection threshold calculated in Section 4.2 of this test report.
4. Some of the randomly generated hopping radars included no hops within the detection bandwidth of the EUT. In this case additional radars, which would produce at least one hop within the operating bandwidth of the EUT, were generated and used instead.
5. The EUT met the required detection probability, and therefore complied with the *Statistical Performance Check – Frequency Hopping Radar Type 6* test.

Statistical Performance Check – Frequency Hopping Radar Type 6 (continued)

Results: 20 MHz Master - Radar Type 6

Radar Type	Trial #	Detection Yes / No	Trial #	Detection Yes / No
6	1	Yes	16	Yes
	2	Yes	17	Yes
	3	Yes	18	Yes
	4	Yes	19	Yes
	5	Yes	20	Yes
	6	Yes	21	Yes
	7	Yes	22	Yes
	8	Yes	23	Yes
	9	Yes	24	Yes
	10	Yes	25	Yes
	11	Yes	26	Yes
	12	Yes	27	Yes
	13	Yes	28	Yes
	14	Yes	29	Yes
	15	Yes	30	Yes
EUT Test Frequency:		5500 MHz		
Radar Frequency:		Hopping		
Detection Probability:		100%		

Results: 40 MHz Master - Radar Type 6

Radar Type	Trial #	Detection Yes / No	Trial #	Detection Yes / No
6	1	Yes	16	Yes
	2	Yes	17	Yes
	3	Yes	18	Yes
	4	Yes	19	Yes
	5	Yes	20	Yes
	6	Yes	21	Yes
	7	Yes	22	Yes
	8	Yes	23	Yes
	9	Yes	24	Yes
	10	Yes	25	Yes
	11	Yes	26	Yes
	12	Yes	27	Yes
	13	Yes	28	Yes
	14	Yes	29	Yes
	15	Yes	30	Yes
EUT Test Frequency:		5510 MHz		
Radar Frequency:		Hopping		
Detection Probability:		100%		

Statistical Performance Check – Frequency Hopping Radar Type 6 (continued)

Limits:

KDB 905462 D02 Table 7 – Frequency Hopping Radar Test Waveform

Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Confidence Level (%)	Calculated Uncertainty
DFS CAC Plot Timing	95%	± 918 ms
DFS Channel Shutdown Timing	95%	± 450 µs
DFS Non-Occupancy Timing	95%	± 79.25 ms
DFS Radar Amplitude	95%	± 2.17 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

7. Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version
2.0	-	-	Model Number updated & Section 3.2 updated
3.0	-	-	Section 3.6 updated
4.0	-	-	Admin update

Appendix 1. Test Equipment Used

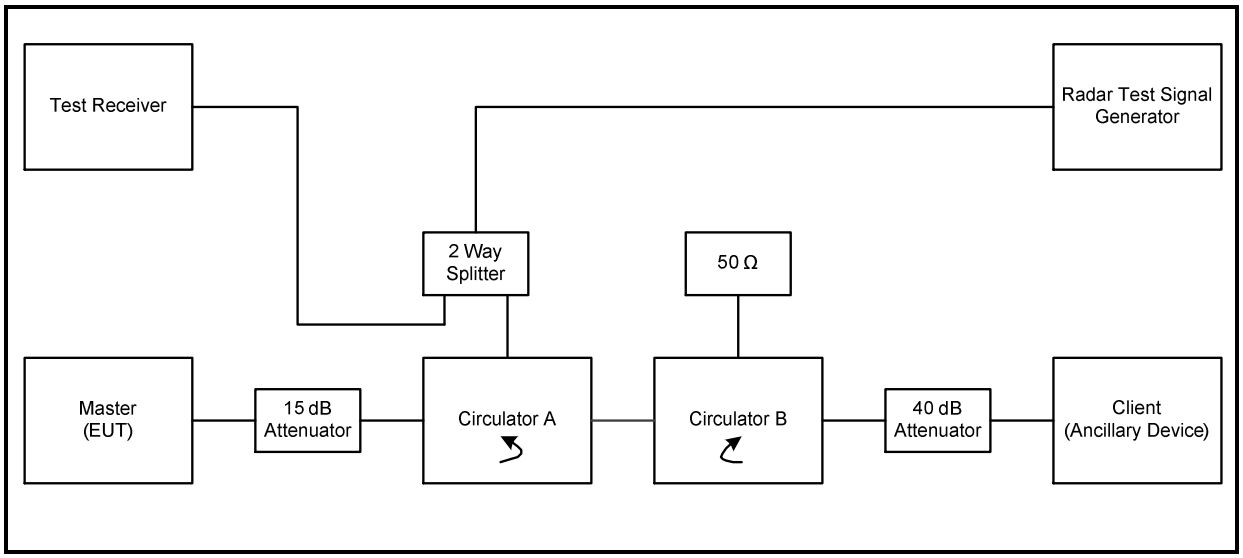
Asset No.	Instrument	Manufacturer	Type No.	Serial No.	Date Calibration Due	Cal. Interval (Months)
M1659	Thermohygrometer	JM Handelspunkt	30.5015.13	None stated	23 Apr 2016	12
M1631	DFS Test System	Aeroflex	PXI 3000	300110/291	09 Jul 2017	24
M1886	Test Receiver	Rohde & Schwarz	ESU26	100554	21 May 2016	12
M1585	Network Analyser	Agilent	E5071C	MY46110256	30 Jul 2016	24
A030	Step Attenuator	Narda	445-69	01544	Calibrated before use	-
A090	Step Attenuator	Narda	743-60	01057	Calibrated before use	-
A2119	Power Splitter	Mini-Circuits	ZN2PD-63-S+	SUU12701203	Calibrated before use	-
A2182	Coaxial Circulator	AtlanTecRF	ACC-20130-SF-SF-SF	120409231	Calibrated before use	-
A2183	Coaxial Circulator	AtlanTecRF	ACC-20130-SF-SF-SF	120409232	Calibrated before use	-
A1317	50Ω Termination	Narda	376BNM	0103	Calibrated before use	-
A2494	50Ω Termination	Narda	TA06W5-F	082013#2	Calibrated before use	-
M122	Multimeter	Fluke	77	64910017	22 Apr 2016	12
S021	DC Power Supply	Thurlby Thandar Instruments	CPX200	061034	Calibrated before use	-

NB In accordance with UKAS requirements all the measurement equipment is on a calibration schedule.

Appendix 2. Monitoring Methods Diagrams

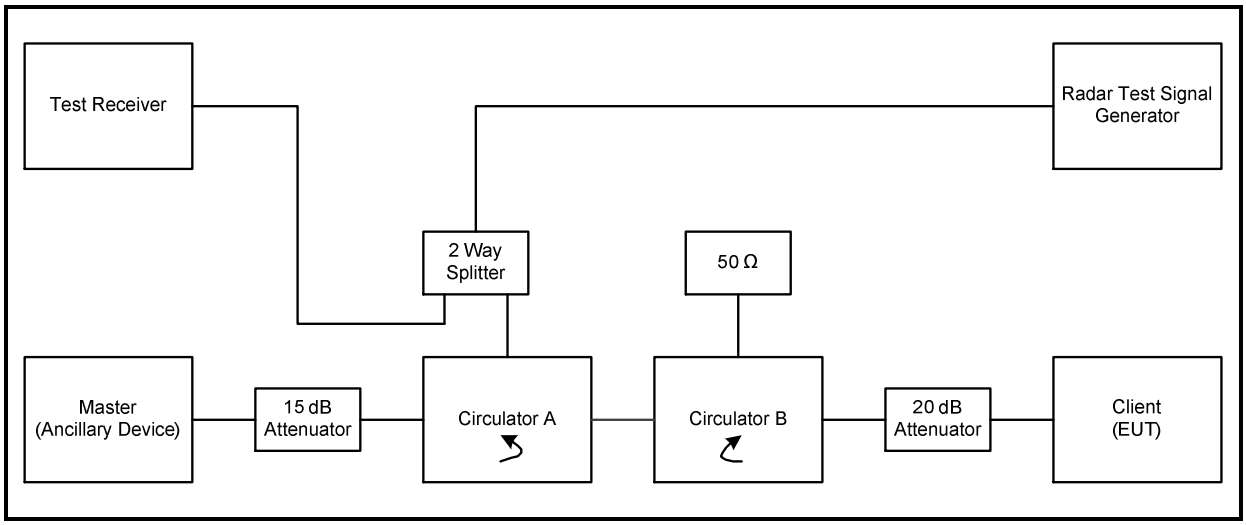
All tests were performed as conducted measurements using the setups as shown below. The detecting device always receives the radar via a direct (non-isolated) port of any circulator or splitter to ensure impedance variations do not affect the radar amplitude in accordance with KDB 905462 D02 Section 7.2, point (2).

Setup Diagram – EUT as Master with Radar Injection at Master



Note: Circulator A directs the radar pulse towards the EUT (Master). Circulator B provides the same transmit path loss in both directions between the Master and Client devices. The EUT will appear larger than the ancillary device, and smaller than the radar at the Spectrum Analyser. The radar will be larger at the EUT than at the ancillary device. For some tests an additional 10 dB attenuator was added between the 2-way splitter and circulator A, and the calibration adjusted, to change the relative radar level on the analyser.

Setup Diagram – EUT as Client, Radar Injection at Master



Note: Similarly to the set-up above, circulator A again directs the radar towards the radar detecting device. Circulator B provides the same transmit path loss in both directions between the Master and Client devices whilst also attenuating any radar heading in the direction of the EUT. Due to the different attenuation settings the EUT (Client) will appear larger than the Master device, and smaller than the radar at the Spectrum Analyser. The radar level is recalibrated to account for the different attenuation settings in the radar path.

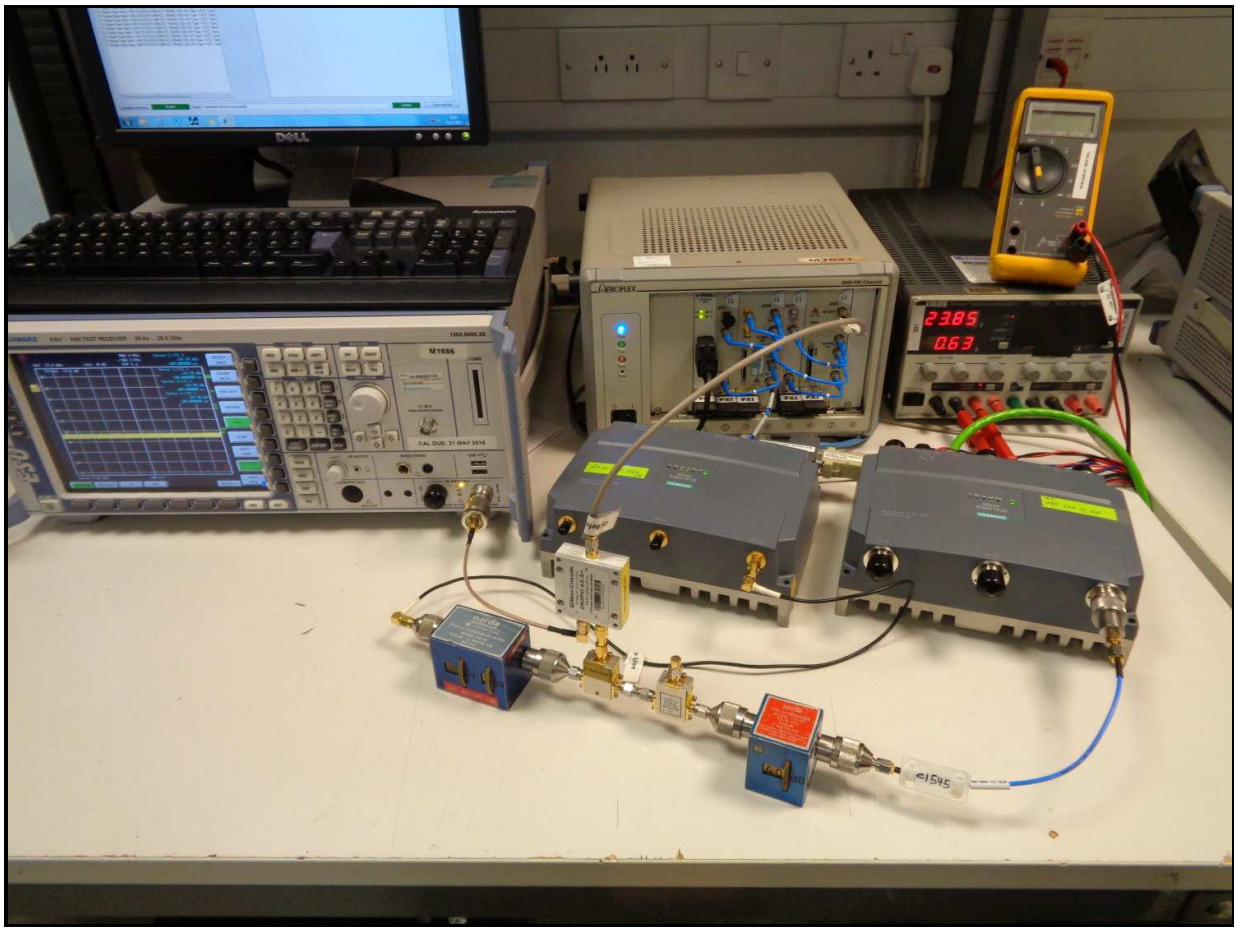
Appendix 3. Radar Type 1-6 Calibration and Verification Data

All radar types were generated and produced by an Aeroflex DFS test system. The radar pulse generation of this system has previously been verified by the FCC (see Appendix 4 of this test report).

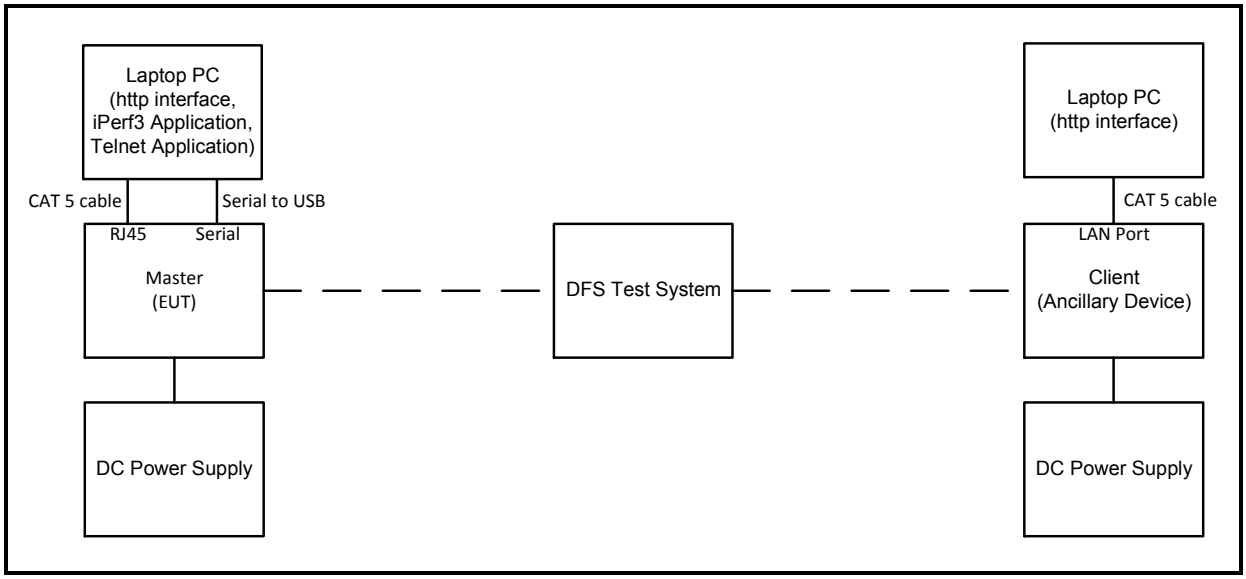
The radar amplitude was calibrated using the setup diagram shown below. The spectrum analyser was replaced by a 50Ω load. The EUT was replaced by a spectrum analyser. The Aeroflex DFS test system was then set to transmit a CW signal used to calibrate the radar level. The output level was adjusted to give the correct level into the EUT, as calculated in Section 4.2 of this report, before the tests were performed.

An additional check was then made using the above calibrated level and a 1 µs pulse of a type 0 radar. Maximum spectrum analyser RBW/VBW setting was used for this to avoid pulse desensitisation effects of the very short burst time. This level was then used for all radar types during testing.

Equipment Setup Photograph – Conducted Method

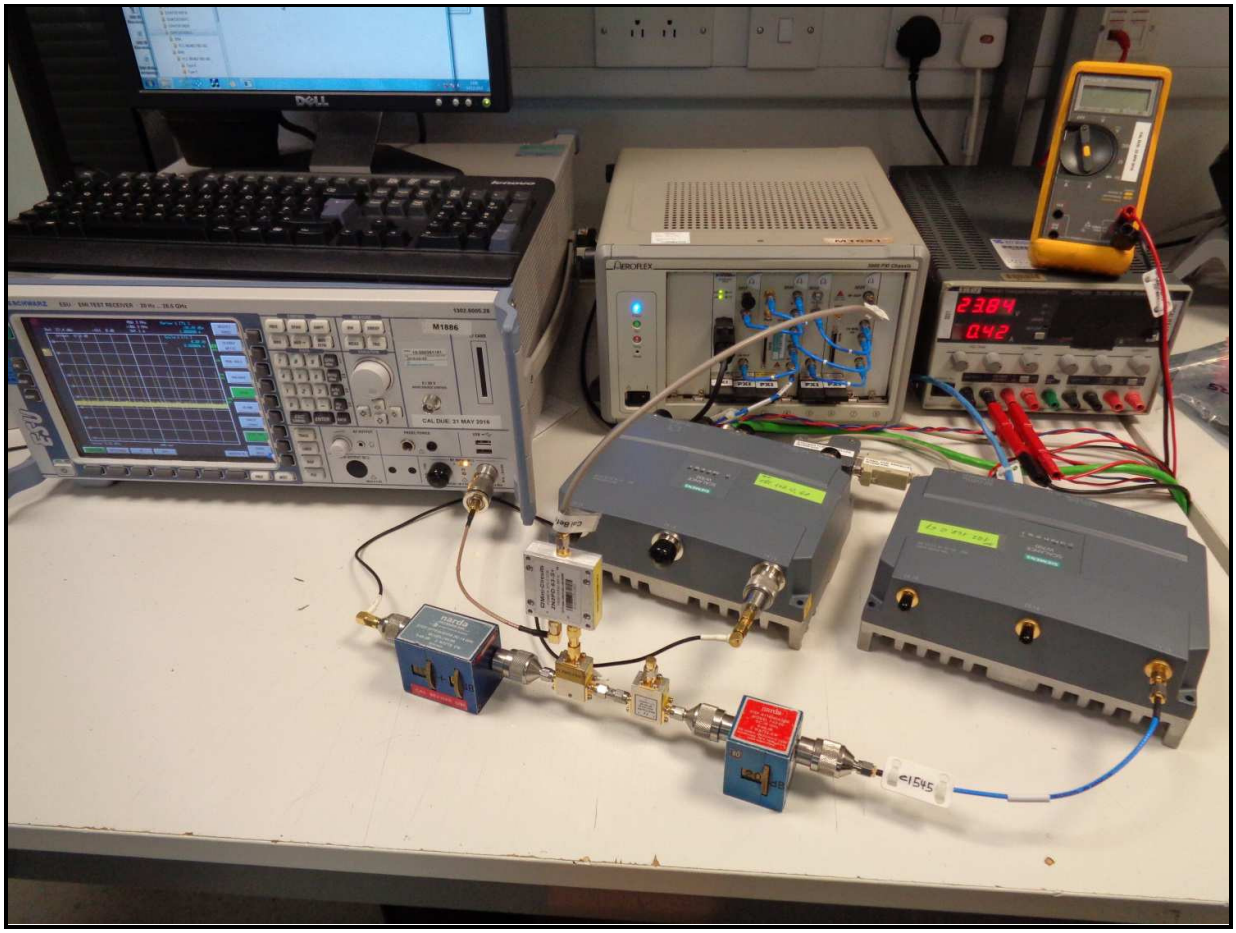


Test set-up photo showing EUT as Master with Radar Injection at Master

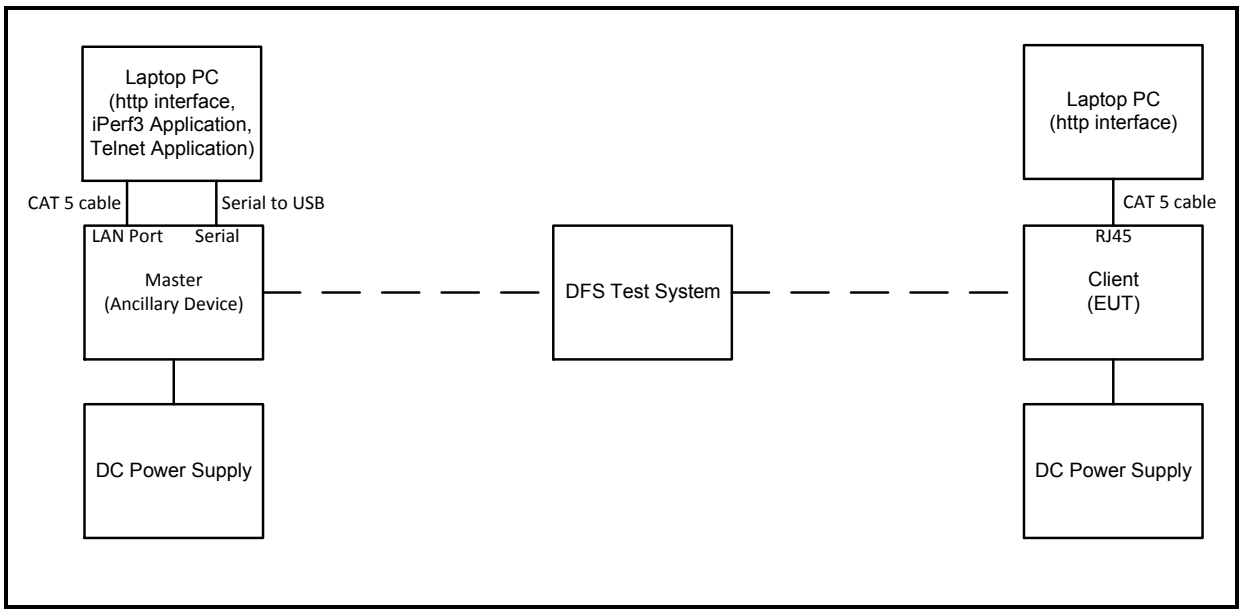


Test set-up block diagram showing EUT as Master with Radar Injection at Master

Equipment Setup Photograph – Conducted Method (continued)



Test set-up photo showing EUT as Client with Radar Injection at Master

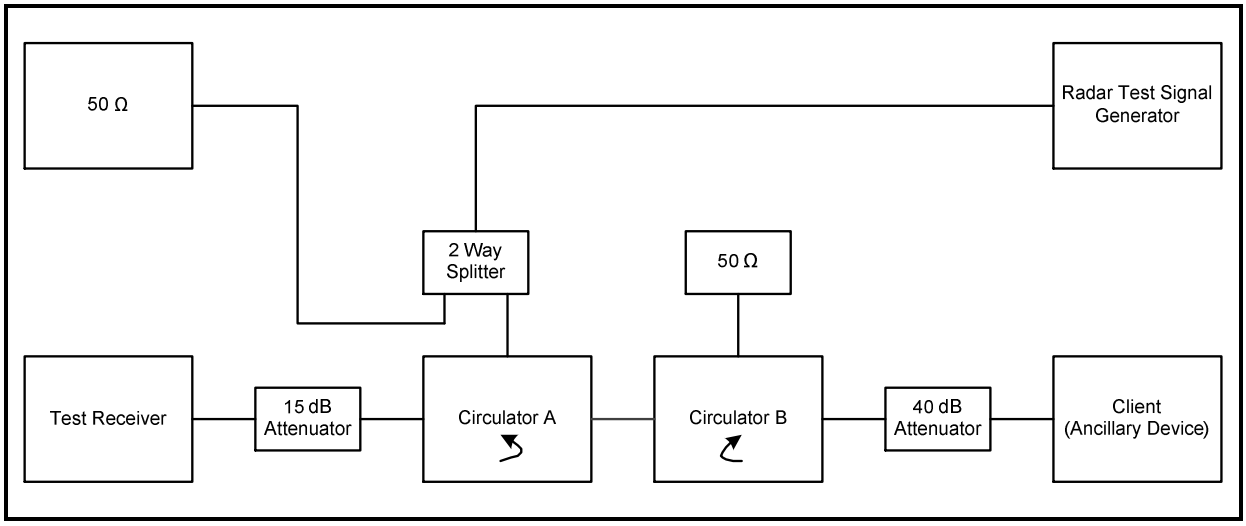


Test set-up block diagram showing EUT as Client with Radar Injection at Master

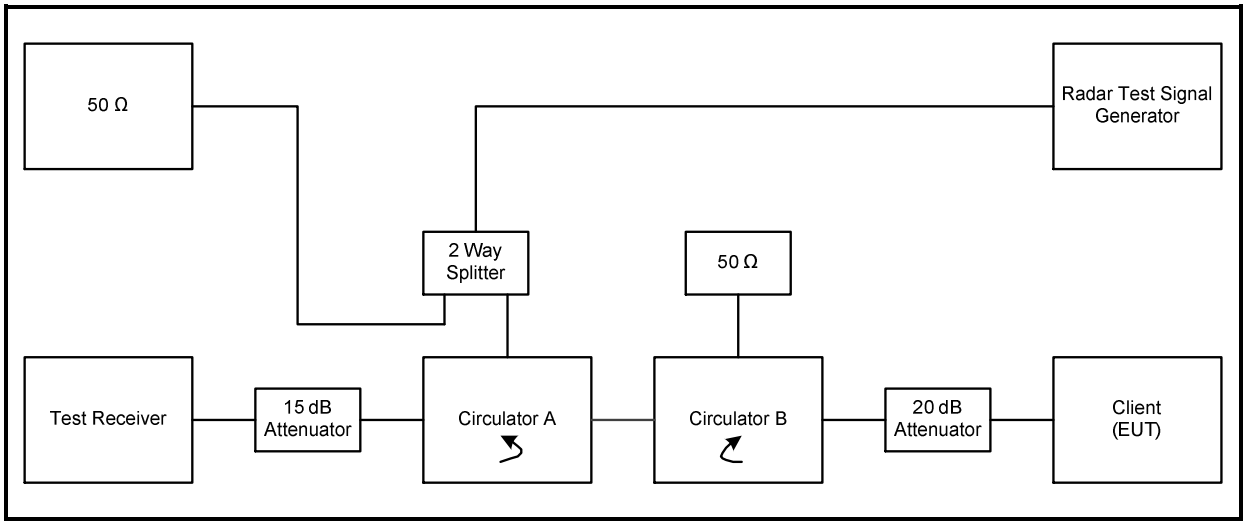
Equipment Setup for Calibration Block Diagram – Conducted Method

Calibration was performed using the setups as shown below.

EUT as Master with Radar Injection at Master



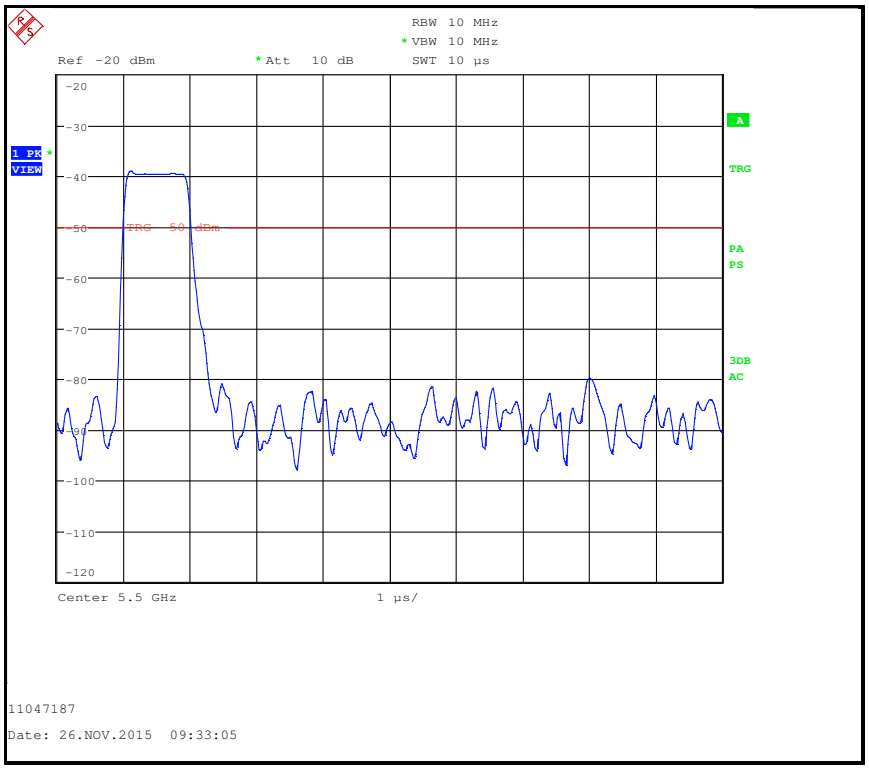
EUT as Client with Radar Injection at Master



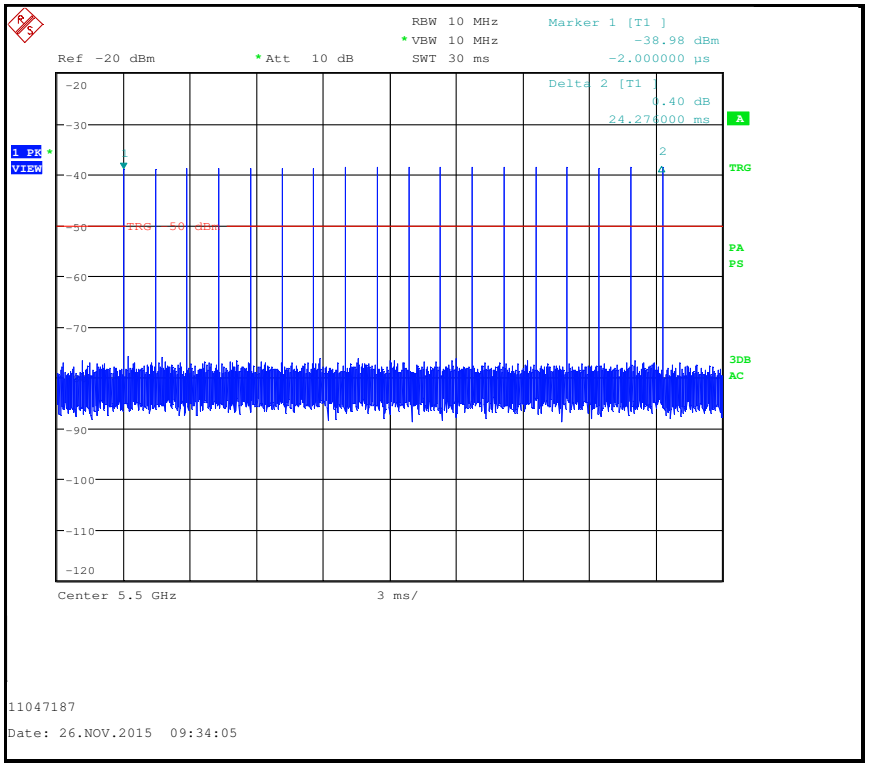
Radar Verification

The test system and its waveform generation has been validated by the FCC as an 'approved' device (see Appendix 4 of this test report), therefore full analysis of each radar is not necessary. However, below are sample plots for each of the radar types. Note the full timing plots of all the pulses in the waveform may give slightly inaccurate amplitudes. They are therefore accurate only as timing plots for an example radar overview.

Radar Type 0

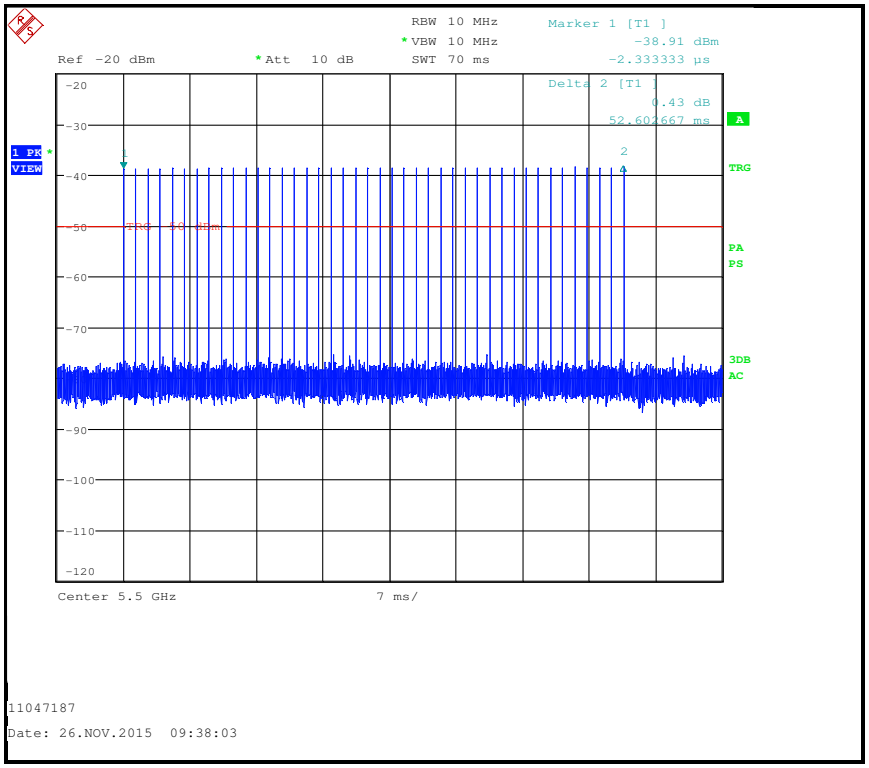


Radar Type 0 – single 1 µsec pulse



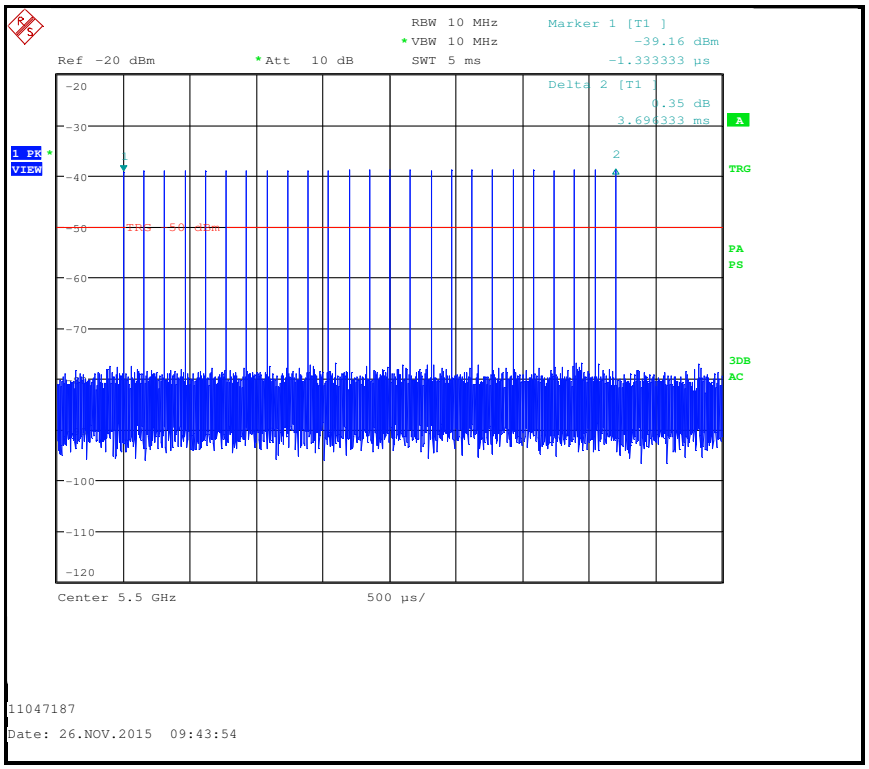
Radar Type 0 – full 18 pulse waveform

Radar Type 1



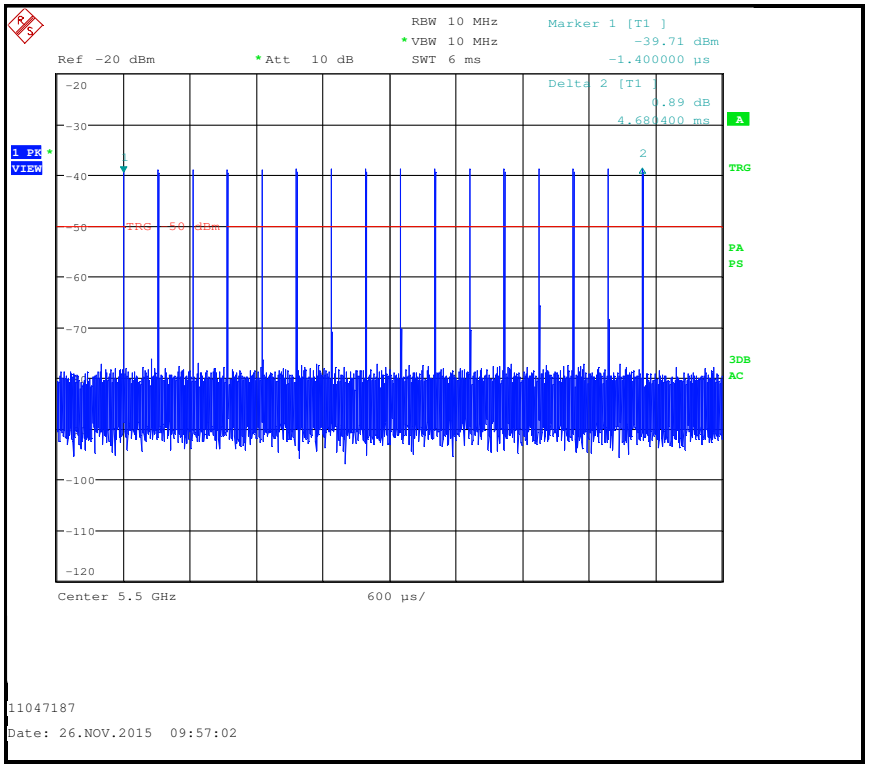
Radar Type 1 – 1 µsec pulse width, 1283 µsec PRI, 42 pulses

Radar Type 2



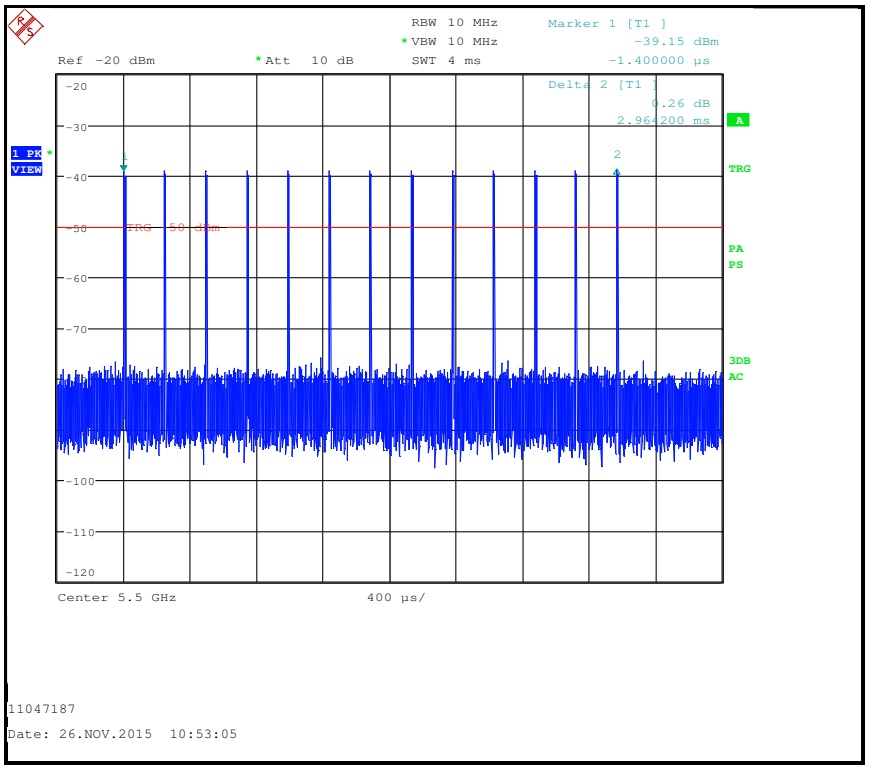
Radar Type 2 – 1 µsec pulse width, 154 µsec PRI, 25 pulses

Radar Type 3



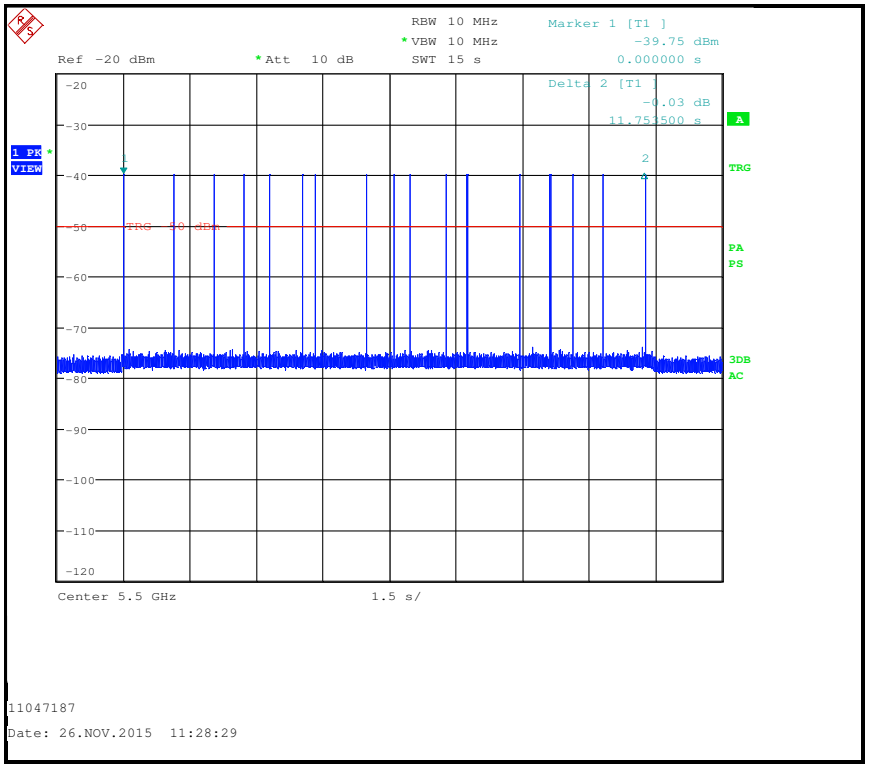
Radar Type 3 – 6 µsec pulse width, 312 µsec PRI, 16 pulses

Radar Type 4



Radar Type 4 – 11.6 µsec pulse width, 247 µsec PRI, 13 pulses

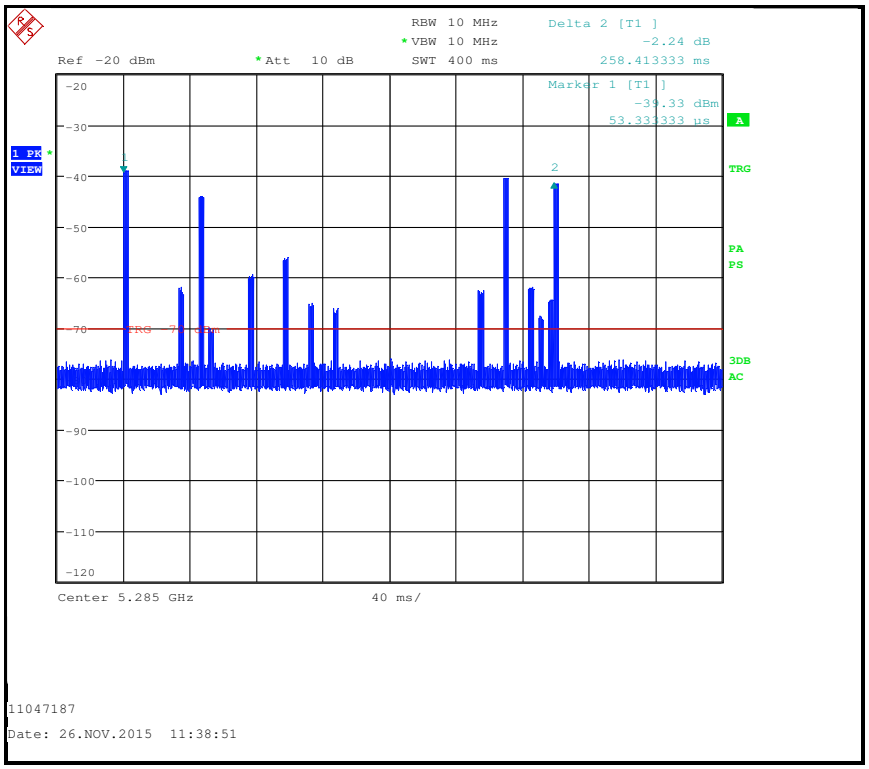
Radar Type 5 (Long)



Long Radar Type 5

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µsec)	Pulse 2-to-3 Spacing (µsec)	Starting Location Within Interval (µsec)
1	3	65	16	1476	1932	50325
2	2	58	11	1400	-	481399
3	3	55	9	1994	1926	682588
4	1	58	7	-	-	655458
5	2	66	20	1027	-	510550
6	2	75	10	1042	-	545434
7	2	73	11	1440	-	125876
8	2	63	15	1479	-	579159
9	3	64	20	1521	1451	498543
10	2	52	20	1845	-	143729
11	1	87	18	-	-	256829
12	3	87	12	1207	1457	23605
13	3	67	15	1091	1413	497642
14	3	91	14	1710	1472	484799
15	2	60	9	1369	-	305488
16	2	50	8	1446	-	253219
17	1	79	10	-	-	508736

Radar Type 6 (Hopping)



Hopping Radar Pulse 6 (Centre Frequency adjusted to first hop frequency)

Hopping sequence (MHz):	5285, 5397, 5400, 5596, 5322, 5659, 5614, 5722, 5644, 5565, 5505, 5305, 5537, 5490, 5613, 5279, 5419, 5316, 5478, 5345, 5405, 5667, 5512, 5383, 5331, 5270, 5464, 5627, 5674, 5389, 5696, 5444, 5295, 5510, 5599, 5520, 5541, 5258, 5670, 5326, 5463, 5521, 5313, 5551, 5481, 5713, 5533, 5511, 5366, 5375, 5626, 5665, 5716, 5647, 5653, 5534, 5526, 5532, 5702, 5430, 5662, 5555, 5640, 5567, 5467, 5399, 5410, 5623, 5499, 5470, 5329, 5264, 5395, 5448, 5557, 5575, 5281, 5656, 5558, 5319, 5504, 5304, 5582, 5314, 5718, 5259, 5280, 5388, 5632, 5606, 5472, 5638, 5496, 5384, 5350, 5600, 5406, 5515, 5636, 5507

Appendix 4. Test platform confirmation email

From: Andrew Leimer [mailto:Andrew.Leimer@fcc.gov]
Sent: Friday, September 23, 2011 4:24 PM
To: Chisham, Steve
Cc: Carey, Tim; Hack, Barry; Rashmi Doshi; Joe Dichoso
Subject: RE: Certification for Aeroflex DFS solution

Hello Steve,
The Aeroflex "DXI based DFS test solution" system used for DFS alternative radar signal generation has been approved by the FCC and NTIA.
This approval permits the system to be used by labs in the testing of DFS devices for equipment authorization Certification. It is recommended that applicants that use your system for testing include a statement in the Test Report or a Letter Exhibit stating that the system has FCC and NTIA approval. This E-mail is your record of this approval.
Note that the appropriate term for your system is Approved as the term Certification is reserved for devices gaining equipment authorization through the FCC or a TCB.

Regards,
Andy Leimer

FCC/OET/EACB

Appendix 5. Statistical Performance Check– Radar Type 1 Trial Records

20 MHz Master

Radar Type 1			
Trial #	**'Test A' Pulse Repetition Frequency Number**	**Pulse Repetition Frequency (Pulses/s)**	**Pulse Repetition Interval (μsec)**
1	N/A - 'Test B' Radar	892.9	1120
2	N/A - 'Test B' Radar	831.3	1203
3	N/A - 'Test B' Radar	766.9	1304
4	N/A - 'Test B' Radar	651.0	1536
5	N/A - 'Test B' Radar	620.3	1612
6	N/A - 'Test B' Radar	478.0	2092
7	N/A - 'Test B' Radar	426.8	2343
8	N/A - 'Test B' Radar	399.7	2502
9	N/A - 'Test B' Radar	376.8	2654
10	N/A - 'Test B' Radar	376.2	2658
11	N/A - 'Test B' Radar	352.6	2836
12	N/A - 'Test B' Radar	345.3	2896
13	N/A - 'Test B' Radar	342.7	2918
14	N/A - 'Test B' Radar	327.5	3053
15	23	326.2	3066
16	2	1858.7	538
17	3	1792.1	558
18	5	1672.2	598
19	7	1567.4	638
20	8	1519.8	658
21	9	1474.9	678
22	N/A - 'Test B' Radar	1468.4	681
23	10	1432.7	698
24	11	1392.8	718
25	14	1285.3	778
26	15	1253.1	798
27	16	1222.5	818
28	17	1193.3	838
29	20	1113.6	898
30	22	1066.1	938

40 MHz Master

Radar Type 1			
Trial #	**'Test A' Pulse Repetition Frequency Number**	**Pulse Repetition Frequency (Pulses/s)**	**Pulse Repetition Interval (µsec)**
1	N/A - 'Test B' Radar	986.2	1014
2	N/A - 'Test B' Radar	731.0	1368
3	N/A - 'Test B' Radar	627.0	1595
4	N/A - 'Test B' Radar	604.6	1654
5	N/A - 'Test B' Radar	578.4	1729
6	N/A - 'Test B' Radar	559.0	1789
7	N/A - 'Test B' Radar	544.4	1837
8	N/A - 'Test B' Radar	510.7	1958
9	N/A - 'Test B' Radar	427.5	2339
10	N/A - 'Test B' Radar	410.3	2437
11	N/A - 'Test B' Radar	352.0	2841
12	N/A - 'Test B' Radar	328.3	3046
13	23	326.2	3066
14	1	1930.5	518
15	N/A - 'Test B' Radar	1912.0	523
16	4	1730.1	578
17	5	1672.2	598
18	6	1618.1	618
19	7	1567.4	638
20	9	1474.9	678
21	N/A - 'Test B' Radar	1457.7	686
22	10	1432.7	698
23	11	1392.8	718
24	12	1355.0	738
25	13	1319.3	758
26	N/A - 'Test B' Radar	1267.4	789
27	15	1253.1	798
28	18	1165.5	858
29	20	1113.6	898
30	21	1089.3	918

Appendix 6. Statistical Performance Check– Radar Type 2 Trial Records

20 MHz Master

Radar Type 2			
Trial #	**Number Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µsec)**
1	26	1.0	200
2	28	1.4	223
3	23	1.6	169
4	23	1.7	154
5	27	1.9	211
6	23	2.1	204
7	29	2.2	191
8	27	2.3	158
9	23	2.4	175
10	28	2.4	185
11	26	2.8	158
12	23	2.9	173
13	26	2.9	174
14	28	3.0	224
15	23	3.1	169
16	28	3.1	181
17	25	3.4	154
18	24	3.5	213
19	26	3.6	191
20	25	3.6	212
21	28	3.8	164
22	23	3.8	218
23	29	3.9	176
24	29	3.9	180
25	25	3.9	198
26	23	4.2	172
27	24	4.4	228
28	25	4.5	158
29	23	4.5	174
30	27	4.6	219

40 MHz Master

Radar Type 2			
Trial #	**Number Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µsec)**
1	23	1.2	202
2	25	1.6	187
3	29	1.6	199
4	29	1.8	156
5	27	2.2	168
6	27	2.2	204
7	25	2.3	202
8	23	2.4	175
9	23	2.5	175
10	24	2.6	223
11	24	2.9	168
12	28	3.1	151
13	26	3.1	154
14	26	3.1	155
15	24	3.1	187
16	26	3.1	210
17	29	3.3	150
18	25	3.6	150
19	25	3.6	168
20	23	3.7	182
21	29	3.8	218
22	26	4.0	227
23	23	4.1	173
24	29	4.3	159
25	24	4.3	189
26	29	4.3	213
27	25	4.7	173
28	26	4.8	190
29	23	4.9	198
30	29	5.0	182

Appendix 7. Statistical Performance Check– Radar Type 3 Trial Records

20 MHz Master

Radar Type 3			
Trial #	**Number Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µsec)**
1	18	10.0	457
2	16	10.0	461
3	16	6.1	213
4	17	6.2	235
5	18	6.2	411
6	16	6.5	341
7	16	6.5	430
8	17	6.8	214
9	18	7.0	486
10	17	7.2	420
11	16	7.3	377
12	16	7.4	409
13	17	7.6	482
14	17	7.7	334
15	16	8.0	437
16	16	8.0	487
17	18	8.1	417
18	16	8.8	258
19	16	8.9	490
20	17	9.0	251
21	17	9.0	430
22	18	9.2	396
23	18	9.4	231
24	17	9.6	374
25	17	9.7	240
26	16	9.7	345
27	17	9.7	395
28	17	9.8	268
29	18	9.9	296
30	16	9.9	410

40 MHz Master

Radar Type 3			
Trial #	**Number Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µsec)**
1	18	10.0	293
2	17	6.0	200
3	18	6.0	354
4	18	6.1	240
5	18	6.2	215
6	17	6.2	245
7	18	6.2	356
8	18	6.3	461
9	18	6.9	345
10	16	7.1	338
11	17	7.2	324
12	16	7.2	434
13	18	7.3	263
14	17	7.8	406
15	18	7.9	319
16	18	7.9	453
17	16	8.1	421
18	17	8.3	208
19	17	8.3	420
20	16	8.3	440
21	16	8.5	252
22	18	8.5	326
23	17	8.7	486
24	17	9.2	309
25	18	9.2	341
26	17	9.3	404
27	17	9.5	300
28	18	9.8	426
29	16	9.8	482
30	18	9.9	210

Appendix 8. Statistical Performance Check– Radar Type 4 Trial Records

20 MHz Master

Radar Type 4			
Trial #	**Number Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µsec)**
1	12	11.1	322
2	13	11.4	437
3	15	11.7	274
4	14	11.7	414
5	15	11.9	428
6	13	12.3	290
7	16	12.7	262
8	14	12.8	307
9	15	13.2	305
10	13	13.2	323
11	16	13.9	394
12	13	14.0	252
13	16	14.0	325
14	16	14.0	389
15	12	14.2	267
16	15	14.5	403
17	15	14.8	382
18	14	15.5	322
19	16	16.1	263
20	14	16.7	206
21	15	16.8	369
22	16	17.1	248
23	15	17.2	330
24	14	17.8	280
25	15	18.1	441
26	12	18.6	260
27	13	18.9	241
28	12	19.2	492
29	14	19.4	210
30	13	19.9	357

40 MHz Master

Radar Type 4			
Trial #	**Number Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µsec)**
1	15	11.1	230
2	13	11.1	429
3	14	11.4	451
4	12	11.7	308
5	16	11.7	453
6	15	11.8	332
7	13	11.9	301
8	14	13.6	306
9	14	13.9	369
10	15	13.9	466
11	15	14.1	459
12	13	14.2	342
13	16	14.2	401
14	15	14.4	448
15	15	14.8	378
16	13	15.0	494
17	15	15.3	207
18	13	15.5	461
19	12	16.8	435
20	16	17.3	467
21	15	17.6	355
22	14	17.6	463
23	14	17.7	377
24	15	17.7	484
25	12	18.0	439
26	15	18.4	238
27	15	18.4	446
28	13	19.3	418
29	13	19.7	397
30	16	20.0	357

Appendix 9. Statistical Performance Check– Radar Type 5 Trial Records

20 MHz Master - Trial 1

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	61	8	-	-	458388
2	2	58	20	1189	-	614350
3	3	58	13	1879	1709	786719
4	3	71	11	1714	1158	423805
5	1	89	6	-	-	303900
6	3	66	20	1586	1829	1118209
7	1	52	8	-	-	643156
8	2	81	17	1830	-	228976
9	3	91	13	1489	1987	205889

20 MHz Master - Trial 2

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	54	15	-	-	284000
2	3	100	10	1795	1849	504245
3	1	55	15	-	-	910866
4	3	80	15	1077	1843	511020
5	3	61	19	1151	1628	593565
6	2	73	13	1761	-	302866
7	1	53	13	-	-	179999
8	3	97	14	1133	1326	797157
9	2	82	8	1485	-	740489
10	1	67	16	-	-	222521
11	3	70	7	1685	1611	1013871

20 MHz Master - Trial 3

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	82	7	1455	-	1022945
2	1	54	7	-	-	30041
3	1	55	15	-	-	185515
4	3	53	20	1517	1738	311647
5	2	87	15	1948	-	412799
6	1	89	9	-	-	1005191
7	3	99	11	1916	1232	808565
8	2	97	20	1871	-	1052946
9	1	77	5	-	-	552465
10	2	55	15	1538	-	634243

20 MHz Master - Trial 4

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	81	20	1350	-	213954
2	2	92	15	1818	-	157828
3	1	99	9	-	-	201428
4	1	83	7	-	-	276120
5	2	62	7	1974	-	407205
6	3	56	5	1711	1205	195521
7	1	77	8	-	-	490983
8	3	70	10	1440	1565	561391
9	1	79	9	-	-	97163
10	2	90	7	1295	-	438848
11	2	100	19	1229	-	37128
12	1	87	12	-	-	618787
13	1	61	9	-	-	462704
14	2	69	14	1713	-	530320
15	1	63	19	-	-	446987
16	1	81	13	-	-	155589
17	2	94	18	1027	-	36787
18	3	88	5	1798	1329	210680
19	1	59	12	-	-	158724

20 MHz Master - Trial 5

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	67	10	1601	-	314895
2	3	94	14	1907	1958	596320
3	1	89	16	-	-	484777
4	1	84	18	-	-	386482
5	3	84	20	1031	1234	340566
6	3	92	5	1236	1405	417647
7	3	50	5	1342	1864	172258
8	3	88	16	1001	1236	75820
9	1	51	16	-	-	149533
10	1	78	5	-	-	393054
11	2	95	11	1231	-	260142
12	1	55	5	-	-	493349
13	1	92	10	-	-	317056
14	1	62	5	-	-	482513
15	2	96	5	1743	-	41595
16	3	93	12	1832	1931	126657
17	3	74	16	1484	1189	491919
18	1	91	14	-	-	493626
19	3	77	7	1884	1966	376771

20 MHz Master - Trial 6

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	81	17	1784	1721	565575
2	3	83	5	1880	1299	1185541
3	2	90	14	1389	-	1092383
4	1	65	11	-	-	418963
5	1	86	20	-	-	522797
6	2	100	11	1360	-	1023653
7	3	55	9	1680	1549	255761
8	1	71	6	-	-	11034
9	3	92	7	1903	2000	984323
10	1	100	10	-	-	186261

20 MHz Master - Trial 7

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	83	8	1820	-	797245
2	3	91	10	1332	1490	341650
3	1	59	5	-	-	216583
4	3	94	8	1367	1264	536578
5	1	64	11	-	-	570372
6	3	91	20	1613	1324	1081423
7	1	60	14	-	-	238529
8	2	53	18	1817	-	343167
9	1	53	17	-	-	565978
10	3	76	20	1881	1801	139772
11	1	87	20	-	-	971375

20 MHz Master - Trial 8

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	69	18	1296	-	516635
2	1	91	16	-	-	5158
3	2	62	6	1572	-	565632
4	3	81	5	1428	1051	669555
5	2	69	17	1702	-	700014
6	1	97	8	-	-	341685
7	1	62	6	-	-	221595
8	3	87	5	1235	1563	58519
9	1	75	10	-	-	533216
10	1	72	11	-	-	288796
11	1	51	13	-	-	124331
12	1	97	20	-	-	235680
13	1	80	7	-	-	213477
14	3	57	14	1251	1873	172720
15	1	89	16	-	-	52473
16	3	69	12	1345	1818	319771
17	1	82	16	-	-	180375

20 MHz Master - Trial 9

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	93	7	1976	-	764724
2	3	58	11	1514	1626	361938
3	1	63	10	-	-	72385
4	3	54	19	1777	1306	523029
5	3	50	10	1123	1726	773541
6	1	74	8	-	-	377011
7	3	94	16	1108	1283	369727
8	1	96	9	-	-	778514
9	2	60	12	1250	-	229873
10	1	99	16	-	-	463418
11	1	88	20	-	-	759081
12	3	97	18	1826	1853	185272
13	3	52	19	1267	1154	477156
14	1	76	9	-	-	645531
15	2	91	20	1466	-	266159

20 MHz Master - Trial 10

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	78	6	1836	-	583922
2	3	69	19	1245	1723	961666
3	3	92	7	1426	1638	459616
4	3	67	19	1512	1943	319341
5	2	53	15	1719	-	1002200
6	1	59	17	-	-	551838
7	2	83	12	1303	-	810186
8	1	85	20	-	-	728478
9	3	51	11	1715	1282	734935
10	1	69	17	-	-	422129
11	1	56	11	-	-	808208

20 MHz Master - Trial 11

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	71	17	-	-	740373
2	1	73	16	-	-	44595
3	3	69	10	1192	1737	105283
4	3	70	20	1374	1252	447531
5	3	93	20	1791	1997	550282
6	2	70	17	1494	-	330081
7	1	96	19	-	-	36096
8	1	62	18	-	-	598510
9	1	62	20	-	-	420207
10	2	99	12	1337	-	220410
11	3	100	9	1746	1161	185458
12	2	70	12	1973	-	741420
13	2	97	10	1246	-	383393
14	3	55	9	1821	1081	495784

20 MHz Master - Trial 12

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	84	5	-	-	363572
2	3	68	14	1827	1513	409487
3	1	76	18	-	-	256740
4	2	52	16	1304	-	856204
5	3	64	20	1069	1276	1207900
6	3	52	10	1849	1200	686413
7	1	65	18	-	-	198388
8	1	55	20	-	-	882719
9	1	95	7	-	-	471906

20 MHz Master - Trial 13

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	92	11	1255	-	352192
2	1	80	13	-	-	438304
3	3	94	7	1606	1773	363864
4	1	66	9	-	-	977238
5	1	90	6	-	-	215570
6	3	52	14	1930	1747	639538
7	2	97	7	1612	-	747253
8	2	53	9	1787	-	989395
9	3	81	20	1738	1541	959249
10	3	73	10	1579	1436	697054
11	2	58	5	1529	-	538029
12	2	71	8	1784	-	145043

20 MHz Master - Trial 14

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	92	18	1732	1575	568826
2	1	64	19	-	-	361334
3	1	60	16	-	-	528545
4	2	84	5	1082	-	69686
5	2	58	8	1916	-	200791
6	3	79	8	1093	1465	579714
7	2	60	15	1765	-	82392
8	3	86	8	1386	1607	131262
9	1	76	7	-	-	243147
10	3	67	16	1171	1940	264222
11	1	84	13	-	-	450875
12	3	96	13	1764	1005	423590
13	1	91	5	-	-	644484
14	1	79	20	-	-	445922
15	2	98	17	1696	-	331059
16	2	94	16	1759	-	623143
17	1	61	12	-	-	614459
18	2	74	12	1529	-	49505

20 MHz Master - Trial 15

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	50	8	1467	-	507860
2	3	57	12	1462	1190	406754
3	2	70	6	1719	-	1308246
4	2	72	7	1162	-	1067010
5	3	57	14	1762	1773	205844
6	1	65	14	-	-	695120
7	2	75	18	1214	-	594810
8	3	66	10	1529	1242	538865
9	1	78	15	-	-	813865

20 MHz Master - Trial 16

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	60	13	1877	-	7511
2	2	96	9	1478	-	569586
3	2	85	14	1814	-	16502
4	1	95	15	-	-	516874
5	3	77	18	1272	1221	176055
6	1	83	19	-	-	263960
7	3	79	20	1151	1940	490104
8	3	88	16	1510	1182	389529
9	2	87	14	1149	-	417501
10	3	86	8	1231	1345	596992
11	3	86	9	1564	1931	213154
12	2	95	16	1993	-	592385
13	3	64	15	1555	1669	49879
14	1	71	7	-	-	105902
15	2	65	20	1115	-	453971
16	1	82	11	-	-	624079
17	3	58	11	1683	1096	287542
18	2	58	20	1432	-	58381

20 MHz Master - Trial 17

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	80	15	1004	-	236345
2	2	53	5	1640	-	86348
3	3	58	16	1263	1412	223211
4	2	62	8	1974	-	356711
5	3	64	16	1331	1592	419769
6	1	50	19	-	-	82580
7	3	55	13	1107	1712	234644
8	1	68	14	-	-	423765
9	2	65	14	1353	-	181934
10	3	92	5	1356	1728	555317
11	1	55	7	-	-	544553
12	1	98	15	-	-	542778
13	3	98	5	1740	1005	616012
14	1	60	7	-	-	524605
15	3	67	19	1670	1409	74117
16	2	85	10	1088	-	486158

20 MHz Master - Trial 18

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	83	7	-	-	258705
2	3	100	11	1381	1409	259525
3	2	82	15	1614	-	249790
4	2	79	13	1184	-	523137
5	3	66	10	1391	1862	360369
6	3	52	9	1599	1571	411584
7	1	60	18	-	-	258096
8	2	82	5	1073	-	565125
9	3	64	14	1900	1239	13190
10	3	87	19	1123	1846	635235
11	3	52	17	1285	1782	354795
12	1	64	10	-	-	83759
13	3	90	18	1568	1450	536450
14	3	100	20	1509	1110	661349
15	3	51	17	1492	1623	347258
16	3	65	10	1475	1726	479130
17	1	57	6	-	-	56622

20 MHz Master - Trial 19

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	87	17	-	-	297512
2	2	74	18	1047	-	446508
3	2	51	17	1921	-	119901
4	2	90	20	1149	-	496790
5	2	64	19	1798	-	245562
6	1	89	10	-	-	48388
7	1	70	9	-	-	460550
8	3	60	17	1781	1316	327912
9	1	78	20	-	-	295959
10	3	97	19	1543	1434	195830
11	2	95	8	2000	-	216559
12	2	75	9	1931	-	282118
13	2	95	7	1745	-	583751
14	1	63	10	-	-	564367
15	3	68	13	1477	1472	600428
16	1	80	18	-	-	620312
17	3	74	13	1331	1040	454245
18	1	60	9	-	-	243335

20 MHz Master - Trial 20

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	78	18	1893	1105	351793
2	2	59	14	1681	-	655984
3	2	85	16	1924	-	830683
4	2	87	6	1131	-	959944
5	2	66	5	1935	-	872302
6	2	55	5	1597	-	71460
7	3	99	12	1012	1815	704366
8	2	68	13	1786	-	394961
9	1	62	8	-	-	951295
10	3	81	6	1852	1870	467613
11	1	61	11	-	-	55034
12	1	90	20	-	-	231275

20 MHz Master - Trial 21

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	56	20	-	-	406399
2	3	78	8	1703	1109	83584
3	3	68	13	1346	1565	245942
4	1	93	20	-	-	36836
5	3	100	8	1728	1602	505479
6	3	54	20	1579	1915	415676
7	1	88	12	-	-	174782
8	1	82	13	-	-	258600
9	2	96	5	1726	-	28211
10	1	83	19	-	-	554038
11	3	58	20	1975	1176	561464
12	1	97	8	-	-	4979
13	3	91	6	1745	1531	139961
14	1	61	17	-	-	577456
15	1	53	11	-	-	211884
16	2	72	5	1979	-	321492
17	3	75	6	1856	1261	181292
18	2	99	15	1960	-	607292

20 MHz Master - Trial 22

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	53	15	1598	-	679111
2	2	58	12	1515	-	1009403
3	3	94	5	1528	1625	876566
4	2	69	16	1814	-	407145
5	2	78	13	1828	-	1157199
6	3	74	6	1244	1548	320855
7	3	85	20	1991	1800	860798
8	1	98	18	-	-	601450
9	3	92	14	1221	1835	877592
10	2	84	10	1272	-	271963

20 MHz Master - Trial 23

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	95	13	1120	1771	799324
2	2	85	10	1270	-	391710
3	2	50	10	1563	-	844921
4	3	96	10	1786	1949	1114884
5	2	86	19	1607	-	174462
6	1	91	11	-	-	1210197
7	1	52	17	-	-	1176999
8	1	74	15	-	-	1265132
9	2	65	7	1140	-	930839

20 MHz Master - Trial 24

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	60	13	-	-	136365
2	1	88	11	-	-	736324
3	2	57	20	1426	-	638092
4	1	58	12	-	-	418504
5	3	97	10	1017	1570	191638
6	2	75	7	1253	-	768099
7	3	74	17	1699	1773	131455
8	3	70	14	1950	1810	546229
9	2	68	14	1617	-	718106
10	2	84	12	1785	-	764317
11	3	65	8	1336	1531	346799
12	3	54	15	1857	1496	369753
13	3	98	10	1285	1654	505312
14	2	89	18	1573	-	50501
15	1	94	15	-	-	775858

20 MHz Master - Trial 25

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	93	12	1799	-	132441
2	3	85	12	1484	1436	473848
3	2	71	13	1274	-	712944
4	1	50	10	-	-	481397
5	1	81	20	-	-	33264
6	1	50	6	-	-	154948
7	1	99	12	-	-	651165
8	2	67	13	1822	-	283147
9	3	64	5	1255	1891	598035
10	1	100	19	-	-	258655
11	1	65	6	-	-	37087
12	3	65	10	1379	1919	646966
13	2	84	7	1867	-	371174
14	1	76	20	-	-	574446
15	3	53	20	1453	1574	368822
16	3	66	11	1354	1814	575123

20 MHz Master - Trial 26

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	84	17	-	-	1361665
2	1	97	14	-	-	847704
3	1	99	15	-	-	1432035
4	3	50	7	1163	1759	959400
5	1	62	8	-	-	1333502
6	1	68	18	-	-	805676
7	2	56	20	1942	-	36487
8	1	54	11	-	-	656409

20 MHz Master - Trial 27

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	80	7	-	-	501599
2	2	60	18	1107	-	291748
3	2	82	12	1605	-	142050
4	2	86	13	1534	-	693781
5	2	70	11	1062	-	500956
6	2	73	14	1195	-	808694
7	2	93	13	1581	-	543256
8	1	58	13	-	-	604746
9	3	51	5	1161	1016	296581
10	3	54	13	1808	1314	265514
11	2	78	14	1085	-	75888
12	3	76	13	1216	1930	520460
13	2	58	18	1640	-	63989
14	3	99	6	1456	1199	698338

20 MHz Master - Trial 28

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	66	8	1394	1716	506058
2	1	97	17	-	-	660855
3	2	98	9	1977	-	370123
4	2	69	15	1973	-	366039
5	3	71	11	2000	1203	527750
6	3	59	13	1707	1858	83166
7	3	94	17	1770	1849	218722
8	3	94	19	1999	1826	579090
9	2	94	10	1098	-	299686
10	2	86	17	1227	-	245548
11	3	68	19	1241	1190	6498
12	3	55	10	1076	1023	390772
13	1	71	7	-	-	543770
14	3	54	18	1108	1562	686823
15	2	80	12	1336	-	271474
16	3	90	7	1984	1046	660375

20 MHz Master - Trial 29

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	72	18	-	-	560683
2	1	90	5	-	-	759735
3	2	88	17	1005	-	632954
4	3	97	15	1725	1639	898626
5	1	89	18	-	-	698938
6	2	89	18	1646	-	101970
7	1	62	6	-	-	901619
8	2	87	10	1730	-	822332
9	1	100	5	-	-	82028
10	3	65	18	1850	1466	597822
11	2	91	6	1409	-	317662
12	1	89	15	-	-	235398
13	3	75	18	1248	1155	836462

20 MHz Master - Trial 30

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	83	17	1367	-	806732
2	2	59	17	1635	-	561769
3	3	51	5	1556	1909	414266
4	1	60	8	-	-	256808
5	1	92	16	-	-	777793
6	3	53	5	1041	1395	215945
7	3	94	7	1235	1909	164395
8	1	55	16	-	-	712206
9	2	66	17	1688	-	106548
10	3	82	16	1780	1012	456347
11	1	98	14	-	-	252058
12	2	96	18	1494	-	744548
13	2	57	11	1382	-	790032
14	1	93	17	-	-	555492

40 MHz Master - Trial 1

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	95	9	1591	1831	998647
2	2	54	15	1097	-	1206496
3	2	61	5	1724	-	546116
4	2	55	10	1571	-	204010
5	1	54	16	-	-	955387
6	3	96	12	1231	1529	801856
7	2	96	17	1992	-	1352042
8	1	95	12	-	-	527642

40 MHz Master - Trial 2

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	67	15	1474	-	302673
2	3	84	14	1199	1075	791310
3	3	82	19	1758	1805	460675
4	3	98	17	1109	1858	112558
5	2	68	12	1437	-	20001
6	3	65	13	1622	1990	17891
7	2	86	11	1241	-	205959
8	1	62	18	-	-	25486
9	2	77	12	1270	-	720139
10	1	54	12	-	-	742782
11	2	80	12	1763	-	164229
12	1	55	19	-	-	224284
13	2	89	19	1556	-	295203
14	1	81	10	-	-	27133
15	2	67	16	1792	-	406616

40 MHz Master - Trial 3

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	85	5	1904	1171	582206
2	3	86	17	1591	1084	425594
3	2	88	13	1315	-	135220
4	1	94	14	-	-	57819
5	1	95	7	-	-	490232
6	2	76	8	1710	-	165769
7	1	88	6	-	-	183013
8	3	76	6	1212	1766	810600
9	3	53	6	1965	1285	666638
10	1	81	13	-	-	79115
11	1	69	19	-	-	994525

40 MHz Master - Trial 4

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	90	18	1455	1525	9107
2	2	50	15	1358	-	404914
3	1	71	18	-	-	1198639
4	1	96	13	-	-	162648
5	3	100	5	1935	1889	1000491
6	2	96	15	1638	-	1124826
7	3	92	7	1949	1240	873891
8	1	88	8	-	-	884968
9	1	52	12	-	-	726843
10	3	65	15	1806	1517	1006702

40 MHz Master - Trial 5

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	89	7	1226	1666	929233
2	3	81	19	1101	1906	408737
3	3	75	13	1124	1466	626449
4	1	100	7	-	-	344490
5	2	74	20	1589	-	357896
6	3	76	20	1100	1167	866937
7	2	51	5	1008	-	787464
8	2	94	9	1140	-	347682
9	2	68	15	1728	-	113878
10	2	59	7	1230	-	271006
11	3	57	13	1377	1693	304831

40 MHz Master - Trial 6

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	50	6	1944	-	1416
2	3	79	6	1463	1442	154038
3	3	50	11	1709	1013	1326227
4	3	55	9	1862	1224	658725
5	2	91	18	1919	-	1260557
6	2	77	15	1316	-	589133
7	2	67	9	1047	-	500870
8	2	81	6	1649	-	854273
9	1	53	11	-	-	304739

40 MHz Master - Trial 7

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	56	13	-	-	388735
2	2	50	8	1301	-	328001
3	3	56	7	1820	1633	371332
4	3	88	17	1301	1505	26422
5	2	99	14	1126	-	311673
6	1	60	14	-	-	310970
7	1	70	15	-	-	39235
8	3	67	5	1067	1740	274760
9	1	52	16	-	-	184794
10	1	75	17	-	-	290000
11	1	86	8	-	-	171284
12	1	86	18	-	-	442330
13	1	95	12	-	-	51604
14	3	50	16	1028	1488	456653
15	2	88	18	1239	-	567545
16	3	53	18	1224	1994	435715
17	3	68	14	1693	1724	97901
18	3	62	20	1284	1918	155834
19	1	59	7	-	-	365145

40 MHz Master - Trial 8

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	64	10	1719	-	602323
2	2	50	5	1633	-	612060
3	3	78	8	1251	1499	613494
4	1	75	13	-	-	649468
5	2	55	18	1850	-	582336
6	2	72	14	1510	-	540041
7	1	88	6	-	-	301889
8	1	98	15	-	-	730607
9	3	93	14	1649	1091	252509
10	1	85	17	-	-	24556
11	2	71	6	1686	-	468944
12	3	63	13	1431	1480	702788
13	1	54	12	-	-	400485
14	3	88	5	1435	1809	1664
15	2	58	5	1628	-	500104
16	1	87	5	-	-	381726

40 MHz Master - Trial 9

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	86	11	-	-	102114
2	1	81	10	-	-	87916
3	2	56	16	1515	-	121650
4	1	78	17	-	-	110121
5	1	59	14	-	-	1758
6	1	99	5	-	-	576600
7	1	53	5	-	-	638896
8	2	76	13	1922	-	456696
9	3	80	15	1290	1451	190866
10	2	97	5	1675	-	179438
11	1	99	20	-	-	48400
12	3	54	15	1826	1933	523948
13	3	87	11	1288	1814	370071
14	1	58	20	-	-	403797
15	1	80	12	-	-	114194
16	3	54	19	1664	1894	123793
17	1	61	9	-	-	507049
18	3	64	6	1986	1054	239928

40 MHz Master - Trial 10

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	100	19	1048	1876	185296
2	1	82	16	-	-	49027
3	3	54	6	1048	1445	301489
4	3	56	17	1217	1963	585889
5	3	86	14	1428	1618	290009
6	2	75	10	1118	-	369928
7	3	77	14	1599	1122	45913
8	3	94	5	1163	1109	208784
9	1	61	16	-	-	240862
10	3	62	18	1242	1144	591173
11	3	62	7	1467	1448	425548
12	2	55	8	1751	-	396716
13	2	68	13	1842	-	554202
14	3	52	5	1343	1936	483078
15	2	69	11	1194	-	570551
16	1	85	9	-	-	293618
17	3	72	17	1785	1358	259156
18	2	81	6	1334	-	573388
19	3	68	16	1652	1869	126663

40 MHz Master - Trial 11

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	77	17	1226	1801	3060
2	3	81	17	1034	1254	615606
3	2	70	20	1285	-	601848
4	1	80	16	-	-	386780
5	2	52	11	1897	-	7747
6	1	93	9	-	-	540938
7	3	66	16	1541	1772	573278
8	2	83	15	1760	-	639527
9	3	80	14	1371	1348	696472
10	2	97	6	1949	-	476434
11	1	74	5	-	-	373310
12	2	69	10	1791	-	780513
13	1	66	7	-	-	203120
14	3	53	19	1640	1265	503892
15	1	71	18	-	-	739930

40 MHz Master - Trial 12

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	71	5	1548	1136	370584
2	3	60	16	1183	1057	160447
3	2	65	8	1267	-	224983
4	3	89	15	1420	1471	257898
5	2	64	20	1859	-	474686
6	2	93	7	1427	-	387718
7	1	80	5	-	-	233574
8	3	83	12	1236	1125	284451
9	1	94	18	-	-	306414
10	2	51	10	1785	-	396067
11	1	63	10	-	-	276922
12	1	81	9	-	-	128212
13	3	61	17	1884	2000	442775
14	3	58	16	1180	1937	377586
15	1	66	11	-	-	208333
16	1	65	14	-	-	310013
17	2	76	15	1076	-	42235

40 MHz Master - Trial 13

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	64	5	1210	-	743974
2	3	76	12	1783	1006	269236
3	2	53	8	1162	-	203453
4	2	93	11	1247	-	274984
5	3	92	5	1325	1765	30913
6	3	83	7	1585	1689	614917
7	2	63	11	1152	-	367891
8	1	61	5	-	-	541285
9	2	71	19	1546	-	169381
10	1	64	8	-	-	667923
11	3	83	18	1254	1641	335495
12	3	95	8	1677	1684	606265
13	2	71	15	1697	-	518019
14	3	89	6	1142	1663	156309
15	1	82	7	-	-	314048
16	1	89	13	-	-	532711

40 MHz Master - Trial 14

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	62	17	1040	-	8657
2	1	81	20	-	-	128390
3	2	98	13	1341	-	726432
4	3	100	9	1849	1534	281510
5	2	56	16	1131	-	350778
6	2	81	12	1030	-	726382
7	1	85	20	-	-	104167
8	2	69	15	1632	-	547997
9	2	68	18	1959	-	427716
10	3	84	19	1736	1269	335528
11	3	97	5	1357	1048	225989
12	2	83	14	1421	-	411340
13	1	96	9	-	-	399669
14	1	79	8	-	-	408296
15	2	68	15	1162	-	771253

40 MHz Master - Trial 15

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	58	8	1427	1772	422355
2	3	59	14	1089	1176	409731
3	2	54	6	1881	-	581517
4	1	63	5	-	-	117667
5	3	86	5	1437	1092	401070
6	1	88	5	-	-	112828
7	3	51	10	1375	1112	174509
8	1	92	16	-	-	385304
9	3	65	7	1323	1582	576365
10	1	70	15	-	-	236638
11	2	95	19	1802	-	451267
12	2	58	20	1679	-	21772
13	2	72	13	1902	-	244662
14	2	62	16	1003	-	352745
15	3	60	13	1411	1229	368867
16	2	86	18	1127	-	324704
17	3	55	15	1587	1871	75637
18	2	81	15	1115	-	145128
19	1	84	20	-	-	312332
20	3	63	19	1936	1715	251806

40 MHz Master - Trial 16

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	83	11	-	-	318382
2	2	79	7	1918	-	426508
3	1	78	12	-	-	753666
4	2	95	10	1539	-	478870
5	3	54	10	1473	1498	45591
6	3	71	16	1871	1285	735092
7	3	71	6	1440	1049	5351
8	1	76	15	-	-	909544
9	2	87	15	1107	-	552583
10	1	59	7	-	-	786051
11	3	69	11	1022	1336	33757
12	2	57	10	1470	-	78323
13	3	63	15	1664	1215	128279

40 MHz Master - Trial 17

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	64	19	1129	-	13536
2	3	86	14	1624	1821	388932
3	2	85	8	1531	-	19093
4	2	71	13	1389	-	783109
5	2	73	18	1834	-	55556
6	2	56	8	1098	-	987734
7	3	73	17	1802	1884	958593
8	3	68	13	1316	1733	411776
9	3	89	19	1777	1847	332011
10	1	64	8	-	-	712317
11	3	80	20	1825	1039	294289
12	3	68	14	1386	1526	828979

40 MHz Master - Trial 18

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	95	11	1648	1056	446949
2	1	100	6	-	-	44380
3	3	86	6	1933	1278	592175
4	3	99	17	1749	1180	606223
5	1	92	5	-	-	790786
6	2	70	7	1731	-	296224
7	3	97	9	1912	1894	350400
8	3	59	17	1177	1731	578397
9	2	100	6	1956	-	309865
10	3	83	17	1416	1721	70479
11	1	64	15	-	-	521603
12	2	56	5	1659	-	695111
13	2	85	6	1780	-	698426
14	1	69	9	-	-	87860

40 MHz Master - Trial 19

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	79	12	-	-	21749
2	3	93	20	1968	1158	480614
3	2	97	19	1166	-	563101
4	3	82	8	1802	1095	37126
5	3	76	19	1334	1833	584481
6	2	57	10	1294	-	250871
7	3	82	15	1511	1870	164314
8	3	88	15	1166	1843	619876
9	1	70	17	-	-	624257
10	3	94	11	1157	1481	4644
11	3	63	5	1530	1698	562516
12	3	80	18	1818	1430	87227
13	1	64	12	-	-	223315
14	1	69	8	-	-	25111
15	2	95	19	1585	-	408739
16	3	52	20	1403	1271	630701
17	1	95	16	-	-	608152
18	2	73	10	1550	-	90888

40 MHz Master - Trial 20

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	67	5	-	-	335735
2	1	58	12	-	-	304883
3	2	90	5	1915	-	294519
4	2	92	10	1467	-	608809
5	3	90	5	1202	1557	576267
6	1	61	13	-	-	254353
7	1	94	16	-	-	555566
8	1	62	11	-	-	367305
9	3	54	12	1751	1576	323126
10	3	74	20	1222	1453	85479
11	1	54	20	-	-	282633
12	3	67	17	1841	1781	104079
13	1	97	14	-	-	66510
14	2	86	5	1174	-	537352
15	1	57	9	-	-	293652
16	2	74	5	1214	-	353631
17	2	53	19	1071	-	520472
18	2	65	20	1885	-	210670

40 MHz Master - Trial 21

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	73	14	1770	1743	1304387
2	2	56	12	1087	-	122439
3	2	89	11	1246	-	1458899
4	3	82	14	1951	1753	196823
5	1	72	16	-	-	346495
6	1	57	8	-	-	1193610
7	2	92	16	1116	-	70452
8	3	80	13	1698	1514	1449419

40 MHz Master - Trial 22

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	72	10	1633	1158	413158
2	2	72	13	1337	-	175571
3	2	65	15	1202	-	75979
4	1	76	16	-	-	220727
5	3	84	15	1243	1710	409396
6	2	75	11	1280	-	594110
7	1	100	18	-	-	248340
8	3	56	6	1072	1481	389800
9	3	64	6	1560	1363	509967
10	2	78	12	1453	-	116741
11	3	81	20	1057	1779	45807
12	3	75	9	1042	1064	144966
13	2	59	11	1448	-	148530
14	2	100	20	1439	-	159604
15	3	58	11	1581	1684	218273
16	3	98	20	1911	1827	475458
17	1	68	19	-	-	211859
18	1	52	7	-	-	357429
19	1	79	16	-	-	34855

40 MHz Master - Trial 23

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	99	10	1182	-	116077
2	2	73	16	1527	-	665401
3	3	83	8	1389	1576	498058
4	2	55	7	1403	-	476882
5	3	51	14	1901	1366	701758
6	3	94	5	1152	1472	253912
7	3	65	10	1477	1768	588565
8	2	68	5	1784	-	354909
9	1	84	18	-	-	498405
10	2	95	18	1479	-	403053
11	2	52	12	1959	-	596453
12	1	90	13	-	-	476310
13	3	73	16	1337	1323	230037
14	1	60	8	-	-	429253
15	1	86	5	-	-	469199
16	1	77	12	-	-	170678

40 MHz Master - Trial 24

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	63	20	-	-	180706
2	3	97	16	1837	1816	349811
3	3	74	20	1896	1725	118397
4	1	87	16	-	-	299649
5	2	79	10	1710	-	238614
6	1	91	14	-	-	366617
7	2	71	9	1054	-	217363
8	1	69	19	-	-	217789
9	1	70	15	-	-	403940
10	1	90	13	-	-	74555
11	1	92	10	-	-	417335
12	3	91	17	1878	1011	588335
13	3	63	19	1504	1116	67667
14	2	71	20	1373	-	368783

40 MHz Master - Trial 25

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	67	8	1064	-	474460
2	1	86	5	-	-	228310
3	2	60	8	1858	-	697649
4	1	97	15	-	-	426301
5	2	58	8	1574	-	349130
6	2	66	13	1288	-	391790
7	1	93	17	-	-	96032
8	2	78	8	1975	-	173686
9	3	56	11	1163	1960	256704
10	1	53	16	-	-	456675
11	1	90	12	-	-	552775
12	2	91	9	1503	-	41744
13	3	80	16	1113	1045	111338
14	3	74	17	1063	1536	205196
15	3	66	16	1920	1469	92302
16	1	64	8	-	-	130312
17	2	79	19	1162	-	540096

40 MHz Master - Trial 26

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	70	10	-	-	321171
2	1	56	7	-	-	512522
3	3	51	11	1005	1970	711403
4	2	50	8	1355	-	261332
5	2	89	18	1925	-	550611
6	1	61	18	-	-	531088
7	1	58	8	-	-	706207
8	2	70	11	1367	-	598340
9	1	61	15	-	-	150962
10	1	98	12	-	-	604800
11	1	65	10	-	-	517596
12	2	69	13	1836	-	232838
13	3	60	12	1625	1159	671706
14	1	73	14	-	-	645563
15	3	75	14	1575	1488	135946

40 MHz Master - Trial 27

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	56	15	-	-	312012
2	3	96	12	1934	1234	986169
3	2	50	12	1782	-	700860
4	1	55	14	-	-	219472
5	3	56	20	1386	1381	790457
6	2	57	15	1263	-	429035
7	3	92	12	1318	1309	469461
8	1	50	6	-	-	319154
9	1	85	19	-	-	1020931
10	3	72	7	1025	1177	484544
11	2	50	9	1285	-	138004

40 MHz Master - Trial 28

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	3	64	13	1271	1766	1133247
2	3	92	7	1707	1540	198910
3	2	60	19	1094	-	631712
4	3	94	11	1049	1451	842699
5	1	65	6	-	-	598138
6	3	94	16	1542	1191	254332
7	1	85	19	-	-	594838
8	3	76	7	1020	1085	1021980
9	1	96	20	-	-	736796

40 MHz Master - Trial 29

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	2	71	13	1378	-	242146
2	3	52	9	1649	1278	572666
3	2	70	18	1961	-	257189
4	1	67	20	-	-	155158
5	2	100	15	1646	-	228529
6	3	71	20	1683	1593	224405
7	1	78	12	-	-	149191
8	2	60	7	1787	-	298094
9	1	70	8	-	-	100593
10	3	94	16	1168	1124	201777
11	3	78	5	1294	1445	348981
12	3	94	20	1676	1279	48659
13	2	52	19	1634	-	47012
14	3	80	12	1218	1001	336606
15	2	54	6	1745	-	287412
16	3	75	20	1245	1840	206066
17	3	91	9	1273	1038	396987
18	3	66	7	1110	1219	51949
19	3	59	9	1235	1802	494831
20	2	81	6	1874	-	593433

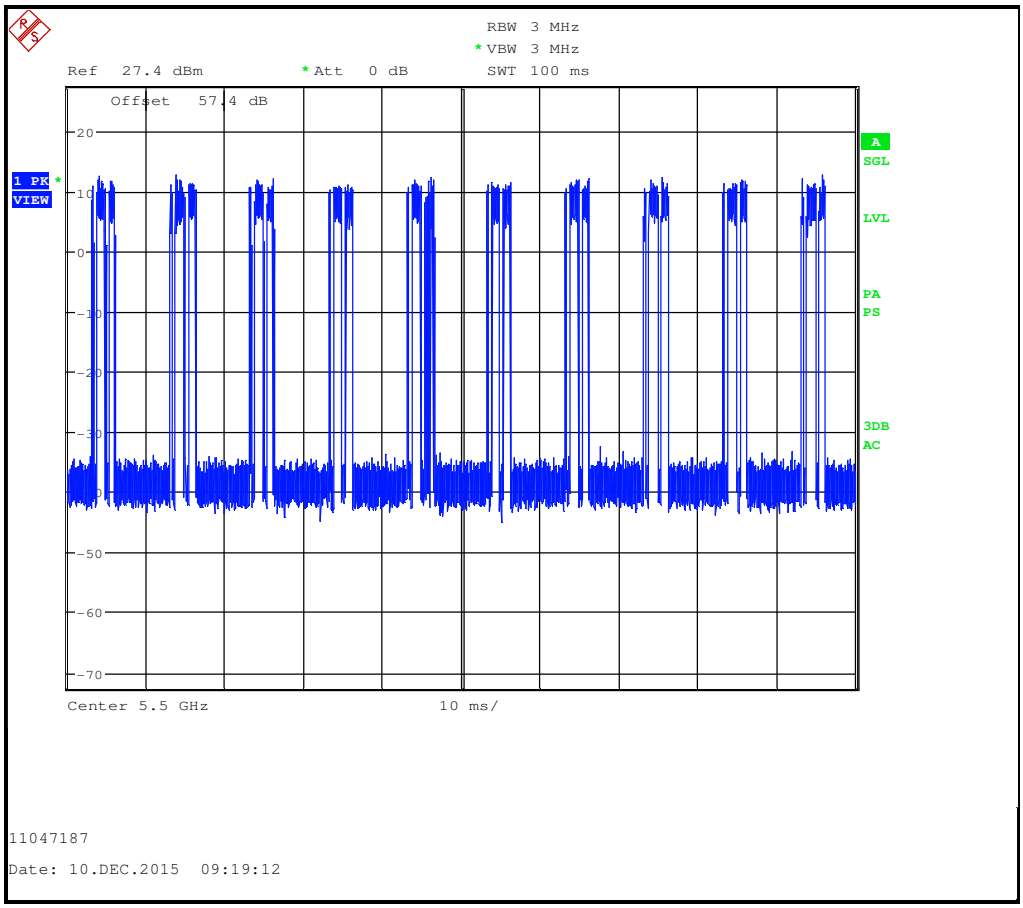
40 MHz Master - Trial 30

Burst Segment	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Starting Location Within Interval (µsec)
1	1	66	18	-	-	232597
2	1	75	16	-	-	27695
3	1	63	10	-	-	65377
4	2	91	19	1939	-	646485
5	3	92	12	1241	1003	255058
6	2	60	13	1699	-	120531
7	3	60	8	1844	1829	578990
8	1	86	18	-	-	318962
9	1	84	11	-	-	147465
10	3	77	18	1183	1897	794370
11	3	81	18	1232	1041	430539
12	1	60	5	-	-	223439
13	1	78	17	-	-	435736
14	2	51	5	1496	-	202299
15	2	87	7	1114	-	328640

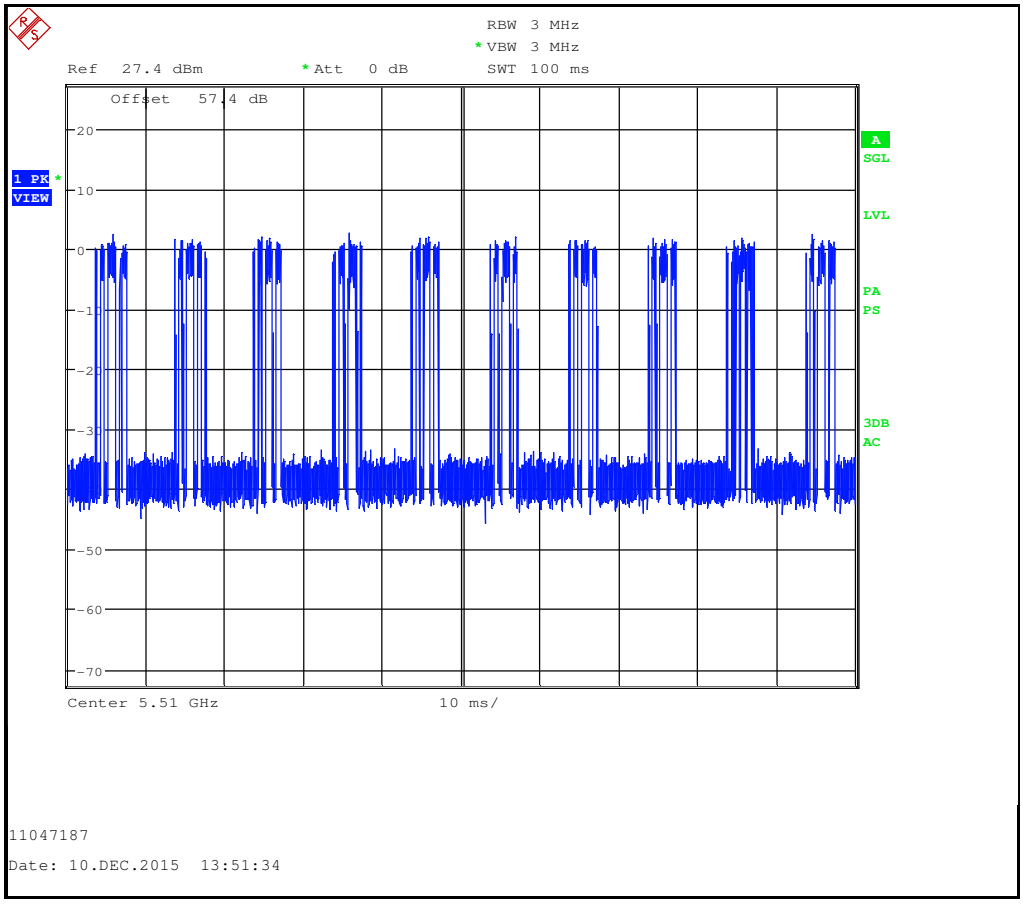
Appendix 10. Channel Loading

UDP data was transmitted from the EUT to the companion device. 100 ms of transmissions showing both the EUT and companion device were then captured on a spectrum analyser in the time domain. The spectrum analyser was set to 30,001 sweep points giving a sample size accuracy of 3.333 µsec. The data points were then exported as an ASCII file and each sample determined to be either transmissions from the EUT or companion device (channel loading) or idle. The duty cycle was then calculated from this ratio.

Included below are spectrum analyser plots from which the raw data was extracted to calculate the channel loading.



21.1% Channel Loading at 20 MHz Bandwidth



22.0% Channel Loading at 40 MHz Bandwidth

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